Naval Weapons Systems Training Facility Boardman

Final Environmental Impact Statement

December 2015

Volume Two - Appendices A - H

Military Readiness Activities at Naval Weapons Systems Training Facility Boardman

Final Environmental Impact Statement

Commander, U.S. Pacific Fleet
c/o Pacific Fleet Environmental Office
258 Makalapa Drive, Suite 100
Pearl Harbor, HI 96869-3134

Volume Two
Appendices A–H

December 2015

Appendix A

Federal Register Notices

RECORD SOURCE CATEGORIES:

Individual or DoD military component.

EXEMPTIONS CLAIMED FOR THE SYSTEM:

None.

[FR Doc. 2010–24844 Filed 10–4–10; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Prepare an Environmental Impact Statement for Military Training Activities at the Naval Weapons Systems Training Facility Boardman, OR, and To Announce Public Scoping Meetings

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: Pursuant to section 102(2)(c) of the National Environmental Policy Act of 1969, as implemented by the Council on Environmental Quality regulations (40 CFR Parts 1500–1508), the Department of the Navy (DoN) announces its intent to prepare an Environmental Impact Statement (EIS) to evaluate the potential environmental effects of continuing training activities on and increasing usage of the Naval Weapons Systems Training Facility (NWSTF) Boardman, Oregon.

DATES AND ADDRESSES: Two public scoping meetings will be held to receive oral and/or written comments on environmental concerns that should be addressed in the EIS. The public scoping meetings will be held on the following dates and times, and at the following locations:

1. Wednesday, October 27, 2010, 5 p.m.–8 p.m., at Port of Morrow Conference Center, Riverfront Room, 2 Marine Drive, Boardman, OR 97818;

2. Thursday, October 28, 2010, 5 p.m.–8 p.m., at Hermiston Conference Center, Rotary Room, 415 S. Highway 395, Hermiston, OR 97838.

Each scoping meeting will consist of an informal, open house session with information stations staffed by DoN and National Guard representatives. Details of the meeting locations and times will be announced in local newspapers. Additional information concerning meeting times will be available on the EIS Web page located at: *http://www.NWSTFBoardmanEIS.com*.

FOR FURTHER INFORMATION CONTACT: Mrs. Amy Burt, Naval Facilities Engineering Command, Northwest, 1101 Tautog Circle, Suite 203, Silverdale, Washington 98315–1101, Attn: NWSTF Boardman Project Manager, Code EV1.AB.

SUPPLEMENTARY INFORMATION: The DoN's proposed action includes range enhancements and changes to training activities, capacities, and facilities as they currently exist on NWSTF Boardman. The Proposed Action would result in selectively focused but critical range enhancements and increases in DoN and Oregon National Guard training that are necessary to ensure NWSTF Boardman supports military training and readiness objectives.

The overall strategic mission of NWSTF Boardman is to support naval and joint services operational readiness by providing a suitable range within the geographical vicinity for Commander, U.S. Pacific Fleet and Oregon National Guard forces in the northwest.

The EIS study area consists of NWSTF Boardman airspace, Military Operating Area and Restricted Airspace totaling approximately 500 square miles, and 47,432 acres of land within the boundaries of NWSTF Boardman. NWSTF Boardman is rectangular shaped oriented from north to south, approximately 6 miles by 12 miles in size, and is situated 2.5 miles south of the town of Boardman and the Columbia River, and southwest of Umatilla, Oregon.

The purpose of the Proposed Action is to: (1) Ensure that NWSTF Boardman continues to support critical military training activities in a realistic and cost-effective manner; (2) Achieve and maintain military readiness using NWSTF Boardman to support and conduct current, emerging, and future training and research, development, test and evaluation (RDT&E) activities; and (3) Upgrade and modernize NWSTF Boardman's existing capabilities to address shortfalls in available training range capabilities in the Pacific Northwest.

The Proposed Action is needed to provide a training environment consisting of range areas, facilities and instrumentation with the capacity and capabilities to fully support required training tasks for military units. In this regard, NWSTF Boardman furthers the military's execution of its roles and responsibilities under United States Code (U.S.C.) Title 10 (federal military) and U.S.C. Title 32 (State National Guard). To comply with its Title 10 and 32 mandates, the military needs to maintain current levels of military readiness by improving training at NWSTF Boardman, accommodate possible future increases in operational training and force structure changes, and maintain the long-term viability of NWSTF Boardman as a military training and testing area.

Under the No Action Alternative, training activities and major range events would continue at current levels. The DoN and National Guard training activities currently conducted on NWSTF Boardman, presented as the No Action Alternative, have been ongoing at present levels and frequencies for approximately 10 years.

Under Alternative 1, NWSTF Boardman would support an increase in training activities to include force structure changes associated with the introduction of new weapon systems, vehicles, and aircraft, in addition to accommodating training activities currently conducted on the range. Alternative 1 would also include the implementation of range enhancements to allow NWSTF Boardman to comply with DoN and National Guard requirements to enable military personnel to qualify on weapon systems. These required range enhancements could include the construction of a Multi-Purpose Machine Gun Range, a Digital Multi-Purpose Training Range, a Convoy Live Fire training range, a Demolition Training Range, construction of a joint range administration/Unmanned Aerial System (UAS) maintenance building, UAS landing strip, and the opening of a second target area for air to ground bombing exercises.

Alternative 2 consists of all elements of Alternative 1 plus the addition of a third target area, a helicopter landing zone, a second Convoy Live Fire range, four mortar pads, and a separate joint-use administrative facility. Alternative 2 also includes an increase in training activities associated with these additional range enhancements.

Environmental issues that will be addressed in the EIS, as applicable, include but are not limited to the following: Air quality, airspace, biological resources, including threatened and endangered species, cultural resources, water resources, geology and soils, hazardous materials and waste, health and safety, noise, socioeconomics, and transportation.

The DoN is initiating the scoping process to identify community concerns and local issues that will be addressed in the EIS. Federal, state and local agencies, Federally Recognized Native American Tribes, the public, and all interested persons are encouraged to provide oral, written, or electronic comments to the DoN to identify specific environmental issues or topics of environmental concern that the commenter believes the DoN should consider. All comments, electronic,

written or provided orally at the scoping meetings, will receive the same consideration during EIS preparation.

Written comments on the scope of the EIS should be postmarked no later than November 15, 2010. Comments may be mailed to Mrs. Amy Burt, Naval Facilities Engineering Command, Northwest, 1101 Tautog Circle Suite, 203, Silverdale, Washington 98315–1101, *Attn:* NWSTF Boardman EIS Project Manager, Code EV1.AB. Comments may also be submitted on the project Web site, *http://www.NWSTFBoardmanEIS.com*.

Dated: September 29, 2010.

D.J. Werner,

Lieutenant Commander, Office of the Judge Advocate General, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2010–24910 Filed 10–4–10; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Army

[Docket ID USA–2010–0021]

Privacy Act of 1974; System of Records

AGENCY: Department of the Army; DoD.

ACTION: Notice to add a system of records.

SUMMARY: The Department of the Army proposes to add a system of records to its inventory of record systems subject to the Privacy Act of 1974 (5 U.S.C. 552a), as amended.

DATES: This proposed action will become effective without further notice on November 4, 2010, unless comments are received which result in a contrary determination.

ADDRESSES: You may submit comments, identified by docket number and title, by any of the following methods:

* *Federal Rulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments.

* *Mail:* Federal Docket Management System Office, Room 3C843 Pentagon, 1160 Defense Pentagon, Washington, DC 20301–1160.

Instructions: All submissions received must include the agency name and docket number for this **Federal Register** document. The general policy for comments and other submissions from members of the public is to make these submissions available for public viewing on the Internet at *http://www.regulations.gov* as they are received without change, including any personal identifiers or contact information.

FOR FURTHER INFORMATION CONTACT: Mr. Leroy Jones at (703) 428–6185.

SUPPLEMENTARY INFORMATION: The Department of the Army notices for systems of records subject to the Privacy Act of 1974 (5 U.S.C. 552a), as amended, have been published in the **Federal Register** and are available from the Department of the Army, Privacy Office, U.S. Army Records Management and Declassification Agency, 7701 Telegraph Road, Casey Building, Suite 144, Alexandria, VA 22325–3905.

The proposed system report, as required by 5 U.S.C. 552a(r) of the Privacy Act of 1974, as amended, was submitted on September 22, 2010, to the House Committee on Oversight and Government Reform, the Senate Committee on Governmental Affairs, and the Office of Management and Budget (OMB) pursuant to paragraph 4c of Appendix I to OMB Circular No. A–130, "Federal Agency Responsibilities for Maintaining Records About Individuals," dated February 8, 1996 (February 20, 1996; 61 FR 6427).

Dated: September 29, 2010.

Mitchell S. Bryman,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

A0036–2 USAAA

SYSTEM NAME:

Army Audit Agency System for Information Storage

SYSTEM LOCATION:

U.S. Army Audit Agency, 3101 Park Center Drive, Alexandria, VA 22302–1596.

CATEGORIES OF INDIVIDUALS COVERED BY THE SYSTEM:

Current, former military, and civilian employees of the U.S. Army Audit Agency.

CATEGORIES OF RECORDS IN THE SYSTEM:

Employee information; name, Social Security Number (SSN), date of birth, place of birth, military status, security clearance, leave, overtime/comp time, work schedules, positions and locations; rating chain; training history, educational degree level to include Continuing Professional Education (CPE), home and work phone numbers, and home and work addresses.

AUTHORITY FOR MAINTENANCE OF THE SYSTEM:

10 U.S.C. 3013, Secretary of the Army; DoD 7600.07–M, DoD Audit Manual; DoD Financial Management Regulation Volume 8: Civilian Pay Policy and Procedures; Army Regulation 36–2, Audit Services in the Department of the Army; Army Regulation 380–67, The Department of the Army Personnel Security Program; E.O. 9397 (SSN), as amended.

PURPOSE(S):

The Army Audit Agency System for Information Storage (AAAsist) streamlines the audit process, reduces the amount of paperwork and/or e-mail required to manage the audit process. This system will provide project management, track staffing information, provide Activity Based Costing (ABC) Reporting, and agency business process management.

ROUTINE USES OF RECORDS MAINTAINED IN THE SYSTEM, INCLUDING CATEGORIES OF USERS AND THE PURPOSES OF SUCH USES:

In addition to those disclosures generally permitted under 5 U.S.C. 552a(b) of the Privacy Act of 1974, these records contained therein may specifically be disclosed outside the DoD as a routine use pursuant to 5 U.S.C. 552a(b)(3) as follows:

The DoD 'Blanket Routine Uses' set forth at the beginning of the Army's compilation of systems of records notices also apply to this system.

POLICIES AND PRACTICES FOR STORING, RETRIEVING, ACCESSING, RETAINING, AND DISPOSING OF RECORDS IN THE SYSTEM:

STORAGE:

Electronic storage media.

RETRIEVABILITY:

Retrieved by a name or educational degree level.

SAFEGUARDS:

Physical access is restricted to authorized personnel with a serialized key-card. Physical access to the database servers are maintained and restricted to authorized personnel only and protected by a cipher lock. User accounts to access the database servers are limited to personnel on a "need-to-know" basis. Access to through the user web interface is restricted to authorized personnel with a valid and active user account, password and Common Access Card (CAC). Passwords are changed periodically.

RETENTION AND DISPOSAL:

Project Management records are disposed of by shredding, burning, or erasing from system three years after the last recommendation is implemented.

SYSTEM MANAGER(S) AND ADDRESS:

The Auditor General, U.S. Army Audit Agency, 3101 Park Center Dr., Alexandria, VA 22302–1596.

NOTIFICATION PROCEDURE:

Individuals seeking to determine whether information about themselves

DEPARTMENT OF DEFENSE

Department of the Navy

Revised Notice of Intent To Prepare an Environmental Impact Statement for Military Training Activities at the Naval Weapons Systems Training Facility Boardman, OR, and Notice of Request for Public Scoping Comments

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: This notice is to advise the public that the Department of the Navy (DoN) is revising the scope for the Environmental Impact Statement (EIS) for continued and increased training activities on Naval Weapons Systems Training Facility (NWSTF) Boardman, Oregon, and to invite the public to provide comments for consideration during preparation of the revised EIS.

This revised Notice of Intent has been published because since the October 5, 2010 publication of the original Notice of Intent in the **Federal Register** (75 FR 61452), the DoN is modifying its proposed action to include the addition of new Special Use Airspace in the form of a Military Operations Area (MOA). This new MOA would preserve required training capabilities at NWSTF Boardman that are necessary to maintain military readiness. Additional information concerning the proposed new MOA, including a map, is available on the NWSTF Boardman EIS Web page located at: *http://www.NWSTFBoardmanEIS.com.*

FOR FURTHER INFORMATION CONTACT: Mrs. Amy Burt, Naval Facilities Engineering Command Northwest, 1101 Tautog Circle, Suite 203, Silverdale, Washington, 98315–1101, Attn: NWSTF Boardman Project Manager.

SUPPLEMENTARY INFORMATION: The overall strategic mission of NWSTF Boardman is to support naval and joint services operational readiness by providing a suitable range within the geographical vicinity for Commander, U.S. Pacific Fleet and Oregon National Guard forces in the northwest. The development of structures of significant height on lands beneath the existing Special Use Airspace associated with NWSTF Boardman has resulted, and may continue to result, in the potential loss of ability to train at the range. To alleviate this situation, the DoN is proposing to add a new MOA to the northeast of the existing Special Use Airspace at NWSTF Boardman for the purpose of preserving training capabilities at the range that are necessary to maintain military readiness, including the capability to continue low altitude training. Adding the MOA would be consistent with the DoN's proposed action at NWSTF Boardman announced on October 5, 2010, which included range enhancements and changes to training activities, capacities, and facilities as they currently exist.

The new Boardman Northeast MOA would have two parts, A and B, with the current Boardman Air Traffic Control Assigned Airspace (ATCAA) being extended to include the area above the new MOA and to facilitate scheduling use of the airspace. The floor of MOA A would begin at 500 feet Above Ground Level (AGL) and extend upwards to, but not including, 4,000 feet above Mean Sea Level (MSL). MOA A would overlap a portion of existing Restricted Airspace R–5706 that starts at 3,500 feet MSL and underlie the existing MOA (Boardman MOA) that starts at 4,000 feet MSL to the northeast of the NWSTF Boardman property. The floor of MOA B airspace would begin at 4,000 feet MSL and extend upwards to, but not including, 18,000 feet MSL, and would abut the existing Boardman MOA. The dimensions of the Boardman Northeast MOA would be approximately 11 nautical miles west to east and approximately five nautical miles north to south. The extension of the ATCAA would be approximately six nautical miles west to east and approximately five nautical miles north to south.

Hours of operations for the new MOA would be the same as the existing Boardman MOA, 7:30 a.m. to 11:59 p.m. Monday through Friday and at other times by notice to Airman six hours in advance. Civilian or other nonparticipating air traffic flying with an air traffic control clearance and under instrument flight rules (IFR) will be restricted from entering the Northeast MOA when it is in use by the military. Civilian or other nonparticipating air traffic flying under visual flight rules (VFR) would be informed of Northeast MOA activation and advised to avoid the area; however, it is not compulsory that civilian or other nonparticipating air traffic flying under VFR, or under IFR without air traffic control clearance, remain clear of the area.

The Boardman ATCAA would permit the continuation of flight activities above the new MOA and 18,000 feet MSL. Aircraft flying under VFR will not be permitted to enter the Boardman ATCAA when active. The ATCAA is not depicted on aeronautical charts.

The proposed Northeast MOA would be established by the Federal Aviation Administration (FAA) according to authority given to the FAA under 49 U.S. Code (U.S.C.) Section 40103. In regulations found at 14 CFR 73.1 *et seq.* and FAA Joint Order 7400.2H, Procedures for Handling of Airspace, FAA sets forth the procedures for establishing various types of Special Use Airspace, including MOAs. According to FAA Order 1050.1E, Change 1, Environmental Impacts: Policies and Procedures, and a Memorandum of Understanding (MOU) between the Department of Defense and FAA signed October 4, 2005, since the DoN proposes the designation of the MOA, DoN will serve as lead agency under the National Environmental Policy Act and invite FAA as a cooperating agency. That MOU indicates that ''the resultant environmental documents of the lead agency are accepted and used in decisions and planning by all agencies involved with the proposed action.'' Therefore, once the EIS is complete and DoN has made its decision on whether to proceed with a designation request, the FAA will then proceed with their airspace designation process, described in the above-mentioned authorities.

The new MOA would be analyzed in Alternatives 1 and 2, both of which would support an increase in training activities. In addition to the new MOA, Alternative 1 would include force structure changes associated with the introduction of new weapon systems, vehicles and aircraft, in addition to accommodating training activities currently conducted on the range. Alternative 1 would also include the implementation of range enhancements to allow NWSTF Boardman to comply with DoN and National Guard requirements to enable military personnel to qualify on weapon systems. These required range enhancements could include the construction of a Multi-Purpose Machine Gun Range, a Digital Multi-Purpose Training Range, a Convoy Live Fire Training Range, a Demolition Training Range and construction of a joint range operations center/Unmanned Aerial System (UAS) maintenance building and UAS landing strip.

Alternative 2 would consist of all elements of Alternative 1 plus the addition of a second Convoy Live Fire Training Range and construction of a separate range operations center building, independent of the UAS maintenance building and UAS landing strip. The No Action Alternative remains unchanged.

The DoN is reopening the scoping period to identify new community concerns and local issues to be addressed in the EIS as a result of the proposal to request establishment of a

new MOA at NWSTF Boardman. Scoping comments previously submitted following publication of the original October 5, 2010 Notice of Intent are still valid and need not be resubmitted. The DoN encourages Federal, state, and local agencies, Federally Recognized Native American Tribes, the public and all interested persons to provide written or electronic comments to the DoN to identify any new specific environmental issues or topics of environmental concern related to the DoN's proposal to include designation of a new MOA as part of the proposed action.

Written comments must be postmarked no later than January 26, 2012. Comments should be mailed to Mrs. Amy Burt, Naval Facilities Engineering Command, Northwest, 1101 Tautog Circle, Suite 203, Silverdale, Washington 98315–1101, Attn: NWSTF Boardman EIS Project Manager. Comments may also be submitted on the project Web site, *www.NWSTFBoardmanEIS.com.*

Dated: December 16, 2011.

L.M. Senay,

Lieutenant, Office of the Judge Advocate General, U.S. Navy, Alternate Federal Register Liaison Officer.

[FR Doc. 2011–33086 Filed 12–23–11; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF EDUCATION

Notice of Proposed Information Collection Requests

AGENCY: Department of Education.

ACTION: Comment request.

SUMMARY: The Department of Education (the Department), in accordance with the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3506(c)(2)(A)), provides the general public and Federal agencies with an opportunity to comment on proposed and continuing collections of information. This helps the Department assess the impact of its information collection requirements and minimize the reporting burden on the public and helps the public understand the Department's information collection requirements and provide the requested data in the desired format. The Director, Information Collection Clearance Division, Privacy, Information and Records Management Services, Office of Management, Office of Management, invites comments on the proposed information collection requests as required by the Paperwork Reduction Act of 1995.

DATES: Interested persons are invited to submit comments on or before February 27, 2012.

ADDRESSES: Comments regarding burden and/or the collection activity requirements should be electronically mailed to *ICDocketMgr@ed.gov* or mailed to U.S. Department of Education, 400 Maryland Avenue SW., LBJ, Washington, DC 20202–4537. Please note that written comments received in response to this notice will be considered public records.

SUPPLEMENTARY INFORMATION: Section 3506 of the Paperwork Reduction Act of 1995 (44 U.S.C. chapter 35) requires that Federal agencies provide interested parties an early opportunity to comment on information collection requests. The Director, Information Collection Clearance Division, Privacy, Information and Records Management Services, Office of Management, publishes this notice containing proposed information collection requests at the beginning of the Departmental review of the information collection. The Department of Education is especially interested in public comment addressing the following issues: (1) Is this collection necessary to the proper functions of the Department; (2) will this information be processed and used in a timely manner; (3) is the estimate of burden accurate; (4) how might the Department enhance the quality, utility, and clarity of the information to be collected; and (5) how might the Department minimize the burden of this collection on the respondents, including through the use of information technology.

Dated: December 19, 2011.

Darrin King,

Director, Information Collection Clearance Division, Privacy, Information and Records Management Services, Office of Management.

Federal Student Aid

Type of Review: Extension.

Title of Collection: Student Assistance General Provisions—Subpart I—Immigration—Status Confirmation.

OMB Control Number: 1845–0052.

Agency Form Number(s): N/A.

Total Estimated Number of Annual Responses: 143,332.

Total Estimated Annual Burden Hours: 17,917.

Abstract: Collection of this information is used for status confirmation which reduces the potential of fraud and abuse caused by ineligible aliens receiving federally subsidized student financial assistance under Title IV of the Higher Education Act of 1965, as amended. The respondent population is institutions of higher education who must submit a United States Citizenship and Immigration Services Form G0845 when automated secondary confirmation of the applicant's immigration match status fails, and individuals who must submit evidence of eligibility to receive Title IV financial assistance.

Copies of the proposed information collection request may be accessed from *http://edicsweb.ed.gov,* by selecting the ''Browse Pending Collections'' link and by clicking on link number 4766. When you access the information collection, click on ''Download Attachments'' to view. Written requests for information should be addressed to U.S. Department of Education, 400 Maryland Avenue SW., LBJ, Washington, DC 20202–4537. Requests may also be electronically mailed to *ICDocketMgr@ed.gov* or faxed to (202) 401–0920. Please specify the complete title of the information collection and OMB Control Number when making your request.

Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–(800) 877–8339.

[FR Doc. 2011–33050 Filed 12–23–11; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF EDUCATION

Notice of Submission for OMB Review

AGENCY: Department of Education.

ACTION: Comment request.

SUMMARY: The Director, Information Collection Clearance Division, Privacy, Information and Records Management Services, Office of Management, invites comments on the submission for OMB review as required by the Paperwork Reduction Act of 1995 (Pub. L. 104–13).

DATES: Interested persons are invited to submit comments on or before January 26, 2012.

ADDRESSES: Written comments should be addressed to the Office of Information and Regulatory Affairs, Attention: Education Desk Officer, Office of Management and Budget, 725 17th Street NW., Room 10222, New Executive Office Building, Washington, DC 20503, be faxed to (202) 395–5806 or emailed to *oira_submission@omb.eop.gov* with a cc: to *ICDocketMgr@ed.gov.* Please note that written comments received in response to this notice will be considered public records.

SUPPLEMENTARY INFORMATION: Section 3506 of the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35) requires that the Office of Management and Budget (OMB) provide interested

site at *http://www.dol.gov,* and the MSPB Web site at *http://www.mspb.gov.*

Existing Rights Unchanged

Pursuant to section 205 of the No FEAR Act, neither the Act nor this notice creates, expands or reduces any rights otherwise available to any employee, former employee or applicant under the laws of the United States, including the provisions of law specified in 5 U.S.C. 2302(d).

Dated: January 27, 2012.

Meredith Fuchs,

Chief of Staff.

[FR Doc. 2012–2280 Filed 2–1–12; 8:45 am]

BILLING CODE 4810–AM–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Extension of Public Scoping Period for the Revised Notice of Intent To Prepare an Environmental Impact Statement for Military Training Activities at the Naval Weapons Systems Training Facility, Boardman, OR

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: Pursuant to section 102(2)(C) of the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality Regulations (40 CFR parts 1500–1508), the Department of the Navy (DoN) published a revised notice of intent to prepare an Environmental Impact Statement (EIS) for the Naval Weapons Systems Training Facility (NWSTF), Oregon in the **Federal Register** on December 27, 2011 (76 FR 80910). This notice announces a 32-day extension of the public scoping comment period to end on February 27, 2012.

FOR FURTHER INFORMATION CONTACT: Mrs. Amy Burt, Naval Facilities Engineering Command Northwest, 1101 Tautog Circle, Suite 203, Silverdale, WA 98315–1101, Attn: NWSTF Boardman Project Manager; or *http://www.NWSTFBoardmanEIS.com.*

SUPPLEMENTARY INFORMATION: The public scoping period on the NWSTF Boardman EIS will be extended by 32 days, from January 27, 2012 to February 27, 2012. Comments on the scope of the EIS may be submitted in writing or electronically. Written comments should be mailed to Naval Facilities Engineering Command Northwest, Attention: Mrs. Amy Burt, NWSTF Boardman EIS Project Manager, Naval Facilities Engineering Command Northwest, 1101 Tautog Circle, Suite 203, Silverdale, WA 98315–1101. All written comments must be postmarked by February 27, 2012, to ensure they become part of the official record. Comments submitted electronically at the project Web site at *http://www.NWSTFBoardmanEIS.com* must be submitted before the end of the comment period to ensure they become part of the official record. All scoping comments will be taken into account in the Draft EIS.

Dated: January 25, 2012.

J.M. Beal,

Lieutenant Commander, Judge Advocate General's Corps, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2012–2304 Filed 2–1–12; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Availability of Government-Owned Invention; Available for Licensing

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: The invention listed below is assigned to the United States Government as represented by the Secretary of the Navy and is available for licensing by the Department of the Navy.

The following patent is available for licensing: Patent application 13/168,459: ACCESSORY INTERFACE SYSTEM (An apparatus for mounting accessories on a weapon mount).

ADDRESSES: Written objections are to be filed with Naval Surface Warfare Center, Crane Div, Code OOL, Bldg 2, 300 Highway 361, Crane, IN 47522–5001.

FOR FURTHER INFORMATION CONTACT: Mr. Christopher Monsey, Naval Surface Warfare Center, Crane Div, Code OOL, Bldg 2, 300 Highway 361, Crane, IN 47522–5001, telephone (812) 854–4100.

Authority: 35 U.S.C. 207, 37 CFR Part 404.

Dated: January 25, 2012.

J. M. Beal,

Lieutenant Commander, Judge Advocate General's Corps, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2012–2299 Filed 2–1–12; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Grant Exclusive Patent License; Daniel Defense, Inc.

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: The Department of the Navy hereby gives notice of its intent to grant to Daniel Defense, Inc. a revocable, nonassignable, exclusive license to practice in the United States, the Government-owned invention described below: Patent application 13/168,459 (Navy Case 100,359): filed June 24, 2011, entitled ''Accessory Interface System''.

DATES: Anyone wishing to object to the grant of this license must file objections along with supporting evidence, if any, not later than February 17, 2012.

ADDRESSES: Written objections are to be filed with Naval Surface Warfare Center, Crane Div, Code OOL, Bldg 2, 300 Highway 361, Crane, IN 47522–5001.

FOR FURTHER INFORMATION CONTACT: Mr. Christopher Monsey, Naval Surface Warfare Center, Crane Div, Code OOL, Bldg 2, 300 Highway 361, Crane, IN 47522–5001, telephone (812) 854–4100.

Authority: 35 U.S.C. 207, 37 CFR Part 404.

Dated: January 25, 2012.

J.M. Beal,

Lieutenant Commander, Judge Advocate General's Corps, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2012–2303 Filed 2–1–12; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Grant Partially Exclusive Patent License; Jinga-hi, Inc.

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: The Department of the Navy herby gives notice of its intent to grant to Jinga-hi, Inc., a revocable, nonassignable, partially exclusive license in the United States to practice the Government-owned inventions described in U.S. Patent No. 7528606: Coupled Non-linear Sensor System for Sensing a Time-dependent Target Signal and Method of Assembling the System.//U.S. Patent No. 8049570: Coupled bi-stable microcircuit system for ultra-sensitive electrical and magnetic field sensing,//and U.S. Patent Application No. 12/749338: Coupled Bi-Stable Circuit for Ultra-Sensitive

Deadline for filing comments, motions to intervene, competing applications (without notices of intent), or notices of intent to file competing applications: 60 days from the issuance of this notice. Competing applications and notices of intent must meet the requirements of 18 CFR 4.36. Comments, motions to intervene, notices of intent, and competing applications may be filed electronically via the Internet. See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's Web site *http://www.ferc.gov/docs-filing/efiling.asp*. Commenters can submit brief comments up to 6,000 characters, without prior registration, using the eComment system at *http://www.ferc.gov/docs-filing/ecomment.asp.* You must include your name and contact information at the end of your comments. For assistance, please contact FERC Online Support at *FERCOnlineSupport@ferc.gov* or toll free at 1–866–208–3676, or for TTY, (202) 502–8659. Although the Commission strongly encourages electronic filing, documents may also be paper-filed. To paper-file, mail an original and seven copies to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE., Washington, DC 20426.

More information about this project, including a copy of the application, can be viewed or printed on the ''eLibrary'' link of Commission's Web site at *http://www.ferc.gov/docs-filing/elibrary.asp*. Enter the docket number (P–14399) in the docket number field to access the document. For assistance, contact FERC Online Support.

Dated: August 31, 2012.

Kimberly D. Bose,

Secretary.

[FR Doc. 2012–22051 Filed 9–6–12; 8:45 am]

BILLING CODE 6717–01–P

ENVIRONMENTAL PROTECTION AGENCY

[ER–FRL–9004–9]

Environmental Impacts Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 564–7146 or *http://www.epa.gov/compliance/nepa/.*

Weekly receipt of Environmental Impact Statements

Filed 08/27/2012 through 08/31/2012

Pursuant to 40 CFR 1506.9.

Notice

Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: *http://www.epa.gov/compliance/nepa/eisdata.html.*

SUPPLEMENTARY INFORMATION: Starting October 1, 2012, EPA will not accept paper copies or CDs of EISs for filing purposes; all submissions on or after October 1, 2012 must be made through e-NEPA.

While this system eliminates the need to submit paper or CD copies to EPA to meet filing requirements, electronic submission does not change requirements for distribution of EISs for public review and comment. To begin using e-NEPA, you must first register with EPA's electronic reporting site—*https://cdx.epa.gov/epa_home.asp*

EIS No. 20120286, Final EIS, BR, WA, Odessa Subarea Special Study, Columbia Basin Project, To Replace Groundwater Currently Used for Irrigation, Grant, Adams, Walla Walla and Franklin Counties, WA, Review Period Ends: 10/09/2012, Contact: Candace McKinley 509–575–5848 ext. 603.

EIS No. 20120287, Final EIS, FHWA, TX, Grand Parkway (State Highway 99) Segment C Construction, From US 59 to State Highway (SH) 288, USACE Section 404 Permit, Funding, Fort Bend and Brazoria Counties, TX, Review Period Ends: 10/09/2012, Contact: Gregory S. Punske 512–536–5900.

EIS No. 20120288, Final Supplement, USFS, OR, North Fork Burnt River Mining, New Information and Clarification of Previous Analyses, Whitman Ranger District, Wallowa-Whitman National Forest, Baker County, OR, Review Period Ends: 10/09/2012, Contact: Sophia Millar 541–263–1735.

EIS No. 20120289, Final EIS, USFS, SD, Calumet Project Area, Multiple Resources Management Actions, Black Hills National Forest, Mystic Ranger District, Pennington County, SD, Review Period Ends: 10/09/2012, Contact: Jon Swansfield 605–343–1567.

EIS No. 20120290, Final EIS, USACE, TX, Freeport Harbor Channel Improvement Project, Proposes to Deepen and Widen the Freeport Harbor Channel and Associated Turning Basins, Brazoria County, TX, Review Period Ends: 10/09/2012, Contact: Janelle Stokes 409–766–3039.

EIS No. 20120291, Draft EIS, BR, CO, Arkansas Valley Conduit and Long-Term Excess Capacity, Fryingpan-Arkansas Project, Bent, Chaffee, Crowley, El Paso Pueblo, Fremont, Kiowa, Otero, and Prowers Counties, CO, Comment Period Ends: 10/30/2012, Contact: J. Signe Snortland 701–221–1278.

EIS No. 20120292, Final EIS, USFS, CA, Giant Sequoia National Monument, Sequoia National Forest Plan Amendment, Tulare, Kerns, Fresno Counties, CA, Review Period Ends: 10/09/2012, Contact: Annette Fredette 559–784–1500, ext. 1138.

EIS No. 20120293, Final EIS, USFS, NM, Taos Ski Valley's 2010 Master Development Plan—Phase 1 Projects, Questa Ranger District, Carson National Forest, Taos County, NM, Review Period Ends: 10/09/2012, Contact: Audrey Nes Kuykendall 575–758–6212.

EIS No. 20120294, Draft EIS, USN, OR, Naval Weapons Systems Training Facility Boardman, Military Readiness Activities, OR, Comment Period Ends: 11/06/2012, Contact: Amy Burt 360–396–0924.

EIS No. 20120295, Draft Supplement, AFS, ID, Scriver Integrated Restoration Project, Updated and Additional Information, Identifying Permits, Licenses and Entitlements that were not identified in the DEIS, Improve Watershed Conditions by Reducing Road-Related Impacts to Wildlife, Fish, Soil, and Water Resources and Restoration of 2010 Forest Plan Vegetation Conditions, Emmett Ranger District, Boise National Forest, Boise and Valley Counties, ID, Comment Period Ends: 10/22/2012, Contact: Randall Hayman 208–373–4157.

Amended Notices

EIS No. 20100440, Draft EIS, USFS, MT, Warm Springs Habitat Enhancement Project, Restoring and Promoting Key Wildlife Habitat Components by Managing Vegetation, Reducing Fuels, and Promoting a more Resilient Fire Adapted Ecosystem, Helena Ranger District, Helena National Forest, Jefferson County, MT, Comment Period Ends: 10/22/2012, Contact: Liz Van Genderen 406–495–3749. Revision to FR Notice Published 11/12/2010; The U.S. Department of Agriculture's Forest Service is reopening the Comment period to end 10/22/2012 due to errata on page 321 of the DEIS.

EIS No. 20120214, Draft Supplement, NPS, 00, Yellowstone National Park Draft Winter Use Plan, Addressing the Issue of Oversnow Vehicle Use in the Interior of the Park, Implementation, WY, MT and ID, Comment Period Ends: 10/09/2012, Contact: David Jacob 303987–6970. Revision to FR Notice Published 07/06/2012; The

U.S. Department of the Interior's National Park Service is reopening the comment period to end 10/09/2012.

Dated: September 4, 2012.

Cliff Rader,

Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 2012–22080 Filed 9–6–12; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

[DA 12–1400]

Consumer Advisory Committee

AGENCY: Federal Communications Commission.

ACTION: Notice.

SUMMARY: The Commission announces the next meeting date, time, and agenda of its Consumer Advisory Committee (Committee). The purpose of the Committee is to make recommendations to the Commission regarding matters within the jurisdiction of the Commission and to facilitate the participation of all consumers in proceedings before the Commission.

DATES: The next meeting of the Committee will take place on Friday, September 21, 2012, 2:00 p.m. to 4:00 p.m., in the Commission's Meeting Room, TW–C305.

ADDRESSES: Federal Communications Commission, 445 12th Street SW., Washington, DC 20554.

FOR FURTHER INFORMATION CONTACT: Scott Marshall, Consumer and Governmental Affairs Bureau, (202) 418–2809 (voice or TTY), or email *Scott.Marshall@fcc.gov.*

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's document DA 12–1400 released August 24, 2012, announcing the agenda, date and time of the Committee's next meeting.

Meeting Agenda

At its September 21, 2012 meeting, it is expected that the Committee will consider one recommendation from its Broadband Working Group regarding broadband adoption; two recommendations from the Committee's Consumer Empowerment Group regarding text spamming and third-party wireless shutdowns; two recommendations from the Universal Service Working Group regarding Lifeline outreach and affordable calling from prisons; and one recommendation from the Consumer Complaints Task Force regarding the Commission's telephone IVR and web complaint systems. The Committee may also consider other recommendations from its working groups, and may also receive briefings from FCC staff and outside speakers on matters of interest to the Committee. A limited amount of time will be available on the agenda for questions and comments from the public. Meetings of the Committee are also broadcast live with open captioning over the Internet from the FCC Live Web page at *www.fcc.gov/live/.*

The public may ask questions of presenters via email at *livequestions@fcc.gov*, or via Twitter using the hashtag #fcclive. In addition, the public may also follow the meeting on Twitter @fcc or via the Commission's Facebook page at *www.facebook.com/fcc.* Alternatively, written comments to the Committee may be sent to: Scott Marshall, Designated Federal Officer of the Committee, at the address provided above.

The meeting is open to the public and the site is fully accessible to people using wheelchairs or other mobility aids. Sign language interpreters, open captioning, assistive listening devices, and Braille copies of the agenda and handouts will be provided on site.

Other reasonable accommodations for people with disabilities are available upon request. The request should include a detailed description of the accommodation needed and contact information. Please provide as much advance notice as possible; last minute requests will be accepted, but may be impossible to fill. Send an email to *fcc504@fcc.gov* or call the Consumer and Governmental Affairs Bureau at 202–418–0530 (voice), 202–418–0432 (TTY).

Federal Communications Commission.

Mark Stone,

Deputy Bureau Chief, Consumer and Governmental Affairs Bureau.

[FR Doc. 2012–21878 Filed 9–6–12; 8:45 am]

BILLING CODE 6712–01–P

FEDERAL RESERVE SYSTEM

Change in Bank Control Notices; Acquisitions of Shares of a Bank or Bank Holding Company

The notificants listed below have applied under the Change in Bank Control Act (12 U.S.C. 1817(j)) and § 225.41 of the Board's Regulation Y (12 CFR 225.41) to acquire shares of a bank or bank holding company. The factors that are considered in acting on the notices are set forth in paragraph 7 of the Act (12 U.S.C. 1817(j)(7)).

The notices are available for immediate inspection at the Federal Reserve Bank indicated. The notices also will be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing to the Reserve Bank indicated for that notice or to the offices of the Board of Governors. Comments must be received not later than September 24, 2012.

A. Federal Reserve Bank of Minneapolis (Jacqueline G. King, Community Affairs Officer), 90 Hennepin Avenue, Minneapolis, Minnesota 55480–0291:

1. *Brian Darold Petersen,* Livingston, Montana; to retain at least 25 percent of the voting shares of Lakeside Bank Holding Company, and thereby indirectly retain voting shares of Lakeside State Bank, both in New Town, North Dakota, and McKenzie County Bank, Watford City, North Dakota.

Board of Governors of the Federal Reserve System, September 4, 2012.

Margaret McCloskey Shanks,

Associate Secretary of the Board.

[FR Doc. 2012–22035 Filed 9–6–12; 8:45 am]

BILLING CODE 6210–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Committee on Vital and Health Statistics: Meeting

Pursuant to the Federal Advisory Committee Act, the Department of Health and Human Services (HHS) announces the following advisory committee meeting.

Name: National Committee on Vital and Health Statistics (NCVHS), Full Committee Meeting.

Time And Date:

September 20, 2012 9 a.m.–3 p.m. EST
September 21, 2012 10 a.m.–1:50 p.m. EST

Place: U.S. Department of Health and Human Services, Hubert Humphrey Building, Rm. 705–A, Washington, DC 20201.

Status: Open.

Purpose: At this meeting the Committee will hear presentations and hold discussions on several health data policy topics. On the morning of the first day the Committee will hear updates from the Department (HHS), the Centers for Medicare and Medicaid Services (CMS), and the Office of the National Coordinator (ONC). There will also be discussion of items for approval: (1) Report on Data Stewardship for Community Health Data; and after the lunch break, (2) recommendation letter

faith, (2) will not operate to the disadvantage of such endangered or threatened species, and (3) is consistent with the purposes and policies set forth in section 2 of the ESA.

Dated: September 4, 2012.

P. Michael Payne,

Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2012–22116 Filed 9–6–12; 8:45 am]

BILLING CODE 3510–22–P

COMMITTEE FOR PURCHASE FROM PEOPLE WHO ARE BLIND OR SEVERELY DISABLED

Procurement List; Additions

AGENCY: Committee for Purchase From People Who Are Blind or Severely Disabled.

ACTION: Additions to the Procurement List.

SUMMARY: This action adds services to the Procurement List that will be provided by nonprofit agencies employing persons who are blind or have other severe disabilities.

DATES: *Effective Date:* 10/8/2012.

ADDRESSES: Committee for Purchase From People Who Are Blind or Severely Disabled, Jefferson Plaza 2, Suite 10800, 1421 Jefferson Davis Highway, Arlington, Virginia, 22202–3259.

FOR FURTHER INFORMATION CONTACT: Patricia Briscoe, Telephone: (703) 603–7740, Fax: (703) 603–0655, or email *CMTEFedReg@AbilityOne.gov.*

SUPPLEMENTARY INFORMATION:

Additions

On 7/9/2012 (77 FR 40344–40345), the Committee for Purchase From People Who Are Blind or Severely Disabled published notice of proposed additions to the Procurement List.

After consideration of the material presented to it concerning capability of qualified nonprofit agencies to provide the services and impact of the additions on the current or most recent contractors, the Committee has determined that the services listed below are suitable for procurement by the Federal Government under 41 U.S.C. 8501–8506 and 41 CFR 51–2.4.

Regulatory Flexibility Act Certification

I certify that the following action will not have a significant impact on a substantial number of small entities. The major factors considered for this certification were:

1. The action will not result in any additional reporting, recordkeeping or other compliance requirements for small entities other than the small organizations that will provide the services to the Government.

2. The action will result in authorizing small entities to provide the services to the Government.

3. There are no known regulatory alternatives which would accomplish the objectives of the Javits-Wagner-O'Day Act (41 U.S.C. 8501–8506) in connection with the services proposed for addition to the Procurement List.

End of Certification

Accordingly, the following services are added to the Procurement List:

Services

Service Type/Location: Fire Watch Service, U.S. Coast Guard Yard, Curtis Bay, 2401 Hawkins Point Road, Baltimore, MD.
NPA: DePaul Industries, Portland, OR.
Contracting Activity: Dept of Homeland Security, U.S. Coast Guard, SFLC Procurement Branch 3, Baltimore, MD.

Service Type/Location: Hospital Housekeeping Services, Winn Army Community Hospital, 1061 Harmon Avenue, Fort Stewart, GA.
NPA: Professional Contract Services, Inc., Austin, TX.
Contracting Activity: Dept of the Army, W40M Southeast RGNL CONTRG OFC, Fort Gordon, GA.

Patricia Briscoe,

Deputy Director, Business Operations, (Pricing and Information Management).

[FR Doc. 2012–22077 Filed 9–6–12; 8:45 am]

BILLING CODE 6353–01–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Public Meetings for the Draft Environmental Impact Statement for Naval Weapons Systems Training Facility Boardman, OR

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: Pursuant to section 102(2)(c) of the National Environmental Policy Act of 1969 and regulations implemented by the Council on Environmental Quality (40 Code of Federal Regulations parts 1500–1508), the Department of the Navy (DoN) has prepared and filed with the U.S. Environmental Protection Agency a Draft Environmental Impact Statement (EIS) that evaluates the potential environmental effects associated with ongoing and proposed DoN and Oregon National Guard training and testing activities at Naval Weapons Systems Training Facility (NWSTF) Boardman, Oregon to include establishment of new associated Special Use Airspace (SUA). The National Guard Bureau and Federal Aviation Administration are cooperating agencies for this EIS.

NWSTF Boardman is the principal regional training range for aviation units located at Naval Air Station Whidbey Island and is used for training by Oregon National Guard units located throughout the state of Oregon. NWSTF Boardman also supports training requirements of the U.S. Air Force Reserve, and SUA activities for Department of Defense (DoD) contractors for unmanned aerial system testing and training of DoD personnel.

With the filing of the Draft EIS, the DoN is initiating a 60-day public comment period and has scheduled two public meetings to receive comments on the Draft EIS. This notice announces the dates and locations of the public meetings for the Draft EIS and provides supplementary information.

DATES AND ADDRESSES: The 60-day Draft EIS public review period will begin September 7, 2012, and end on November 6, 2012. The DoN will hold two public meetings to inform the public about the proposed action and the alternatives under consideration, and to provide an opportunity for the public to comment on the proposed action, alternatives, and the adequacy and accuracy of the analysis in the Draft EIS. Each of the public meetings will include an open house information session, with informational poster stations staffed by DoN and Oregon National Guard representatives, followed by a short presentation and oral comment opportunity. Federal, state, and local agencies and officials, and interested groups and individuals are encouraged to provide comments in person at any of the public meetings or in writing during the public comment period.

The public meetings will be held at each location between 5:00 p.m. and 8:00 p.m. on the following dates:

1. Tuesday, September 25, 2012, Hermiston Conference Center Great Room, 415 South Highway 395, Hermiston, Oregon 97838.

2. Wednesday, September 26, 2012, Port of Morrow Conference Center Riverfront Room, 2 Marine Drive, Boardman, Oregon 97818.

Attendees will be able to submit oral and written comments during the public meetings. Oral testimony from the public will be recorded by a court reporter. In the interest of available time, and to ensure all who wish to give an oral statement have the opportunity to do so, each speaker's comments will

be limited to three (3) minutes. Equal weight will be given to oral and written statements. Comments may also be submitted via the U.S. Postal Service or electronically via the project Web site provided below. All statements, oral or written, submitted during the public review period will become part of the public record on the Draft EIS and will be reviewed and acknowledged or responded to in the Final EIS.

Public meeting details will be announced in local newspapers. Additional information is available on the project Web site at *www.NWSTFBoardmanEIS.com.*

FOR FURTHER INFORMATION CONTACT: Naval Facilities Engineering Command, Northwest, Attention: Ms. Amy Burt—NWSTF Boardman EIS Project Manager, 1101 Tautog Circle, Suite 203, Silverdale, Washington 98315–1101.

SUPPLEMENTARY INFORMATION: A Notice of Intent to prepare this Draft EIS was published in the **Federal Register** on October 5, 2010 (75 FR 61452). A separate and additional scoping effort was conducted to address the modification of the proposed action to include establishment of a Military Operations Area that would join the current SUA associated with NWSTF Boardman. The Notice of Intent for the modification of the proposed action was published in the **Federal Register** on December 27, 2011 (76 FR80910).

The DoN's proposed action involves construction and operation of new range facilities and changes in existing training and testing activities at NWSTF Boardman. In general, the proposed action would increase the types of training and testing activities and the number of training events conducted at NWSTF Boardman; accommodate force structure changes; and provide enhancements to training facilities and activities at NWSTF Boardman and its associated SUA.

To comply with federal mandates, the DoN proposes to maintain and enhance current levels of military readiness through improvement of training at NWSTF Boardman, accommodate possible future increases in training, and maintenance of the long-term viability of NWSTF Boardman as a military training and testing area. The proposed action is needed to provide a training environment consisting of ranges, training areas, and range instrumentation with the capacity and capabilities to fully support required training tasks for military units and personnel utilizing NWSTF Boardman.

The Draft EIS includes analysis of the potential environmental impacts of three alternatives, including the No Action Alternative and two action alternatives. The No Action Alternative constitutes the current level of baseline training and testing activities. Alternative 1 includes all current training and testing activities; the establishment and use of an additional Military Operations Area to the northeast of existing NWSTF Boardman SUA; an increase in existing training activities; new training activities; and range enhancements and facilities to meet DoN and Oregon National Guard training requirements. Alternative 2 includes all elements of Alternative 1 and the implementation of additional range enhancements, including the addition of a second (western) convoy live-fire range, a new range operations control center, and three mortar training positions.

Mitigation measures for potential effects to biological resources are being coordinated through appropriate Federal agencies. There are no Federally-listed species under the Endangered Species Act present at NWSTF Boardman, however, the DoN is conferencing with the U.S. Fish and Wildlife Service, as appropriate, for potential impacts to the candidate species, Washington ground squirrel (Urocitellus washingtoni).

The Draft EIS was distributed to Federal, state, and local agencies, elected officials, and other interested individuals and organizations. Copies of the Draft EIS are also available for public review at the following public libraries:

1. Multnomah County Central Library, 801 Southwest 10th Avenue, Portland, Oregon 97205.

2. Boardman Branch of the Oregon Trail Library District, 200 South Main Street, Boardman, Oregon 97818.

3. Heppner Branch of the Oregon Trail Library District, 444 North Main Street, Heppner, Oregon 97836.

4. Central Branch of the Salem Public Library, 585 Liberty Street Southeast, Salem, Oregon 97301.

5. West Salem Branch of the Salem Public Library, 395 Glen Creek Road Northwest, Salem, Oregon 97304.

6. Stafford Hansell Government Center, 915 Southeast Columbia Drive, Hermiston, Oregon 97838.

Copies of the Draft EIS are also available for electronic viewing at *www.NWSTFBoardmanEIS.com.* A paper copy of the Executive Summary or a single compact disc of the Draft EIS will be made available upon written request.

Dated: August 31, 2012.

C.K. Chiappetta

Lieutenant Commander, Judge Advocate General's Corps, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2012–22097 Filed 9–6–12; 8:45 am]

BILLING CODE 3810–FF–P

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Sunshine Act Meetings

FEDERAL REGISTER CITATION OF PREVIOUS ANNOUNCEMENT: 77 FR 48970, August 15, 2012.

PREVIOUSLY ANNOUNCED TIME AND DATE OF MEETING AND HEARING: Session I: 1 p.m.–5 p.m., October 2, 2012; Session II: 6:30 p.m.–9 p.m., October 2, 2012.

CHANGES TO OPEN MEETING AND HEARING: The Defense Nuclear Facilities Safety Board (Board) published a notice in the **Federal Register** of August 15, 2012, (77 FR 48970), concerning a two-session public meeting and hearing on October 2, 2012, at the Knoxville Convention Center, 701 Henley Street, Knoxville, Tennessee 37902. The Board changes that notice as follows: (1) The Board is postponing the hearing session concerning nuclear operations at existing Y–12 defense nuclear facilities, the effectiveness of the National Nuclear Security Administration's oversight for these activities, and the status of site-wide emergency preparedness. That session will be rescheduled as a separate open meeting and hearing at a time and place to be determined at a later date; (2) The Board will now limit the meeting and hearing to receive testimony regarding factors that could affect the timely execution and safety of the Uranium Processing Facility (UPF) project. These factors include the Department of Energy (DOE) project team's strategy for identifying and resolving safety issues in a timely manner, the potential safety impacts of DOE's decision to accelerate the acquisition of select processing capabilities and defer others to a later date, and the potential for weaknesses in technology development to impact safety; (3) The Board is convening the meeting and hearing concerning the UPF project from 1 p.m.–5 p.m. There will be no evening Session. The date and place of the meeting and hearing remains unchanged. The public hearing portion of this proceeding is authorized by 42 U.S.C. 2286b.

CONTACT PERSON FOR MORE INFORMATION: Debra Richardson, Deputy General Manager, Defense Nuclear Facilities Safety Board, 625 Indiana Avenue NW.,

Background

In response to public concern, the U.S. Congress urged EPA to conduct scientific research to examine the relationship between hydraulic fracturing and drinking water resources. EPA is undertaking a study to understand the potential impacts of hydraulic fracturing on drinking water resources, if any, and to identify the driving factors that may affect the severity and frequency of such impacts.

The scope of the study includes the full hydraulic fracturing water lifecycle—from water acquisition, through the mixing of chemicals and injection of fracturing fluids, to the post-fracturing stage, including the management of flowback and produced water and its ultimate treatment and disposal. The study will include a review of the published literature, analysis of existing data, scenario evaluation and modeling, laboratory studies and case studies.

To ensure that EPA is up-to-date on evolving hydraulic fracturing practices and technologies, EPA is soliciting public involvement in identifying relevant data and scientific literature specific to inform EPA's research study on the potential impacts of hydraulic fracturing on drinking water resources. While EPA conducts a thorough literature search, there may be studies or other primary technical sources that are not available through the open literature. EPA would appreciate receiving information from the public to help inform current and future research and ensure a robust record of scientific information. Consistent with our commitment to using the highest quality information, EPA prefers information which has been peer reviewed. Interested persons may provide scientific analyses, studies and other pertinent scientific information. EPA will consider all submissions but will give preference to peer reviewed data and literature sources.

Dated: November 5, 2012.

E. Ramona Trovato,

Associate Assistant Administrator, Office of Research and Development.

[FR Doc. 2012–27452 Filed 11–8–12; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[ER–FRL–9005–9]

Environmental Impacts Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 564–7146 or *http://www.epa.gov/compliance/nepa/*.

Weekly Receipt of Environmental Impact Statements

Filed 10/29/2012 Through 11/02/2012 Pursuant to 40 CFR 1506.9.

Notice

Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: *http://www.epa.gov/compliance/nepa/eisdata.html*.

SUPPLEMENTARY INFORMATION: As of October 1, 2012, EPA will not accept paper copies or CDs of EISs for filing purposes; all submissions on or after October 1, 2012 must be made through e-NEPA.

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EIS No. 20120352, Final EIS, USFS, UT, Chicken Creek Gypsum Mine, Proposed Plan of Operations to Conduct Mining Operations, San Pitch Mountains, Sanpete Ranger District, Manti-La Sal National Forest, Juab County, UT, Review Period Ends: 12/10/2012, Contact: Karl Boyer 435–637–2817.

EIS No. 20120353, Final EIS, FHWA, IL, TIER 2—Elgin O'Hare—West Bypass, Extending the Planning Period from 2030 to 2040, Federal Approvals and Funding, Cook and DuPage Counties, IL, Review Period Ends: 12/10/2012, Contact: Norman Stoner 217–492–4600 The U.S. Department of Transportation's Federal Highway Administration and Federal Aviation Administration are joint lead agencies for this project.

EIS No. 20120354, Draft EIS, FRA, 00, Chicago to Council Bluffs—Omaha Regional Passenger Rail System Planning Study Tier 1 Service Level, from Chicago, Illinois through Iowa and Omaha, NE., Comment Period Ends: 12/26/2012, Contact: Andrea Martin 202–493–6201.

EIS No. 20120355, Final EIS, FRA, 00, Chicago to St. Louis High Speed Rail Program Tier 1, Improvements, Several Counties, IL and St. Louis County, MO, Review Period Ends: 12/10/2012, Contact: Andrea Martin 202–493–6201.

EIS No. 20120356, Draft EIS, BLM, AZ, Sun Valley to Morgan 500/230kV Transmission Line Project and Draft Resource Management Plan Amendment, Maricopa County, AZ, Comment Period Ends: 02/08/2013, Contact: Joe Incardine 801–560–7135.

EIS No. 20120357, Final Supplement, USFWS, CA, Translocation of Southern Sea Otters (Enhydra lutris nereis) Program, New and Updated Information, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego Counties, CA, Review Period Ends: 12/10/2012, Contact: Lilian Carswell 805–644–1766.

EIS No. 20120358, Draft Supplement, BOEM, 00, Gulf of Mexico Outer Continental Shelf (OCS) Oil and Gas Lease Sales: 2013–2014 Western Planning Area Lease Sales 233: Central Planning Area Lease Sales 231, Comment Period Ends: 12/24/2012, Contact: Gary D. Goeke 504–736–3233.

EIS No. 20120359, Final EIS, USACE, CA, Clearwater Program, Master Facilities Plan, To Meet the Wastewater Management Needs of the Joint Outfall System (JOS) Through the Year 2050, Los Angeles County, CA, Review Period Ends: 12/10/2012, Contact: Aaron O. Allen 805–585–2148.

EIS No. 20120360, Final EIS, BLM, 00, PROGRAMMATIC—Allocation of Oil Shale and Tar Sands Resources on Lands Administered, Propose to Amend 10 Land Use Plans in Colorado, Utah, and Wyoming, Review Period Ends: 12/10/2012, Contact: Sherri Thompson 303–239–3758.

Amended Notices

EIS No. 20120294, Draft EIS, USN, OR, Naval Weapons Systems Training Facility Boardman, Military Readiness Activities, OR, Comment Period Ends: 12/06/2012, Contact: Amy Burt 360–396–0924.

Dated: November 6, 2012.

Cliff Rader,

Director, NEPA Compliance Division, Office of Federal Activities,

[FR Doc. 2012–27404 Filed 11–8–12; 8:45 am]

BILLING CODE 6560–50–P

EXPORT–IMPORT BANK

[Public Notice: 2012–0539]

Application for Final Commitment for a Long-Term Loan or Financial Guarantee in Excess of $100 Million; 25 Day Comment Period

AGENCY: Export-Import Bank of the United States.

Appendix B

Regulatory Compliance Correspondence

TABLE OF CONTENTS

COOPERATING AGENCY CORRESPONDENCE

COOPERATING AGENCY CORRESPONDENCE TO MS. ELIZABETH RAY, DIRECTOR, AIRSPACE SERVICES, MISSION SUPPORT SERVICES, FEDERAL AVIATION ADMINISTRATION –JANUARY 10, 2012.

COOPERATING AGENCY RESPONSE LETTER FROM DENNIS ROBERTS, DIRECTOR, AIRSPACE SERVICES, AIR TRAFFIC SERVICES, FEDERAL AVIATION ADMINISTRATION –JANUARY 30, 2012.

COOPERATING AGENCY RESPONSE LETTER APPENDICES FROM DENNIS ROBERTS, DIRECTOR, AIRSPACE SERVICES, AIR TRAFFIC SERVICES, FEDERAL AVIATION ADMINISTRATION, APPENDICES 2, 3, AND 4 –JANUARY 30, 2012.

COOPERATING AGENCY DRAFT ENVIRONMENTAL IMPACT STATEMENT RESPONSE LETTER FROM CLARK DESING, MANAGER, OPERATIONS SUPPORT GROUP, WESTERN SERVICE CENTER, FEDERAL AVIATION ADMINISTRATION – 5 DECEMBER 2012

UNITED STATES FISH AND WILDLIFE SERVICE CORRESPONDENCE

CONFERENCING CORRESPONDENCE TO MR. GARY MILLER, FIELD SUPERVISOR, U.S. FISH AND WILDLIFE SERVICE, LA GRANDE FIELD OFFICE – 12 APRIL 2012

CONFERENCING CORRESPONDENCE TO MR. GARY MILLER, FIELD SUPERVISOR, U.S. FISH AND WILDLIFE SERVICE, LA GRANDE FIELD OFFICE – 20 JUNE 2012

CONFERENCE OPINION FOR MILITARY READINESS ACTIVITIES AT THE NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN, MORROW COUNTY, OREGON (*FWS REFERENCE 01EOFW00-2013-FC-0017*). - DECEMBER 2, 2013

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DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0031
January 10, 2012

Ms. Elizabeth L. Ray
Director, Airspace Services
Mission Support Services
Federal Aviation Administration
800 Independence Ave., SW, Suite 400 East
Washington, DC 20591

SUBJECT: MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS) - COOPERATING AGENCY

Dear Ms. Ray:

In accordance with the National Environmental Policy Act (NEPA), Commander, U.S. Pacific Fleet (COMPACFLT), in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG), has initiated an EIS to address the potential environmental impacts of military readiness training and testing activities on Naval Weapons Systems Training Facility (NWSTF) Boardman. The NWSTF Boardman EIS will analyze military training activities on the NWSTF Boardman property and the overlying Military Operations Area (MOA) and Restricted Airspace. Due to increased development of structures over 100 feet near NWSTF Boardman's property lines and within the existing Restricted Airspace 5701 (R-5701), a new MOA is being included in the proposed action as a solution to allow continued low altitude training at NWSTF Boardman.

Because of your jurisdiction by law over designation of Special Use Airspace (SUA) and your expertise in evaluation of airspace impacts from this proposed action, COMPACFLT, along with NGB and ORNG, request that the Federal Aviation Administration (FAA) serve as a cooperating agency for the development of this EIS pursuant to NEPA and associated regulations. Since the proposed action includes activities associated with SUA, COMPACFLT requests FAA's cooperation in accordance with the guidelines described in the Memorandum of Understanding between the FAA and the Department of Defense concerning SUA Environmental Actions, dated October 4, 2005. NWSTF Boardman serves as a regional training range for Navy, National Guard and other military units located in the Pacific Northwest area, including naval aviation units homeported at Naval Air Station Whidbey Island, Washington, and the ORNG. The EIS will study the potential environmental effects of increasing usage and enhancing the capability of NWSTF Boardman to achieve and maintain military readiness and to conduct current, emerging, and future research, development,

test and evaluation operations. The Navy and the National Guard propose to enhance military readiness activities at NWSTF Boardman, including the establishment and use of a new MOA to support low-level aviation training activities (Enclosure 1). In addition to the new MOA, proposed actions at NWSTF Boardman for U.S. Navy and ORNG include the construction of several new live-fire range areas, identified in enclosure (2). Because of encroachment pressures on lands surrounding NWSTF Boardman, there has been a significant impact to the training capabilities for pilots within the existing SUA. Therefore, consideration of a new MOA is necessary.

As defined in 40 CFR 1501.6, the navy is the lead agency for the NWSTF Boardman EIS. As the lead agency, the Navy is responsible for overseeing preparation of the EIS that includes, but is not limited to, the following:

1. Gathering all necessary background information and preparing the EIS.

2. Determining the scope of the EIS, including the alternatives evaluated.

3. Circulating the appropriate NEPA documentation to the general public and any other interested parties.

4. Scheduling and supervising meetings held in support of the NEPA process, and compiling any comments received.

5. Maintaining an administrative record and responding to any Freedom of Information Act requests relating to the EIS.

As a cooperating agency, COMPACFLT requests the FAA to support the Navy in the following manner:

1. Providing timely comments throughout the EIS process, to include working drafts of the EIS documents. The Navy requests that comments on draft EIS documents be provided within 30 calendar days.

2. Participating, as necessary, in meetings hosted by the Navy for discussion of EIS related issues.

3. Adhering to the overall schedule as set forth by the Navy.

4. Participating in public hearings during the Draft EIS review phase.

SUBJECT: MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS) - COOPERATING AGENCY

COMPACFLT, along with the NGB and ORNG, view this agreement as important to the successful completion of the NEPA process for the NWSTF Boardman EIS. Our goal is to complete a comprehensive analysis using the best scientific information available and to preserve the ability to train our forces within the SUA and land areas of NWSTF Boardman.

We appreciate your consideration of our request and look forward to your response. Should you have any questions or need additional information, please contact the program manager for the NWSTF Boardman EIS, Mr. John Mosher, COMPACFLT Northwest Program Manager, at (360)257-3234, or by email at john.g.mosher@navy.mil.

Sincerely,

Larry M. Foster

L. M. FOSTER
Dir, Fleet Environmental Readiness
By direction

Enclosures: 1. NWSTF Boardman and Special Use Airspace, including proposed Special Use Airspace
2. Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman

Copy to:
Chief of Naval Operations (N45)
Chief of Naval Operations (N8853)
Commanding Officer, NAS Whidbey Island, Oak Harbor, WA
COMNAVAIRPAC, San Diego, CA (N3, N7)
Commanding Officer, FACSFAC, San Diego, CA
Navy Representative FAA Western Service Area (ANM-903)

U.S. Department
of Transportation
**Federal Aviation
Administration**

JAN 30 2012

Mr. L. M. Foster
Director, Fleet Environmental Readiness
Department of the Navy
Commander, United States Pacific Fleet
250 Maka Lapa Drive
Pearl Harbor, HI 96860-3131

Dear Mr. Foster:

Thank you for your letter requesting the Federal Aviation Administration (FAA) participate as a cooperating agency in the environmental impact statements (EIS) to address the potential environmental impacts of military readiness training and testing activities on Naval Weapons Systems Training Facility (NWSTF) Boardman in Oregon. This includes activities within Restricted Airspace 5701 (R-5701) and establishment of a new military operating area (MOA).

The FAA is pleased to participate in the EIS process in accordance with the National Environmental Policy Act of 1969 as amended, and its implementing regulations. Since the proposal involves special use airspace (SUA), the FAA will cooperate following the guidelines described in the Memorandum of Understanding (MOU) between the FAA and the Department of Defense Concerning SUA Environmental Actions, dated October 4, 2005.

Modification of the SUA resides under the jurisdiction of the Western Service Center, Operations Support Group, Renton, WA. The Western Service Center will be the primary focal point for matters related to both airspace and environmental matters. Mr. John Warner is the Manager of the Operations Support Group. FAA Order 7400.2, Procedures for Handling Airspace Matters, Chapter 32 indicates the airspace and environmental processes should be conducted in tandem as much as possible; however, they are separate processes. Approval of either the aeronautical process or the environmental process does not automatically indicate approval of the entire proposal. I have enclosed Appendix 2, 3, and 4 of FAA Order 7400.2 for additional details.

A copy of the incoming correspondence and this response is being forwarded to Mr. Warner of the Western Service Center, Operations Support Group. Mr. Warner can be contacted at (425) 203-4500 for further processing of your proposal.

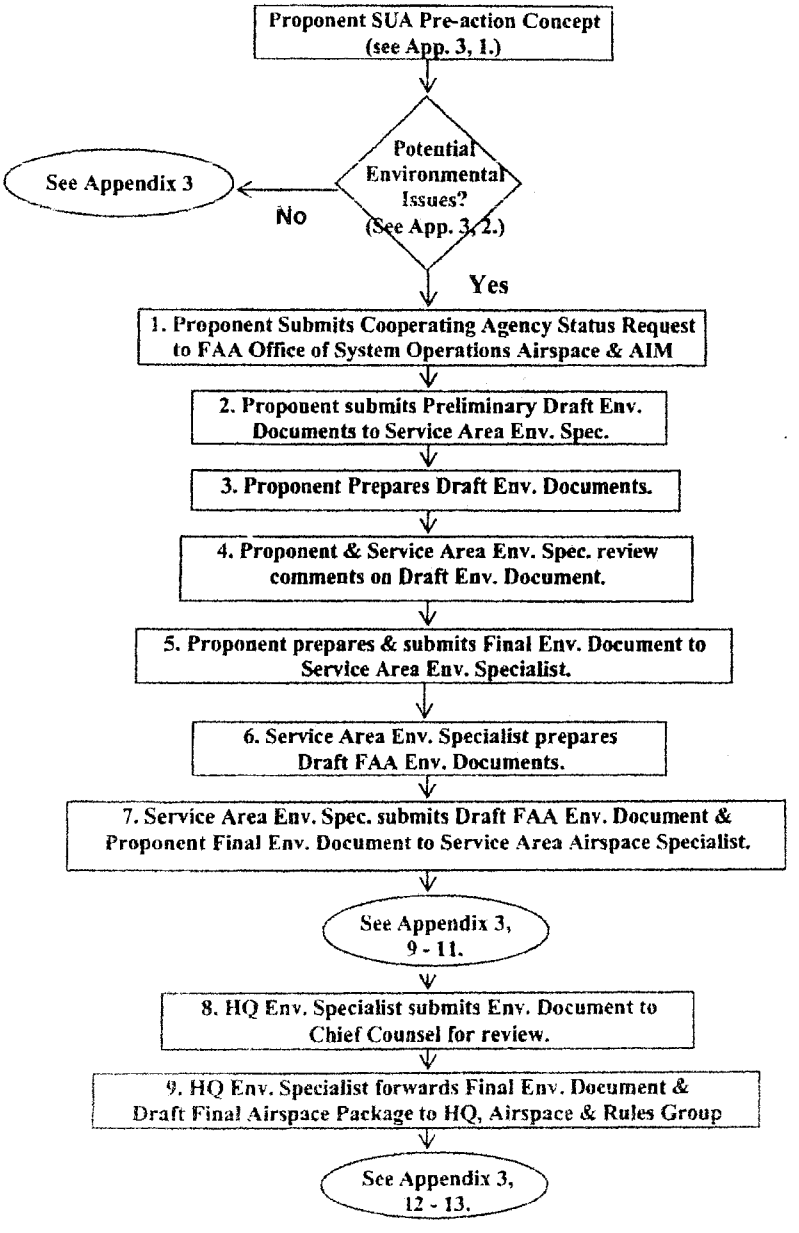
Sincerely,

Dennis E. Roberts
Director, Airspace Services
Air Traffic Organization

3 Enclosures

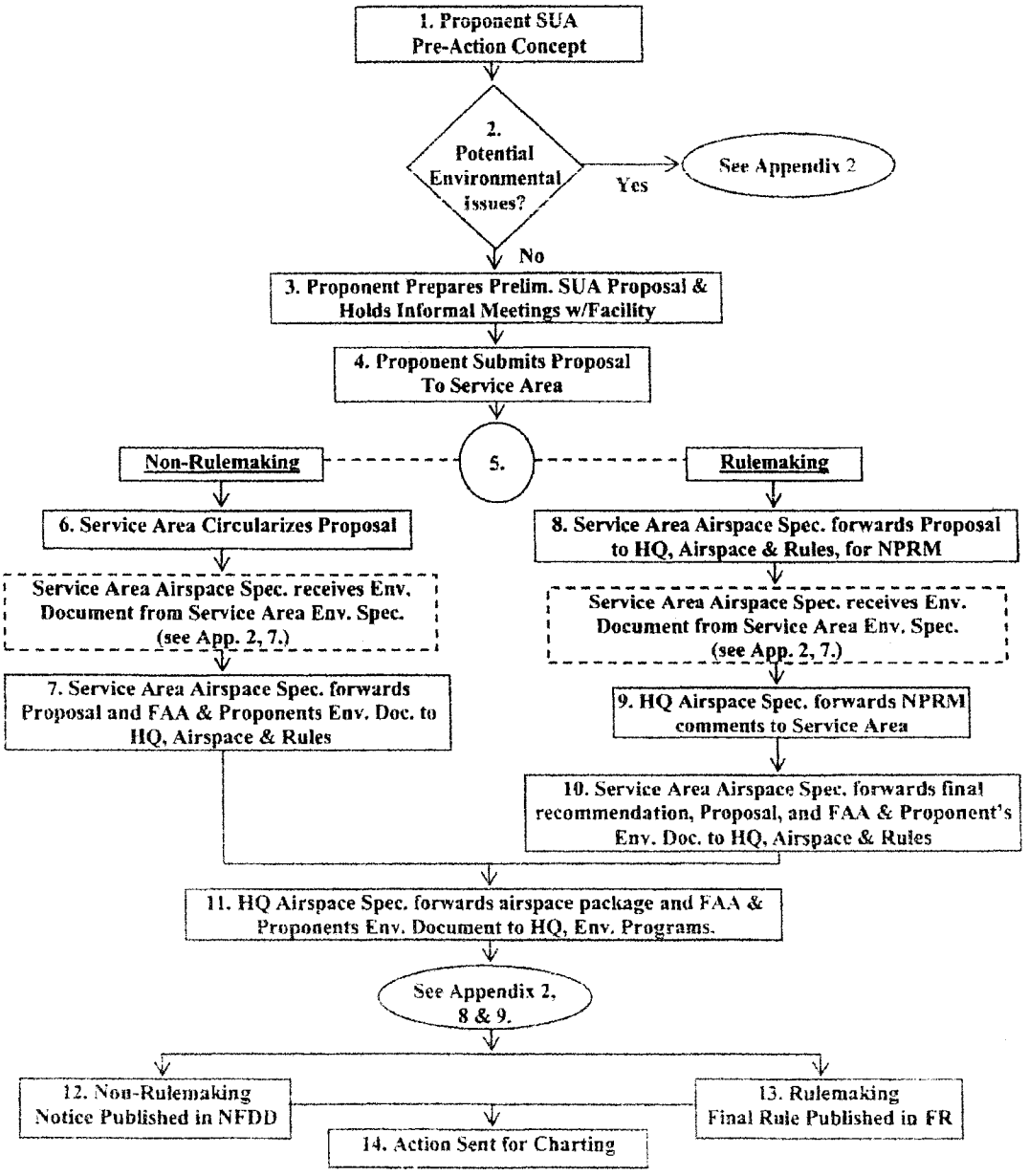
Appendix 2. Procedures For Processing SUA Actions Environmental Process Flow Chart

(This Chart is for use with Appendix 4 and the numbers correlate to the numbers in the Environmental column of that table.)



Appendix 3. Procedures For Processing SUA Actions Aeronautical Process Flow Chart

(This Appendix is for use with Appendix 4 and the numbers correlate to the numbers in the Aeronautical column of that table.)



Appendix 4. FAA Procedures for Processing SUA Actions Aeronautical and Environmental Summary Table

(The aeronautical and environmental processes may not always occur in parallel.)
(This Appendix is for use with Appendix 2 and Appendix 3, and the numbers correlate to numbers on those charts.)

(See note below.)

AERONAUTICAL	ENVIRONMENTAL
1. Proponent shall present to the Facility a Pre-draft concept (i.e., new/ revisions to SUA needed or required).	1. Proponent shall discuss with the Service Area, at the earliest time, the potential for environmental impacts associated with the proposal.
	2. If there is the potential for environmental impacts, Proponent shall make a request to the FAA for a Cooperating Agency (CA) status when Proponent decides to initiate the environmental process. Proponent shall forward the request to the Director of the System Operations Airspace and AIM. The Director will transmit the request to the Environmental Programs Group who prepares and forwards the response to Proponent. The Environmental Programs Group will send a courtesy copy of the response to the responsible Service Area. The Service Area environmental specialist works as the FAA point of contact throughout the process in development of any required environmental documentation.
	3. Proponent submits a Preliminary Draft EA or EIS to the Service Area environmental specialist. The Service Area environmental specialist shall provide comments, in consultation with the airspace specialist and the Environmental Programs Group, back to Proponent.

2. Proponent forwards the aeronautical proposal to the FAA Service Area for review and processing by the airspace specialist.	4. Proponent prepares a Draft EA or EIS with a 45-day public comment period. As the FAA CA point of contact, the Service Area environmental specialist reviews the associated draft environmental documentation to ensure that the Proponent addressed adequately all environmental concerns submitted on the Preliminary Draft. If required, the Service Area environmental specialist forwards the draft environmental documentation to the Environmental Programs Group for review and comment by the headquarters environmental specialist and the Office of Chief Counsel.
3. The Service Area airspace specialist, in accordance with this order, determines the type of airspace action(s) necessary, either Non-Rulemaking or Rulemaking. FAA Service Area and Proponent determine if informal Airspace Meetings are required.	
For Non-Rulemaking:	
4. The Service Area airspace specialist sends out a circularization with a 45-day public comment period. The Service Area airspace specialist reviews and prepares, in consultation with the Proponent, responses to the aeronautical comments from the study and circularization in accordance with Chapter 21 of this order.	5. The Proponent reviews comments received on their Draft EA/FONSI or EIS and prepares their responses to the comments, in consultation with the FAA and other cooperating agencies, if necessary, and in accordance with Chapter 32 of this order.
	6. Proponent prepares and submits their Final EA/FONSI or EIS/ROD to the Service Area environmental specialist.
	7. The Service Area environmental specialist prepares a Draft FAA FONSI/ROD or Draft FAA Adoption Document/ROD.
	8. The Service Area environmental specialist submits the Draft FAA FONSI/ROD or Draft FAA Adoption Document/ROD and the Proponent's Final EA/FONSI or EIS/ROD to the Service Area airspace specialist for inclusion with the airspace proposal package.
5. The Service Area airspace specialist then sends the completed package containing the aeronautical proposal, response to comments, Proponent's Final EA/FONSI, and the Draft FAA FONSI/ROD to the Headquarters Airspace and Rules Group with their recommendation.	

For Rulemaking:	
6. The Service Area airspace specialist sends the proposal to the Airspace and Rules Group who prepares a Notice of Proposed Rulemaking (NPRM). The Headquarters Airspace and Rules Group submits the NPRM for publication in the Federal Register with a 45-day comment period in accordance with Chapter 2 of this order.	
7. The Headquarters airspace specialist sends comments received on the NPRM to the Service Area airspace specialist for resolution.	
8. The Service Area airspace specialist then sends the completed package containing the response to comments, final service area recommendation, the proposal, Proponent's Final EA/FONSI or EIS/ROD, and the Draft FAA FONSI/ROD or Draft FAA Adoption Document/ROD to the Headquarters Airspace and Rules Group for preparation of the Final Rule.	
9. The Headquarters airspace specialist forwards the draft final rule package or draft non-rulemaking case summary (NRCS) with all supporting documentation to the Headquarters Environmental Programs Group for review (after all aeronautical comments have been resolved).	9. The Headquarters environmental specialist reviews the package for environmental technical accuracy; then submits the environmental documentation to the Office of the Chief Counsel, Airports and Environmental Law Division, for legal sufficiency review (having collaborated throughout the process).
	10. The Chief Counsel's environmental attorney's comments are incorporated into the final FAA environmental decision and signed by Headquarters Environmental Programs Group Manager. The package is then returned to the Headquarters Airspace and Rules Group.
10. For Non-rulemaking: The non-rulemaking action is published in the National Flight Data Digest. 11. For Rulemaking: The Final Rule is published in the Federal Register. The Final Rule will contain a reference to the decision rendered and location of documentation for the associated environmental process.	

Consult the following documents throughout the process for further information:

- Council on Environmental Quality Regulations for Implementing the National Environmental Policy Act (NEPA), 40 CFR Parts 1500-1508
- FAA Order 1050.1E, "Environmental Impacts: Policies and Procedures"
- FAA Order 7400.2, "Procedures for Handling Airspace Matters," Part 5
- FAA Order 7400.2, Chapter 32, "Environmental Matters" and the associated appendixes (for specific SUA environmental direction)

NOTE: The time periods below are for a non-controversial aeronautical proposal and its associated environmental process. The time periods are for FAA review/processing only. Times for proponent and/or environmental contract support processing must be added.

ENVIRONMENTAL: The estimated time of completion for EA processing is 12 to 18 months or, for EIS processing, 18 to 36 months.

AERONAUTICAL (Non-Rulemaking): A minimum 4 months is required from submission of the Formal Airspace Proposal by the Proponent to the Service Area through completion of the circularization process. Additionally, a minimum of 6 months is required from submission of the Formal Airspace Proposal by the Service Area to Headquarters through completion of the charting process.

AERONAUTICAL (Rulemaking): A minimum 6 weeks for Service Area processing, and a minimum of 9 months to complete rulemaking once the formal package is received at Headquarters.

U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of the Air Traffic Organization
Western Service Area

1601 Lind Avenue Southwest
Renton, Washington 98057

DEC 05 2012

Naval Facilities Engineering Command, Northwest
ATTN: Amy Burt – NWSTF Boardman EIS Project Manager
1101 Tautog Circle, Suite 203
Silverdale, WA 98315-1101

RE: Draft Environmental Impact Statement for Military Readiness Activities at Naval Weapons Systems Training Facility Boardman

Dear Ms. Burt:

Thank you for the opportunity to comment on the Military Readiness Activities at Naval Weapons Systems Training Facility Boardman Draft Environmental Impact Statement (EIS). Please note our ability to perform a detailed analysis of the EIS is limited by the absence of an accompanying Draft Aeronautical Proposal for Modification of Special Use Airspace (SUA). Development and submittal of a Draft Aeronautical Proposal initiates an aeronautical study by the FAA to evaluate impacts to the National Airspace System (NAS), which can influence the ultimate configuration of the proposed airspace.

SUA proposals are subject to both environmental and aeronautical processing requirements. Although they are distinct and separate actions, they require closely coordinated efforts. The aeronautical study can significantly impact the environmental study, leading to unnecessary costs and delay. Similarly, the environmental study can significantly impact the aeronautical study.

We highly encourage your team to continue development of a Draft Aeronautical Proposal in coordination Seattle Air Route Traffic Control Center.

Thank you for the opportunity to comment.

Sincerely,

for

Clark Desing
Manager, Operations Support Group
Western Service Center

Attachment:
Boardman DEIS Comments

Section	Page	Paragraph	Line Number	Comments
Exec Summary	ES-6	1.7	28 & 31	You state it could include the MOA. This seems misleading. While you don't have to implement all of Alternative 1 if that is chosen to be the preferred alternative in the final ROD Alternative 1 does include the changes listed so is should read "would" with the possibility of caveating that all or none of the proposed actions could be implemented. However, analysis of Alt 1 & 2 are based on implementing all of actions.
ES	ES-7	1.8	4	Same comment as above for the use of could.
ES	ES-7	Table ES-1		Suggest using terminology from FAAO 1050.1 for Water Resources and Acoustic Environment; Water Quality & Noise respectively
General note				Suggest changing throughout document the terms water resources and acoustic environment to water quality & noise. A change all search would probably be the easiest
Chap 2	2-17	Figure 2-5		We had discussed at the public meeting closing the gap between MOA and the restricted area to make them match up. If this is going to be done the maps throughout the document will need to be modified to reflect the change. Additionally, you will need to ensure that your environmental analysis covers this area.
	2-44		20	7400.2 is on version J. I am leery to add versions of regulations as they are ever changing and version J may be version K prior to final publication.

Chap 3	3-1	3.0.		In your discussion on impact categories you list the categories that you are discussing, but not the categories that are required by 1050.1 (appendix A) to be discussed even if not carried forward. Examples of this are coastal resources, flood plains, light emissions. In order for the FAA to adopt the EIS all categories must be addressed in the EIS and the reason for no further analysis necessary needs to be stated. Also a table format that shows your impact categories and how they match up with FAA categories can be helpful. I have various examples of how this has been done in the past. From what I can tell the following categories were not mentioned: Coastal Resources, Fish (part of Fish, Wildlife and Plants category), floodplains, Hazardous material, pollution prevention and solid waste (hazardous material is somewhat contained in your public safety section as well as soils and RCRA is discussed as well but I don't see anything on Apprehensive Environmental Response, Compensation and Liability Act (CERCLA or anything on pollution), light emissions and visual impacts, natural resources and energy supply, wetlands and wild and scenic rivers.
Section 3.4	3.4-5	3.4.1.6		Last bullet should read FAA Order 1050.1E "Environmental Impacts: Policies and Procedures" Appendix A, Section 14 Noise
				Could you some how tie together FAA's definition of compatibility from 14 CFR part 150, Airport Noise Planning (Table 1)?
Section 3.4	3.4-6	Table 3.4.2		What Navy calls Zone II, at 65 dBA to 75 dBA is NOT compatible with schools.
Noise general				Define the changes from the baseline year to the forecast/alternative in terms of changes in acres within the given dnl lines and include the increased number of noise sensitive areas. The above should be used in discussion of determination of significance.
Section 3.4		figure 3.4-3		This seems to be almost like figure 3.4-7 which is better since it shows existing noise conditions relative to the Noise Sensitive areas.
Section 3.4		figure 3.4-12		Not sure why there are multiple 60 DNL contours with two inside the larger one. Identify the Forecast years this represents for the alternatives.

				While it appears that there are not any issues with the compatible uses associated with the alternatives. A magnified view of the 60 DNL over Boardman and of the Hermiston area would help us determine if we think the impact would be defined as slight/moderate versus the document's assertion that it is not significant.
Section 3.7	3.7-4	3.7.2.4	30	Unmanned Aerial Systems are not considered dangerous or hazardous operations. Restricted areas or airspace of any type can not be created for UAS operations. Statement is misleading; recommend deleting UAS from sentence.
	3.7-11	3.7.2.7.1.	10 & 11	recommend replacing IFR traffic to non-participating aircraft. What about VFR aircraft?
	3.7-14		12	change "civilian" activity to nonparticipating aircraft activities
	3.7-19		41	same comment at above
General comment				*search all and be consistent with nonparticipating or non-participating

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0507
April 12, 2012

Mr. Gary Miller, Field Supervisor
U.S. Fish and Wildlife Service
La Grande Field Office
3502 Hwy 30
La Grande, OR 97850

Dear Mr. Miller:

SUBJECT: MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS) INITIATION OF CONFERENCING

In accordance with the National Environmental Policy Act, the Department of the Navy (Navy), in cooperation with the National Guard Bureau and the Oregon National Guard, has initiated an EIS to address the potential environmental impacts of military readiness activities on NWSTF Boardman. The Navy has determined that proposed actions included in the EIS may affect the Washington ground squirrel, a candidate species for listing under the Endangered Species Act (ESA) within the U.S. Fish and Wildlife Service's jurisdiction. While not required under the law or regulations, because of the unique status of the Washington ground squirrel as a candidate species under federal law, the endangered listing under Oregon state law, and the regional importance of the habitat at NWSTF Boardman to the species, the Navy requests to enter into early conferencing with your office in accordance with 15 CFR § 402.10.

As allowed under Section 402.10(d), we would like to request the conference be conducted in accordance with the procedures for formal consultation per 15 CFR §402.14 so that an opinion issued at the end of the conference can later be adopted as a biological opinion if the Washington Ground Squirrel becomes a listed species under the federal ESA.

We appreciate your consideration of our request and look forward to your response. Should you have any questions or need additional information, please contact the program manager for the NWSTF Boardman EIS, Mr. John Mosher at (360)257-3234 or john.g.mosher@navy.mil.

Sincerely,

L. M. FOSTER
Director, Environmental Readiness
By direction

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0832
June 20, 2012

Mr. Gary Miller, Field Supervisor
U.S. Fish and Wildlife Service
La Grande Field Office
3502 Hwy 30
La Grande, OR 97850

Dear Mr. Miller:

SUBJECT: PRELIMINARY DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN, OREGON

Enclosed with this letter are electronic copies of the Preliminary Draft EIS for Military Readiness Activities at NWSTF Boardman. As discussed in previous meetings between Navy, Oregon National Guard (ORNG) and U.S. Fish and Wildlife Service (USFWS), we are providing the document to allow early review of the analysis of potential effects from the proposed actions on the Washington ground squirrel, and other potentially affected species. To assist in your review, the potential effects on wildlife are addressed in Section 3.6 of the document and proposed mitigation measures are discussed in Chapter 5.

Following some time to review the Preliminary Draft EIS, we would like to propose a meeting between our organizations to discuss the analysis, prior to public release of the Draft EIS. We are now expecting the public review/comment period for the Draft EIS to begin in early September 2012, rather than in July as previously planned. Mr. John Mosher, my Program Manager for the NWSTF Boardman EIS will be in contact to discuss potential meeting dates. Please feel free to contact Mr. Mosher at 360-257-3234 or john.g.mosher@navy.mil, if you have any questions.

Sincerely,

Larry M. Foster

L. M. FOSTER
By direction

Enclosure: Preliminary Draft EIS for Military Readiness Activities at NWSTF Boardman

United States Department of the Interior

FISH AND WILDLIFE SERVICE
La Grande Field Office
3502 Highway 30
La Grande, Oregon 97850
Phone: (541) 962-8584 FAX: (541) 962-8581

Reply To: 01EOFW00-2013-FC-0017
File Name: NWSTF Boardman_2013 ConfOpinion.doc
TS Number: 12-701
TAILS: 01EOFW00-2013-FC-0017
Doc Type: Final

DEC - 2 2013

Captain M.K. Nortier
Commanding Officer
NAS Whidbey Island
3730 North Charles Porter Avenue
Oak Harbor, WA 98278-5000

Subject: Conference Opinion for Military Readiness Activities at the Naval Weapons Systems Training Facility Boardman, Morrow County, Oregon (*FWS reference* 01EOFW00-2013-FC-0017)

Dear Captain Nortier:

This document transmits the Fish and Wildlife Service's (Service) Conference Opinion (Opinion) for the U.S. Department of the Navy's (Navy) proposed military readiness activities on the Boardman Naval Weapons Systems Training Facility (NWSTF), in cooperation with the Oregon National Guard (ORNG). This document responds to the Navy's April 12, 2012, request for initiating early formal conferencing with the Service on the effects of the proposed Action to the Washington ground squirrel (*Urocitellus washingtoni*), which is a candidate for listing under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The Navy's request for early conferencing was received by the Service on April 19, 2012. A Draft Conference Package (Assessment) was received in April 2013 and a final Assessment was received in May 2013.

The Navy requested formal conference not because it has determined that the proposed Action is likely to jeopardize the Washington ground squirrel but because it wants to streamline future compliance with section 7 of the ESA for the Action should the Washington ground squirrel be listed under the ESA. The Navy determined, and the Service agrees, that the impacts associated with the proposed military readiness activities at NWSTF Boardman ***are likely to adversely affect*** Washington ground squirrel. The complete decision record of this conference is on file at the Service's La Grande Field Office in La Grande, Oregon.

Printed on 100 percent chlorine free/60 percent post-consumer content paper.

If you have any questions about this Opinion or require more information regarding this conference, please contact me at (541) 962-8509.

Sincerely,

Gary S. Miller
Field Supervisor

Enclosure

cc:
Larry Foster, Department of the Navy, U.S. Pacific Fleet, Pearl Harbor, Hawaii
Amy Burt, NAVFAC Northwest, Silverdale, Washington
John Phillips, NAS Whidbey Island, Oak Harbor, Washington
Paul Henson, U.S. Fish and Wildlife Service, Portland, Oregon

CONFERENCE OPINION

Regarding the Effects of Proposed Military Readiness Activities at the Boardman Naval Weapons Systems Training Facility in Morrow County, Oregon on the Washington Ground Squirrel

Action Agency: U.S. Department of the Navy

Conference Conducted by: U.S. Fish and Wildlife Service
La Grande Field Office
La Grande, Oregon

Date Issued: DEC - 2 2013

Issued by: Gary S. Miller
Gary S. Miller
Field Supervisor

File No. : 01EOFW00-2013-FC-0017

TABLE OF CONTENTS

INTRODUCTION **1**
CONFERENCE HISTORY **1**
CONFERENCE OPINION **3**
1. Description of Proposed Action **3**
1.1 Training and Testing Activities ***3***
1.2 Maintenance Activities ***7***
1.3 Range Enhancements ***8***
1.3.1 Establishment and Use of Additional Special Use Airspace 9
1.3.2 Construction and Operation of MPMGR with Heavy Sniper Overlay 11
1.3.3 Construction, Operation, and Maintenance of two (Eastern and Western) CLFRs .. 14
1.3.4 Construction and Operation of a Demolition Training Range 15
1.3.5 Establishment and Use of a Drop Zone 16
1.3.6 Establishment and Use of Three Mortar Firing Positions 16
1.3.7 Construction, Operation, and Maintenance of an UAS Training and Maintenance Facility 17
1.3.8 Construction and Use of a Joint Use Range Operations Control Center 18
1.4 Best Management Practices (Conservation Measures) ***18***
1.5 Proposed Mitigation Measures ***21***
1.5.1 Introduction 21
1.5.2 Location of Mitigation Sites 22
1.5.3 Mitigation Site Types 22
1.5.4 Desired Future Conditions 25
1.5.5 Restoration Objectives and Strategies by Site Type 25
1.5.6 Prioritization of Restoration Sites 27
1.5.7 Mitigation Ratios 28
1.5.8 Restoration Methods 31
1.6 Adaptive Management and Monitoring ***31***
1.6.1 Introduction 31
1.6.2 Expected Outcomes and Uncertainties 32
1.6.3 Management Objectives and Decision Points 32
1.6.4 Monitoring 34
1.6.5 Alternative Management Actions 36
1.7 Term of the Proposed Action ***37***
1.8 Action Area ***37***
1.8.1 Training Land 37
1.8.2 Special Use Airspace Training Areas 38
1.8.3 Surrounding Land Use 38
1.8.4 Description of Habitats in the Action Area 40
1.8.5 Soil Types at NWSTF Boardman 44
2. Analytical Framework for the Jeopardy Determination **45**
3. Status of the Washington Ground Squirrel (Rangewide) **45**
3.1 Listing Status ***45***
3.1.1 Life History 46
3.1.2 Distribution 48
3.1.3 Habitat and Diet 48

4. Environmental Baseline ... 49
4.1 Status of the Species in the Action Area ... 49
4.2 Factors Affecting Species Environment within the Action Area ... 55
4.3 Role of the Action Area in the Conservation of the Washington ground squirrel ... 55
5. Effects of the Proposed Action ... 56
5.1 Approach to Analysis ... 56
5.2 Noise ... 57
5.2.1 Overview ... 57
5.2.2 Wildlife Responses to Noise ... 57
5.2.3 Conceptual Framework for Assessing Effects from Noise-Producing Activities ... 60
5.2.4 Fixed-Wing Aircraft Noise ... 63
.2.5 Helicopter Noise ... 65
5.2.6 Unmanned Aerial Systems Noise ... 66
5.2.8 Non-explosive Practice Munitions Noise ... 73
5.2.9 Vehicle and Equipment Noise ... 74
5.2.10 Summary of Effects from Noise ... 74
5.3 Ground Disturbing Activities and Habitat Alteration ... 76
5.3.1 Introduction ... 76
5.3.2 Construction Activities ... 76
5.3.3 Training Activities ... 77
5.3.4 Maintenance Activities ... 77
5.3.6 Wildfire ... 81
5.3.7 Summary and Combined Effects on Washington Ground Squirrel Habitat ... 83
5.4 Physical Strikes ... 86
5.4.1 Non-explosive Practice Munitions Strikes ... 86
5.4.2 Vehicle and Equipment Strikes ... 86
5.5 Electromagnetic Radiation ... 87
5.6 Lasers ... 88
5.7 Soil Contamination ... 89
5.8 Interrelated/Interdependent Effects ... 91
6. Cumulative Effects ... 91
7. Conclusion ... 93
8. Incidental Take Statement ... 94
8.1 Amount/Extent of Take Anticipated ... 94
8.2 Effect of Take ... 95
8.3 Reasonable and Prudent Measures ... 95
8.4 Terms and Conditions ... 96
8.5 Reporting Requirements ... 97
9. Conservation Recommendations ... 97
10. Reinitiation – Closing Statement ... 98
LITERATURE CITED ... 99

INTRODUCTION

This document transmits the Fish and Wildlife Service's (Service) Conference Opinion (Opinion) for the U.S. Department of the Navy's (Navy) proposed military readiness activities on the Boardman Naval Weapons Systems Training Facility (NWSTF), in cooperation with the Oregon National Guard (ORNG). This document responds to the Navy's April 12, 2012, request for initiating early formal conferencing with the Service on the effects of the proposed Action to the Washington ground squirrel (*Urocitellus washingtoni*), which is a candidate for listing under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The Navy's request for early conferencing was received by the Service on April 19, 2012. A Draft Conference Package (Assessment) was received in April 2013 and a final Assessment was received in May 2013.

The Navy requested early formal conference not because it has determined that the proposed Action is likely to jeopardize the Washington ground squirrel but because it wants to streamline future compliance with section 7 of the ESA for the Action should the Washington ground squirrel be listed under the ESA. The Navy and ORNG are not required to implement the Terms and Conditions provided in this Conference Opinion unless the Washington ground squirrel is listed under the ESA and the requirements are met (see Section 10, *Reinitiation-Closing Statement*) to confirm the Conference Opinion as a Biological Opinion.

This document is based on information provided in the May 2013 Final Conferencing Package, email correspondence, meetings, phone conversations, and other sources of information. The complete decision record of this conference is on file at the Service's La Grande Field Office, in La Grande, Oregon.

This document has been formatted to facilitate the adoption of this Conference Opinion as a Biological Opinion under appropriate circumstances as described below in the closing statement should the Washington ground squirrel be listed under the ESA.

CONFERENCE HISTORY

- On April 12, 2012, the Navy submitted a request for early conferencing to the Service for the purpose of determining the potential effects of the proposed Project on the Washington ground squirrel.
- In June 2012, the Navy submitted a preliminary draft EIS (DEIS Version 4) on the proposed Project for review by the Service. On August 1, 2012, the Navy/ORNG met with the Service to discuss Service comments on Version 4 of the DEIS and to discuss mitigation actions and Best Management Practices (BMP) under the proposed Project.
- On October 25, 2012, the Navy/ORNG met with the Service, the Oregon Department of Fish and Wildlife (ODFW), the Confederated Tribes of the Umatilla Indian Reservation, Verne Marr, and The Nature Conservancy (who also represented Defenders of Wildlife) to discuss the ESA conferencing process, Washington ground squirrel monitoring and mitigation, and the proposed Project.
- On December 6, 2012, the Service, through the Department of the Interior, submitted comments on the Draft EIS (ER#12-640).

- On March 18, 2013, the Navy provided the Service with a copy of a report by Dr. Yensen regarding his recommendations for mitigation and long-term monitoring of Washington ground squirrels, related to the proposed activities for the NWSTF Boardman.
- On April 2, 2013, the Navy provided a draft conference package to the Service for review. The draft package provided an analysis of the potential effects of implementing the Preferred Alternative (Alternative 2) in the DEIS on the Washington ground squirrel.
- On April 23, 2013, the Navy sent an email to the Service stating that the Digital Multi-Purpose Training Range had been dropped from the preferred alternative but would still be considered under Alternative 1 in the EIS.
- On April 18, 2013, the Service had a conference call with the Navy/ORNG to discuss the draft conference package and the Service provided follow-up written comments on April 26, 2013.
- On May 23, 2013, the Navy submitted the final Conference Package, which incorporated Service comments.
- On June 20, 2013, the Navy/ORNG held a conference call with the Service, ODFW, The Nature Conservancy, and Defenders for Wildlife to discuss the final conference package mitigation and adaptive management sections.
- On June 25, 2013, the Navy/ORNG held a conference call with the Service to discuss a follow-up email from The Nature Conservancy regarding questions/concerns with the mitigation and adaptive management sections of the conference package.
- On July 10, 2013, the Navy provided the Service with a written response to the questions raised by The Nature Conservancy, a table outlining commitments in the current Integrated Natural Resource Management Plan (INRMP) versus new mitigation commitments for the proposed activities, and tables showing a number of mitigation ratio scenarios considered for the proposed activities.
- On July 30, 2013, the Navy/ORNG held a conference call with the Service to discuss the information they provided on July 10, 2013, and provided an update on the project.
- On August 1, 2013, the Navy provided an addendum to the final conference package (based on discussion that occurred on the July 30th conference call), that addressed long-term monitoring, modifications to the figure showing the 140 dBP area for the Eastern Convoy Live Fire area and a modified table for acres impacted by the various proposed activities.
- On August 22, 2013, the Service provided an agency review draft of this Conference Opinion to the Navy and the ORNG.
- On September 17, 2013, the Service met with the Navy/ORNG to discuss development of the long-term monitoring strategy for the Washington ground squirrel on the NWTSF Boardman.
- On September 26, 2013, the Service received comments on the August 22, 2013 draft Conference Opinion.
- On October 31, 2013, the Service held a conference call with the Navy/ORNG to get clarification on some of the comments provided on September 26th. The Navy committed to providing some additional clarification.
- On November 7, 2013, The Navy/ORNG provided the requested clarifications and information.

CONFERENCE OPINION

1. Description of Proposed Action

The Proposed Action involves construction and operation of new range facilities and changes in existing training activities at NWSTF Boardman. The Proposed Action would result in enhancements and increases in training that are necessary to ensure NWSTF Boardman supports military training and readiness objectives. The components of the Proposed Action stem from U.S. Navy training requirements (Fleet Response Training Plan) and other military training requirements, including Army Regulation 350-1, *Army Training and Leader Development*; Army Regulation 350-2, *Reserve Component Training*; Department of the Army Pamphlet 350-38, *Standards in Training Commission*; and ORNG regulations and policies. In general, the Proposed Action would:

- Increase the types of training activities and the number of training events conducted at NWSTF Boardman
- Accommodate force structure changes
- Provide enhancements to training facilities and operations at NWSTF Boardman and its associated Special Use Airspace (SUA)

1.1 Training and Testing Activities

Descriptions of training and testing activities analyzed in this Opinion are organized by the Navy's primary mission areas, regardless of the entity (Navy or ORNG) that is conducting the activity. This grouping or bundling of similar activities helps to streamline the analysis of potential impacts and ensures that the overall potential effects of a particular activity are considered, irrespective of the entity conducting the activity. For example, the potential effects of an air-to-ground gunnery exercise conducted by the Navy are expected to be the same as one conducted by the Air National Guard. Separate descriptions are presented when an entity's activity does not align with a Navy primary mission area. Training and testing activities conducted under the Proposed Action at NWSTF Boardman include the following:

- Anti-Air Warfare Training – Low-Altitude Tactical Training (LATT), and Surface-to-Air Counter Tactics
- Strike Warfare – Air-to-Ground Bombing Exercises, Air-to-Ground Gunnery Exercises, and Air-to-Ground Missile Exercises (captive-carry only, nothing is dropped/released from the aircraft)
- Unmanned Aerial System (UAS) Operations
- Electronic Warfare Training – Electronic Attack and Electronic Surveillance
- Equipment and Personnel Insertion and Extraction Training
- Helicopter Training Operations (Low-Level Training Flights, Hoisting Operations, Sling-Load Operations, and Austere Landings and Take-Offs)
- Live Fire Range Operations (marksmanship and small arms training) and Dismounted Maneuver Training (Maneuver to Contact Live-fire Training)
- Intelligence, Surveillance, and Reconnaissance Training

Table 1 provides the annual number of testing and training events at NWSTF Boardman under the Proposed Action. Table 2 and Table 3 present the annual ordnance use at NWSTF Boardman. Table 4 presents the annual estimates of aircraft overflights in the NWSTF Boardman Special Use Airspace under the Proposed Action.

Table 1. Training and Testing Activities at NWSTF Boardman under the Proposed Action

Range Activity	Representative Platform	Annual Number of Training Events	Location
Anti-Air Warfare			
Surface to Air Counter Tactics and Low-Altitude Tactics Training	EA-6B, EA-18G, F-15, F-16, FA-18, F-35,C-130	1,047	Boardman MOA, Restricted Areas
Strike Warfare			
Air-to-Ground Bombing Exercise	FA-18, F-35, AV-8	133	Main Target Area
Air-to-Ground Gunnery Exercise	F-15 , F-35, CH-47, H-60	70	Main Target Area, Strafe Pit
Air-to-Ground Missile Exercise/High Speed Anti-Radiation Missile Exercise (non-firing)	EA-6B, EA-18G	180	Main Target Area, Boardman MOA, Restricted Areas
Intelligence, Surveillance, and Reconnaissance	P3-C, EP-3, EA-18G, EA-6B	9	Boardman MOA, Restricted Areas
Electronic Warfare			
Electronic Attack and Electronic Support	EA-6B, EA-18G, EP-3	500	Boardman MOA, Restricted Areas
Support Activities			
Unmanned Aerial System/Tactical Unmanned Aerial Systems Operations	RQ-7, RQ-11	1,709	TUAS Airfield, R-5701 (all), R-5706
Insertion and Extraction	C-130, C-17, C-23 HH-53, CH-46, CH-47 UH-60	12 Days	NWSTF Boardman, Drop Zone
Small Arms Training	5.56, 7.62, 20mm, 25mm, 40mm, 50 mm caliber weapons	18 Days	Main Target Area MPMGR
Mortar Firing	M224 60mm, 81mm and 120mm (using sub-caliber training rounds)	18	Main Target Area
Conduct Airborne Operations			
Night Vision Goggle Low-Level Training	EA-18G, H-60, CH-47	48	Boardman MOA, Restricted Areas

Range Activity	Representative Platform	Annual Number of Training Events	Location
Conduct Fire Support			
Convoy Live Fire Training	HMMWV, FMTV M1A2 Abrams, M2/M3 Bradley, M88 Wrecker	45 days	CLFR
Multi-Purpose Machine Gun Range Training	HMMWV (weapons systems would include M249 SAW, M240B, M60, M2, Mk 19, Sniper rifles up to and including 50 cal)	117 days	MPMGR
Ordnance Disposal and Demolition			
Land Demolition Training	EOD personnel, ORNG Engineers	50	DTR

Notes: MOA = Military Operations Area, TUAS = Tactical Unmanned Aerial Systems, MPMGR = Multi-Purpose Machine Gun Range, CLFR = Convoy Live Fire Range, EOD = Explosive Ordnance Disposal, ORANG = Oregon Air National Guard, DTR = Demolition Training Range, FMTV =Family of Medium Tactical Vehicles--mostly 2.5-ton LMTV = light medium tactical vehicle, and 5-ton MTV
All items are non-explosive practice munitions except for Demolition Training.
Platforms presented are representative platforms and other similar platforms could be used.

Table 2. Estimated Total Annual Ordnance Use at NWSTF Boardman under the Proposed Action

Training Area and Ordnance Type	Number of Rounds Per Year[1]
Practice/Training Ordnance	
MK-76	392
MK-82	10
MK-83	3
MK-84	2
Laser-Guided Training Rounds	20
Mortar Rounds	
M224 60mm mortars (non-explosive)	1,440
Small and Medium Caliber Rounds	
5.56 mm	269,500
7.62 mm	333,000
20 mm	88,800
40 mm grenades (non-explosive)	10,500
.50 caliber	102,000
High Explosive Charges	
200 pounds net explosive weight or less	50

[1] Actual values will vary based on specific training requirements, which are influenced by factors such as deployments and world events.

Note: All items are non-explosive practice munitions except for Demolition Training.

Table 3. Summary of Estimated Annual Ordnance Use by Range Area under the Proposed Action

Training Area and Ordnance Type	Number of Rounds Per Year[1]
Main Target Area (includes strafing pit)	
Practice/Training Ordnance	
MK-76	392
MK-82	10
MK-83	3
MK-84	2
Laser-Guided Training Rounds	20
Total	**427**
Mortar Rounds	
M224 60mm mortars (non-explosive)	1,440
Total	**1,440**
Small and Medium Caliber Rounds	
5.56 mm	19,500
7.62 mm	13,000
20 mm	88,800
40 mm grenades (non-explosive)	500
.50 caliber	2,000
Total	**123,800**
Multi-Purpose Machine Gun Range	
Small and Medium Caliber Rounds	
5.56 mm	160,000
7.62 mm	220,000
.50 caliber	75,000
Total	**455,000**
Convoy Live Fire Range (Eastern)	
Small and Medium Caliber Rounds	
5.56 mm	45,000
7.62 mm	50,000
40 mm	5,000
.50 caliber	12,500
Total	**112,500**
Convoy Live Fire Range (Western)	
Small and Medium Caliber Rounds	
5.56 mm	45,000
7.62 mm	50,000
40 mm	5,000
.50 caliber	12,500
Total	**112,500**
Demolition Training Range	
High Explosive Charges	
200 pounds net explosive weight or less	50
Total	**50**

[1] Actual values will vary based on specific training requirements, which are influenced by factors such as deployments and world events.

Table 4. Annual Estimates of Aircraft Overflights in the NWSTF Boardman Special Use Airspace under the Proposed Action

Aircraft	Sorties	Flight Time (Hours)	% Above 3,000 ft. MSL	% Nighttime
Fixed-Wing				
EA-6B Prowler	0	0	0%	0%
EA-18G Growler	1,348	2,791	35%	0%
F-15	60	120	65%	0%
F-16	5	8	35%	0%
F-35	64	126	35%	0%
FA-18	129	154	35%	0%
AV-8	0	0	0	0%
P-3/EP-3/P8	50	25	100	20
Parachute Drops from C-130, C-17, CH-47 or C-23	12	12	50%	20%
Helicopters				
CH-47 Chinook	65	97	0%	33%
UH-60 Blackhawk	22	32	0%	33%
UH-72 Lakota	6	8	0%	33%
Unmanned Aerial Systems				
RQ-7 Shadow	204	408	-	15%
RQ-11 Raven	30	100	-	15%
SCANEAGLE	1475	5,900	85%	15%
GRAND TOTAL	**3,470**	**9,781**		

Notes: Flight Time (Hours) = Total flight in NWSTF (Naval Weapons Systems Training Facility) Boardman Military Operating Area; % Above 3,000 ft. (914.4 m) MSL = estimated percentage of total flight time that occurs at an altitude above 3,000 ft. (914.4 m) above MSL; % nighttime = percentage of total flight time that occurs between 10 pm and 7 am.
Flight Time in hours is a summation of all operations, which often occur concurrent to each other. The total flight hours are not a representation of sequential flight hours.
The F-35 is not currently planned for basing with Navy units in the northwest; however, as with other military aircraft types, potential infrequent utilization of NWSTF Boardman is possible from transient units.

1.2 Maintenance Activities

In addition to training and testing activities, personnel stationed at the facility are tasked with ongoing activities to maintain the usability and safety of the facility:

- Chief of Naval Operations Instruction 3571.4 *Operational Range Clearance Policy for Navy Ranges* (9 October 2009) establishes the policy and requirements for performing operational range clearance on Navy ranges in accordance with DoD Directive 4715.11.
    - Areas that support various range management activities as well as areas that pose a potential concern to human health or the environment shall undergo clearance activities.
    - To ensure the safety of maintenance personnel, operational range clearance requirements must address ingress/egress routes, run-in lines, maintenance roads,

and sufficient area around each target to afford safe movement and operation of personnel and equipment.
    - To ensure all targets resemble the objective of the mission and are distinguishable from its surroundings, all material potentially presenting an explosive hazard located on the surface and partially buried that are greater than 4 in. (10.2 cm) in any dimension, must be removed to an appropriate distance from the target and at an appropriate frequency.
- Range control procedures at NWSTF Boardman limit unanticipated interactions with the public. NWSTF Boardman is fully fenced; entrance into these areas is controlled by unmanned gates. Signs also are posted and maintained to warn the public of potentially hazardous activities.
- Vegetation is managed under the *NWSTF Boardman INRMP* (U.S. Department of the Navy 2012a). Actions focus on minimizing disturbance, controlling invasive plants and weeds, and restoring of native habitats.
- Wildlife species are managed under the *NWSTF Boardman INRMP* (U.S. Department of the Navy 2012a). Actions focus on minimizing disturbance and restoring native habitats.
- Commander, Navy Region Northwest implements a regional fire management plan. The Navy is currently revising, updating, and expanding the specific portion of that plan applicable to NWSTF Boardman. The current fire strategy is to use the existing road system as the staging lines at which fires will be fought. The Navy currently maintains a system of 60 ft. (18.3 m)-wide fire breaks throughout NWSTF Boardman. A detachment of six Navy personnel are stationed at NWSTF Boardman. Their responsibilities are to maintain the buildings, roads, wells, fences, and other infrastructure and provide security in accordance with NAS Whidbey Instruction 3120.6 (NWSTF Boardman Standard Operating Procedures). Navy personnel stationed at NWSTF Boardman are required to hold Wildland Firefighting Red Cards. Additionally, the Navy personnel stationed at NWSTF Boardman are equipped with appropriate wildland protective clothing. NWSTF Boardman firefighters have nine vehicles assigned to them; however, only two are used for actual firefighting operations, a dedicated firefighting vehicle (Type VI Brush truck) and a General Services Administration truck that has a 250-gallon firefighting skid unit mounted (a “skid” is a water pump with a large water capacity that sits in the rear of a flatbed truck). In addition, the Navy leases a tractor and disc during the 4-month fire season to maintain fire/fuel breaks. In extreme situations, the tractor could also be used for incipient wildland fire suppression efforts when the application of foam lines is unavailable, exhausted, or ineffective.

1.3 Range Enhancements

The Proposed Action could include the establishment and use of an additional MOA to the northeast of existing NWSTF Boardman airspace, an increase in existing training activities, new training activities, and range enhancements to meet Navy and ORNG training requirements. Some ongoing training activities could increase as a result of force structure changes associated with the introduction of new aircraft or other equipment. The following proposed range enhancements would support new training activities and some ongoing activities.

- Establishment and use of an additional MOA to the northeast of existing NWSTF Boardman airspace. Low-altitude flight tracks would be oriented along a northeast axis to

facilitate the use of this additional MOA (Figure 1 in the Assessment), avoiding existing and proposed wind turbines on the far eastern end of R-5701C.

- Construction and operation of a Multi-Purpose Machine Gun Range (MPMGR), with a heavy sniper lane, and associated support facilities (Figure 1). The MPMGR would be used to train and qualify Soldiers in the use of various crew-served weapons.
- Construction and operation of eastern and western Convoy Live Fire Ranges (CLFR). The CLFRs would be used for training Soldiers in planning and conducting vehicle convoy operations, including immediate action response using weapons live fire against threats encountered during convoy operations utilizing wheeled and tracked vehicles.
- Construction and operation of a Demolition Training Range (DTR). The DTR would be used by Explosive Ordnance Disposal (EOD) personnel, Combat Engineers, and others for land demolition training (i.e., safely detonating explosive charges).
- Designation and establishment of a Drop Zone to accommodate parachute operations of personnel and small-medium sized equipment (Containerized Delivery Systems)
- Establishment and use of three mortar firing positions
- Construction and use of a UAS Training and Maintenance Facility with small airstrip
- Construction and use of a Range Operations Control Center (separate from the UAS facility)

Table 5 presents the approximate footprints associated with proposed range enhancements.

1.3.1 Establishment and Use of Additional Special Use Airspace

To meet Navy Mission Essential Tasking, the EA-18G and the EA-6B aircraft stationed at NAS Whidbey Island have a training requirement that necessitates low-altitude flying and combat style maneuvering at 350 to 480 knots at 200 ft. (60.9 m) to 500 ft. (152.4 m) AGL. Established wind energy projects have reduced the usable airspace for Low Altitude Tactical Training (LATT) from 205 nm^2 to 201.2 nm^2. Due to the anticipated continued development of wind energy projects inside R-5701 airspace, larger portions of R-5701C in the southeast and R-5701-E would no longer be usable for low-altitude flight training. Range capacity at other military installations is very limited and the expectation of range time availability at other ranges is problematic. Flight training capacity at other military installations with low-level restricted-use airspace is very limited, and the airspaces at other Navy or DoD ranges outside of Boardman do not have the capacity to accommodate additional flight training time. All military installations with low-level restricted-use airspace are fully scheduled by locally assigned aircrews currently training in those airspaces. It is not possible to obtain sufficient training time within another installation’s airspace for the aircraft crews at NAS Whidbey Island, who require more than 2,000 hours of daytime use. If aircraft crews are unable to accomplish their required training, they would be required to obtain waivers of necessary training qualifications and might even have to deploy without this important training.

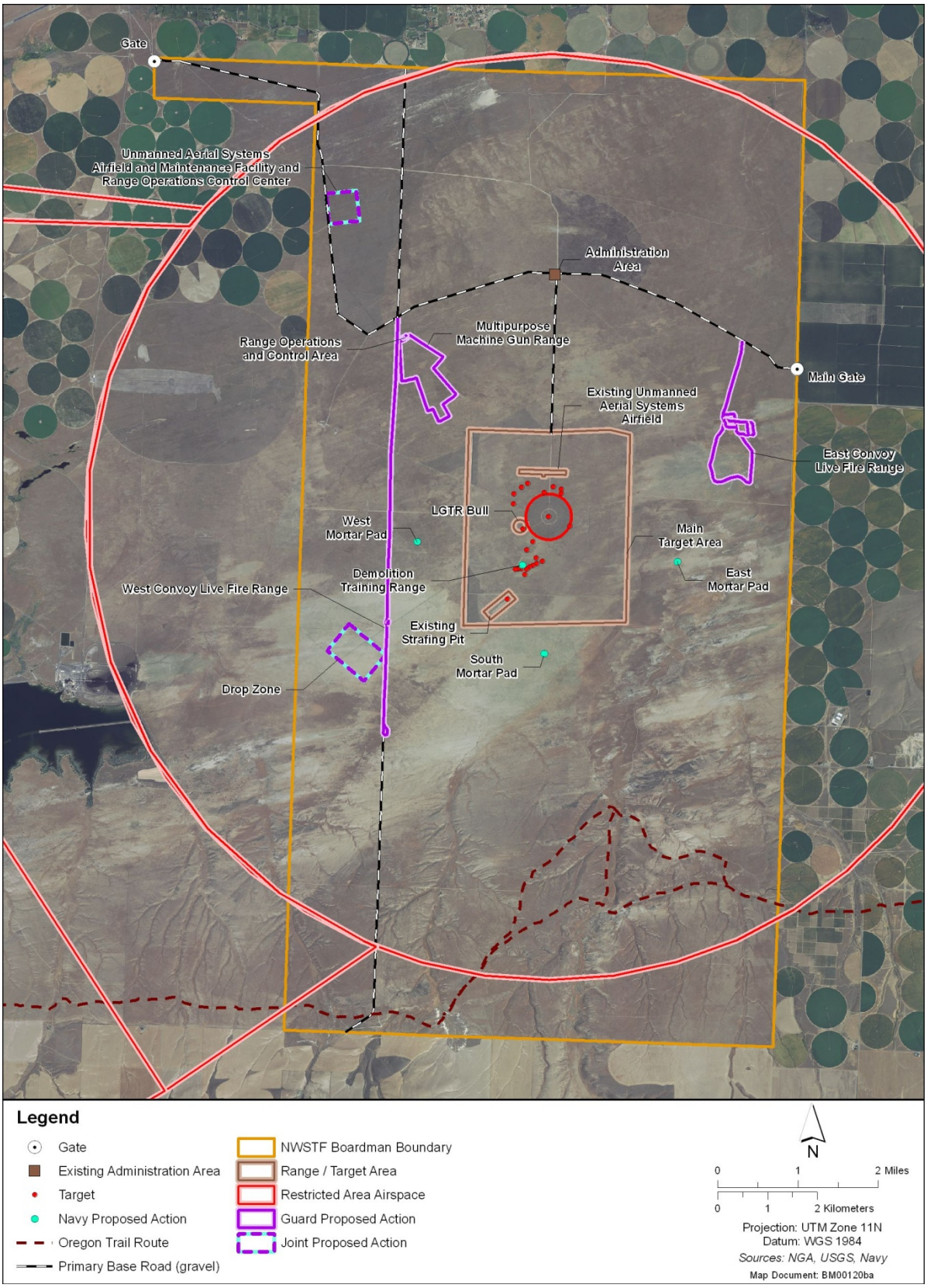


Figure 1. Navy and ORNG Range Enhancements Under the Proposed Action

Table 5. Summary of Proposed Range Enhancements

Proposed Range Enhancement	Total Area of Construction Disturbance (acres)			Total Area of Construction Disturbance (acres)
	Undisturbed Area (acres)	Previously Disturbed Area (acres)	Area Temporarily Disturbed and Revegetated (acres)	
MPMGR and Range Operations Control Area	16	0	14	30
CLFR (Eastern)	0	12	0	12
CLFR (Western)	0	12	0	12
DTR	0	1	0	1
TUAS Training and Maintenance Facility	8	0	1	9
Drop Zone	0	0	0	0
Three Mortar Firing Points	0	0	0	0
Joint-Use Range Operations Support Center	0.5	0	0	0.5
TOTAL	**24.5**	**25**	**15**	**64.5**

Notes: MPMGR = Multi-Purpose Machine Gun Range, CLFR = Convoy Live Fire Range, DTR = Demolition Training Range, TUAS = Tactical Unmanned Aerial Systems

A solution to this problem is the creation of the Boardman Northeast MOA as shown in Figure 1 in the Assessment. This new training airspace would be 46 nm^2 (157.8 km^2) and join the current Boardman MOA. The Boardman Northeast MOA would overlie the current national security area that is above the Umatilla Army Depot. The Umatilla Chemical Depot National Security area has a zone of surface to 5,000 ft. MSL. The National Security Area is only “active” during emergencies, all other times it is a recommended no-fly area. Low-altitude flight tracks would be oriented along a northeast axis to facilitate the use of this additional MOA, avoiding existing wind turbines on the far eastern end of R-5701C (Figures 5 and 6 in the Assessment).

It is important to note that the proposed airspace would not be designated as a restricted area. The difference between a MOA and a restricted area is that, in a MOA, military aviation units may be using the airspace, but they are not engaged in any firing or bombing activities. Restricted areas denote the existence of unusual, often dangerous, hazards to aircraft such as weapons firing, or aerial gunnery.

1.3.2 Construction and Operation of MPMGR with Heavy Sniper Overlay

<u>Construction</u>

The ORNG would use the MPMGR to train Soldiers in the use of various crew-served small arms such as the M240B 7.62mm machine gun, the M249 5.56mm machine gun, MK19 40mm

Grenade Machine Gun, and the M2 .50 cal machine gun. The proposed design is essentially the same as the Army-Standard MPMGR depicted in Department of the Army Training Circular 25-8, with the addition of one heavy sniper range lane, which includes additional targets and extends from 1,500 m (4,921.3 ft.) to 1,775 m (5,823.5 ft.)(Figure 2). Various sniper rifles, up to and including the .50 cal sniper rifle, would be used on the heavy sniper range lane.

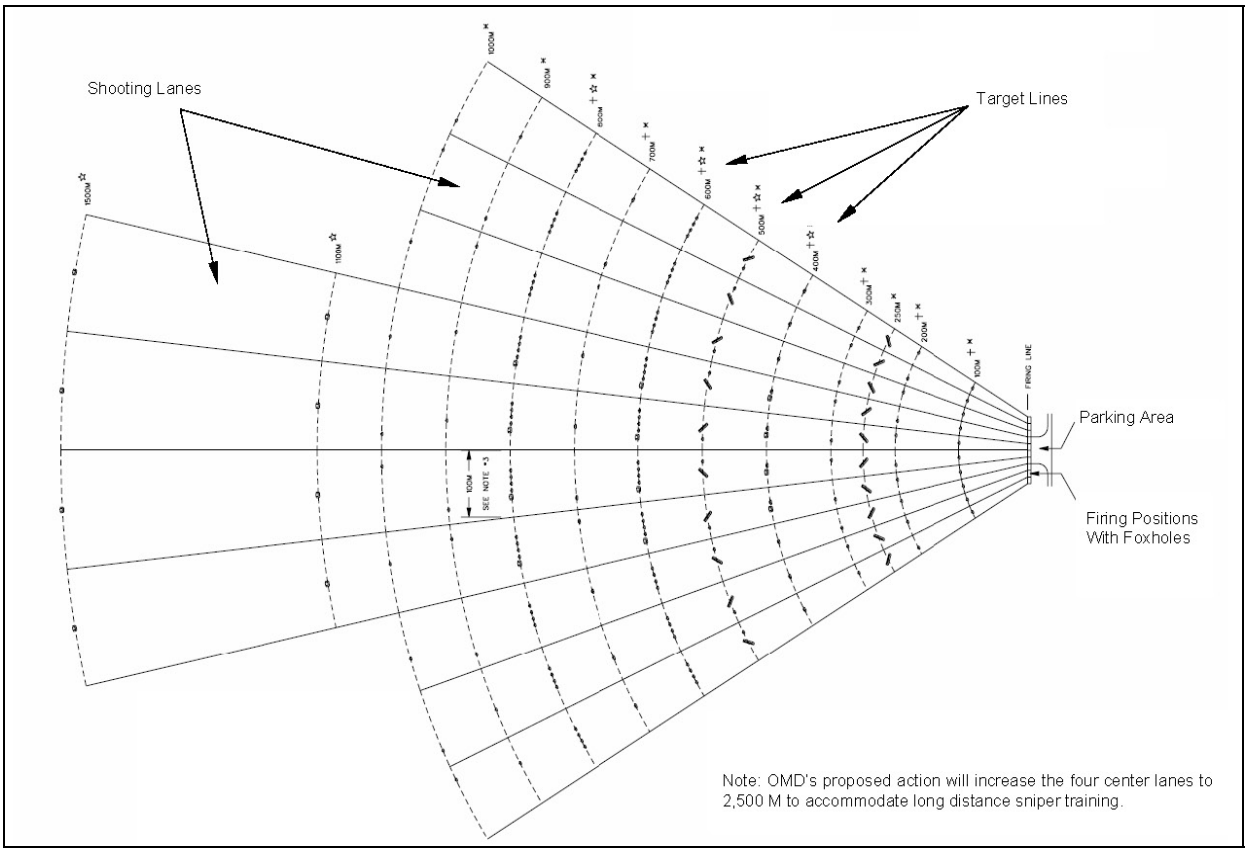


Figure 2. Army-Standard MPMGR

The MPMGR would consist of 10 firing lanes with multiple stationary and moving targets in each lane. Six of the firing lanes extend to 1,000 m (3,280.8 ft.). Four lanes extend to 1,500 m (4,921.3 ft.). One 1,500 m (4,921.3 ft.) lane would be lengthened to 1,775 m (5,823.5 ft.) and would contain additional targetry for training and qualification with sniper weapons. The range would be constructed so that the firing points would accommodate a parked vehicle with a mounted machine gun. The range would contain a total of 151 target emplacements. Each target would be mounted on a mechanism to raise the target when it is activated or create a moving target. Each target support structure would be set on a concrete or gravel pad behind an earthen berm to shield the target support equipment from projectile damage. Utility trenching would be required to bring underground power, control, and data cable from the range control tower to each target emplacement within 1,500 m (4,921.3 ft.) of the firing points on the range, targets beyond that would be battery powered and Radio Frequency operated.

Close to the MPMGR, the ORNG also would construct a 10 lane zero range. The zero range would allow Soldiers to adjust (“zero”) the sights of their weapons, each using a single target at a

distance of 10 m (32.8 ft.), prior to shooting on the MPMGR. The zero range would be approximately 10 by 40 m (32.8 by 131.2 ft.) in size and would include a range control tower. The Range Operations and Control Area would provide support facilities for the MPMGR. It would occupy approximately 2.2 ac. (0.89 ha) and would consist of about eight small metal-sided buildings, a gravel vehicle parking area, and gravel walking paths. One building would be elevated on legs and used as a control tower. Another would be a ground-level storage building.

Other structures include a set of covered bleachers, a general instruction building (classroom), an after-action review building, a covered eating area, an ammunition breakdown building, and concrete slabs for placement of self-contained portable latrines. The layout of the range and Range Operations and Control Area would be sited so as to minimize disturbance and reduce effects to sensitive species where possible.

The MPMGR, along with an associated zero range, Range Operations Control Area, access roads, parking areas, and maintenance trails to access the target emplacements would encompass approximately 260 ac. (105.2 ha). Surface danger zones (SDZ) for the MPMGR and zero range would cover approximately 12,500 ac. (5058.6 ha). The MPMGR and the zero range would be sited so both ranges could operate simultaneously and so that their SDZs would overlap the existing main target area. A SDZ is the mathematically predicted, three-dimensional area that a projectile or fragment could travel through the air and impact the earth, either by direct fire or ricochet. A SDZ is calculated using procedures found in Department of the Army Pamphlet 385-63 - Range Safety. Except for areas on the ranges themselves, none of the areas within SDZs would be disturbed during construction. A SDZ serves only as a human safety buffer downrange from a firing point.

Of the 260 ac. (105.2 ha) occupied by the MPMGR and associated development, approximately 27.5 ac. (11.1 ha) would be disturbed during construction. The disturbance would consist of the construction of access roads, parking areas, maintenance trails, the Range Operations and Control Area, weapons firing positions, target emplacements, earthen berms, and associated underground power control and data cables. Of the 27.5 ac. (11.1 ha) of disturbed area, approximately 11.6 ac. (4.7 ha) would be revegetated with native vegetation following construction. The remaining 15.9 ac. (6.4 ha) would contain buildings, concrete structures, or gravel surfaces and would remain permanently altered.

Construction of the MPMGR would be accomplished using typical construction equipment. Building materials, including concrete and gravel and soil for berms, would likely be imported from one or more off-site sources. The Range Operations and Control Area parking area would be constructed first and used for staging construction of the MPMGR and the remainder of the Range Operations and Control Area. Additional construction staging areas, if needed, would be established within previously disturbed areas at the Navy administrative area.

Operation and Maintenance

The ORNG would use the MPMGR and associated zero range year-round, approximately 117 days annually. Typically, use would occur primarily on weekends between approximately 9:00 am and 6:00 pm, although some night time training and qualification also would be conducted. Firing would typically occur in approximately 20 minute blocks while the range is in use. Firing

time for a day would usually be around 2 hours, with breaks in shooting to change crews, take meal breaks, repair targets, and for other reasons.

Except for tracer rounds, all ammunition used on the range would be inert/non-explosive. Munitions casings would be collected at the conclusion of training. Tracer rounds would be prohibited during periods of high fire danger. Tracer ammunition (tracer rounds) are bullets that are built with a small pyrotechnic charge in their base. Ignited by the burning powder, the pyrotechnic composition burns very brightly, making the projectile visible to the naked eye. This enables the shooter to follow the bullet trajectory in order to make aiming corrections. If pyrotechnic devices, such as smoke grenades, were used, they would be placed in metal containers to minimize their potential to start a fire.

Maintenance activities on the range would include periodic maintenance, repair, and replacement of targets and target support mechanisms. Periodic vegetation control on the range will be conducted to reduce fire fuel loading or manage exotic vegetation.

Solid wastes would be collected for transportation and disposal at permitted off-site solid waste management facilities. No on-site waste disposal is planned. Waste from the portable latrines would be removed periodically by a local contractor and transported to a local treatment facility by a contractor.

1.3.3 Construction, Operation, and Maintenance of two (Eastern and Western) CLFRs

Construction

The eastern CLFR would be used to train Soldiers in conducting vehicle convoy operations, up to and including immediate action response using weapons live fire against encountered threats. The eastern CLFR would be developed along an approximately 8.0 km (5 mi.) route on the eastern portion of NWSTF Boardman. Portable targets would be sited within approximately 100 m (328.1 ft.) of the road course and used to simulate an ambush. The targets would be periodically relocated to change training scenarios. Temporary structures, such as plywood facades, steel shipping containers (conex boxes), or hay bale walls, may be used to simulate small urban environments and help conceal targets. No permanent construction or alteration of the existing terrain would be anticipated for the eastern CLFR.

The ORNG has sought to develop a proposed CLFR on NWSTF Boardman such that (1) existing roads would be used, (2) the SDZ would be completely contained within the installation boundaries, and (3) the relatively undisturbed wildlife habitat located on the southern portion of the installation would be avoided. These factors have resulted in the proposal to locate the CLFR along an existing north/south road with potential targets located toward the center of NWSTF Boardman. The SDZs for this range would be mostly within those of the proposed MPMGR and the existing main target area.

Construction of the range would consist of graveling existing two-track roads to support increased vehicle traffic and to reduce fugitive dust emissions during training. Construction also would involve placing portable target-lifters within 100 m of the existing roads and encircling them with sandbags and steel plates to protect the battery power-supply and radio controllers from damage. The target lifters would encompass an area approximately 2 by 3 ft. (0.6 by 1.8

m). Shipping containers, plywood, and hay bales may also be used to create building facades and simulated village walls.

In addition to the eastern CLFR, a second, western CLFR would allow at least one of the CLFRs to be used while the MPMGR is in use. Having two CLFRs also would permit the ORNG to accommodate surges in required training prior to deployments, when many Soldiers need to be trained in a short period of time. The diversity added by these training assets would also increase training realism.

The second (western) CLFR would be established along approximately 4 mi. (6.4 km) of an existing north-south road located west of the proposed MPMGR location and would likely include a simulated traffic round-about near the center of the range and a turn-around area at the southern end (Figure 1). Target emplacements would be located toward the center of NWSTF Boardman to contain the SDZ on NWSTF Boardman. The construction and development of the second, western CLFR would be similar to the eastern CLFR, as described above. The footprint of the western CLFR, not including the SDZ, would cover approximately 68 ac. (27.5 ha). The ORNG has estimated the SDZ for this range would require approximately 15,600 ac. (6,313.1 ha), including the range itself. Most of the SDZs would overlap the SDZs for the MPMGR, eastern CLFR, and the existing main target area.

Operations and Maintenance

Up to Platoon-sized (25 to 50 personnel) convoys armed with M249, M240B, M2, and MK 19 machine guns would navigate the installation roads training in Command, Control, and Communications; upon entering the CLFR, the range would become “hot” (firing activities can occur) and units would detect activated targets and engage those simulated hostile targets. Training would occur according to standardized procedures and under the guidance of a Range Safety Officer up to 45 days a year.

Except for tracer rounds, all ammunition used on the CLFRs would be inert/non-explosive. Use of tracer rounds would be prohibited during periods of high fire danger. Any pyrotechnic devices would be placed in metal containers to minimize their potential to start a fire. Training would take place during both day and night hours.

Range maintenance would entail typical gravel road maintenance and periodically servicing the power supply and radio controllers of the target lifters. Targets may be relocated to vary the training scenarios and former target locations would be revegetated with native species. Periodic vegetation control may be required to reduce fire fuel loading or manage exotic vegetation and would be conducted as authorized in approved natural resource and fire management plans.

1.3.4 Construction and Operation of a Demolition Training Range

Under the Proposed Action, the Navy proposes to construct a demolition training range (DTR) to accommodate land demolition training (Figure 1). The range would be constructed as a cleared area with approximately 10 ft. (3.1 m) berms on each side of the range to reduce detonation fragments outside the immediate range area. Details regarding ordnance that would be used in the DTR and frequency of use are outlined in Table 2 and Table 3. Additionally, Office of the Chief of Naval Operations Instruction 3501.97G requires that explosive ordnance disposal

personnel conduct periodic demolition training in order to retain qualifications and the DTR will assist in maintaining those qualifications. The demolition training range would be utilized up to 50 times annually and could support a maximum Net Explosive Weight (NEW) of 200 pounds (lb) (90.7 kilograms [kg]). Training with explosive charges of NEW between 100 lb (45.4 kg) and 200 lb (90.7 kg) would not be a regularly scheduled occurrence, and would only be conducted in special training circumstances. For the analysis of potential impacts, two detonations per year at a NEW of 200 lb (90.7 kg) were included; however, it is anticipated that explosive charges of this size would be a rare occurrence. If requirements to train with charges greater than 100 lb (45.4 kg) are put into place, then special mitigations to help reduce noise levels would be implemented, such as training during times with optimal weather conditions to attenuate noise, burying the explosive charge or bunkering the charge with sand bags. Ordnance used annually at the NWSTF Boardman DTR would consist of explosive charges with a NEW of 200 lb or less, and would include up to two 200 lb charges, five 100 lb charges, ten 50 lb charges, twenty 25 lb charges, and thirteen charges less than 25 lb. Demolition training would normally occur between the hours of 10:00 a.m. and 4:00 p.m. Training is not normally planned to occur in the June to September time frame to help mitigate wildland fire potential, though seasonal conditions and training times may vary.

1.3.5 Establishment and Use of a Drop Zone

A drop zone would be established at the location shown in Figure 1 under the Proposed Action. The drop zone would be approximately 2,250 ft. (685.5 m) by 3,150 ft. (960.1 m), with an approximate footprint of 167.2 ac. (65.8 ha). No construction or ground disturbance would be required to establish the drop zone. The drop zone would be a designated area, certified to be clear of obstructions (such as fences or telephone poles) for the safety of personnel conducting parachute operations.

Insertion and extraction activities train military forces to deliver and extract equipment and personnel using a variety of techniques. These activities encompass parachute, fastrope, rappel, and troop extractions. The C-130 aircraft, HH-53, CH-46, CH-47 and UH-60 helicopters are typically used for equipment and personnel inserts. Insertion and extraction activities at NWSTF Boardman would be centered on paradropping of military equipment and supplies. This activity typically lasts anywhere from 30 minutes to 1 hour and would occur up to 12 days annually.

1.3.6 Establishment and Use of Three Mortar Firing Positions

Three mortar firing positions would be established at the locations shown in Figure 1 under the Proposed Action. No construction or ground disturbance would be required to establish the mortar firing points. Weapons Danger Zones (WDZs) for the mortar firing positions would be concentrated on the main target bull and not extend off the NWSTF Boardman boundary. The M224 60 mm lightweight mortar (or a similar system) would be fired for qualification certification or during ground troop support exercises using practice rounds. The M766 60 mm short-range practice cartridge has a flash-bang/smoke fuse. The M224 system is made up of the cannon, bipod, baseplate, and sight unit. The system is very portable and is placed on the ground surface, sighted at a stationary target, and fired. Only non-explosive training rounds would be used and these rounds would be retrieved for reuse or recycling after they are fired. Additionally, 81 mm and 120 mm mortars using sub-caliber training rounds would be used and these spent

rounds would be retrieved and scrapped after firing. The mortar firing points (3) would be used for 6 days annually (18 days total), with up to 1,440 rounds being fired annually.

1.3.7 Construction, Operation, and Maintenance of an UAS Training and Maintenance Facility

An ORNG platoon is assigned to operate and maintain the RQ-7B (Shadow 200) tactical UAS. The platoon is currently equipped with four Shadow 200 aircraft, ten trucks, and nine trailers. The Shadow 200 is a composite structure aircraft with a 14 ft. (4.3 m) wingspan, powered by a small, gasoline-fueled, rotary engine. The Shadow 200 can carry 15 gallons (56.8 liters) of fuel and 60 lb. (27.2 kg) of sensor and electronic warfare systems equipment and has a maximum flight endurance of 6 to 7 hours. The Shadow is designed for reconnaissance missions and does not currently have a strike capability.

Construction

The ORNG would construct a UAS training and maintenance facility that would consist of a single building (approximately 12,200 square feet [ft.^{2}] [1,133.4 square meters {m^2}]) for platoon operations, training, maintenance, and storage associated with the Shadow 200 aircraft. The building would be constructed of metal or masonry and would contain space for a UAS maintenance shop, equipment storage, flight simulator, and administrative offices. The facility also would include a building (approximately 4,800 ft.^{2} [446.03 m^2]) for the storage of ground vehicles and a paved UAS runway and an unpaved operations area. The runway would be approximately 50 ft. (15.2 m) wide and 1,000 ft. (304.8 m) long. A gravel operating area used for a UAS launcher, UAS control equipment, and portable generators, would be 164 ft. (50.01 m) wide and 700 ft. (213.4 m) long. The runway would be oriented east to west, the direction of the prevailing winds. A vehicle parking area would be constructed adjacent to the operations and maintenance building. A 500 gallon (1,892.7 liter) aboveground fuel tank in a secondary containment would be located in the vicinity of the building. Additional gravel wildland fire buffers would surround the facility. A well would be drilled in the vicinity of the building to provide non-potable water and a septic system and leach field would be installed for wastewater disposal. In total, the facility is expected to occupy approximately 7 ac. (2.8 ha). The existing road between the northwest gate onto NWSTF Boardman and the UAS training and maintenance facility may be improved to support construction operations access by grading the road and adding rock and gravel.

The UAS facility would be built using typical construction equipment and techniques. Building materials, including concrete and gravel and soil for berms, would likely be imported from one or more off-site sources.

Operations and Maintenance

The UAS platoon would have a full-time staff of approximately seven Soldiers working at the facility. During drill weekends and annual training periods, the full platoon of 27 Soldiers would be present at the facility. Training on UAS simulators, maintenance and repair of the UAS aircraft, and UAS aircraft flights would occur at the facility. Maintenance of the truck and trailer rolling stock would likely occur at ORNG facilities located elsewhere in the state.

The Scan Eagle UAS is a relatively small aircraft that is currently operated at NWSTF Boardman. Typically these activities are conducted in NWSTF Boardman airspace, result in 800 to 1,000 sorties a year, and consist of testing and training. The UAS activity lasts approximately 6 hours. UAS activities can only be conducted in Restricted Area 5701 and Restricted Area 5706. Scan Eagle UAS Research, Development, Test, and Evaluation activities in Restricted Area 5701 and Restricted Area 5706 are anticipated to continue. The Broad Area Maritime Surveillance system is a future Navy system that may be used for training within Restricted Area 5701 and Restricted Area 5706. The specific UAS to be used for this system has yet to be determined, but it will likely be a large aircraft such as the Global Hawk, Predator B, or a similar UAS. These aircraft are roughly the size of common military tactical aircraft such as the EA-6B Prowler or FA-18 Hornet. If the Broad Area Maritime Surveillance system is likely to have a strike capability, that training would be covered in a separate NEPA analysis.

1.3.8 Construction and Use of a Joint Use Range Operations Control Center

The Proposed Action would include the construction of an additional building (approximately 10,000 ft.^{2} [929 m^2]) to house Navy and ORNG range control personnel and equipment. The Range Operations Control Center building would be constructed in proximity to the UAS Training and Maintenance Facility to enable shared use of a water well, septic system, and electrical service.

1.4 Best Management Practices (Conservation Measures)

The current management practices contained in the *NWSTF Boardman INRMP* and other applicable plans would continue to be implemented, and existing programs and plans would be updated to reflect new conditions. The following additional BMPs would be implemented to avoid and minimize potential impacts under the Proposed Action:

- Applicable erosion control measures would be implemented during construction to avoid and minimize the potential for wind and water erosion in accordance with the Oregon Department of Environmental Quality *Erosion and Sediment Control Manual* (ODEQ 2005).
- Drip pads would be placed under equipment when parked to avoid soil contamination from leaking fluids.
- Under the Navy's Range Sustainability Environmental Program Assessment (RSEPA), Range Condition Assessment 5-year Reviews would continue to be conducted and appropriate steps would be taken to analyze environmental conditions on the range and to prevent or respond to a release or substantial threat of a release of munitions constituents of potential concern to off-range areas that could pose risks to human health or the environment. RSEPA focus would be expanded to incorporate new range activities and new training areas under periodic assessments.
- Assessments would be conducted for the MPMGR and both CLFRs in accordance with the Army's Operational Range Assessment Program. These assessments would first determine qualitatively if munitions constituents were leaving the operational range footprint and whether pathways exist for human or ecological receptors. A quantitative assessment would be conducted if the qualitative assessment were inconclusive. The assessments would be conducted on a 5-year review cycle, even if the initial qualitative assessment identified no issues. In addition, ORNG would proactively manage the new

ranges using applicable strategies outlined in the *Army Small Arms Training Range Environmental Best Management Practices Manual*.

- Surveys would be conducted during the project design phase to identify existing habitat, evaluate habitat quality, and identify wildlife currently using these habitats. This information would be used during project design to support micrositing decisions. Areas of higher quality habitat (e.g., undisturbed areas with a relatively high percentage of native plant cover) or high wildlife use (e.g., existing Washington ground squirrel burrows) would be avoided in favor of areas of lower quality habitat (e.g., disturbed areas with a relatively high percentage of non-native plant cover), to the extent practicable. Micrositing efforts would be limited to buildings and structures, as opposed to targetry or other range components, because even minor changes to the range design could affect the associated surface danger zone or impact range safety in other ways. The survey data would also be used to support post-construction restoration efforts.
- Habitat temporarily disturbed during construction would be restored in accordance with the proposed post-construction restoration plan (Appendix A). The restoration plan would be implemented by the ORNG in accordance with the Host-Tenant Agreement and Inter-Service Agreement that would be updated prior to implementing the proposed action.
- The management practices contained in the *NWSTF Boardman INRMP* and other applicable plans that are relevant to WGS conservation would continue to be implemented. Invasive plants would continue to be managed and controlled under the *NWSTF Boardman INRMP*, with an increase in control effort to reflect new threats introduced by the Proposed Action. The Plan would be updated in cooperation with ORNG, the Service, ODFW, and The Nature Conservancy during routine annual reviews to reflect the evolving invasive plant management situation associated with construction and operation of the new ranges. Updates to the Plan would include provisions for short- and long-term monitoring of invasive plants; responsibilities and procedures for integrating efforts of the Navy, ORNG, and The Nature Conservancy; criteria for prioritizing management actions and adaptive management strategies to control invasive plants; and annual work plans, including funding requirements and funding sources. After the range becomes operational, qualitative surveys would be conducted annually within the range footprint to detect noxious weeds (Morrow County list of noxious weeds) within the identified affected areas. The purpose of these surveys is to detect noxious weeds so that they can be controlled immediately, most likely through targeted application of a glyphosate herbicide. Surveys would continue indefinitely, and controls would be implemented as necessary.
- The NWSTF Boardman Draft Integrated Wildland Fire Management Plan (Appendix H of the DEIS) would be finalized and implemented. In addition to other fire protection measures, the Plan includes proposed modifications to the existing system of fire breaks. The width of some fire breaks would be reduced to the width of the adjacent road, some fire breaks that do not follow roads would be eliminated, and some new fire breaks would be created. The total area of fire breaks that would be maintained annually by mechanical disturbance (plowing or disking with a tractor) would decrease from 462 ac. (187 ha) to 243 ac. (98 ha). A long-term re-vegetation plan (Appendix A) would be implemented to restore the areas removed from mechanical maintenance. These areas would be re-vegetated with native bunchgrasses, primarily Sandberg's bluegrass with some needle and thread or bluebunch wheatgrass, to provide a low-structure and low-fuel load area next to the road/fire break, and also to provide wildlife habitat value. Grass revegetation would

be considered successful if seeding results in a stand of grass providing a uniform coverage of at least 80 percent density of a representative bunchgrass stand area within 2 to 3 years of seeding. Selective herbicide treatments or other appropriate management actions would be used to control invasive plants until these areas are completely restored.

- As part of the *NWSTF Boardman INRMP*, the Navy, in cooperation with The Nature Conservancy, is proposing to relocate RNA-A to a more suitable location. Three RNAs were established on NWSTF Boardman in 1978 and are co-managed by The Nature Conservancy under a Memorandum of Understanding with the Navy. The RNA program was created to (1) preserve examples of all significant natural ecosystems for comparison with those influenced by man, (2) provide educational and research areas for ecological and environmental studies, and (3) preserve gene pools of threatened and endangered plants and animals. RNA-A encompasses the Main Target Area at NWSTF Boardman, which must be used and maintained to meet mission requirements. Portions of the Main Target Area are highly disturbed by military use. While the rationale for originally establishing RNA-A within the Main Target Area appears to have been in part based on its isolation from cattle grazing, it has become clear that this area is not functioning as a RNA and is not providing the intended scientific and educational benefits of an RNA. Therefore, the Navy, in coordination with The Nature Conservancy, is proposing to relocate RNA-A to one or more suitable locations on NWSTF Boardman. The new RNA would be sited to avoid possible conflicts with military activities, and the new location would be more representative of the unique habitat types RNAs are designed to protect. Similar to existing RNA-B and RNA-C, access to the relocated RNA would normally be limited to research activities, invasive plant control, and emergency response. The Washington ground squirrel, as well as other wildlife species and wildlife habitat, would benefit from the increased protection and management provided by relocating RNA-A to a more suitable location.
- Explosive demolition training is not normally planned to occur in the June to September time frame to help mitigate wildland fire potential, though seasonal conditions and training times may vary.
- DTR training includes additional BMPs to help reduce noise levels for training with charges greater than 100 lbs (45.4 kg) NEW. These could include: training during times with optimal weather conditions to attenuate noise, burying the explosive charge, or bunkering the charge with sand bags.
- On NWSTF Boardman, to improve vehicle operation safety, be protective of wildlife, and reduce dust emissions, the vehicle speed limit for the range is 25 mph unless otherwise posted; however, emergency situations, operational necessities and certain training events may require vehicle speeds to exceed this standard speed limit. At all times on the range, vehicle operators shall use extreme caution and operate at a slow, safe speed consistent with the mission, safety, and current road and environmental conditions. Vehicle operators shall be cognizant and protective of pedestrians and wildlife while conducting all range activities.
    - The only road posted above 25 mph is the Admin Main road from the main gate access to the range from Bombing Range Road to the on-range road known as "The Interstate". Speed limit on the Admin Main Road is 30 mph.
    - It is not expected that training requirements will require speeds in excess of 25 mph on a routine basis; however, in some training events, vehicles need to be able to react to changing tactical situations in training as they would in actual combat.

Training differently than that which would be needed in an actual combat scenario would decrease training effectiveness and reduce the crew's abilities. During these activities, the 25 mph speed limit may need to be exceeded for brief periods.

1.5 Proposed Mitigation Measures

1.5.1 Introduction

The proposed BMPs described above would be implemented to avoid, minimize, and rectify impacts on natural resources. Nonetheless, the analysis presented in Section 5, *Effects of the Proposed Action*, indicates that the Proposed Action would result in unavoidable impacts on historically occupied and suitable Washington ground squirrel habitat. This section provides the mitigation framework to compensate for these unavoidable impacts. The mitigation goal is no net loss of habitat quantity or quality, and to provide a net benefit of habitat quantity or quality, which would be achieved through in-kind and in-proximity habitat restoration and enhancement. A summary of commitments identified in the current INRMP and the new mitigation commitments (creating additional “uplift”) are provided in Appendix B. As each individual proposed action is funded and constructed, mitigation measures and adaptive management of the area involved with the proposed action would be implemented.

Despite being one of the largest remaining blocks of predominantly native shrub-steppe and grassland habitats in Oregon’s portion of the Columbia Plateau Ecoregion, non-native plant species invasions have degraded plant communities and wildlife habitat at NWSTF Boardman. Lightning-caused wildfire, historic livestock grazing, plowing, and other land uses have contributed to the spread of non-native plant species on NWSTF Boardman. Non-native plant species were identified as one of the greatest threats to the Boardman Grasslands (Kagan *et al.* 2000), because they replace native vegetation and degrade wildlife habitat.

In particular, cheatgrass (*Bromus tectorum*) is a serious threat because it alters natural fire regimes by creating more abundant and continuous fine fuels that can result in more intense, larger, and frequent fires. Intense fires that burn through high-quality native habitats can convert a diverse multi-story habitat of cryptogams, perennial grasses and forbs, and shrubs to a monoculture of cheatgrass and other invasive species that is difficult to reverse without active restoration (Elseroad 2007). Since 1998, more than 85 percent of NWSTF Boardman has been burned by wildfires, which have caused short- and long-term habitat alterations. Cheatgrass is a factor that has contributed to the intensity, size, and frequency of wildfire at NWSTF Boardman.

Restoring habitats on NWSTF Boardman that have been degraded by wildfire, non-native invasive plants, plowing, and other causes offers opportunities for in-kind and in-proximity habitat mitigation. Successful restoration or enhancement efforts on ample acreage at NWSTF Boardman could increase available native habitat for the Washington ground squirrel and other wildlife, decrease the frequency and intensity of wildfire, and improve long-term stability of the ecosystem, thus ensuring no net loss and a net benefit of habitat quantity and quality at NWSTF Boardman.

1.5.2 Location of Mitigation Sites

Proposed habitat restoration activities would occur at selected locations on the southern portion of NWSTF Boardman. The NWSTF Boardman resource management area is identified in Figure 3. This area of the range consists of approximately 11,226 ac. (4,543 ha) and was selected for habitat restoration activities for the following reasons:

- This portion of NWSTF Boardman has not been used for ground-based military training activities since Navy ownership of the property in about 1960.
- None of the proposed range enhancements are sited in this area.
- Current and proposed military readiness activities are not expected to have significant impacts on natural resources in the area.
- Proposed habitat restoration activities in this area would be compatible with current and proposed military readiness activities. Long-term habitat mitigation goals could be pursued with no loss to military training or testing capabilities and capacity.
- Proposed habitat restoration areas would not preclude future military training activities in this area.
- The area offers opportunities for in-proximity mitigation because it is within the boundaries of NWSTF Boardman and has connectivity to habitats that would be affected by the Proposed Action.
- This southern portion of the range includes a mosaic of shrub-steppe and grassland habitats representing a range of ecological condition classes (e.g., low to high), offering opportunities to achieve ecological uplift through habitat restoration.
- Washington ground squirrels occur in the area and the Warden and Sagehill soils found in this area are thought to provide the most suitable burrowing habitat located on the range property. Therefore, ecological uplift achieved through native plant community restoration would benefit this species by improving forage quality, cover, and ecological stability (e.g., decrease in wildfire frequency and intensity).
- This portion of NWSTF Boardman receives higher annual precipitation than the northern portions of NWSTF Boardman, which would facilitate native vegetation restoration activities.
- This area of the range is directly adjacent to the Boardman Conservation Area (BCA) and to Research Natural Area (RNA)-C (Figure 4). Proposed management activities would complement similar ongoing efforts on the BCA and in RNA-C. The fact that these habitats are connected maximizes the cumulative benefits of management activities in these different areas.
- Habitat restoration activities in the resources management area would be consistent and compatible with the protection of historic sites and cultural resources in this part of the property.

1.5.3 Mitigation Site Types

Mitigation sites within the NWSTF Boardman resource management area would be classified into the five categories listed in Table 6. These site categories have been adapted from those used at the Boardman Conservation Area (Elseroad 2007).

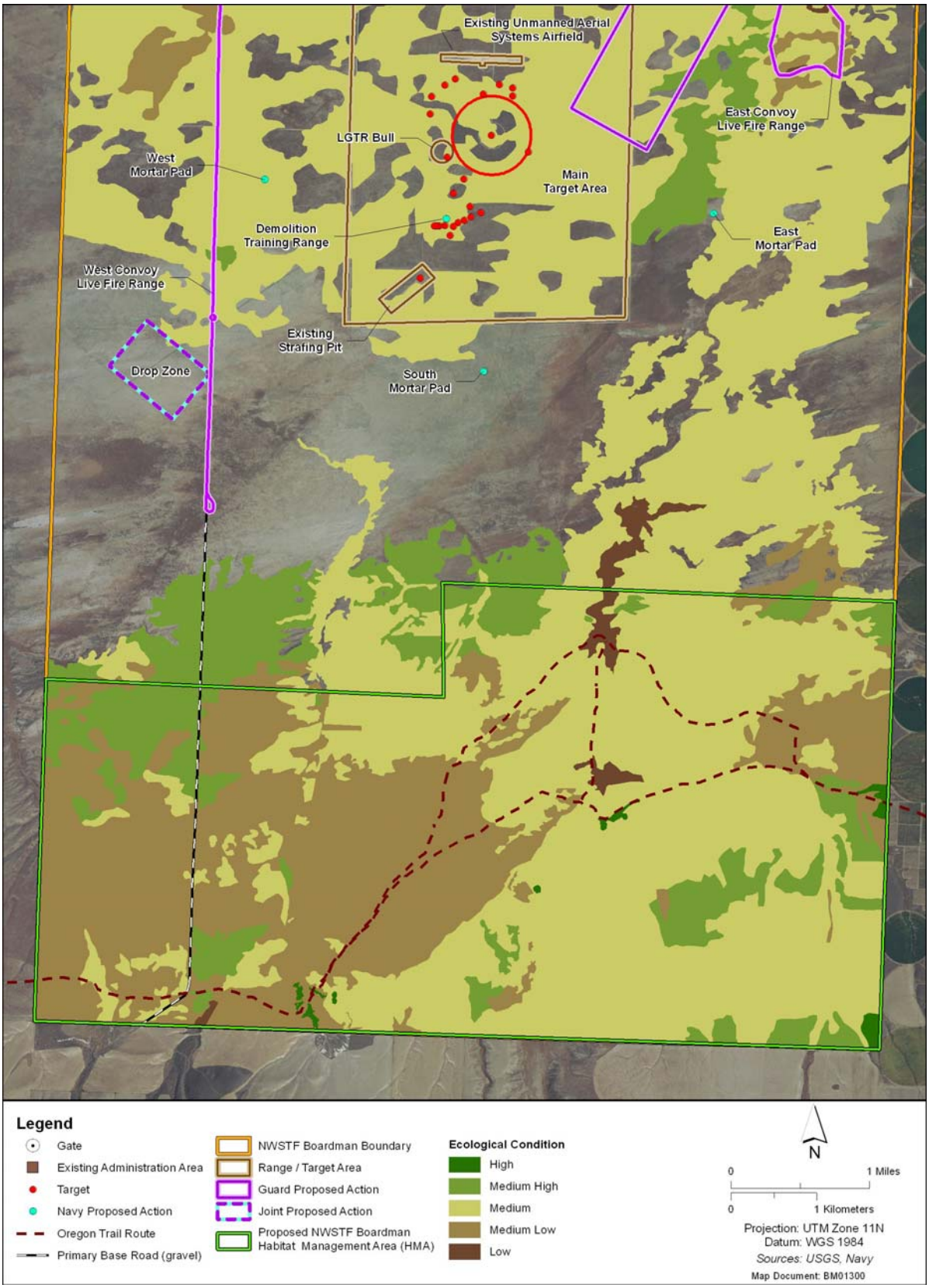


Figure 3. Ecological Conditions in NWSTF Boardman Resource Management Area

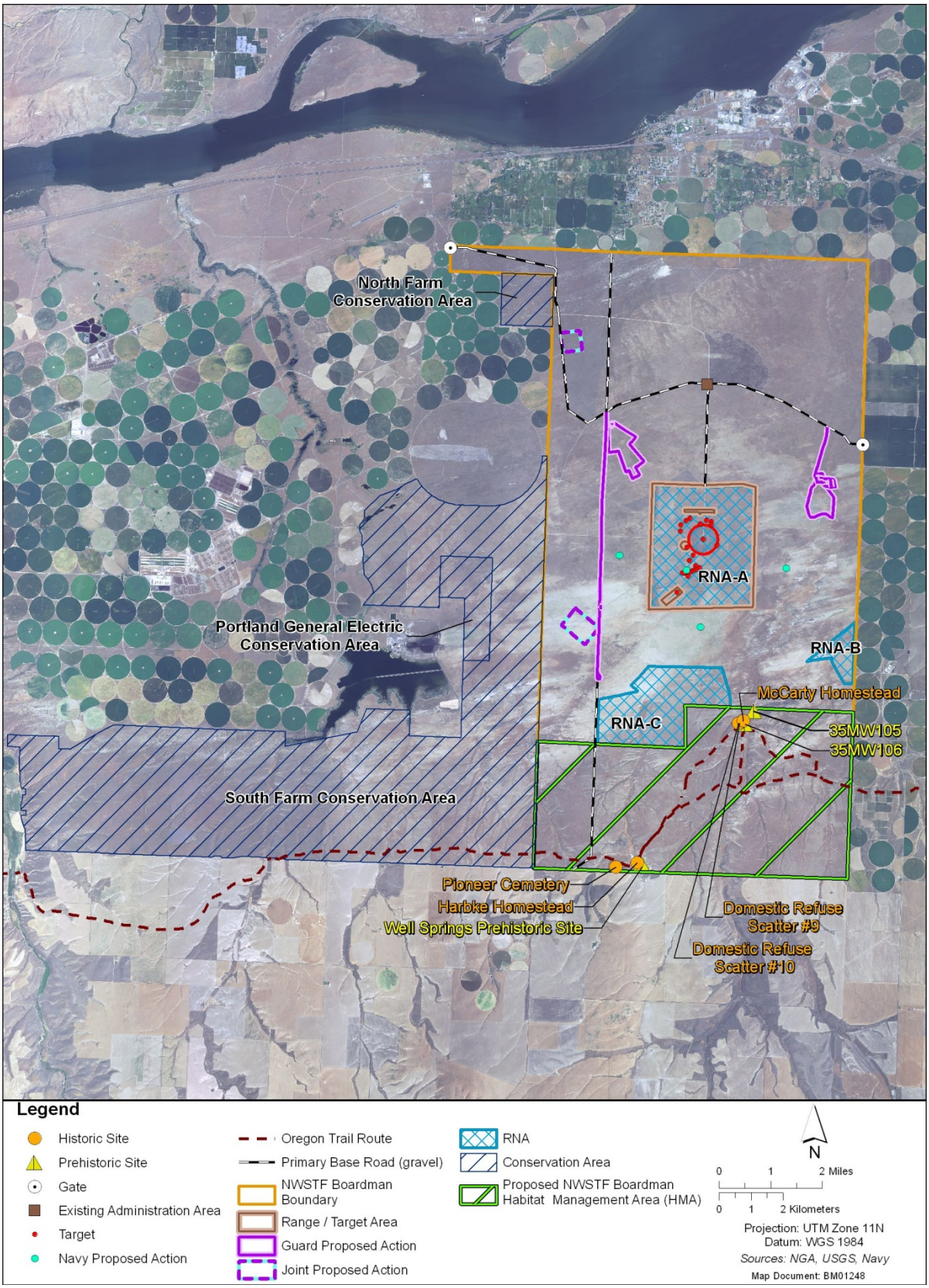


Figure 4. Boardman Conservation Area, Research Natural Areas, and the Resource Management Area

1.5.4 Desired Future Conditions

As discussed above, the mitigation goal is no net loss of habitat quantity or quality, and to provide a net benefit of habitat quantity or quality. Defining specific objectives for desired future habitat conditions provides a means for measuring success in achieving these goals. The resource management area includes a mosaic of shrub-steppe and grassland habitats representing a range of ecological condition classes (e.g., low to high) based on past disturbance. As noted by Elseroad (2007) for the Boardman Conservation Area, re-creating pre-disturbance conditions is unlikely given that large areas are degraded to some degree and because restoring these semi-arid systems in the presence of highly competitive non-native species will be difficult.

Restoration efforts at NWSTF Boardman would focus on: 1) reducing threats to existing high-quality native grassland and shrub-steppe and 2) increasing the proportion of native-dominated grassland and shrub-steppe by restoring degraded sites to the greatest extent possible (Elseroad 2007). Restoring the dominant grasses, forbs, and shrubs at degraded sites will provide the structure of the pre-disturbance plant communities, increase resistance to further weed invasion, and reduce the risk of high-intensity, frequent fires. Over time, if soil disturbance is minimized, cryptogamic soil crusts may slowly recover. Ideally, existing conditions can be improved such that the grassland and shrub-steppe systems can be self-sustaining with minimal management inputs and their ecosystem functions can be maintained within their historic range of variability (Elseroad 2007).

1.5.5 Restoration Objectives and Strategies by Site Type

As summarized in Table 6, proposed restoration objectives and strategies would vary based on the current conditions and likelihood of improving current conditions at a given site. Objectives for high-quality habitats will focus on maintaining current conditions by reducing threats from degraded areas on NWSTF Boardman

Table 6. Restoration Site Types, Objectives, and Strategies for NWSTF Boardman

Site Type	Restoration Objectives	Restoration Strategy
High quality native grassland and shrub-steppe with low non-native species cover (high and medium-high ecological condition)	1. Maintain current native plant and soil crust conditions 2. Maintain non-native species cover at or below baseline levels	1. Within sites, control outbreaks of noxious weed as needed 2. In adjacent degraded sites, plant native species and control noxious weeds to reduce spread and risk of high-intensity fire 3. Plant sage in burned areas previously dominated by sage.

Type 5 – Dominated by a diverse array of native plant species with high cheatgrass densities (medium ecological condition)	1. Maintain or increase current native plant and soil crust conditions 2. Detect and control noxious weeds as necessary to maintain conditions	1. Within sites, control noxious weeds by using herbicides 2. In adjacent degraded sites, plant native species and control noxious weeds to reduce spread and risk of high-intensity fire
Type 4 – Dominated by native shrubs with a low diversity of native herbaceous species (medium ecological condition)	1. Maintain current native shrub conditions 2. Increase native perennial herbaceous plant density to provide uniform coverage of at least 80% of a representative bunchgrass stand within 3 years of initial restoration effort 3. Detect and control noxious weeds annually for a minimum of 3 years following initial restoration efforts, continue as necessary to maintain conditions	1. Within sites, plant native species and control noxious weeds 2. In adjacent degraded sites, plant native species and control noxious weeds to reduce spread and risk of high-intensity fire
Type 3 – Burned area previously dominated by native shrubs and currently dominated by non-native annual plant species (medium-low ecological condition)	1. Increase native shrub density to one seedling per square meter over a 10 square meter area in each seedling focus area with five focus areas per acre 2. Increase native perennial herbaceous plant density to provide uniform coverage of at least 80% of a representative bunchgrass stand within 3 years of initial restoration effort 3. Detect and control noxious weeds annually for a minimum of 3 years following initial restoration efforts, continue as necessary to maintain conditions	1. Within sites, plant native species and control noxious weeds

Type 2 – Dominated by non-native annual plant species with a low diversity of native perennial species (medium-low ecological condition)	1. Increase native perennial herbaceous plant density to provide uniform coverage of at least 60% of a representative bunchgrass stand within 3 years of initial restoration effort 2. Detect and control noxious weeds annually for a minimum of 3 years following initial restoration efforts, continue as necessary to maintain conditions	1. Within sites, plant native species and control noxious weeds
Type 1 – Dominated by non-native annual plant species (low ecological condition)	1. Increase native perennial herbaceous plant density to provide uniform coverage of at least 50% of a representative bunchgrass stand within 3 years of initial restoration effort 2. Detect and control noxious weeds annually for a minimum of 3 years following initial restoration efforts, continue as necessary to maintain conditions	1. Within sites, plant native species and control weeds

Source: Adapted from Elseroad (2007)

1.5.6 Prioritization of Restoration Sites

Restoration efforts would first be allocated to priority 1 restoration sites, followed by priorities 2 through 8, as necessary, until the agreed-upon mitigation acreage requirements have been met. Priorities would be based on the plant species composition of the restoration site, its proximity to high or medium-high quality native plant communities, and Washington ground squirrel occupancy. Reducing threats to high-quality native habitats by restoring degraded adjacent sites would be a top priority. Moody and Mack (1988) modeled the non-native species invasion process and clearly showed the importance of eradicating non-native species in founding populations ("nascent foci").

Site constraints, technical feasibility, and the likelihood of achieving the restoration objectives would also be considered when prioritizing sites for restoration. Factors considered include the following:

- The terrain in some areas of the resource management area would preclude the safe and efficient use of restoration equipment such as a tractor and seed drill. These areas would be considered a lower priority.

- Cultural resources sites, unexploded ordnance areas, and appropriate buffers would be off limits to any ground-disturbing activity.
- Restoration feasibility and the likelihood of success would be carefully considered for sites in low ecological condition. For example, it might be futile to attempt to increase native bunchgrass densities in valley bottoms that currently support a monoculture of cheatgrass because the additional moisture in these areas provides cheatgrass a competitive advantage.
- Availability of desired plant materials.

The following priorities would be used to guide the habitat mitigation efforts at NWSTF Boardman:

- Priority 1 – Type 2 and 3 restoration sites adjacent to existing native grassland and shrub-steppe habitats rated as being in high or medium-high condition. Historically occupied Washington ground squirrel habitat would occur within the restoration site, the adjacent habitat, or both.
- Priority 2 – Type 4 and 5 restoration sites adjacent to existing native grassland and shrub-steppe rated as being in high or medium-high condition. Historically occupied Washington ground squirrel habitat would occur within the restoration site, the adjacent habitat, or both.
- Priority 3 – Burned sites in medium-high ecological condition previously dominated by sagebrush.
- Priority 4 – Remaining Type 2, 3, 4, and 5 restoration sites that include historically occupied Washington ground squirrel habitat, but are not adjacent to existing native grassland and shrub-steppe rated as being in high or medium-high condition.
- Priority 5 – Remaining Type 2, 3, 4, and 5 restoration sites.
- Priority 6 – Type 1 restoration sites adjacent to existing native grassland and shrub-steppe rated as being in high or medium-high condition. Historically occupied Washington ground squirrel habitat would occur within the restoration site, the adjacent habitat, or both.
- Priority 7 – Remaining Type 1 restoration sites that include historically occupied Washington ground squirrel habitat, but are not adjacent to existing native grassland and shrub-steppe rated as being in high or medium-high condition.
- Priority 8 – Remaining Type 1 restoration sites.

1.5.7 Mitigation Ratios

Mitigation ratios often vary depending on the acreage, functions, and values of the habitat lost, the type of mitigation proposed, and other factors. Additional acreage beyond that lost through development is usually required, because of interim losses in habitat acreage and functional capacity, and because the success and resulting value of compensatory mitigation projects are uncertain.

The proposed mitigation ratios for NWSTF Boardman were developed to help ensure that there is no net loss of habitat quality and a net benefit of habitat quantity or quality. Factors considered in development of the mitigation ratios include the following:

- **Location of the mitigation sites –** The resource management area offers opportunities for in-proximity mitigation because it is within the boundaries of NWSTF Boardman and has connectivity to habitats that would be affected by the Proposed Action. In addition, the resource management area is adjacent to the BCA and RNA-C, which maximizes the cumulative benefits of management activities in these different areas. Based on these factors, the proposed location of the mitigation sites offers benefits that could not be achieved if mitigation were accomplished in off-site locations. As such, mitigation ratios can be lower than those typically used for off-site mitigation.

- **Quality of the habitat affected by the Proposed Action –** High-value habitat would be affected by the Proposed Action because much of the affected habitat is considered occupied or historically occupied by Washington ground squirrels. Nonetheless, the affected area includes a mosaic of habitats representing a range of ecological condition classes (e.g., low to high). Higher mitigation ratios are proposed for areas assigned higher ecological condition classes.

- **Nature of the habitat impacts –** Habitat impacts have been grouped into two categories for mitigation planning purposes:

    - **Permanent habitat loss –** Includes areas that would be converted to structures or facilities such as gravel roads and targets. Complete loss of habitat functions and values are expected in these areas. Higher mitigation ratios are proposed for these areas.
    - **Long-term habitat degradation –** Includes areas temporarily disturbed by construction and areas that would likely be affected by projectiles striking the ground, training-caused wildfires, invasive plants, training-related noise, and disturbance caused by increased human activity. Long-term habitat degradation is expected in these areas, but complete loss of habitat functions and values are not expected. The mitigation ratios proposed for these areas are lower than those proposed for permanent habitat loss.

- **Condition of the habitat on the proposed mitigation sites –** Similar to the affected area, the resource management area includes a mosaic of habitats representing a range of ecological condition classes (e.g., low to high). The potential to achieve ecological uplift through restoration or enhancement depends, in part, on the existing conditions within the resource management area. In general, restoration or enhancement of sites in low ecological condition would seem to provide the greatest potential to achieve ecological uplift. To be successful, however, the overall mitigation strategy must focus on ecological uplift at a landscape-scale, rather than simply focusing on restoring or enhancing the sites in the lowest ecological condition. This is especially true given the landscape-scale of the historic impacts and future threats to the resource management area (e.g., invasive plants and lightning-caused wildfire). The overall mitigation strategy must also consider the technical feasibility and likelihood of successfully restoring specific mitigation sites. Accordingly, the restoration strategies, objectives, and priorities outlined above reflect the importance of protecting and managing habitats in relatively high ecological condition, as well as restoring or enhancing habitats in lower ecological condition. Implementing mitigation activities in accordance with the established priorities

is expected to maximize ecological uplift at the landscape-scale; therefore, the Navy is not proposing a system of variable mitigation credits based on the ecological condition class of specific mitigation sites.

Proposed habitat mitigation ratios for NWSTF Boardman are provided in Table 7. Mitigation ratios assume that all affected habitat is occupied by Washington ground squirrels. The ratios increase with increasing ecological condition of the affected habitat to ensure no net loss of habitat quality and a benefit of habitat quantity. In addition, higher mitigation ratios are proposed for permanent habitat loss, compared to long-term habitat degradation. A minimum ratio of 2:1 is proposed for permanently lost habitat to ensure no net loss of habitat quantity. A minimum ratio of 1.25:1 is proposed for long-term habitat degradation. Setting this ratio above 1:1 acknowledges and compensates for the possibility that even habitats with a low ecological condition class could be occupied by Washington ground squirrels. Proposed habitat mitigation acreage for each range enhancement is provided in Table 8, based on the ratios presented in Table 7 and the habitat impacts summarized in Table 17.

Table 7. Proposed Wildlife Habitat Mitigation Ratios for NWSTF Boardman

Ecological Condition Classification of Affected Habitat	Mitigation Ratio for Type of Impact	
	Permanent Habitat Loss	Long-term Habitat Degradation
High	3:1	2.25:1
Medium-high	2.75:1	2:1
Medium	2.5:1	1.75:1
Medium-low	2.25:1	1.5:1
Low	2:1	1.25:1
Unclassified	2.5:1	1.75:1

Table 8. Proposed Wildlife Habitat Mitigation Acreage for NWSTF Boardman

Range Enhancement	Permanent Habitat Loss		Long-term Habitat Degradation		Total Mitigation (acres)
	Affected (Acres)	Mitigation (acres)	Affected (Acres)	Mitigation (acres)	
Multi-Purpose Machine Gun Range	16	38	218	380	418
Eastern Convoy Live Fire Range	0	0	113	198	198
Western Convoy Live Fire Range	0	0	229	398	398
Demolition Training Range	1	2.5	0	0	2.5
Unmanned Aerial Systems Airfield and Maintenance Facility and Range Operations and Control Center	8	16	1	1.25	17.25
Total =	**25**	**56.5**	**561**	**977**	**1,034**

1.5.8 Restoration Methods

The Nature Conservancy initiated a shrub-steppe and grassland habitat restoration program at the Boardman Conservation Area in 2006 and has implemented restoration efforts on approximately 500 ac. as of 2012. These efforts achieved varying degrees of success and provide valuable information and lessons learned for future restoration efforts in the area. The Navy and ORNG propose to accomplish habitat restoration at NWSTF Boardman, using methods or refinement of methods that The Nature Conservancy successfully used at the Boardman Conservation Area, if the decision is made to implement the Proposed Action. In general, the proposed restoration methods for NWSTF Boardman would follow those outlined in the *Boardman Conservation Area Restoration Plan* (Elseroad 2007) and the *Boardman Conservation Area Five-Year Restoration Implementation Plan* (Elseroad 2008). Specific restoration methods would be finalized as part of the ongoing conferencing process with the Service. Methods would continue to be refined throughout the restoration process and documented in annual restoration work plan updates (see Section 1.6, *Adaptive Management and Monitoring*).

Most restoration efforts at NWSTF Boardman would include the following components: obtaining plant materials, site preparation, planting, and post-planting weed control. Options and guidelines for each of these components are described by Elseroad (2007).

1.6 Adaptive Management and Monitoring

1.6.1 Introduction

Adaptive management is a decision process (Figure 5) that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. Adaptive management requires stated management objectives to guide decisions about what to try, and explicit assumptions about expected outcomes to compare against actual outcomes. It is important to know what the available management options and alternative assumptions are, in case the action that is tried does not work as expected (Williams *et al.* 2009).

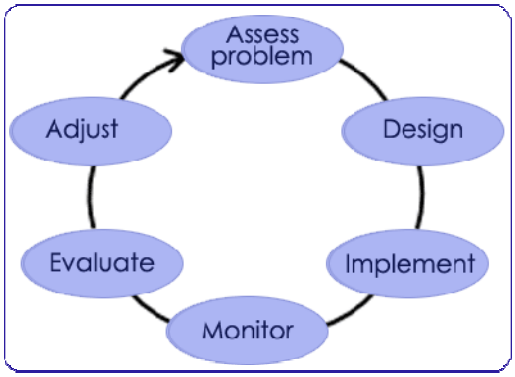


Figure 5. Adaptive Management Process

This section outlines the Navy and ORNG's proposed adaptive management process that would be used to help reduce uncertainty associated with the anticipated effects of the action and the anticipated effectiveness of the proposed BMPs and mitigation measures. As discussed above, the *NWSTF Boardman INRMP* currently provides a mechanism to adaptively manage natural resources cooperatively with the Service and ODFW. If a decision is made to implement the Proposed Action, specific commitments to an adaptive management process would be made in the Record of Decision. These commitments would be incorporated into the INRMP, and the INRMP would continue to provide the overall management structure for implementing adaptive management. This management structure includes a requirement to review and update the INRMP annually through natural resources metrics meetings that include the Service and ODFW. The remainder of this section outlines the proposed adaptive management process, including expected outcomes and uncertainties, management objectives and decision points, monitoring, and alternative management actions.

1.6.2 Expected Outcomes and Uncertainties

Adaptive management requires explicit assumptions about expected outcomes to compare against actual outcomes (Williams *et al.* 2009). The anticipated effects of the action and associated uncertainties are analyzed in detail in Section 5, *Effects of the Proposed Action*. Following is a very brief summary of the expected outcomes of implementing the Proposed Action, including the proposed BMPs and mitigation measures:

- Proposed range construction and military readiness activities would result in permanent habitat loss (25 ac. [10 ha]) and long-term habitat degradation (561 ac. [227 ha]). Washington ground squirrel use of the affected area would decline, foraging and breeding would be adversely affected, and the Washington ground squirrel population on NWSTF Boardman could decline. Uncertainties that can be addressed through adaptive management include the possibility that impacts could be overestimated or underestimated.
- BMPs would avoid and minimize impacts. Mitigation measures (habitat restoration and enhancement) would compensate for lost habitat functions and values and provide a net benefit. Ecosystem stability would improve in restored/enhanced areas, and Washington ground squirrels would persist and possibly increase in numbers in these areas. Uncertainties that can be addressed through adaptive management include the effectiveness and benefits gained from the proposed restoration.

1.6.3 Management Objectives and Decision Points

An adaptive approach requires explicit and measurable objectives. Uncertainty about how to achieve objectives is what motivates adaptive management and drives the design of the monitoring system. To address this uncertainty, stakeholders must agree on the objectives (Williams *et al.* 2009). The management objectives for the Proposed Action are grouped under two broad management goals that are focused on: 1) reducing uncertainties associated potential impacts of the Proposed Action, and 2) reducing uncertainties associated with the effectiveness and benefits gained by the proposed restoration. Specific management objectives under these broad goals would serve as decision points that could trigger evaluation and adjustment phases of the adaptive management process, based on monitoring. Management objectives should be specific, measurable, achievable, results-oriented, and appropriately scheduled. Therefore, an

important consideration in establishing management objectives is the availability of reliable and practical monitoring methods that can be used to accurately measure achievement.

The Navy and the ORNG would develop appropriate metrics and use these metrics to design the study. Ideally, management objectives for the Washington ground squirrel at NWSTF Boardman would be defined in terms of populations (i.e., groups of animals in specified areas at specified times) and quantitative monitoring would be conducted to determine if and how the Proposed Action affects population trends. However, several factors currently preclude definition of squirrel management objectives at NWSTF Boardman in terms of populations. These factors include limited knowledge of Washington ground squirrel population dynamics, lack of long-term baseline population data, and limitations of standard survey protocols. Standard Washington ground squirrel protocols (Morgan and Nugent 1999) historically used at NWSTF Boardman and elsewhere focus on documenting Washington ground squirrel "active detections," and are not designed to estimate population size or density (i.e., number of animals per ac. or ha).

Based on the limitations discussed above, the proposed adaptive management process includes a phased approach to defining measurable Washington ground squirrel management objectives and developing or refining survey protocols to measure achievement of the objectives. Management objectives, survey protocols and sampling design would be established through ongoing coordination with the Service. Specific objectives under the two broad management goals are defined below and associated monitoring is described in Section 1.6.4, *Monitoring*.

Management Goal 1 – Limit impacts on the Washington ground squirrel to the affected areas identified in the impact analysis. This broad goal addresses the need to reduce uncertainty and validate findings of the impact analysis through monitoring and includes the following specific management objectives:

- Management Objective 1a – Develop site-specific Washington ground squirrel monitoring protocols, in consultation with the Service by July 1, 2014, that provide an index of population trends.
- Management Objective 1b – Develop long-term, site-specific Washington ground squirrel management objectives based on data obtained by implementing monitoring protocols developed under management objective 1a.
- Management Objective 1c (interim) –Monitor Washington ground squirrel habitat in areas immediately adjacent to proposed range areas for continued Washington ground squirrel occupancy.
- Management Objective 1d – Minimize Washington ground squirrel mortality during construction and military readiness activities.
- Management Objective 1e – Detect and control noxious weeds annually within the identified affected areas.
- Management Objective 1f – Limit training-caused wildfires to the range footprint.

Management Goal 2 – Achieve no net loss of habitat quantity or quality and a net benefit of habitat quantity and quality through habitat restoration and enhancement. This broad goal addresses the need to confirm the effectiveness and benefits of compensatory mitigation and includes the following specific management objectives:

- Management Objective 2a – Begin implementing habitat restoration/enhancement for permanently lost habitat at 2:1+ ratio (ratio between 2:1 and 3:1 depending on existing

ecological condition) within 2 years following construction. Achieve site-specific restoration objectives (see Table 6) within 3 years of beginning restoration effort.

- Management Objective 2b – Implement habitat restoration/enhancement for degraded habitat at 1.25:1+ (ratio between 1:25 and 2:25 depending on existing ecological condition) starting 3 years following construction at a rate of at least 50 ac. (20 ha) per year until requirements are met. Achieve specific restoration objectives (see Table 6) for individual restoration sites within 3 years of initial restoration effort.

1.6.4 Monitoring

Washington Ground Squirrel Monitoring

Overview

Monitoring efforts would be implemented to determine if and how the Proposed Action affects Washington ground squirrels at NWSTF Boardman and to determine if management objectives are achieved. In addition, long-term monitoring would be conducted to obtain data on Washington ground squirrel distribution, status, and trends throughout NWSTF Boardman. The monitoring program would consist of the following components, which are described in more detail below:

- Long-term facility-wide monitoring
- Pre-construction surveys
- Construction monitoring and after-action inspections
- Project-specific Washington ground squirrel surveys

Construction activities for the range enhancements would be spaced over a period of several years as funding becomes available. Therefore, components of the monitoring program would be implemented on an as-needed basis, starting prior to construction of the first range enhancements.

Long-term Facility-wide Monitoring

Washington ground squirrel surveys have been conducted on large portions of NWSTF Boardman since 1979, but a systematic survey of the entire property has not been conducted. A long-term, facility-wide monitoring program would be initiated to inform the adaptive management process and assess the effects of the increased training on the Washington ground squirrel. As discussed above in Section 1.6.3, *Management Objectives and Decision Points*, survey design, and site-specific protocols for these surveys would be developed in consultation with the Service. The Navy will develop a sampling design that will incorporate a random stratified sampling strategy which would be designed to provide an index of population trends over the entire property and support the evaluation of effects of training activities. Given the large size of NWSTF Boardman and the fact that most or all of the property is potentially suitable Washington ground squirrel habitat, methods would be evaluated to identify the most effective and efficient approach to collecting facility-wide squirrel data. Additionally, the sampling design would also consider how to incorporate existing long-term term monitoring plots. Secondary goals include estimating habitat relationships and identifying home range metrics. Since training is not scheduled to begin immediately, the timeline would allow the

Navy to implement a before and after control impacts design to collect baseline data to also support the assessment of impacts due to facilities construction. Information collected would be used to continuously inform the adaptive management process, with appropriate modifications based on findings.

Pre-Construction Surveys

Site-specific survey protocols per *Long-term Facility-wide Monitoring* (above), would be used to survey individual construction sites prior to construction. Data from the long-term facility-wide monitoring would be used to meet these data needs to the extent possible. These surveys would cover the "affected area" of a given range enhancement where permanent habitat loss or long-term degradation of habitat is expected to occur. These affected areas include the range enhancement footprints for all projects and areas within the single-event 140 dBP contours associated with the MPMGR and CLFRs. Data from these surveys would provide baseline information and would be used to avoid impacts on Washington ground squirrels during construction, to the extent possible.

Construction Monitoring and After-Action Inspections

Construction monitoring and after-action inspections would be conducted to determine if objective 1d is achieved and report any Washington ground squirrel mortality to the Service. Monitoring would be conducted during construction to avoid strikes by construction equipment. Any incidental mortality during construction would be documented and reported to the NWSTF Boardman Natural Resources Manager and the Service.

Standard operating procedures for after-action range inspections would be updated to include identification and reporting of any wildlife mortality that might be associated with training activities. Range control personnel would inspect the training area, including target areas and heavily travelled roads, at the conclusion of a ground-based training exercise. Location and description of any observed wildlife carcasses would be recorded. Washington ground squirrels would be recovered, tagged, bagged, and delivered to the range administration building for storage (freezing). Any Washington ground squirrel mortality would be reported to the NWSTF Boardman Natural Resources Manager and the Service.

Project-specific Washington Ground Squirrel Surveys

Site-specific survey protocols per *Long-term Facility-wide Monitoring* (described previously), would be used to measure achievement of management objective 1c (interim) (ensure that Washington ground squirrel continue to occupy habitat in areas adjacent to the proposed ranges), as well as other management objectives developed in consultation with the Service during the adaptive management process. These surveys would be conducted in areas adjacent to the identified affected areas for the MPMGR, eastern CLFR, western CLFR, and DTR and in control areas. "Adjacent areas" are defined as a 1,312 ft. (400 m) buffer around the affected areas. These areas are outside the range enhancement footprints, but could be exposed to single-event noise levels less than 140 dBP. Based on the analysis presented in Section 5, *Effects of the Proposed Action*, no habitat loss, long-term habitat degradation, or decline in Washington ground squirrel numbers is expected in these adjacent areas. The proposed surveys are intended to help validate

conclusions of the analysis and reduce uncertainty. When possible, data from the long-term facility-wide monitoring surveys would be used to meet these data needs.

The project-specific Washington ground squirrel survey areas would encompass the following approximate acreages:

- MPMGR: 1,120 acres
- Western CLFR: 1,375 acres (exclusive of the area overlapped by MPMGR monitoring)
- Eastern CLFR: 1,020 acres
- DTR: 300 acres
- Control areas: 300 acres each.

One or more paired controls would be established for each sampling location. The controls would be located on NWSTF Boardman (well outside areas affected by the action or subject to restoration) or on the Boardman Conservation Area in areas with similar squirrel occupancy, soils, and vegetation. Baseline surveys would be conducted prior to the start of construction for the CLFRs and the DTR, and for two years prior to the MPMGR. After a range is operational, surveys would be conducted once every 2 years for a period of 10 years to evaluate long-term trends. Vegetation surveys would also be conducted within the survey areas to help determine if any observed differences in squirrel abundance or distribution might be attributable to vegetation conditions.

Noxious Weed Surveys and Control

After a given range is operational, qualitative surveys would be conducted annually within the range footprint to identify noxious weeds (Morrow County list of noxious weeds) and address management objective 1c (detect and control noxious weeds annually within the identified affected areas). The purpose of these surveys is to detect noxious weeds so that they can be controlled immediately, most likely through targeted application of a glyphosate herbicide. These surveys would continue indefinitely and controls would be implemented as necessary. Objective 1c is effort-based; therefore, quantitative monitoring of noxious weeds is not proposed.

Wildfire Monitoring

The causes, size, and location of all wildfires at NWSTF Boardman and associated suppression efforts would continue to be documented. This information would be reviewed after each wildfire to identify lessons learned and opportunities to improve fire prevention and suppression efforts.

1.6.5 Alternative Management Actions

Like any iterative decision process, decision making in adaptive management involves the selection of an appropriate management action at each point in time, given the status of the resources being managed at that time (Williams *et al.* 2009). If any of the alternative actions are determined to be required, then further consultation with the Service would be required. Potential alternative management actions for NWSTF Boardman include:

- Review of ongoing training activities to determine if BMPs need to be revised or additional measures or BMPs, such as seasonal adjustments to training schedules could be implemented to avoid or minimize impacts on the resources of concern while still meeting training and readiness requirements.
- Modify or refine restoration methods. For example, use more aggressive invasive plant controls on restoration sites such as pre-emergent herbicides, alter planting strategies, or restore additional acreage.
- Refine fire prevention and suppression methods.
- Evaluate the feasibility of offsite mitigation by initiating a search for suitable properties to serve as a compensatory mitigation site that could be acquired under the Navy's Readiness and Environmental Protection Initiative or the Army's Compatible Land Use Buffer Program.

1.7 Term of the Proposed Action

The term of the Proposed Action is indefinite. There are currently no set time frames for implementation of each proposed activity; timing is dependent on agency needs and approved funding.

1.8 Action Area

The area likely to be affected, directly or indirectly, by the proposed Project is the NWSTF Boardman located in north-central Oregon in Morrow County, approximately 2 miles (mi.) (3.2 kilometers [km]) south of Boardman, Oregon and the Columbia River and 16 mi. (25.7 km) southwest of Hermiston, Oregon. NWSTF Boardman consists of 47,432 acres (ac.) (19,195 hectare [ha]) of land and 358 square nautical miles (nm^2) of associated Special Use Airspace (SUA). The SUA includes several different airspace designations that are depicted in Figure 1 in the Assessment, and are explained in greater detail in Section 1.2.2.

1.8.1 Training Land

NWSTF Boardman consists of 47,432 ac. (19,195.1 ha) of relatively flat, vegetated landscape. The land area is predominantly rectangular in shape and is approximately 12 mi. by 6 mi. (19.3 km by 9.6 km). Several air-to-ground targets currently exist within the boundaries of NWSTF Boardman and have been in place for many years, although their scoring systems have been removed. There are several structures (administrative building, etc.) that currently exist to support training activities as well as an unimproved Unmanned Aerial System (UAS) airstrip used by the ORNG. The land component of NWSTF Boardman is federally withdrawn land with title held by the United States but with management functions held by U.S. Navy, Commander, Navy Region Northwest. The Commander, Navy Region Northwest has delegated the management functions to Naval Air Station (NAS) Whidbey Island. As such, NAS Whidbey Island is responsible for environmental resource management in those areas (i.e., natural and cultural resources, hazardous waste, air monitoring, etc.).

As part of the natural resource management at NWSTF Boardman and before the designation of the Boardman Conservation Area, three Research Natural Areas (RNAs) were established on NWSTF Boardman in 1978 and are co-managed by The Nature Conservancy under a long-

standing Memorandum of Understanding with the Navy. The RNAs are part of a federal government system established for research and educational purposes. Natural features are preserved for scientific purposes and natural processes are allowed to dominate. The RNA program was created to (1) preserve examples of all significant natural ecosystems for comparison with those influenced by man, (2) provide educational and research areas for ecological and environmental studies, and (3) preserve gene pools of threatened and endangered plants and animals. The RNAs on NWSTF Boardman were the first established on Department of Defense (DoD) lands. The Nature Conservancy activities in the RNAs include research and monitoring of the native habitat types and wildlife species, as well as control of noxious weeds.

1.8.2 Special Use Airspace Training Areas

The airspace over NWSTF Boardman is comprised of two different types of SUA: Restricted Areas (R-5701 [A-E] and R-5706) that overlay portions of the NWSTF Boardman land areas and a Military Operating Area (MOA) (Boardman MOA, OR) that overlies most of the Restricted Areas (Figure 1 in the Assessment). Designated by the Federal Aviation Administration (FAA), Restricted Areas are SUA within which the flight of non-participating aircraft, while not wholly prohibited, is subject to restrictions. Activities taking place in the airspace must be confined due to their nature and the need to adhere to limitations imposed on aircraft activities for which the SUA is designated (FAA JO 7400.8U). Non-participating military and civilian aircraft are not allowed into the Restricted Areas without the controlling authority's approval.

A MOA is airspace established outside Class A airspace (18,000 to 60,000 feet [ft.] [5,486.4 to 18,288 meters {m}] Mean Sea Level [MSL]) to separate or segregate nonhazardous military activities from Instrument Flight Rules traffic and to identify for Visual Flight Rule (VFR) traffic where these activities are conducted. The designation of a MOA identifies for other users the areas where military activity occurs, provides for segregation of that activity from other fliers, and allows charting to keep airspace users informed. MOAs do not restrict VFR operations; however, pilots operating under VFR should exercise extreme caution while flying within, near, or below an active MOA. The Boardman SUA currently has only one MOA and it provides military aircraft maneuver space for training. Table 9 provides additional information on NWSTF Boardman's Restricted Areas, which make up the only Restricted Areas in Oregon.

1.8.3 Surrounding Land Use

NWSTF Boardman is located approximately 0.5 mi. (0.8 km) south of the Boardman city limits. Interstate 84 runs east-west through the city of Boardman, dividing it roughly one-third to the north and two-thirds to the south of the highway. Within the city limits, land use zoning is a combination of residential, industrial, commercial, open space, and easements, as designated by the City of Boardman. NWSTF Boardman property is located wholly within Morrow County. The land use zoning established by Morrow County immediately surrounding NWSTF Boardman on all sides is Exclusive Farm Use. Land uses to the east, south, and west of NWSTF Boardman are predominantly agricultural production, but also include a Boeing Company test facility, a commercial solid waste landfill, and a Portland General Electric (PGE) electrical generation plant.

Table 9. Existing NWSTF Boardman Airspace

Area Designation	Description
Boardman Military Operations Area	Located above north-central Oregon and covers 358 nm^2 in area. This Military Operations Area is available from 4,000 ft. (1,292 m) to but not including 18,000 ft. (5,486 m) MSL. The scheduling authority is NAS Whidbey Island and Seattle Center is the controlling authority.
Boardman Air Traffic Control Assigned Airspace	Superimposes the Boardman Military Operations Area, covers 358 nm^2 and starts at 18,000 ft. (5,486 m) MSL with an upper limit of FL200 (6,096 m [20,000 ft]). The scheduling authority is NAS Whidbey Island and Seattle Center is the controlling authority.
R-5701A	A 78 nm^2 circular area over the central portion of Boardman that extends from the surface to 20,000 ft. (6,096 m). The scheduling authority is NAS Whidbey Island and Seattle Center is the controlling authority.
R-5701B	An 11 nm^2 rectangular area immediately east of R-5701A that extends from the surface to 10,000 ft. (3,048 m). The scheduling authority is NAS Whidbey Island and Seattle Center is the controlling authority.
R-5701C	A 31 nm^2 rectangular area immediately east of R-5701B that extends to the east slightly outside the Boardman Military Operations Area boundary. R-5701C extends from the surface to 6,000 ft. (1,829 m). The scheduling authority is NAS Whidbey Island and Seattle Center is the controlling authority.
R-5701D	A 21 nm^2 area south and west of R-5701A that extends from the surface to 10,000 ft. (3,048 m). The scheduling authority is NAS Whidbey Island and Seattle Center is the controlling authority.
R-5701E	A 64 nm^2 area immediately west of R-5701D that extends from the surface to 6,000 ft. (1,829 m). The scheduling authority is NAS Whidbey Island and Seattle Center is the controlling authority.
R-5706	A 107 nm^2 area in the north and western portions of the Boardman Military Operations Area that extends from the 3,500 (1,067 m) to 10,000 ft. (3,048 m). The scheduling authority is NAS Whidbey Island and Seattle Center is the controlling authority.

Notes: nm^2 = square nautical miles, km^2 = square kilometers, ft. = feet, m = meters, NAS = Naval Air Station, MSL = mean sea level, FL = Flight Level, R = Restricted Areas, Seattle Center = Air Route Traffic Control located in Auburn, WA, FAA = Federal Aviation Administration

Source: FAA JO7400.T, National Geospatial-Intelligence Agency 2008

In 2004, Threemile Canyon Farms (the "Farm"), a large, privately-owned farm located immediately west of NWSTF Boardman, and PGE, whose Boardman power plant is located approximately 2.8 mi. (4.5 km) west of the Installation and within the Farm's land, agreed to designate 23,430 ac. (9,502 ha) as conservation areas for management by The Nature Conservancy, to protect habitat for several animal species, including the Washington ground squirrel. Collectively, the designated conservation areas are known as the Boardman Conservation Area (BCA). The BCA was established under the terms of a Multi-Species Candidate Conservation Agreement with Assurances between the Farm, PGE, the Service, and

the ODFW. Other areas of the Farm, including the Boeing test facility and the PGE property, may be used and developed. The ODFW holds a permanent conservation easement on the 22,600 acres of the Farm property included in the BCA (Evans and Associates 2004).

Oregon has vast wind energy resources and ranks in the top ten states with the most wind energy generation capacity installed (U.S. Department of Energy 2011). Several wind energy generation projects have been developed in the vicinity of NWSTF Boardman and others are planned. Section 6. *Cumulative Effects*, provides additional information on surrounding land uses and wind energy projects in the area.

1.8.4 Description of Habitats in the Action Area

The vegetation at NWSTF Boardman primarily consists of shrub-steppe and grassland habitats. In contrast to much of the surrounding area, large-scale agriculture has not taken place at NWSTF Boardman. As a result, the installation persists as a large tract of predominately native shrub-steppe and grassland habitats. In fact, the installation and the adjacent Boardman Conservation Area represent one of the largest remaining single blocks of predominantly native shrub-steppe and grassland habitats in Oregon's portion of the Columbia Plateau Ecoregion (approximately 69,000 ac. [27,923 ha]) (National Audubon Society 2011).

The composition of existing vegetation communities at the installation is influenced by numerous factors including climate, soils, military use, wildfire, past grazing, a limited amount of past agricultural use, and introduction of invasive plants (noxious weeds). In particular, two related factors, wildfire and invasive plants, have affected vegetation in recent years. Since 1998, more than 85 percent of NWSTF Boardman has been burned by wildfires, which have caused short- and long-term habitat alterations. Large fires swept portions of the installation in 1998 (17,514 ac. [7,088 ha]), 2007 (11,664 ac. [4,720 ha]), and 2008 (30,612 ac. [12,388 ha]), while smaller areas burned in 2002 (1,639 ac. [663 ha]) and 2009 (618 ac. [250 ha]). With the exception of the 2009 fire, all of these fires were started by lightning strikes. The cause of the 2009 fire is unknown (U.S. Department of the Navy 2012a). Training-related wildfires also occur occasionally at NWSTF Boardman. Range safety monitoring by participating military units allows for early detection of training-related fires and rapid response. Therefore, fires that start during training activities are typically contained to relatively small areas compared to lightning-caused fires, which might go undetected for a period of time after ignition.

Historically, the area was comprised of fire-adapted vegetation communities with fire return intervals that likely ranged from about 20 to 70 years based on information for similar habitats (Leenhouts 1998, Paysen *et al.* 2000). With the widespread introduction of invasive, non-native annual grasses such as cheatgrass, the amount of fuel for wildfires has increased. Wildfires now tend to be more frequent and more severe (burn hotter), and can be long-term or permanent habitat altering events. Frequent and hot burning fires like those that have occurred at NWSTF Boardman favor a shift from shrublands to grasslands. Humple and Holmes (2001) documented decreases in sagebrush cover and increases in cover of grass, primarily cheatgrass, in study plots following the 1998 fire at NWSTF Boardman.

Maintaining an up-to-date vegetation inventory and associated mapping for NWSTF Boardman has been a challenge given the recent wildfire history. Habitat types were mapped and described for the entire installation in 1997 by interpreting aerial photographs and conducting ground-

truthing studies (U.S. Department of the Navy 2012a). In 2007, the U.S. Navy initiated a survey to update vegetation mapping for the entire installation. However, the large 2007 wildfire (11,664 ac. [4,720 ha]) occurred soon after the aerial imagery data were collected. A decision was made not to finalize the vegetation mapping effort because fire-induced vegetation changes rendered the imagery data obsolete. The *NWSTF Boardman INRMP* (U.S. Department of the Navy 2012a) includes a project recommendation to collect high-resolution aerial photography to map all vegetation and produce geographic-information-system-based vegetation mapping in the near future.

The remainder of this section provides descriptions of vegetation communities and habitat types based on information taken from the *NWSTF Boardman INRMP*. As discussed above, the best available vegetation/habitat data are from 1997, prior to a series of wildfires that occurred from 1998 through 2009. Vegetation conditions have changed at the installation since 1997 and will continue to change based on future fire regimes and other factors such as invasive species.

A list of plant species known to occur on NWSTF Boardman is provided in Appendix A in the Assessment. The following six major plant associations occur on NWSTF Boardman (U.S. Department of the Navy 2012a).

- Big sagebrush/bluebunch wheatgrass
- Bluebunch wheatgrass/Sandberg's bluegrass
- Big sagebrush/western needle-and-thread grass
- Antelope bitterbrush/needle-and-thread grass
- Needle-and-thread grass/Sandberg's bluegrass
- Snowy buckwheat/Sandberg's bluegrass

Lesser represented communities include the matchweed (an introduced species) variant of the big sagebrush/bluebunch wheatgrass association, and relict stands of western juniper/big sagebrush/bluebunch wheatgrass association. It should also be noted that large portions of nearly all of these associations are currently invaded by cheatgrass. Finally, there are some largely unvegetated sand dune and "alkali" areas.

Sagebrush/wheatgrass and wheatgrass/bluegrass plant associations dominate the southern half of NWSTF Boardman where soils are deeper and loamier. The presence of sagebrush differentiates these communities. Sagebrush is more prevalent in the draws and lowlands where deep, subsurface water resources are easier obtained. Both of these communities have been severely impacted by grazing (circa 1870s to 1950s) and now are largely dominated by cheatgrass. Healthy stands of wheatgrass are mostly limited to small patches on north-facing slopes, while sagebrush/wheatgrass association stands have been often heavily invaded with cheatgrass.

Moving south to north on the facility the soils become sandier, resulting in a replacement of the sagebrush/wheatgrass and wheatgrass/bluegrass plant associations with the sagebrush/ needle-and-thread grass and needle-and-thread grass/bluegrass associations. Prior to the invasion of alien weedy annuals around the early 1900s, much of the land now supporting these associations was characterized as isolated patches of western needle-and-thread surrounded by blowing sand. Outlines of the extensive dune systems that dominated this portion of the range are still evident in aerial photographs. While much of the original needle-and-thread stands have been replaced by dense stands of cheatgrass, needle-and-thread appears to also be establishing in

areas of former dunes now stabilized by weedy annuals, including cheatgrass. Quality stands of needle-and-thread can still be found on the center portion of the range, especially where historically protected from grazing in the RNAs. The resilience of needle-and-thread, compared to bluebunch wheatgrass, to withstand grazing probably resides in its lesser palatability to livestock. However, gray and green rabbitbrush now dominate large portions of these communities because of disturbance from fire and historic grazing.

On the farthest northern edge of NWSTF Boardman is found the sandiest soils supporting the bitterbrush/needle-and-thread association and, where parent soils are slightly rocky, small patches of buckwheat/bluegrass plant associations. Very little needle-and-thread is found in these communities because it has either been replaced by cheatgrass, Russian thistle, and other alien weedy annuals, or has not yet colonized these areas since dune stabilization. Finally, due east of RNA-C is a small community of matchweed, a small, non-native shrub that apparently established in the John Day River drainage in the late 1940s and has been moving eastward since. This plant is an indicator of previous severe grazing.

In their pristine state, apparently none of these plant associations supported a diverse floristic composition, largely because of harsh climatic conditions and the deep soil lichen layers that developed between the grasses. Usually no more than 1 shrub and 1 or 2 species of grass, along with soil lichens and bare ground, accounted for greater than 90 percent of the ground cover. Phlox, lomatium, yarrow, and various members of the pea family were the most conspicuous forbs. However, livestock trampling of the lichen layer and intensive grazing of the palatable forage species has encouraged the invasion of alien weedy annuals such as cheatgrass, Russian thistle, tumblemustard, and whitlow-grass. It has dramatically increased the number of unpalatable native species, such as hairy golden-aster in the sagebrush/wheatgrass plant associations, and fiddleneck tarweed, lance-leaf scurf-pea, and hairy plantain in the needle-and-thread grass associations.

Table 10 provides a summary of major habitat types that were identified during the mapping effort completed in 1997 (U.S. Department of the Navy 2012a). Habitat types are units that can be mapped with discrete characteristics that separate them from other habitat types, and provide a specific set of components important as life requisites for specific wildlife species. Most habitat types are based loosely on the plant communities described earlier using vegetative structure and floristic composition as classification parameters.

Table 10. Summary of Habitat Types and Acreage at NWSTF Boardman

Habitat Type	Size (Acres)[1]	Description	Wildlife Uses
Sagebrush	7,415	Sagebrush stands can be found throughout much of the facility, but are most prevalent in and near Juniper Canyon. Sagebrush can be structurally separated into a lowland type of larger plants with an understory of cheatgrass or sandy bare ground, and a structurally shorter upland type with lichen typically covering the understory.	Birds such as the black-billed magpie, Brewer's blackbird, lark sparrow, and loggerhead shrike appear to prefer the larger lowland sagebrush, while the sage sparrow and Brewer's sparrow may prefer the upland sage.

Habitat Type	Size (Acres)[1]	Description	Wildlife Uses
Bitterbrush	2,555	Antelope bitterbrush dominates large portions of the sandy-soiled region in the northern edge of the facility. Structurally it can become very tall (greater than six feet) and is sometimes co-dominated with gray rabbitbrush.	Larger bitterbrush plants provide nesting habitat for black-billed magpies, black-throated sparrows, and loggerhead shrikes, and perching habitat for burrowing owls. It also provides important cover for black-tailed jackrabbits and northern sagebrush lizards.
Bunchgrass	12,100	Bunchgrass habitat types include areas on the central and northern portion of the facility dominated by western needle-and-thread grass, and on the southern end by bluebunch wheatgrass. Portions of these habitats have been purposely historically protected from grazing.	Wildlife species typically found here include the grasshopper sparrow and Washington ground squirrel.
Open Low Shrub	9,150	The low shrub habitat type includes areas throughout the facility dominated by gray rabbitbrush, although green rabbitbrush and matchweed may comprise a significant portion of the shrub component. The presence of rabbitbrush on the facility, extensive in some areas, is largely a result of past fires as both rabbitbrush species are fire-tolerant, especially compared to other dominant shrubs.	The black-tailed jackrabbit, northern pocket gopher, gray partridge, and western meadowlark are among the dominant wildlife species found here.
Annual Grass/Forb	15,840	Annual grass/forb habitats are the areas on the facility dominated by cheatgrass, or co-dominated with the perennial Sandberg's bluegrass, usually associated with weedy forbs such as lance-leaf scurf-pea, fiddleneck tarweed, Jim Hill mustard, whitlow-grass, and hairy plantain. These habitats typify areas that were once heavily disturbed by grazing or crop production, or have invaded sandy areas that they have subsequently stabilized.	This habitat type provides nesting habitat for long-billed curlews, burrowing owls, horned larks, and western meadowlarks, and Great Basin pocket mice are very common here.
Juniper	Not applicable[2]	The juniper habitat type includes both the small juniper "forest" found in the Juniper Canyon, and the scattered juniper trees found on the periphery of Juniper Canyon and the western edge of the facility. In 1999 there were 188 mature juniper trees found on the facility. Some of these trees have since died and a number of young junipers have been found.	Junipers provide nesting habitat for Swainson's hawks, ferruginous hawks, ravens, long-eared owls, western kingbirds, and black-billed magpies. They also provide shade for mule deer and cover for porcupines.

Habitat Type	Size (Acres)[1]	Description	Wildlife Uses
Human Structures/ Disturbed	145	This habitat type includes buildings associated with the existing headquarters area, previous locations of buildings that have been demolished, and disturbed areas such as the old moving target indicator track, the main bulls-eye, the old cattle corrals, and used weapons accumulation areas.	Buildings may provide habitat for a variety of non-native pests such as starlings, house sparrows, and house mice. The observation tower in the southeastern corner of the target area has been used for several years by nesting ravens.
Dune	210	Dune habitats are found mostly on the north central end of the facility and within central Juniper Canyon.	Sagebrush lizards are commonly found along the dune edges.
Alkali	45	Alkali habitats occur in southern Juniper Canyon and at Well Springs. These habitats are devoid of vegetation.	The short-horned lizard is one of the few wildlife species found here.

[1] Acreages are based on data collected in 1997, prior to a series of lightning-caused wildfires.
[2] Acreage was not calculated because most junipers are scattered and largely fall within another habitat type.
Source: U.S. Department of the Navy 2012a.

Surveys were conducted in late February 2013 to assign ecological condition classifications to habitats on selected portions of NWSTF Boardman to support impact assessment and mitigation planning efforts (Figure 3). Ecological condition classes were assigned based on the following classifications, which have also been used at the BCA by The Nature Conservancy (Elseroad 2002):

- High: Understory plant community dominated by native perennial bunchgrasses. Bunchgrasses abundant and robust, soil crust intact. Very few if any exotic species present.
- Medium-high: Understory plant community dominated by native perennial bunchgrasses. Cheatgrass and other exotic species present but in very low amounts or only in small isolated patches.
- Medium: Native perennial bunchgrasses present, but cheatgrass and other exotic species are widespread throughout the community.
- Medium-low: Community dominated by cheatgrass, other exotic species, and disturbance-adapted native species such as rabbitbrush. *Poa sandbergii* is often the only native perennial bunchgrass present.
- Low: Community dominated by cheatgrass and other exotic species. Few if any native species present (although rabbitbrush may be a dominant species) and no native perennial bunchgrasses present.

1.8.5 Soil Types at NWSTF Boardman

Three major soil associations occur on the facility as shown in Figure 3 in the Assessment: Quincy-Koehler, Sagehill-Taunton, and Warden (USDA 1983). These major associations are represented by 34 soil mapping units, some of which are classified as prime farmland or

farmland of statewide importance (Table 3 in the Assessment). More detailed information is provided in the Assessment and is incorporated herein by reference.

2. Analytical Framework for the Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this Conference Opinion relies on four components: (1) the *Status of the Species*, which evaluates the Washington ground squirrel range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the Washington ground squirrel in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the Washington ground squirrel; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the Washington ground squirrel; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the Washington ground squirrel.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the Washington ground squirrel's current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the Washington ground squirrel in the wild.

The jeopardy analysis in this Conference Opinion places an emphasis on consideration of the range-wide survival and recovery needs of the Washington ground squirrel and the role of the action area in the survival and recovery of the Washington ground squirrel as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

3. Status of the Washington Ground Squirrel (Rangewide)

3.1 Listing Status

Washington ground squirrels (*Urocitellus washingtoni*) were recognized as a Category 2 species in 1994. The Category 2 designation meant the Service had information to indicate that proposing to list the squirrel as endangered or threatened was possibly appropriate, but lacked sufficient data on biological vulnerability and threats to support a proposed rule. The Washington ground squirrel was designated a candidate for listing in the 1999 Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa That Are Candidates or Proposed for Listing as Endangered or Threatened (64 FR 57534, October 25, 1999). In the Service's 2012 annual status review, the Service re-confirmed that listing of the species is warranted. However, to date, publication of a proposed rule to list the Washington ground squirrel has been precluded by other higher priority listing actions (USFWS 2012). The species is also listed as endangered by the State of Oregon (ODFW 2011) and as a candidate species in the State of Washington.

Historical and current threats to Washington ground squirrels include the following (USFWS 2011a):

- Destruction, modification, or curtailment of its habitat or range from agricultural, energy, and other development; non-native plant infestations and associated increases in wildfire frequency; and overgrazing (grazing can be compatible with this species).
- Historical poisoning and shooting for pest management purposes and recreational shooting.
- Disease, predation, drought, and wildfire.
- Isolated, small populations

3.1.1 Life History

The Washington ground squirrel is diurnal (active during the day) and spends much of the year (approximately July through December) underground in a state of dormancy called estivation (summer) and hibernation (winter). The annual cycle for this species is summarized in Table 11. All of their foraging, social, and reproductive activity takes place during a relatively short active period above ground. Washington ground squirrels produce one litter annually. Uterine litter sizes range between 5 and 11 with an average of 8 (Scheffer 1941). Carlson *et al.* (1980) reported an average litter size of five. They usually live less than 5 years and have high annual mortality rates.

Washington ground squirrels are ecologically significant for the following reasons (USFWS 2011a):

- They provide an important prey base for predators such as badgers, ferruginous hawks, and golden eagles.
- Burrowing action reduces soil compaction, loosens and aerates soils, and increases the rate of water infiltration into soil.
- Burrowing increases soil fertility, plant diversity and productivity, and microhabitat diversity by bringing nutrients and buried seeds from deep soil layers to the surface.
- Burrows are reused by many species including snakes, lizards, insects, and burrowing owls.

Table 11. Washington Ground Squirrel Annual Cycle at NWSTF Boardman

Activity	Month	Jan				Feb				Mar				Apr				May				Jun				Jul-Dec			
	Weeks	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Emergence of adults		■	■																										
Breeding				■	■	■	■	■																					
Emergence of young											■	■	■																
Juvenile dispersal																■	■	■											
Most adult males return to burrows																		■	■										
Most adult females return to burrows																				■	■								
Juveniles return to burrows (through 1st week of July)																							■	■	■	■			
Population in estivation/hibernation																										■	■	■	■

Source: Information summarized in Northwest Wildlife Consultants, Inc. (2007)

3.1.2 Distribution

The Washington ground squirrel is endemic to the Columbia Plateau, south and east of the Columbia River and east of the John Day River (Betts 1990). Until recently, the squirrel's range was thought to consist of three clusters of sites, with two in Washington (the Columbia Basin and Badger Mountain) and one in Oregon. The Service no longer describes the current range as three clusters of sites based on more recent data. Washington ground squirrel sites (detections of individuals and colonies) have been documented between the Columbia Basin and Badger Mountain clusters, as well as at least two sites near the Oregon and Washington border, well outside the three previously described clusters (USFWS 2012).

In Oregon, Washington ground squirrels occur in Gilliam, Morrow, and Umatilla counties. When the squirrel became a Federal candidate species, almost its entire known distribution in Oregon was centered on the NWSTF Boardman. Based on more current information provided by ODFW in 2013, 46 percent of all verified records in Oregon occur on NWSTF Boardman and the adjacent Boardman Conservation Area. Washington ground squirrels are also found on private and Bureau of Land Management (BLM) land west of these properties, on The Nature Conservancy-managed Lindsay Prairie, and on some additional scattered private lands. Many of the more recent Oregon records were documented by contractors conducting wildlife surveys to assist with micro-siting wind energy and transmission projects on private lands. The NWSTF Boardman and adjacent Boardman Conservation Area constitute the largest known continuous area of occupied habitat in the range of the Washington ground squirrel, as it covers approximately 70,000 ac (28,340 ha). Squirrel distribution on this area fluctuates such that not all of the area is occupied, although large portions of the properties are covered at various densities. Although the NWSTF Boardman is important for the species, the current distribution of Washington ground squirrel in Oregon is broader than was previously thought based on Betts' (1999) work.

In Washington, this species occupies sagebrush-steppe and grassland habitat east of the Columbia River in Adams, Douglas, Franklin, Grant, Lincoln, and Walla Walla counties. Most sites occur in Adams, Grant, and Douglas counties. As of 2012, the Washington Natural Heritage Program contained 567 verified Washington ground squirrel polygons (i.e., mapped estimate of areas containing squirrels) and 65 verified point locations in its database, any one of which could constitute an individual, small, or large colony. This database does not include all the detections that were made during a 2009–2010 survey in the Odessa area. Sites from the Oregon and Washington databases are not directly comparable because a number of factors collectively create a degree of variability and uncertainty in the use of naming conventions to describe areas used by Washington ground squirrels (USFWS 2012). However, there are also large areas of squirrel habitat in Washington, such as in the Smyrna Bench/Saddle Mountain Area.

3.1.3 Habitat and Diet

The Washington ground squirrel occurs in shrub-steppe and grassland habitat. Historically, they occupied primarily sagebrush and bluebunch-wheatgrass habitats. However, cheatgrass and rabbitbrush have replaced much of the native vegetation within its current range and they are regularly found in these degraded habitats as long as there is sufficient forage. The Washington ground squirrel occupies sites with sandy or silt-loam texture soils that are deep and supportive

enough to accommodate its burrow structures. This species seldom constructs burrows in areas of heavily disturbed soils, such as areas affected by plowing, disking, and crop production (USFWS 2011a). Habitats that provide a more stable food source during droughts appear to be important for these squirrels (USFWS 2011a).

Washington ground squirrels eat a broad range of succulent forb and grass stems, buds, leaves, flowers, roots, bulbs, and seeds (Greene 1999). Diverse diets help squirrels acquire sufficient fat and protein for reproduction and survival through estivation and hibernation (Tarifa and Yensen 2004a), Sherman and Shellman Sherman 2011. Native plants appear important to Washington ground squirrels, with Sandberg bluegrass (*Poa secunda*) playing a key role in their diet (Tarifa and Yensen 2004a).

A more detailed description of the species account is found in the Service's latest annual status review for Washington ground squirrel (USFWS 2012) and is incorporated herein by reference.

4. Environmental Baseline

The preamble to the implementing regulations for section 7 (51 FR 19932; third paragraph, left column) contemplates that the evaluation of "…the present environment in which the species or critical habitat exists, as well as the environment that will exist when the action is completed, in terms of the totality of factors affecting the species or critical habitat…will serve as the baseline for determining the effects of the action on the species or critical habitat." The regulations at 50 CFR 402.02 define the environmental baseline to include "the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process." The analyses presented in this section supplement the above *Status of the Species* evaluation by focusing on the current condition of the Washington ground squirrel in the action area, the factors responsible for that condition (inclusive of the factors cited above in the regulatory definition of environmental baseline), and the role the action area plays in the survival and recovery of the Washington ground squirrel. Relevant factors on lands surrounding the action area that are influencing the condition of the Washington ground squirrel were also considered in completing the status and baseline evaluations herein.

4.1 Status of the Species in the Action Area

Several Washington ground squirrel surveys and research studies have been conducted at NWSTF Boardman. Several characteristics of the squirrel make studying them a challenge, including the short periods when they occur above ground, a tendency for male dispersal, and short-term population fluctuations. These factors and inconsistencies have led to uncertainty and variability among researchers in the use of terms to describe areas used by Washington ground squirrels. There is not a clear definition of what constitutes a single colony for this species, and terms such as site, patch, detection, and occurrence have been used to describe what might be called a colony (USFWS 2011a). The Service (2011a) hopes to eventually bring a standardized convention to describing squirrel populations.

While various survey methods and terms have been used at NWSTF Boardman, most surveys followed standard protocols (Morgan and Nugent 1999) focused on documenting Washington ground squirrel "active detections." This approach determines if squirrels are using a specific area based on sighting squirrels, hearing squirrels, and finding holes recently used by squirrels as determined by the presence of the current year's droppings (Northwest Wildlife Consultants 2005, 2006; Marr 2001). These surveys are not designed to estimate population size or density (i.e., number of animals per ac.). Furthermore, this approach does not make a distinction between a colony, active site, active hole, or individual squirrel that is part of a colony or a lone disperser. Large portions of NWSTF Boardman have been surveyed since 1979, but a systematic Washington ground squirrel survey of the entire property has not been conducted.

Figure 6 provides a compilation of known Washington ground squirrel detections at NWSTF Boardman from surveys conducted through 2009. The points shown in Figure 6 indicate locations where squirrels have been present in the past and are part of regular survey efforts. In some cases, the locations represent colonies. In other cases, they represent only an incidental sighting, where there may or may not be a colony (U.S. Department of the Navy 2012b). For some of the surveys conducted at NWSTF Boardman, detections were classified as small, medium, or large colonies or sites based on Morgan and Nugent (1999). However, these classifications were not recorded for all detections across all surveys. Consequently, Figure 7 makes no distinction based on colony or site size.

Although higher concentrations of Washington ground squirrels are said to be associated with Warden Soils (e.g., Greene *et al.* 2009), definitive studies have not been done to identify core areas or variables that are most important to Washington ground squirrels at NWSTF Boardman. Several variables are changing together and moving south on NWSTF Boardman. The precipitation and productivity appear to be increasing with elevation, while soil particle size is generally decreasing. Yensen (2013) suggests that that productivity is as important, or more important, than soil textures on NWSTF Boardman. Although ground squirrels prefer loams, silts, silt loams and sandy loams, most of the soils on NWSTF Boardman, with the exception of the clay pockets, should be suitable for ground squirrels. Higher productivity should translate into denser, more stable ground squirrel populations irrespective of other variables, and productivity generally increases moving south on NWSTF Boardman (Yensen 2013).

Figure 7 shows historically occupied Washington ground squirrel habitat at NWSTF Boardman. This historically occupied habitat was mapped by applying a 785 ft. (239 m) radius buffer to the known squirrel detections shown in Figure 6. The buffer distance is based on that used by Morgan and Nugent (1999) to estimate actual use-areas (i.e., the expected area of squirrel movement around a detection site) and represents a known maximum travel distance described by Carlson *et al.* (1980). As shown in Figure 7, historically occupied habitat is located on or near the proposed range enhancement sites. Based on the lack of recent, systematic survey data the entire affected area was assumed to be occupied by Washington ground squirrels for impact assessment and mitigation planning purposes. With the exception of highly disturbed areas such as maintained roads, maintained fire breaks, and excavated area, it is reasonable to assume that all of NWSTF Boardman is suitable Washington ground squirrel habitat, especially during high years of a population cycle. Surveys conducted in 2005, 2006, and 2008 also documented Washington ground squirrels on the proposed MPMGR and DMPTR locations (Table 12) (Northwest Wildlife Consultants, Inc. 2005, 2006, 2008).

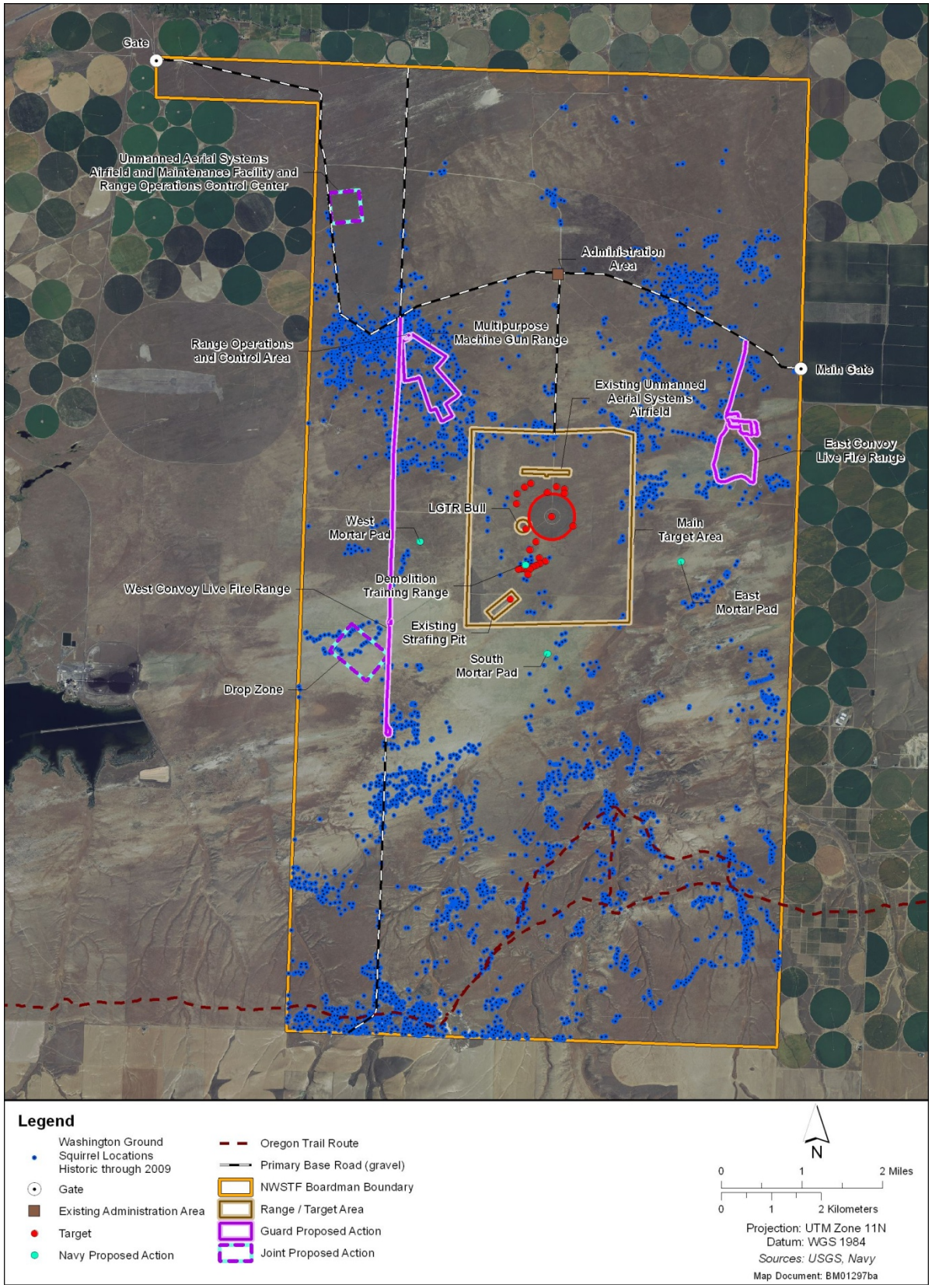


Figure 6. Known Washington Ground Squirrel Detections at NWSTF Boardman Historic through 2009

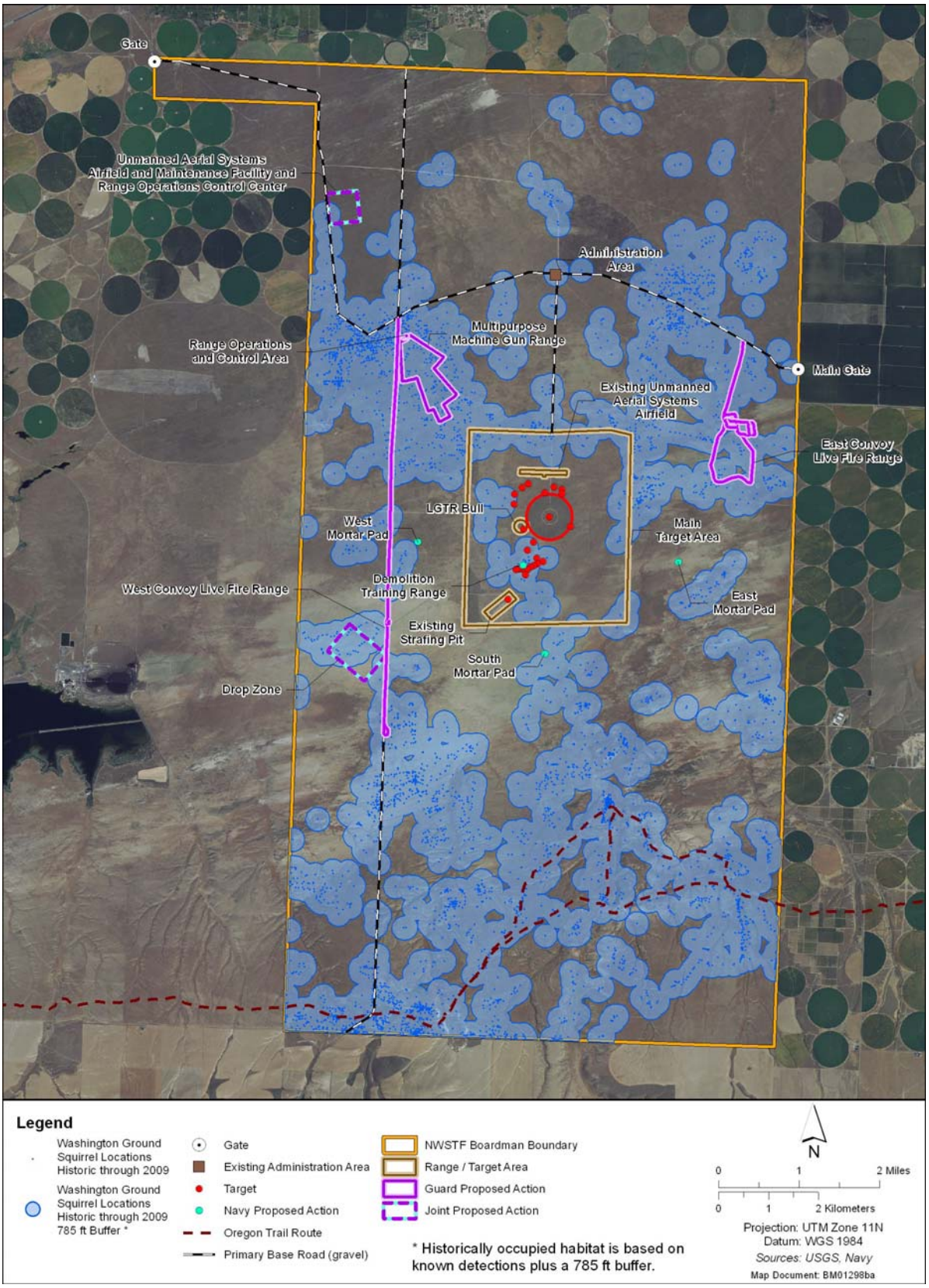


Figure 7. Historically Occupied Washington Ground Squirrel Habitat at NWSTF Boardman

The DMPTR is not part of the Proposed Action addressed in this conferencing package, but it is included in one of the alternatives analyzed in the NWSTF Boardman EIS. While numerous detections were recorded in 2005 (211) and 2006 (636), it should be noted that the surveys were conducted in June when squirrel activity is low. It is possible that additional detections would have been recorded if the surveys were conducted during the peak activity period (late-March through mid-May). Nonetheless, the results provide further confirmation that Washington ground squirrels use habitats at the proposed MPMGR location.

Table 12. Washington Ground Squirrel Surveys Conducted for the Proposed MPMGR and DMPTR at NWSTF Boardman

Survey Date	Location	Area Surveyed (acres [hectares])	Active Detections
June 2005	Northern portions of Multi-Purpose Machine Gun Range and Digital Multi-Purpose Training Range	604 (244)	211
June 2006	Multi-Purpose Machine Gun Range	1,700 (688)	636
March-May 2008	Digital Multi-Purpose Training Range	2,996 (1,212)	76

Notes: MPMGR = Multi-Purpose Machine Gun Range, DMPTR = Digital Multi-Purpose Training Range, NWSTF = Naval Weapons Systems Training Facility. The DMPTR is not part of the Proposed Action addressed in this conferencing package, but it is included in one of the alternatives analyzed in the Naval Weapons Systems Training Facility Boardman Environmental Impact Statement.
Source: Northwest Wildlife Consultants, Inc. 2005, 2006, 2008.

During the 2008 surveys, only 76 active detections were recorded for the DMPTR location, despite being conducted during the peak activity period and covering a larger area than the 2005 and 2006 surveys. Portions of the 2008 survey area were also surveyed in 2005. In the common survey area, there were 211 active detections in 2005 and only 8 active detections in 2008. Anecdotal observations suggest that the late winter and spring of 2008 received below normal precipitation, and the quality of plants that Washington ground squirrels typically forage on were poor when compared to previous years such as 2005 and 2006. Drought or other factors such as disease or squirrel movements to other areas might explain this change in active detections (Northwest Wildlife Consultants, Inc. 2008).

Three research studies conducted at NWSTF Boardman used mark-recapture methods to estimate Washington ground squirrel density. As shown in Table 13, density estimates varied substantially and ranged from 0.2 animal per ac. (0.5 per ha) to 36.5 animals per ac. (82.7 per ha). It should be noted that Delavan (2008) and Klein (2005) sampled relatively small study areas known to be occupied by Washington ground squirrels.

Table 13. Washington Ground Squirrel Density Estimates from Mark-Recapture Surveys

Year	Site Name and Vegetation	Density (animals per acre [hectare])	Reference
1997	Sagebrush 1	6.4 (15.7)	Greene *et al.* 2009
1997	Sagebrush 2	1.6 (3.9)	Greene *et al.* 2009
1997	Sagebrush 3	0.5 (1.1)[2]	Greene *et al.* 2009
1997	Low Shrub 1	1.1 (2.6)	Greene *et al.* 2009
1997	Low Shrub 1	0.5 (1.2)[2]	Greene *et al.* 2009
1997	Low Shrub 1	0.2 (0.4)[2]	Greene *et al.* 2009
1997	Bunchgrass 1	0.5 (1.2)[2]	Greene *et al.* 2009
1997	Bunchgrass 2	0.2 (0.5)[2]	Greene *et al.* 2009
1997	Bunchgrass 3	0.8 (2.0)[2]	Greene *et al.* 2009
2004	Open Low Shrub, open low shrub	4.3 (10.7)	Delavan 2008
2004	Cemetery, annual grass	18.9 (46.6)	Delavan 2008
2004	Large Stipa, bunchgrass[1]	5.2 (12.9)	Delavan 2008
2005	Sage, sagebrush[1]	11.4 (28.1)	Delavan 2008
2002	Tub Springs, annual grass/forbs	33.4 (82.5)	Klein 2005
2003	Tub springs, annual grass/forbs	35.8 (88.4)	Klein 2005
2002	Mystery Road, perennial grass/low shrub	4.5 (11.1)	Klein 2005
2003	Mystery Road, perennial grass/low shrub	8.2 (20.3)	Klein 2005
2002	Cemetery, annual grass, bunchgrass and sagebrush nearby	16.2 (40.0)	Klein 2005
2003	Cemetery, annual grass, bunchgrass and sagebrush nearby	36.5 (90.3)	Klein 2005
2003	Spigot, not described by author	7.2 (17.7)	Klein 2005
	Mean =	**9.7 (23.9)**	

[1] Site is located on Boardman Conservation Area; all other sites are located on NWSTF Boardman.
[2] Estimated values interoperated from graph presented by Greene *et al.* (2009). The authors did not present numeric values for these sites.

To support the overall research objectives (estimate home range, movement, and dispersal), Klein (2005) sampled areas where squirrels were known to be abundant and Delavan (2008) sampled areas that were expected to support different population sizes (e.g., small, medium, and large). Therefore, density estimates from these studies are not representative of NWSTF Boardman as a whole. Greene *et al.* (2009) established plots randomly within specific habitat types.

The Washington ground squirrel also occurs at the BCA and was recently documented along the proposed Carty Lateral Project alignment (Gas Transmission Northwest 2011), portions of which are located beneath the NWSTF Boardman airspace. This species may occur in other areas

beneath the airspace where suitable soils exist that have not been converted to agriculture. The Washington ground squirrel has not been documented at Umatilla Chemical Depot (UCD) (U.S. Department of the Army 2007).

4.2 Factors Affecting Species Environment within the Action Area

The Service's Species Assessment and Listing Priority Assignment Form, completed in 2012, provided a detailed discussion of threats to the Washington ground squirrel (USFWS 2012). This information is incorporated by reference and has been considered in the analysis presented in Section 5. *Effects of the Proposed Action*. Historical and current threats to Washington ground squirrels include:

- Destruction, modification, or curtailment of its habitat or range from agricultural, energy, and other development; non-native plant infestations and associated increases in wildfire frequency; and overgrazing.
- Historical poisoning and shooting for pest management purposes and recreational shooting.
- Disease, predation, drought, and wildfire.
- Isolated, small populations

The two major current factors affecting Washington ground squirrel in the action area are invasive plants and wildfire. Non-native invasive plants, including cheatgrass, threaten squirrels by competing with native plants that are important for ground squirrel diets. Exotic annual plant species provide an unstable food resource for ground squirrels because their productivity fluctuates with annual precipitation (Yensen *et al.* 1992). Washington ground squirrels do eat non-native species, including cheatgrass (Tarifa and Yensen 2004a, Tarifa and Yensen 2004b), but native perennial plant species are more drought-tolerant than annuals. When annual plants dominated the landscape, there is less forage for ground squirrels during drought years and it is available for a shorter period of time (Yensen *et al.* 1992). Further, plant communities dominated by exotic annuals have lower diversity, reducing dietary choices and probably the ability to avoid toxic secondary compounds (Quade 1994). Exotic-dominated communities are also far more likely to burn than native vegetation (Whisenant 1990).

Wildfire, in combination with invasive plants, has affected vegetation and Washington ground squirrel habitat at NWSTF Boardman in recent years. Since 1998, wildfires burned more than 85 percent of NWSTF Boardman causing short- and long-term habitat alterations. Large fires swept portions of the installation in 1998 (17,514 ac. [7,088 ha]), 2007 (11,664 ac. [4,720 ha]), and 2008 (30,612 ac. [12,388 ha]), while smaller areas burned in 2002 (1,639 ac. [663 ha]) and 2009 (618 ac. [250 ha]) (Figure 14). With the exception of the 2009 fire, all of these fires were started by lightning strikes. The cause of the 2009 fire is unknown (U.S. Department of the Navy 2012b). Training-related wildfires also occur occasionally at NWSTF Boardman.

4.3 Role of the Action Area in the Conservation of the Washington ground squirrel

The greatest concentration of Washington ground squirrel sites in Oregon is located on the Navy's NWSTF Boardman and the adjacent BCA in Morrow County, Oregon. Together these

properties contain 46 percent of all verified records in Oregon. This area constitutes the largest known continuous area of occupied habitat in the range of the Washington ground squirrel, as it covers approximately 70,000 ac (28,340 ha). There are, however, other large areas of squirrel habitat across the species range, such as the Smyrna Bench/Saddle Mountain Area of Washington. Because the NWSTF Boardman and adjacent BCA contain such a large amount of occupied habitat and provides the main connection between smaller sites to the west of this area and possible movement east and south, this area is important for the species long-term survival and recovery.

On the BCA and NWSTF Boardman, squirrel site distribution fluctuates such that not all of the area is occupied, although large portions of the properties are covered at various densities. For example, Marr's 2006 data showed a 10 percent extirpation rate of sites (or patches) on the BCA and NWSTF from 2005, balanced in part by new patches which may or may not be actual colonies. More specifically, 34 patches were vacated and only 16 new patches were located, showing a net loss of 18 patches between 2005 and 2006 (Marr 2006).

The NWSTF Boardman alone includes 47,432 ac (19,195.1 ha), approximately two miles south of Boardman, Oregon. Large portions of NWSTF Boardman have been surveyed since 1979, but a systematic Washington ground squirrel survey of the entire property has not been conducted (Assessment, p.37). Figure 6 shows known squirrel detections at the NWSTF Boardman historically through 2009. Although Greene *et al*. (2009, p. 39) found that Warden soils were important, squirrels occupy a variety of soil types on the NWSTF, soil productivity may be equally or more important than soil textures in determining squirrel distribution on this site (Yensen 2013, p. 5).

5. Effects of the Proposed Action

Effects of the action are defined as "the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with the action, that will be added to the environmental baseline" (50 CFR 402.02). The Service's effects analysis is based on information provided in the Assessment, as well as our assessment of baseline conditions and expected changes from the proposed action.

5.1 Approach to Analysis

The impact analysis for the Washington ground squirrel considered effects of the Proposed Action on individual animals and populations. The analysis first looked at how individuals would respond to a stressor or combination of stressors and whether the response would affect the fitness of an individual. Fitness refers to changes in an individual's growth, survival, annual reproductive success, or lifetime reproductive success. If individual fitness is not affected, then no impacts to populations would be expected. The potential for impacts to occur at the population level depends on several things, including whether individual fitness has been reduced, the number of individuals affected, the size of the affected population, and numerous life history and ecological factors.

The scientific limitations associated with predicting the responses of individuals and populations to stressors create a relatively high degree of uncertainty. Accordingly, a conservative approach was used in making conclusions when the level of uncertainty was considered high.

In addition, the analysis considered the amount of the year that Washington ground squirrels were above ground. We assume that most of the potential impacts would occur during this approximately 5-6 month period each year. Information was not always available to determine exactly how many of the annual days of training would occur during this above-ground timeframe so a conservative estimate was used.

5.2 Noise

5.*2.1 Overview*

Under the Proposed Action, Washington ground squirrels in the NWSTF Boardman Action Area would be exposed to noise associated with the following:

- Fixed-wing aircraft overflights
- Helicopter overflights and takeoffs and landings
- UAS overflights and takeoffs and landings
- Weapons firing
- Non-explosive practice munitions striking a target or the ground
- Vehicle and equipment operations
- Explosive detonations

The following section summarizes information about how wildlife, in general, and the Washington ground squirrel may respond to noise. The effects of noise on Washington ground squirrel under the Proposed Action are then analyzed for each noise source.

5.2.2 Wildlife Responses to Noise

Numerous studies have documented that wild animals respond to human-made noise (National Park Service 1994, Bowles 1995, Larkin 1996). The manner in which animals respond to noise depends on several factors including life history characteristics of the species, characteristics of the noise source, loudness, onset rate, distance from the noise source, presence/absence of associated visual stimuli, and previous exposure. Noise may cause physiological or behavioral responses that reduce the animals' fitness or ability to grow, survive, and reproduce successfully. The potential effects of noise on wildlife can take many forms, including changing habitat use and activity patterns, increasing stress response, decreasing immune response, reducing reproductive success, increasing predation risk, degrading communication, and damaging hearing if the sound is sufficiently loud (Larkin 1996).

Behavioral responses are the most commonly used endpoints when studying the effects of noise on wildlife. This is largely based on practical considerations and the difficulty in measuring animal fitness or physiological and ecological endpoints. Researchers have documented a range of behavioral responses to noise, ranging from indifference to extreme panic. Common behavioral responses include alert behavior, startle response, flying or running away, and

increased vocalizations (National Park Service 1994, Bowles 1995, Larkin 1996). In some instances, behavioral responses could interfere with breeding, raising young, foraging, habitat use, and physiological energy budgets, particularly when an animal continues to respond to repeated exposures.

While difficult to measure in the field, all behavioral responses are accompanied by some form of physiological response such as increased heart rate or a startle response. A startle is a rapid, primitive reflex that is characterized by rapid increase in heart rate, shutdown of nonessential functions, and mobilization of glucose reserves. Animals can learn to control the behavioral reactions associated with a startle response and often become habituated to noise (National Park Service 1994, Bowles 1995, Larkin 1996). Habituation keeps animals from expending energy and attention on harmless stimuli, but the physiological component might not habituate completely (Bowles 1995). Therefore, animal fitness could still be affected when an animal has habituated to noise (Barber *et al.* 2009). Gill *et al.* (2001) described theoretical circumstances when habituation to or tolerance of a stressor could be more detrimental to a population than a strong avoidance reaction. Nonetheless, what appears to be habituation has been observed in many studies and is well-demonstrated in studies evaluating bird control devices (e.g., noise cannons, pyrotechnics, and recorded sounds), which are used to scare birds away from airfields and agricultural areas (Larkin 1996). Larkin (1996) describes one example where red-winged blackbirds began resting on the noise cannon that was intended to scare them away. The birds learned to fly a short distance away when they heard the click of the mechanism that released the gas and signaled an impending explosion.

Likewise, a strong and consistent behavioral or physiological response is not necessarily indicative of negative consequences to individuals or to populations (National Park Service 1994, Bowles 1995, Larkin 1996). For example, many of the reported behavioral and physiological responses to noise are within the range of normal adaptive responses to external stimuli, such as predation, that wild animals face on a regular basis. In many cases, individuals would return to homeostasis or a stable equilibrium almost immediately after exposure. The individual's overall metabolism and energy budgets would not be affected assuming it had time to recover before being exposed again. If the individual does not recover before being exposed again, physiological responses could be cumulative and lead to reduced fitness. However, it is also possible that an individual would have an avoidance reaction (i.e., move away from the noise source) to repeated exposure or habituate to the noise when repeatedly exposed.

Washington ground squirrel responses to noise have not been studied and no anecdotal accounts of responses to noise have been found in the literature. Washington ground squirrel predator alarm calls have been noted in response to moving vehicles, but it is not known if they were responding to vehicle noise or movement (Northwest Wildlife Consultant 2008). Increased calling by individuals can make them more susceptible to predation (Sherman 1977).

Although Washington ground squirrel responses to noise have not been studied, some information exists for other ground squirrels. California ground squirrels (*Otospermophilus beecheyi*), which are in the same family (Sciuridae) as Washington ground squirrels, show higher levels of alertness in the presence of continuous windmill noise (Rabin 2005). Reliance on alert behavior, as opposed to anti-predator calls, is incompatible with other behaviors (e.g., foraging and social behavior) essential in ground squirrel daily activity (Rabin 2005). However, it is

unlikely that a pronounced shift from anti-predator call to alert behavior would be observed in an environment where noise was intermittent and infrequent.

Hooper (2011) demonstrated that road noise has the potential to mask the alarm calls of Belding's ground squirrels (*Urocitellus beldingi*), but mainly at peak amplitude levels and only for roadside locations. The effective range of alarm calls produced alongside the road was reduced significantly for all traffic levels. While Hooper (2011) points out that such signal range reductions can have fitness repercussions in the form of increased predation risk, the study did not specifically evaluate predation risk for these apparently stable roadside colonies.

A few studies have evaluated the effects of aircraft overflights on rodent populations in the wild. A three-year study at a U.S. Air Force range evaluated three species of hibernating desert rodents exposed to frequent low-altitude aircraft overflights (Bowles *et al.* 1995). The mean number of overflights greater than 80 dBA (reported as maximum, fast, A-weighted sound pressure level) recorded on the exposed site was 33.22 flights per day. The highest sound exposure level (SEL) recorded for this area was 115.5 dBA and the mean SEL for the loudest 30 events was 103.4 dBA. Treatment areas did not differ significantly in abundance or population density relative to control populations (Bowles *et al.* 1995). Mouse densities in a field near Memphis International Airport (80 to 120 dB) were not significantly different than densities in a nearby rural field (80 to 85 dB) (Chesser *et al.* 1975). These studies suggest that absolute density of rodent populations does not appear to be affected by aircraft noise at these locations (Bowles *et al.* 1995). However, Chesser *et al.* (1975) found that mice collected from the airport field had significantly larger adrenal glands than those collected from the rural field. To determine if noise was the causative factor, mice collected from the rural field were exposed to recorded jet noises at 105 dB for two weeks. The experimental group had significantly larger adrenal glands than a control group (Chesser *et al.* 1975). This appears to be a case where aircraft noise caused a measurable physiological response with no apparent effects to the population. The frequency of overflights in the studies discussed above was substantially higher than those that would occur at NWSTF Boardman.

Long-term monitoring data indicate that military training at Orchard Training Area in southwestern Idaho does not affect population dynamics of the Piute ground squirrel (*Urocitellus mollis*, formerly known as the Townsend's ground squirrel [*Spermophilus townsendii mollis*]). Washington ground squirrels and Piute ground squirrels are members of the same genus (*Urocitellus*). The 138,936-ac. (56,227-ha) training area has been used for military training by the Idaho Army National Guard since 1953. Military training activities conducted at Orchard Training Area include small arms, tank gunnery (firing 120 mm gun), artillery training (firing 155 mm howitzer), armored vehicle maneuver training, helicopter training, troop transport, and bivouac. Active Piute ground squirrel burrows have been counted at 79 monitoring plots on Orchard Training Area. Data collected from 1989 through 2001 indicated a significant increasing trend in burrow abundance at approximately 40 percent (32) of the 79 plots (Hlohowskyj *et al.* 2004). An increasing trend in active burrow abundance was also indicated for 36 (46 percent) other plots, but the trend for these plots was not significant. A negative trend in active burrow abundance was observed at nine (11 percent) monitoring plots, but the trend for these plots was not significant. While no obvious spatial pattern is evident among the plots exhibiting an increasing trend in burrow abundance, 10 of the 32 plots exhibiting a significant increasing trend in the number of active burrow counts were located within the impact area (Hlohowskyj *et al.*

2004). Both high explosive ordnance and non-explosive practice ordnance is fired at targets located within the Orchard Training Area impact area. Van Horne and Sharpe (1998) investigated the effects of armored vehicles on Piute ground squirrel on Orchard Training Area. Sagebrush areas and areas dominated by bluegrass have been subjected to low-intensity tracked vehicle operations for 50 years and were compared against similar areas that had no tracked vehicle operations. The study did not detect any effects on ground squirrel population dynamics associated with long-term tracked vehicle operations. While the studies conducted at Orchard Training Area did not specifically evaluate Piute ground squirrel responses to noise, the long-term monitoring data suggest that noise and other potential stressors associated with military training do not appear to be impacting Piute ground squirrel populations at the training area. We anticipate Washington ground squirrel responses will be similar and noise and stressors associated with military training will not substantially impact the Washington ground squirrel populations in the training area but long-term data have not yet been collected to support this.

While the effects of noise on wildlife have been addressed in numerous studies, research is hampered by a preponderance of small, disconnected, anecdotal, or correlational studies as opposed to coherent programs of controlled experiments (Larkin 1996). These factors, coupled with differences between species, individuals of the same species, and other factors such as habitat, make it difficult to definitively predict how wildlife populations will respond to noise under a specific exposure scenario. As a result, there are no well-established thresholds or criteria for predicting impacts of noise on terrestrial wildlife.

5.2.3 Conceptual Framework for Assessing Effects from Noise-Producing Activities

Introduction

This conceptual framework describes the different types of effects that are possible and the potential relationships between sound stimuli and long-term consequences for the individual and population. The conceptual framework is central to the assessment of acoustic-related effects and is consulted multiple times throughout the process. It describes potential effects and the pathways by which an acoustic stimulus or sound-producing activity can potentially affect animals. The conceptual framework qualitatively describes costs to the animal (e.g., expended energy or missed feeding opportunity) that may be associated with specific reactions. Finally, the conceptual framework outlines the conditions that may lead to long-term consequences for the individual and population if the animal cannot fully recover from the short-term effects.

An animal is considered “exposed” to noise if the received sound level at the animal’s location is above the background ambient noise level within a similar frequency band. A variety of effects may result from exposure to noise-producing activities. The severity of these effects can vary greatly between minor effects that have no real cost to the animal, to more severe effects that may have lasting consequences. Whether an animal is significantly affected must be determined from the best available scientific data regarding the potential physiological and behavioral responses to sound-producing activities and the possible costs and long-term consequences of those responses.

The major categories of potential effects of noise addressed in this analysis are:

- Hearing loss
- Behavioral responses
- Physiological stress
- Disruption of estivation/hibernation

Masking of biologically meaningful sounds is not expected to be an issue because noise associated with the Proposed Action would be intermittent and the loudest noise events (e.g., ground-based weapons firing) would typically only occur during 2-day, weekend training events. Auditory masking occurs if the noise from an activity interferes with an animal's ability to detect, understand, or recognize biologically relevant sounds of interest. Masking is primarily a concern for continuous or near-continuous noises such as traffic noise. Therefore, auditory masking is not addressed in detail in this analysis.

Hearing Loss

A familiar effect of exposure to high intensity sound is hearing loss, meaning an increase in the hearing threshold. This phenomenon is called a noise-induced threshold shift, or simply a threshold shift (Miller 1974). The distinction between permanent threshold shift and temporary threshold shift is based on whether there is complete recovery of a threshold shift following a sound exposure. If the threshold shift eventually returns to zero (the threshold returns to the pre-exposure value), temporary threshold shift has occurred. The recovery time is related to the exposure duration, SEL, and the magnitude of the threshold shift, with larger threshold shifts and longer exposure durations requiring longer recovery times (Finneran *et al.* 2005; Mooney *et al.* 2009). If the threshold shift does not return to zero but leaves some finite amount of threshold shift, then that remaining threshold shift is a permanent threshold shift.

The threshold of physiological hearing damage to the human ear is approximately 140 decibels peak (dBP) (Humes *et al.* 2005, U.S. Army Public Health Command 2010). Much of the data used to predict human hearing loss from exposure to impulsive sounds is from studies conducted on chinchillas, which are burrowing rodents. Therefore, it is reasonable to use chinchilla hearing threshold shift data to predict hearing threshold shift in Washington ground squirrels. Hamernik *et al.* (1987) observed varying degrees of temporary and permanent threshold shift in chinchillas exposed to 1, 10, or 100 noise impulses (one every three seconds) having peak intensities of 131, 135, 139, or 147 dBP. Damage to the cochlear sensory epithelia was also observed for some exposures. Based on the reported responses of chinchillas, exposure to single event noise levels of 140 dBP or higher is used in this analysis to indicate the potential for hearing threshold shift in Washington ground squirrels. In addition, the number of exposures to a single event noise level above 140 dBP and the time interval between exposures is considered when assessing the potential for threshold shift to occur. In general, a threshold shift is more likely when repeated exposures occur over a short duration.

Long-term effects on a Washington ground squirrel that might experience a threshold shift would depend on whether the shift was temporary or permanent, the severity of the shift, the hearing frequencies affected by the shift, and the time required to recover from a temporary threshold shift. Squirrels with impaired hearing could be more susceptible to predation and would be expected to expend more time and energy trying to detect predators via visual cues, rather than auditory cues (e.g., listening for sounds made by an approaching predator or alarm calls of other

squirrels). This could lead to decreased foraging success and decreased fitness. Recovery from a temporary threshold shift can take a few minutes to a few days depending on the severity of the initial shift. Threshold shifts do not necessarily affect all hearing frequencies equally, so some threshold shifts may not interfere with an animal hearing biologically-relevant sound. Consequently, a threshold shift would not necessarily result in long-term effects on the individual.

Behavioral Responses, Physiological Stress, and Habituation

Based on information presented above in Section 5.2.2 and literature summarized for the other species (National Park Service 1994, Bowles 1995, Larkin 1996), Washington ground squirrels could exhibit a range of behavioral and physiological responses to noise depending on distance from the noise source. It is also likely that squirrels would habituate to some sound levels. Washington ground squirrels exposed to high sound levels would likely perceive the noise and any associated visual or other cues (e.g., vehicle and equipment movement, other human activity, vibration, or projectile impacting the ground nearby) as a threat and exhibit predator defense behavior including alarm calls and taking cover underground. With repeated exposure over a two-day training event, such responses have the potential to reduce an animal's fitness by limiting foraging time, increasing energy expenditure, inducing a stress response, and interfering with breeding.

Lost foraging time could make it difficult to obtain enough fat and protein to supply their nutritional needs in hibernation (resulting in high overwinter mortality) or support reproduction (Sherman and Sherman 2011). This would be of particular concern where native perennial food plants favored by Washington ground squirrels have been replaced by exotic perennials and annuals that produce less nutritious seeds or bear seeds too late in the summer for consumption (Sherman and Sherman 2011). In addition, some training would likely coincide with the breeding season (Table 12). Washington ground squirrels produce one litter annually. Females are sexually receptive on only one afternoon per season, usually within a few days of emergence from hibernation (USFWS 2011a). Reproductive success could be diminished if range use coincides with the breeding season.

Various studies have indicated that some animals respond to repeated loud noises by temporarily or permanently abandoning habitat (National Park Service 1994, Bowles 1995, Larkin 1996). While relatively little is known about Washington ground squirrel behavior, this species has several traits that suggest that habitat abandonment might not be a preferred strategy for coping with elevated noise levels. They rely on burrow systems, which they have expended energy to develop, for shelter, protection from predators, and estivation/hibernation. Therefore, abandoning existing habitat would put them at risk. Females are known to form social groups and defend territories (Sherman and Sherman 2011). In addition, home ranges are relatively small and documented dispersal distances of juvenile and adult males are relatively short. Females are not known to disperse and dispersal of juvenile females has not been studied. These factors suggest that habitat abandonment in response to noise is unlikely. If habitat were abandoned, individuals could suffer other consequences such as increased risk of predation. While habitat abandonment seems unlikely, it is possible that animals dispersing from other areas would be deterred from immigrating into areas with high noise levels.

Assuming habitat abandonment does not occur, individuals, particularly those exposed to the highest noise levels, could experience reduced fitness and cumulative stress from noise exposure. It is also possible that individuals would recover during the relatively quiet days (i.e., weekdays between training events). Habituation to some level of noise is also very likely. For example, individuals occupying areas away from the noise source would be most likely to habituate because noise levels would be lower and visual and other cues would be limited. As discussed above, long-term monitoring data indicate that military training at Orchard Training Area in southwestern Idaho, which is similar to the training proposed at NWSTF Boardman, does not appear to affect population dynamics of the Piute ground squirrel.

Disruption of Estivation/Hibernation

A possible response to high noise levels would be for Washington ground squirrels to emerge from estivation/hibernation at inappropriate times. If squirrels emerged in response to noise, they would expend energy at a time when they need to minimize energy use. Frequent emergence could result in decreased fat reserves when limited resources are available to replenish those reserves.

Recorded motorcycle noise (95 dBA) caused estivating spadefoot toads to emerge from their burrows in a laboratory experiment (Brattstrom and Bondello 1983). In the wild, auditory cues (e.g., thunder and rain) stimulate spadefoot toads to emerge (Dimmitt and Ruidal 1980). There is no indication that estivating/hibernating Washington ground squirrels or other rodents would be stimulated by auditory cues in the same manner. Bowles (1995) reports that sleeping, estivating, and hibernating mammals are difficult to arouse with noise, particularly meaningless noise (i.e., noise that is not accompanied by an actual threat to the animal). However, Bowles (1995) does not present specific data on noise levels that would or would not arouse sleeping, estivating, and hibernating mammals. Speakman *et al.* (1991) evaluated energy expenditure in hibernating bats in response to various tactile and non-tactile stimuli, including 5-second bursts of generated sound (greater than 90 dB including background). The susceptibility of bats, as measured by energy expenditure, to all five classes of non-tactile stimulation was low. Only one positive response was measured in 39 applications of sound. The failure of non-tactile stimuli to cause arousals from hibernation may arise because there are selective advantages (i.e., energy conservation) to not arousing to such stimuli in the wild (Speakman *et al.* 1991). This study suggests that loud impulsive noises (e.g., detonating a large explosive charge), which also produce substantial ground vibration (i.e., tactile stimulation), might be more likely to wake a Washington ground squirrel compared to higher frequency noises that produce less ground vibration (e.g., aircraft overflights).

5.2.4 Fixed-Wing Aircraft Noise

Fixed-wing aircraft overflights take place at various altitudes and airspeeds throughout the special use airspace (Figure 1 in the Assessment) and most occur during the daytime (Table 7). Fixed-wing aircraft do not takeoff or land at NWSTF Boardman and military aircraft do not fly at supersonic speeds in NWSTF Boardman airspace. Only low-altitude flights are a concern from a wildlife exposure perspective because aircraft flying above 3,000 ft. (914.4 m) above ground level are not expected to produce a meaningful response in most wildlife. Low-altitude flights generally occur below 3,000 ft. (914.4 m) above ground level and as low as 200 ft. (30.5 m)

above ground level for brief periods. These low-altitude flights take place in Restricted Areas 5701A-E, which consists of 209 nm^2 of airspace (Figure 1in the Assessment).

The aircraft noise levels that Washington ground squirrels could be exposed to would vary based on exercise-specific conditions including flight tracks, altitude, air speed, and the type of aircraft. Animals on or near the ground and directly under the flight track centerline could be exposed to the noise levels listed in Table 14.

Table 14. Estimated Average Sound Exposure Level of Single Aircraft Overflights at Various Distances

Representative Aircraft Type	Sound Exposure Levels (dBA) at Distance from Source (feet)						
	100	**200**	**400**	**800**	**1,600**	**3,200**	**6,400**
Fixed-Wing							
EA-6B	130.4	125.8	120.9	115.6	109.6	102.5	93.8
F-15	123.6	119.0	114.1	108.8	102.8	95.8	87.2
F-16	117.8	113.2	108.5	103.3	97.4	90.5	81.6
FA-18*	120.8	116.2	111.3	105.9	99.6	92.1	83.2
AV-8	116.2	111.5	106.2	100.2	93.3	85.6	77.2
Helicopters							
CH-47	99	94.6	90	85.1	79.6	73.4	66.1
UH-60	99.7	95.3	90.9	86.1	80.9	75.1	68.1

Notes: Approximate sound exposure levels calculated using United States Air Force SELCAL model, assuming a direct overflight with a 0-degree slant angle, level flight, and 85 percent power. dBA = decibels, A-weighted. *The EA-18G Growler is an electronic combat version of the FA-18 E/F that will replace the EA-6B Prowler. As a replacement for existing aircraft, the introduction of this system would not result in substantially different noise levels from the FA-18.

Exposure to fixed-wing aircraft noise would be intermittent and brief (seconds) as an aircraft quickly passes overhead. The rate of increase in sound level, which is referred to as the onset rate, is sudden for jet aircraft flying at low altitudes and high airspeeds. The number of times an individual animal could be exposed to aircraft noise during a specific time period (day, month, year, etc.) would be highly variable based on factors such as specific training schedules, flight tracks, altitudes, number of participating aircraft, and biological factors such as diurnal and seasonal behavior. Given the number of annual sorties (about 1,668), the total annual flight time below 3,000 ft. (914.4 m) above ground level (about 2,049 hours), and a typical exercise duration of 1.5 hours, some individuals could be exposed to aircraft noise several times per day.

Figure 10 (in the Assessment) shows average day-night sound level (DNL) noise contours for fixed-wing aircraft under the Proposed Action. While the DNL metric and contours are intended to help describe potential impacts to humans, the 65 and 70 dB contours also indicate where potential exposure of Washington ground squirrels to noise from low-altitude overflights could be most frequent. The DNL contours indicate that Washington ground squirrels could be exposed to aircraft noise most frequently around the strafing pit and within a narrow corridor west of the Main Target Area.

Aircraft overflights are not expected to result in hearing loss in Washington ground squirrels based on the expected SELs (Table 14) and frequency of exposure. Based on responses of other animals (National Park Service 1994, Bowles 1995, Larkin 1996), it is likely that noise from at least some aircraft overflights would elicit physiological or behavioral responses in Washington ground squirrels. For example, overflights might cause a startle response, which includes a physiological component (e.g., rapid increase in heart rate, shutdown of nonessential functions, and mobilization of glucose reserves) and a behavioral component (Bowles 1995). The behavioral component could be similar to responses to predators or other natural threats, and might include alert behavior, alarm calls, or retreating underground. Squirrels would be expected to quickly recover from these short-term responses, and no long-term effects on the fitness of individuals would be expected.

In addition, it is likely that squirrels have habituated to current levels of aircraft overflight noise at NWSTF Boardman. Washington ground squirrels are known to occur at NWSTF Boardman and on adjacent undeveloped lands to the west. These areas are located under low-altitude flight tracks. Washington ground squirrel populations in these areas have been exposed to noise associated with military aircraft and other military readiness activities for more than 50 years. Washington ground squirrel population dynamics at NWSTF Boardman are not fully understood and the effects of aircraft overflights on squirrel populations have never been studied. Nonetheless, available data indicate that squirrel populations at NWSTF Boardman respond to factors such as precipitation and available forage as would be expected. There is no evidence that suggests current levels of aircraft overflights or other noise influence population dynamics at NWSTF Boardman.

Noise associated with aircraft overflights, under the Proposed Action, are likely to have some effects to Washington ground squirrels. The effects are expected to be limited to short-term physiological and behavioral responses, and no long-term effects on the fitness of individuals would be expected.

.2.5 Helicopter Noise

Helicopter overflights take place below 3,000 ft. (914.4 m) above ground level throughout the special use airspace (Figure 1 in the Assessment), but most helicopter activity occurs directly over the NWSTF Boardman land area. About 93 annual helicopter sorties would take place under the Proposed Action for a total of about 137 flight hours and typical flight durations of 1.5 hours. Approximately 33 percent of the flight hours would occur at night (Table 4). About 72 annual helicopter sorties currently take place at NWSTF Boardman for a total of 108 flight hours per year. Helicopters land and take off at NWSTF Boardman occasionally. Representative helicopter flight altitudes are less than 500 ft. (152 m) above ground level during training exercises. Some exercises might include hovering approximately 20 ft. (6.1 m) off the ground for several minutes. Washington ground squirrel exposure to helicopter noise would be intermittent and infrequent based on the annual number of sorties (93) that would occur under the Proposed Action. Table 14 provides representative helicopter noise levels that squirrels could be exposed to in the NWSTF Boardman Action Area. The duration of exposure to noise from a helicopter would be longer than a fixed-wing aircraft overflight because helicopters fly at slower airspeeds, and hover, land, and takeoff at NWSTF Boardman. Nonetheless, most exposures would still be brief (seconds to minutes). As noted above, most helicopter activity takes place over the NWSTF

Boardman land area and is less dispersed compared to fixed-wing aircraft overflights. Therefore, repeated exposure of an individual animal to helicopter noise during a given exercise is more likely than that of a fixed-wing aircraft overflight. The onset rate for helicopter noise is lower than that of a fixed-wing aircraft.

Similar to fixed-wing aircraft overflights, aircraft overflights are not expected to result in hearing loss in Washington ground squirrels based on the expected SELs (Table 14) and frequency of exposure. Low-altitude helicopter overflights are expected to elicit short-term physiological or behavioral responses in Washington ground squirrels, which may be triggered by noise, visual cues, the downwash from the rotor blade, or a combination of these stimuli. Washington ground squirrels would likely perceive low-flying or hovering helicopters as a threat and could temporarily retreat underground. Given the expected SELs and frequency of exposure, squirrels would be expected to quickly recover from these short-term responses, and no long-term effects on the fitness of individuals would be expected.

5.2.6 Unmanned Aerial Systems Noise

UAS overflights take place at various altitudes and airspeeds throughout Restricted Areas 5701A-E and 5706 (Figure 6 in the Assessment). About 85 percent occur during the daytime (Table 7). The RQ-7 Shadow and RQ-11 Raven take off and land at NWSTF Boardman and typically fly below 3,000 ft. (914.4 m) above ground level. The ScanEagle is launched at facilities located outside of NWSTF Boardman and 85 percent of this platform's flight time is above 3,000 ft. (914.4 m) above ground level. Of the 1,709 annual UAS sorties, 1,475 are ScanEagle sorties. UAS are estimated to be significantly quieter than the manned fighter jets so, even though the UAS account for more than half of the total proposed aircraft sorties, their noise contribution to the overall aircraft noise is negligible. However, noise and visual cues associated with UASs taking off and landing could elicit short-term physiological or behavioral responses in Washington ground squirrels, but no long-term effects on the fitness of individuals would be expected.

5.2.7 Noise Associated with Training Activities on the Proposed Ranges

<u>Overview</u>

The Proposed Action includes construction and operation of four new training ranges (Figure 1, Table 1):

- The MPMGR would be used for small arms (up to and including .50 caliber weapons) training
- The eastern CLFR would be used for small arms (up to and including .50 caliber weapons) training
- The western CLFR would be used for small arms (up to and including .50 caliber weapons) training
- The DTR would be used for high explosive charge (up to and including 200 lb. [90.7 kg] NEW charge) detonation training

Washington ground squirrel exposure to noise and potential responses to noise exposure depend on loudness of the weapons or munitions used, the number of days the range is used per year, the

time interval between noise events (i.e., frequency of weapons firing during the training), seasonal use of the ranges, and the presence or absence of squirrels in the exposed habitats. Figure 9 shows the single-event 130 and 140 dBP noise contours for the MPMGR, eastern CLFR, and western CLFR based on the loudest weapon or munitions (.50 caliber) used on each of these ranges. The noise contours would be smaller when other weapons are fired on these ranges. These single-event noise contours depict the land area that could be exposed to the specified peak sound level and represent a composite of the sound fields surrounding all firing positions on the range. Table 15 provides a summary of range use for the MPMGR and CLFRs, and the land area within the 140 dBP noise contour. Portions of the MPMGR and western CLFR noise contours overlap; however, these contours would not actually overlap in time because the MPMGR and western CLFR would not be used simultaneously.

Table 15. Summary of Range Use and Land Area within the 140 Decibel Peak Noise Contours for the Multi-Purpose Machine Gun Range and Convoy Live Fire Ranges Under the Proposed Action

Range	Days Used Per Year	Seasonal Use	Loudest Weapon	Land Area (acres) within the 140 Decibel Peak Noise Contours for Loudest Weapon
Multi-Purpose Machine Gun Range	117	Year Round	.50 caliber	100
Eastern Convoy Live Fire Range	45	Year Round	.50 caliber	113
Western Convoy Live Fire Range	45	Year Round	.50 caliber	199

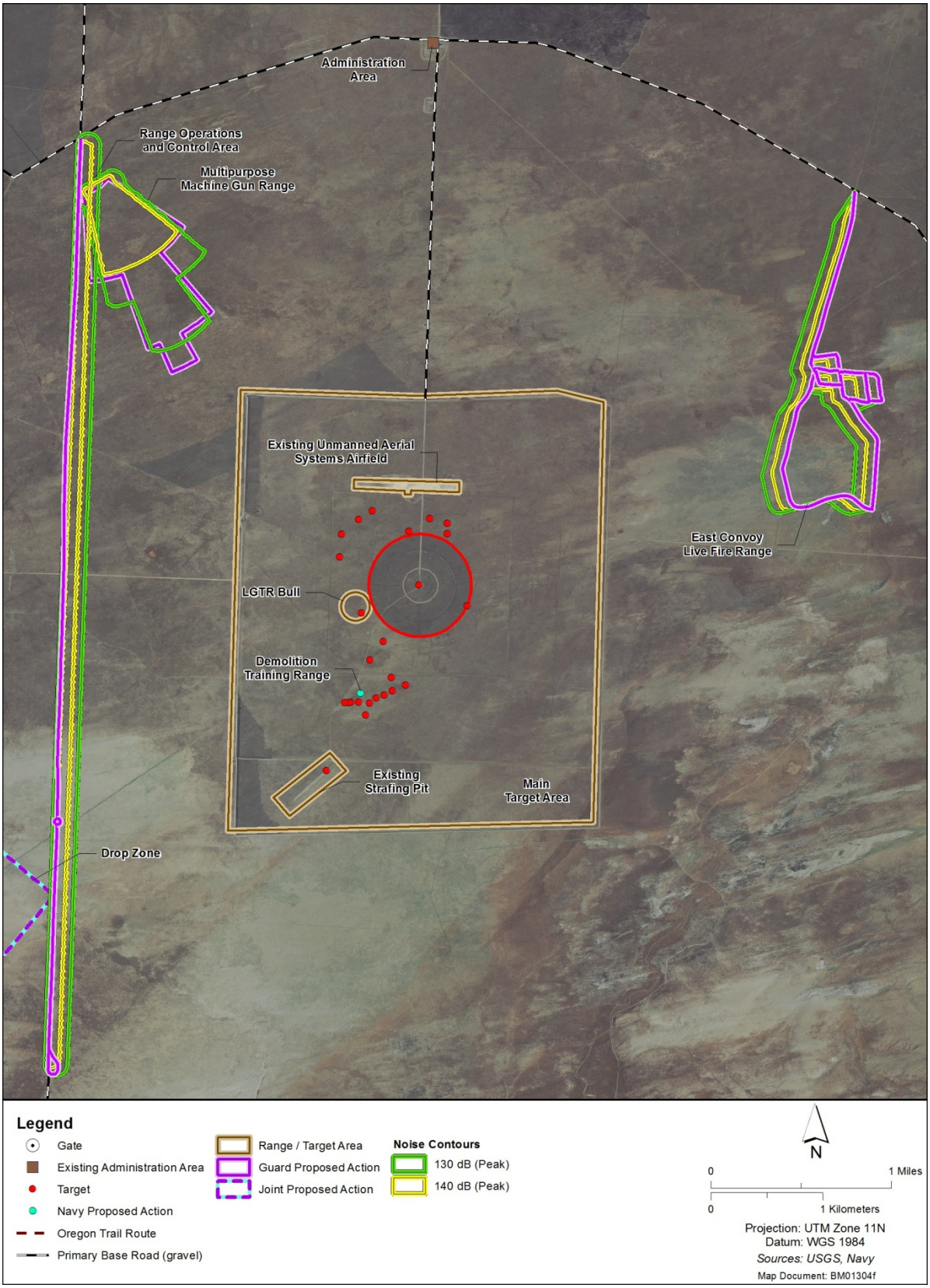


Figure 9. Single Event 130 and 140 Decibel Peak Noise Contours (approximate) for the MPMGR and CLFRs

Multi-Purpose Machine Gun Range

The MPMGR would be used year round, about 117 days per year, and primarily on weekends. The loudest weapon used on this range would be a .50 caliber machine gun or rifle. Training events on the MPMGR would take place in a deliberate progression that involves steps prior to firing weapons. For example, a representative event could include the following:

- Advance crews would arrive to place targets and ensure the range is clear of non-participants.
- Units and equipment would arrive and training plans, safety, and standard operating procedures would be reviewed.
- Weapons would be sighted with a few initial shots, after which feedback is obtained before firing the next series of shots.
- Firing would occur intermittently from about 9:00 a.m. to 6:00 p.m. during 20-minute blocks. Total firing time would be about 2 hours per day. Multiple rounds would be fired from weapons on up to 10 firing lanes during a 20-minute block. Some shots would be fired in rapid succession, but firing would not be continuous during a 20-minute firing block.

The entire MPMGR is historically occupied Washington ground squirrel habitat (Figure 7) based on known squirrel detections through 2009 (Figure 6). If Washington ground squirrels occupy habitats on or near the MPMGR following construction, individuals would be exposed to weapons firing noise approximately 2 days per week (estimate 29 –88 days of use per year during the above-ground period.[25%-75% of the days/yr.]). When the range is active, squirrels would be intermittently exposed to noise about 2 hours per day during six 20-minute blocks of firing time. Based on repeated exposures over a two-day training period and the information discussed above in the conceptual framework (Section 5.2.3), it is possible that squirrels within the 140 dBP noise contour could experience noise-induced threshold shift and associated negative effects on individual fitness. Behavioral and physiological responses of squirrels to noise within the 140 dBP contour could also result in reduced fitness of individuals.

The 140 dBP noise contour for the MPMGR covers about 100 ac. (40.5 ha), 97 ac. (39.3 ha) of which are located within the range footprint (Figure 9 and Table 15). The range footprint and most of the area within the 140 dBP contour would also be subjected to other disturbances during training, including general human activity, vehicle operations, target maintenance, projectiles impacting the ground, and small, training-caused wildfires. Some habitat within the 140 dBP contour would also be permanently lost and temporarily disturbed during construction (see Section 5.3 for detailed analysis of ground disturbing activities and habitat alteration). Although it is difficult to predict exactly how each of these stressors would affect Washington ground squirrels and their habitat, it is likely that the combined effects would result in long-term habitat degradation and a reduction in squirrel abundance in the affected area.

As noise levels and associated visual cues decrease with increasing distance from the noise source, the potential for adverse effects on Washington ground squirrels decreases and squirrels would be more likely to habituate to noise. Although noise thresholds are not available for Washington ground squirrels, long-term effects are most likely to occur in areas within the 140 dBP contour. As discussed in Section 1.5, the Navy and ORNG are proposing to compensate for

unavoidable effects on Washington ground squirrel habitat within the MPMGR range footprint and 140 dBP contour through habitat restoration and enhancement in other areas on NWSTF Boardman. The adaptive management and monitoring process described in Section 1.6 would be used to reduce uncertainty associated with potential effects of noise outside the 140 dBP contour.

Eastern and Western Convoy Live Fire Ranges

Convoy live fire training would be conducted about 45 days per year, primarily on weekends. The loudest weapon used on these ranges would be a .50 caliber machine gun. One or both of the CLFRs could be used during a training event, but firing would not occur simultaneously on both ranges. Approximately 50 percent of the total annual CLFR training time would be spent on each range. Up to platoon-sized (25 to 50 personnel) convoys would navigate the CLFR within vehicles armed with a machine gun. When units within a vehicle detect an activated target, they would engage the target with bursts of fire (typically seven to nine rounds) from one or more machine guns. Firing on an individual target may occur intermittently for a period of less than a minute. Units would then continue to navigate the CLFR, and detect and engage targets until the training event is concluded. Targets would be within about 328 ft. (100 m) of the CLFR roads and oriented so that firing is directed toward the center of NWSTF Boardman. Specific target locations and the number of targets activated and engaged could vary for each training event to increase training realism. A representative CLFR training event would include multiple scenarios, and multiple runs through the course. Approximately 16 training events could occur per representative 24-hour period. Three to six targets could be engaged per day and total firing time would be approximately 30 minutes within a 24-hour period.

Most of the land on and around the CLFRs is historically occupied Washington ground squirrel habitat (Figure 7) based on known squirrel detections through 2009 (Figure 6). If Washington ground squirrels occupy habitats on or near the CLFRs following construction, individuals would be exposed to weapons firing noise approximately 45 days per year (approximately 11 - 34 days during the above-ground activity period [25%-75% of the days/yr.]), primarily during 2-day training events. When the range is active, squirrels near active targets would be briefly (up to a few minutes) exposed to weapons firing noise while units engage the target. The potential for squirrels to be repeatedly exposed to weapons firing noise during a training event would depend on specific target placements. For example, if two targets were within approximately 200 ft. (61 m) of each other, their associated 140 dBP contours would overlap. In most cases the distance between targets would be more than 200 ft. (61 m), particularly on the western CLFR because of its linear layout. The layout of the eastern CLFR is non-linear; therefore, the potential for the sound fields associated with individual targets is more likely to overlap. As discussed above for the MPMGR, it is possible that squirrels within the 140 dBP noise contours of the CLFRs could experience noise-induced threshold shift and associated negative effects on individual fitness. Behavioral and physiological responses of squirrels to noise within the 140 dBP contour could also result in reduced fitness of individuals. However, the likelihood that these effects would occur on the CLFRs is lower than that of the MPMGR because the CLFRs would be used less frequently and the possibility of repeated exposure is less likely.

The 140 dBP noise contour for the eastern CLFR covers about 113 ac. (46 ha), which is located east of the range footprint, since this range would be located along an existing road for the majority of the range footprint (Figure 10 and Table 15). The 140 dBP noise contour for the

western CLFR covers about 199 ac. (80.5 ha), 176 ac. (71.2 ha) of which are located within the range footprint. The CLFR noise contours presented in Figure 10 and the area within the 140 dBP contours presented in Table 15 assume that targets could be placed along the entire length of the CLFRs. Therefore, Figure 10 depicts continuous noise footprints along the length of the CLFRs to provide a worst-case, conservative estimate of the area potentially affected by noise. The actual noise footprint during a training event would not be continuous because discrete target locations would be established.

The range footprint and most of the area within the 140 dBP contours would also be subjected to other disturbances during training, including general human activity, vehicle operations, target maintenance, projectiles impacting the ground, and small, training-caused wildfires (see Section 5.3 for detailed analysis of ground disturbing activities and habitat alteration). Although it is difficult to predict exactly how each of these stressors would affect Washington ground squirrels and their habitat, it is likely that the combined effects would result in long-term habitat degradation and a reduction in squirrel abundance in the affected area.

As noise levels and associated visual cues decrease with increasing distance from the noise source, the potential for adverse effects on Washington ground squirrels decreases and squirrels would be more likely to habituate to noise. Although noise thresholds are not available for Washington ground squirrels, long-term effects are most likely to occur in areas within the 140 dBP contour. As discussed in Section 1.5, the Navy and ORNG are proposing to compensate for unavoidable effects on Washington ground squirrel habitat within the CLFR range footprints and 140 dBP contours through habitat restoration and enhancement in other areas on NWSTF Boardman. The adaptive management and monitoring process described in Section 1.6 would be used to reduce uncertainty associated with potential effects of noise outside the 140 dBP contours.

Demolition Training Range

Figure 10 shows the single-event 130 and 140 dBP noise contours for the DTR based on a 200 lb. (90.7 kg) NEW charge (conservatively modeled as a 220 lb. [99.8 kg] NEW charge). The largest area of impact from the DTR would be when using a charge of 200 lb. NEW. Any charge size smaller than 200 lb. NEW would produce a smaller area of impact. Detonations on the DTR could be conducted any day of the week between the hours of 10:00 a.m. and 4:00 p.m. Explosive demolition training is not normally planned to occur in the June to September time frame to help mitigate wildland fire potential, though seasonal conditions and training times may vary. DTR training includes additional BMPs to help reduce noise levels for training with charges greater than 100lbs (45.4 kg) NEW. These could include: training during times with optimal weather conditions to attenuate noise, burying the explosive charge, or bunkering the charge with sand bags. A representative annual training scenario for explosive detonation training on the DTR is provided in Table 16.

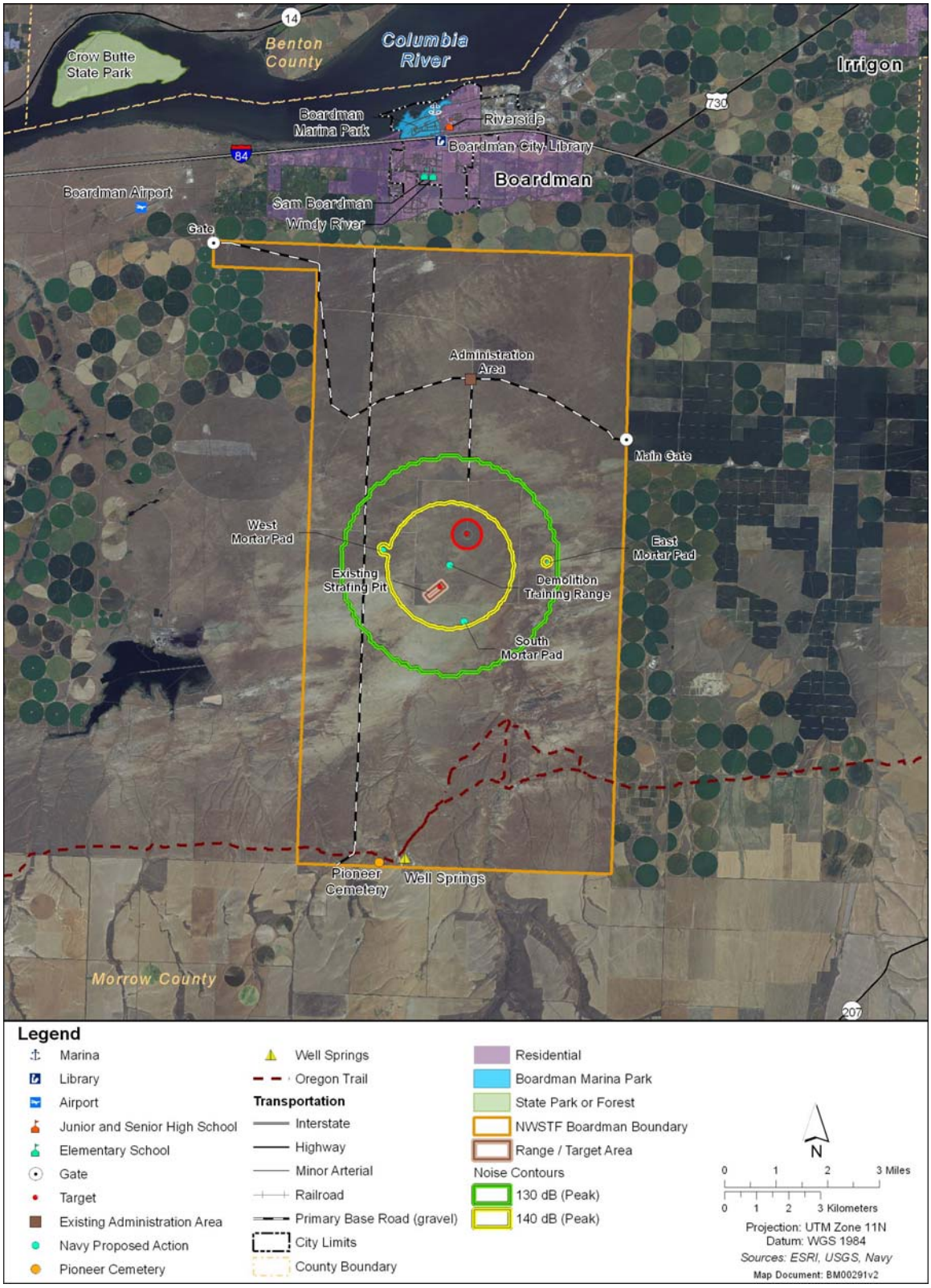


Figure 10. Projected Single Event Noise Contours for Ordnance Activities Associated with the Main Target Area, Strafe Pit, and Demolition Training Range under the Proposed Action

Table 16. Representative Annual Training Scenario for the Proposed Demolition Training Range

Net Explosive Weight	Events Per Year (Days)	Detonations Per Event	Total Detonations Per Year
200 lb.	2	1	2
100 lb.	3	1 or 2	5
50 lb.	3	1 to 6	10
25 lb.	4	1 to 6	20
<25 lb.	3	1 to 6	13
Total =	**15**		**50**

Notes: lb. = pounds, < = less than

While the noise footprint associated with the DTR would be large, this range would be used relatively infrequently. Washington ground squirrels within the 140 dBP contours associated with the DTR would be expected to exhibit short-term behavioral and physiological responses to noise, but the time interval between detonations would likely allow for recovery. Seasonal restrictions on the use of charges over 50 lb. NEW would also help to minimize negative effects to active Washington ground squirrels. Based on the relatively infrequent use of the DTR and the limited potential for repeated exposure over short periods of time, noise associated with use of the DTR is not expected to result in long-term habitat degradation or a reduction in squirrel abundance in the affected area. The adaptive management and monitoring process described in Section 1.6 would be used to reduce uncertainty associated with potential effects of noise associated with the DTR.

Based on the above, noise associated with weapons firing and detonation of high explosive training activities on the proposed ranges may cause some short-term adverse effects to Washington ground squirrels.

5.2.8 Non-explosive Practice Munitions Noise

Air-to-Ground Bombing Exercises at NWSTF Boardman involve dropping various non-explosive practice bombs from fixed-wing aircraft within the Main Target Area (Table 1 and Table 3). A typical exercise might involve dropping two to six non-explosive practice bombs in successive target runs. Though non-explosive practice munitions do not contain a high-explosive charge that detonates on impact, most practice munitions contain a small spotting charge that allows the unit conducting the training to see the impact location through a flash and puff of smoke generated by the spotting change on impact. When a non-explosive practice bomb makes contact with the target, kinetic energy would be transferred and sound would be generated. Sound associated with the impact event is typically of low frequency (less than 250 Hertz) and of a short enough duration (i.e., impulsive sound) that it produces negligible amounts of acoustic energy. This noise would co-occur with aircraft overflight noise. While wildlife near the impact point would likely respond to the overall noise event, it would be difficult to distinguish between responses to the impact noise and the overflight noise, which has a larger footprint. Noise associated with a non-explosive practice bomb impacting the target was not addressed as an

independent noise stressor because noise from practice bombs striking the target would co-occur with aircraft noise. Noise associated with non-explosive practice bombs is not addressed in further detail.

5.2.9 Vehicle and Equipment Noise

Vehicles and equipment used during construction and ground-based training activities would produce noise intermittently. Individual pieces of commonly used construction equipment typically generate noise levels of 80 to 88 dBA (U.S. Department of Transportation, Federal Highway Administration 2006). During the peak construction activities multiple pieces of equipment could be operating simultaneously and noise levels could be elevated during daytime periods at locations near the construction site. Washington ground squirrels would likely respond to construction equipment by exhibiting alert behavior, making alarm calls, or retreating underground. These responses may be generated by visual cues, noise, or a combination of visual cues and noise. Washington ground squirrels in the vicinity of persistent equipment operation could be displaced and become more susceptible to predation.

Vehicle and equipment use during ground-based training would include transport of Soldiers to and from the range in buses or vans and operation of tactical equipment such as high-mobility multipurpose wheeled vehicles. In addition to traveling to and from the range, tactical equipment would be operated on the eastern and western CLFRs, which would be used about 45 days per year. A high-mobility multipurpose wheeled vehicle generates noise levels of less than 85 dBA at the crew positions when traveling at 30 miles per hour (U.S. Department of the Army 2013). Unlike construction activities where equipment may be operated in one area for several hours, training activities would primarily involve vehicle pass-by events. Washington ground squirrels would likely respond to visual cues and noise from a passing vehicle by exhibiting alert behavior, making alarm calls, or retreating underground. Squirrels would be expected to return to normal behavior soon after a vehicle or series of vehicles pass.

In summary, construction equipment operation has the potential to temporarily displace Washington ground squirrels and increase their susceptibility to predation. Vehicle and equipment operation during training activities is expected to result in short-term behavioral responses, but no long-term effects to Washington ground squirrel fitness would be expected. These effects would likely be attributable to both visual cues and noise.

5.2.10 Summary of Effects from Noise

A relatively small portion of NWSTF Boardman would be exposed to noise levels that could cause physiological and behavioral responses in Washington ground squirrels. Individuals within the 140 dBP noise contours for MPMGR (235 acres within the range footprint and noise contour is approximately 0.4% of the total NSWTF Boardman property) would be repeatedly exposed to loud noise on most weekends, and could experience reduced fitness from hearing threshold shift or behavioral and physiological responses. Squirrels could also be repeatedly exposed in the 140 dBP contours for the CLFRs, but the frequency of exposure would be much lower than the MPMGR.

As previously discussed, well-established thresholds or criteria for predicting impacts of noise on terrestrial wildlife do not exist. While a specific noise threshold cannot be defined to predict long-term impacts to Washington ground squirrel fitness based on available data, the Navy and ORNG used 140 dBP to estimate the area where long-term Washington ground squirrel habitat degradation could occur as a result of weapons firing noise on the proposed MPMGR and CLFRs. This value was used because squirrels repeatedly exposed to 140 dBP could experience hearing threshold shifts based on available data for chinchillas and humans (e.g., Hamernik *et al.* 1987, Humes *et al.* 2005, U.S. Army Public Health Command 2010). Given the potential for threshold shift, it is also logical to assume that squirrels would exhibit a strong and consistent behavioral and stress response to 140 dBP. It is also likely that squirrels would be exposed to visual and other cues within the 140 dBP contours, making it more likely that squirrels would perceive the loud noise as a threat. When loud noises are perceived as a threat, animals are less likely to habituate to the noise. With repeated exposure to 140 dBP over a two-day training period, which could occur on the MPMGR and CLFRs, it appears likely that squirrels could experience reduced fitness, even if threshold shift did not occur. As discussed in Section 1.5, the Navy and ORNG are proposing to compensate for unavoidable effects on Washington ground squirrel habitat within the MPMGR and CLFR range footprints and their associated 140 dBP contours through habitat restoration and enhancement in other areas on NWSTF Boardman.

The Navy and ORNG acknowledge that Washington ground squirrels would respond to some sound levels below 140 dBP. In addition, it is possible that sound levels below 140 dBP could contribute to long-term habitat degradation when accompanied by visual cues, human activity, ground disturbance, wildfire, or other stressors. As discussed in Section 5.3, these other stressors would be expected to occur within the range footprints. Therefore, the area within the range footprints, plus the area of the 140 dBP noise contours for the MPMGR and CLFRs outside the range footprints, was defined as the area of long-term habitat degradation for mitigation planning purposes. As depicted in Figure 10, most of the 140 dBP contours for the MPMGR and CLFRs and a substantial portion of the 130 dBP contour for the MPMGR are within the range footprints. Sound levels below 140 dBP occurring outside the range footprints were not considered as long-term habitat degradation for mitigation planning purposes because:

- As noise levels and associated visual cues decrease with increasing distance from the noise source, the potential for adverse effects on Washington ground squirrels decreases and squirrels would be more likely to habituate to noise.
- The MPMGR and CLFRs would primarily be used on weekends, providing squirrels the opportunity to recover from noise exposures.
- Although studies conducted at Orchard Training Area did not specifically evaluate Piute ground squirrel responses to noise, long-term monitoring data suggest that noise and other potential stressors associated with military training do not appear to be impacting Piute ground squirrel populations at the training area.
- Monitoring and adaptive management measures will be developed and implemented to help reduce uncertainty.

Proposed compensatory mitigation for unavoidable effects on Washington ground squirrel habitat is discussed in detail in Section 1.5. The adaptive management and monitoring process described in Section 1.6 would be used to reduce uncertainty associated with potential effects of

noise outside the 140 dBP contours. Noise associated with portions of the Proposed Action is likely to cause adverse effects to Washington ground squirrels.

5.3 Ground Disturbing Activities and Habitat Alteration

5.3.1 Introduction

This section analyzes potential effects of ground disturbing activities on Washington ground squirrel habitat, as well as other stressors that could alter habitat. Proposed activities that would result in ground disturbance include construction, training (non-explosive practice munitions striking the ground and vehicle and equipment operations), and maintenance (fire break and target maintenance). The potential for these activities to directly injure Washington ground squirrels is addressed separately in Section 5.4, *Physical Strikes*, and effects of noise and general disturbance associated with these activities were addressed in Section 5.2, *Noise*. Other stressors analyzed in this section that could alter habitat include invasive plants and wildfire.

5.3.2 Construction Activities

Site excavation, grading, and equipment operations during construction of the proposed range enhancements would result in temporary disturbances to the ground surface. The area of disturbance for individual construction projects would range from less than 1 to 30 ac. (0.4 to 12 ha). The total area of disturbance would be 65 ac. (26 ha), 25 ac. (10 ha) of which are previously disturbed (mostly consisting of existing gravel or dirt roads). Approximately 40 ac. (16 ha) of previously undisturbed area would be affected, about 25 ac. (10 ha) would be permanently converted to development, and about 15 ac. (6 ha) would be temporarily disturbed and revegetated in accordance with the post-construction revegetation plan (Appendix A). Construction activities for the range enhancements would be spaced over a period of several years as funding becomes available. Therefore, the total area of disturbance at any given time during construction would be much less than 65 ac. (26 ha).

Annual grass/forb, bunchgrass, and open-low shrub communities would be affected by construction based on 1997 vegetation survey data. Ecological condition classifications for the area of disturbance range from medium to low based on data collected in 2013. With the exception of the UAS Airfield and Maintenance Facility and the Range Operations Control Center, the area of disturbance is historically occupied Washington ground squirrel habitat (Figure 7) based on known detections recorded through 2009 (Figure 6). As previously discussed, a systematic Washington ground squirrel survey of the entire NWSTF Boardman property has not been conducted. Therefore, the distributions of squirrel detections and historically-occupied habitat presented in Figures 6 and 7 are, in part, a reflection of variable survey effort. As discussed in Section 1.6.4 *Monitoring*, systematic surveys would be conducted prior to construction to support micrositing decisions. Micrositing would involve looking at proposed construction sites at a “micro” level to identify sensitive features that should be avoided to the extent practicable. Occupied Washington ground squirrel habitat and areas with higher ecological condition classifications (e.g., undisturbed areas with a relatively high percentage of native plant cover) would be avoided in favor of unoccupied habitat with lower ecological condition classifications (e.g., disturbed areas with a relatively high percentage of non-native plant cover), to the extent practicable. Micrositing efforts would primarily be aimed

at the UAS Airfield and Maintenance Facility and the Range Operations Control Center. The ability to microsite ranges would be limited based on safety constraints.

As noted above, approximately 25 ac. (10 ha) would be permanently converted to development. Washington ground squirrel habitat in these areas would be permanently lost. The area of permanently lost habitat would be small relative to the total land area at NWSTF Boardman (0.05 percent). Approximately 15 ac. (6 ha) temporarily disturbed during construction would be revegetated and maintained in accordance with the proposed post-construction revegetation plan (Appendix A). After restoration, disturbed areas could provide foraging habitat for Washington ground squirrels. Restoration efforts would include establishment of native plants. Foraging habitat quality could be improved in temporarily disturbed areas that were dominated by invasive plants prior to disturbance, if these areas are not subject to further disturbance during operation of the ranges (see analysis below for training and maintenance activities). The suitability of temporarily disturbed and restored areas for burrowing habitat would depend on the level of disturbance. For example, the natural soil profile would be altered in areas subject to grading or trenching activities. It is unlikely that these areas would be suitable for burrowing for several years following construction. Therefore, a long-term, but not permanent, loss of Washington ground squirrel habitat would occur in temporarily disturbed and restored areas (15 ac.).

5.3.3 Training Activities

Training activities on the proposed new ranges would result in increased ground disturbance and habitat alteration. Habitat around targets on the new ranges would be disturbed by non-explosive practice munitions striking the ground and during target maintenance. Some of the areas affected would coincide with areas temporarily disturbed during construction, thus hampering restoration efforts. Areas disturbed by projectile impacts would likely be colonized by invasive plants, which would further reduce habitat quality. Invasive plants are discussed in more detail in Section 5.6.5.

Training activities conducted under the Proposed Action would increase the risk of wildfire at NWSTF Boardman. Effects of training-caused wildfires are analyzed in more detail in Section 5.6.6.

Vehicle and equipment use would increase substantially (over the current use) under the Proposed Action during ground-based training events. However, vehicles, including tracked vehicles, would continue to use existing roads or new gravel roads constructed under the Proposed Action. No off-road maneuver training is proposed. Vehicle and equipment use during training activities would not result in ground disturbance, but would provide pathways for invasive plant seed dispersal. As discussed in other sections, vehicle strikes, noise, and general disturbance associated with vehicles and equipment used during training could affect Washington ground squirrels.

5.3.4 Maintenance Activities

Target and fire break maintenance would result in ground disturbance under the Proposed Action. Current target maintenance within the Main Target Area would continue under the Proposed Action. The Main Target Area includes the main bull’s eye, the strafing pit, the laser-

guided training range bull's eye, and several single targets or grouped target sets (e.g., old vehicles, tanks, etc.). The vegetation in and around each of these targets must be maintained or removed for fire safety and to provide a viable visual cue to pilots. This is accomplished by mechanical disturbance (i.e., plowing or disking) with a tractor one time per year. Approximately 23 ac. (9.3 ha) in the Main Target Area would continue to be subjected to this maintenance under the Proposed Action.

Maintenance activities on the MPMGR and the CLFRs would include periodic maintenance, repair, and replacement of targets and target support mechanisms. Gravel roads associated with the CLFRs would be graded or could include placement of additional gravel. Periodic vegetation control may be required to reduce fire fuel loading or manage exotic vegetation and would be conducted as authorized in approved natural resource and fire management plans. Targets on the CLFRs would be relocated periodically to vary the training, and former target locations would be revegetated with native species.

Currently, approximately 462 ac. (187 ha) of fire breaks throughout NWSTF Boardman are maintained annually by mechanical disturbance (e.g., plowing or disking) with a tractor. The Draft Integrated Wildland Fire Management Plan (Appendix H of the DEIS) includes proposed modifications to the existing system of fire breaks. The width of some fire breaks would be reduced to the width of the adjacent road, some fire breaks that do not follow roads would be eliminated, and two new fire breaks totaling about 19 ac. (7.7 ha) would be created (Figure 11). The total area of fire breaks that would be maintained annually by mechanical disturbance (plowing or disking with a tractor) would decrease from 462 ac. (187 ha) to 243 ac. (98 ha).

Establishment and maintenance of the two new fire breaks would alter 19 ac. (7.7 ha) of potentially suitable Washington ground squirrel habitat. However, a long-term revegetation plan (Appendix A) would be implemented to restore the areas removed from mechanical maintenance. These areas would be re-vegetated with native bunchgrasses, primarily Sandberg's bluegrass with some needle and thread or bluebunch wheatgrass, to provide a low-structure and low-fuel load area next to the road/fire break, and also provide some wildlife habitat value. Grass revegetation would be considered successful if seeding results in a stand of grass providing a uniform coverage of at least 80 percent density of a representative bunchgrass stand area within two to three years of seeding. Selective herbicide treatments or other appropriate management actions would be used to control invasive plants until these areas are completely restored.

The proposed modifications to the fire break system would result in long-term benefits to vegetation communities at NWSTF Boardman by restoring approximately 219 ac (89 ha) of mechanically-disturbed land to native plant communities, which would also reduce the potential for soil erosion, reduce the likelihood of invasive plant infestations, and improve Washington ground squirrel foraging habitat. Native plants appear important to Washington ground squirrels, with Sandberg bluegrass playing a key role in their diets (Tarifa and Yensen 2004a,b). Restoration would also allow natural soil profiles to begin to naturally recover in these areas. While these areas might eventually provide suitable Washington ground squirrel burrowing habitat, the soil recovery process could take several years to decades. Long-term benefits associated with fire break restoration (219 ac. [89 ha]) would help to offset impacts to Washington ground squirrel habitat from construction activities. Nonetheless, about 25 ac. (10

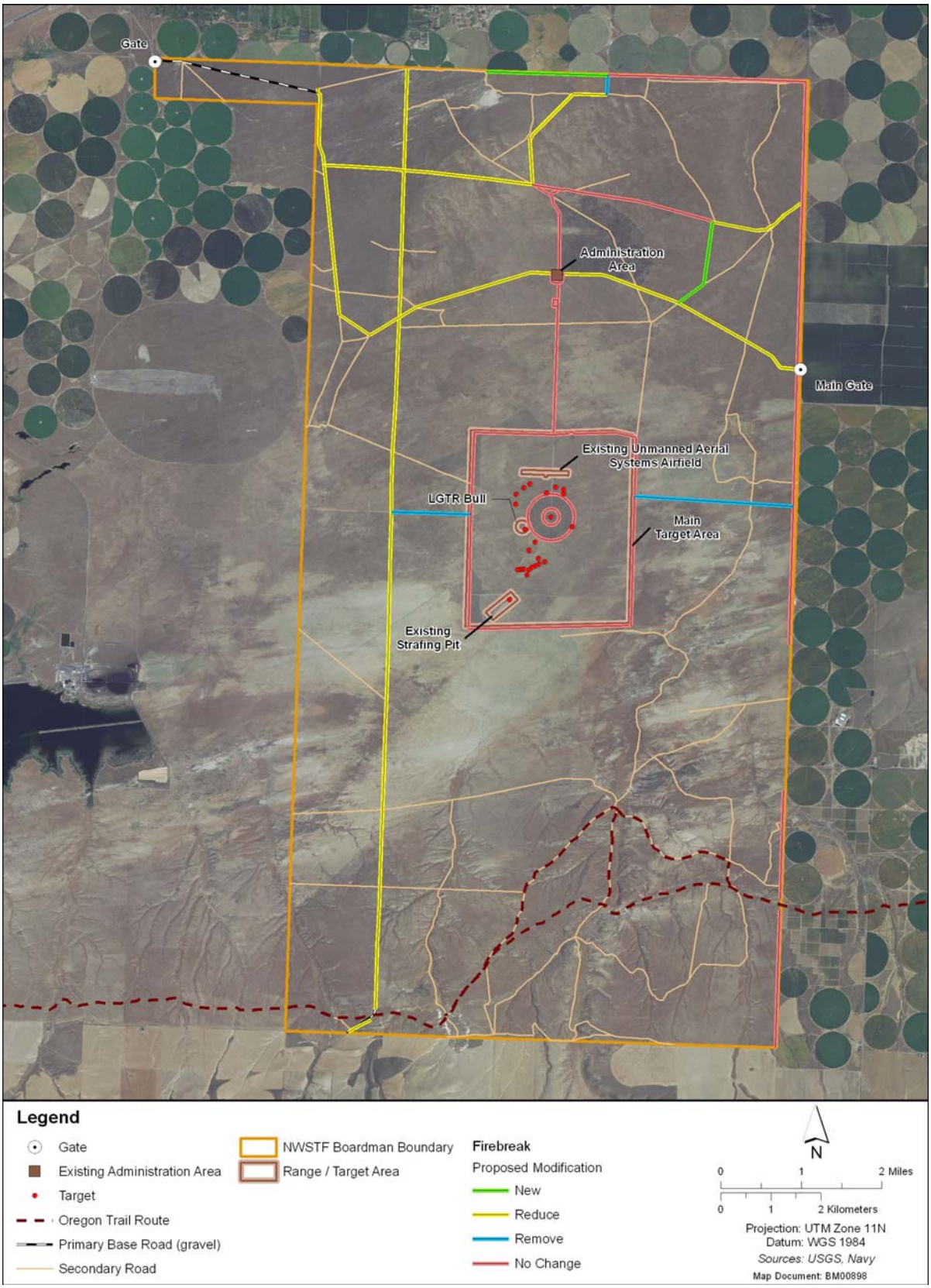


Figure 11. Proposed Fire Break Modifications at Naval Weapons Systems Training Facility Boardman

ha) of potential Washington ground squirrel habitat would be permanently converted to development under the Proposed Action.

5.3.5 Invasive Plants

Vegetation communities and Washington ground squirrel habitat at NWSTF Boardman would continue to be affected by invasive plants under the Proposed Action. Non-native invasive plants, including cheatgrass, threaten squirrels by competing with native plants that are important for ground squirrel diets. Exotic annual plant species provide an unstable food resource for ground squirrels because their productivity fluctuates with annual precipitation (Yensen *et al.* 1992). Washington ground squirrels do eat non-native species, including cheatgrass (Tarifa and Yensen 2004a, Tarifa and Yensen 2004b), but native perennial plant species are more drought-tolerant than annuals. When annual plants dominate the landscape, there is less forage for ground squirrels during drought years and it is available for a shorter period of time (Yensen *et al.* 1992). Further, plant communities dominated by exotic annuals have lower diversity, reducing dietary choices and probably the ability to avoid toxic secondary compounds (Quade 1994). Exotic-dominated communities are also far more likely to burn than native vegetation (Whisenant 1990).

Ground-disturbing activities described above would continue to indirectly affect native plant communities by creating favorable conditions for establishment of invasive plants and providing pathways for seed dispersal. Construction and operation of the proposed new ranges would exacerbate existing invasive plant problems. Construction and military vehicles and equipment coming from offsite would provide a new pathway for introduction of invasive plants and would be a dispersal mechanism for seeds at NWSTF Boardman.

As discussed in Section 1.4, several BMPs would be implemented to avoid invasive plant infestations, monitor invasive plants, and adaptively manage invasive plants during construction and over the life of the proposed training ranges. In addition to project specific mitigations, NWSTF Boardman-wide invasive plant and noxious weed management actions would be implemented as part of the *NWSTF Boardman INRMP*, with increased efforts to reflect new threats introduced by the Proposed Action. The invasive plant and noxious weed management actions, developed in cooperation with the Service and ODFW, would be reviewed annually and updated as necessary. Key elements of the plan include the following:

- Standard operating procedures for preventing and minimizing the introduction and spread of invasive plants
- Updates of the invasive plant inventory and mapping prior to implementing the Proposed Action
- Responsibilities and procedures for integrating efforts of the Navy, ORNG, and The Nature Conservancy
- Criteria for prioritizing management actions
- Short- and long-term monitoring programs
- Annual work plans, including funding requirements and funding sources

5.3.6 Wildfire

Wildfire, in combination with invasive plants, has affected vegetation and Washington ground squirrel habitat at NWSTF Boardman in recent years. Since 1998, wildfires burned more than 85 percent of NWSTF Boardman causing short- and long-term habitat alterations. Large fires swept portions of the installation in 1998 (17,514 ac. [7,088 ha]), 2007 (11,664 ac. [4,720 ha]), and 2008 (30,612 ac. [12,388 ha]), while smaller areas burned in 2002 (1,639 ac. [663 ha]) and 2009 (618 ac. [250 ha]) (Figure 13). With the exception of the 2009 fire, all of these fires were started by lightning strikes. The cause of the 2009 fire is unknown (U.S. Department of the Navy 2012a). Training-related wildfires also occur occasionally at NWSTF Boardman. Range safety monitoring by participating military units allows for early detection of training-related fires and rapid response. Therefore, fires that start during training activities are typically contained to relatively small areas compared to lightning-caused fires, which might go undetected for a period of time after ignition.

Historically, the area was comprised of fire-adapted vegetation communities with fire return intervals that likely ranged from about 20 to 70 years based on information for similar habitats (Leenhouts 1998, Paysen *et al.* 2000). With the widespread introduction of invasive, non-native annual grasses such as cheatgrass, the amount of fuel for wildfires has increased. Wildfires now tend to be more frequent and more severe (burn hotter), and can be long-term or permanent habitat altering events. Frequent and hot burning fires like those that have occurred at NWSTF Boardman favor a shift from shrublands to grasslands. Humple and Holmes (2001) documented decreases in sagebrush cover and increases in cover of grass, primarily cheatgrass, in study plots following the 1998 fire at NWSTF Boardman.

Increases in training under the Proposed Action would increase the risk of wildfire at NWSTF Boardman. Fires resulting from training activities would be expected to occur on the MPMGR and CLFRs, particularly during dry periods. To address these issues the Navy and ORNG prepared a Draft Integrated Wildland Fire Management Plan which contains a Fire Danger Rating and Wildland Fire Risk Management Matrix (Appendix H of the DEIS). The Plan would be finalized prior to implementing the Proposed Action and includes measures to prevent, monitor, and respond to wildfires. The Navy, ORNG, and other range users would implement the Plan.

While preventive measures are expected to reduce the incidence of training-caused fires, it is possible that one or more fires could occur on the ranges each year. Monitoring conducted during training exercises and onsite firefighting assets would ensure rapid response to training-caused fires, and would help to contain the fires to relatively small areas (e.g., less than 100 ac.). While the total area affected by training-caused fires cannot be quantified, long-term adverse effects on vegetation and habitat are likely. A mosaic of recently burned areas, unburned areas, and areas in various stages of recovery would likely develop as the ranges become operational and frequent, small fires occur. Vegetative cover would decrease and bare ground would increase. Conditions would be favorable for establishment and spread of non-native annual grasses such as cheatgrass, although cheatgrass already dominates portions of the proposed ranges. Washington ground squirrels would be more susceptible to predation in areas of bare ground and their available food supply would decrease. Shifts from native grasses to cheatgrass or other invasive plants could

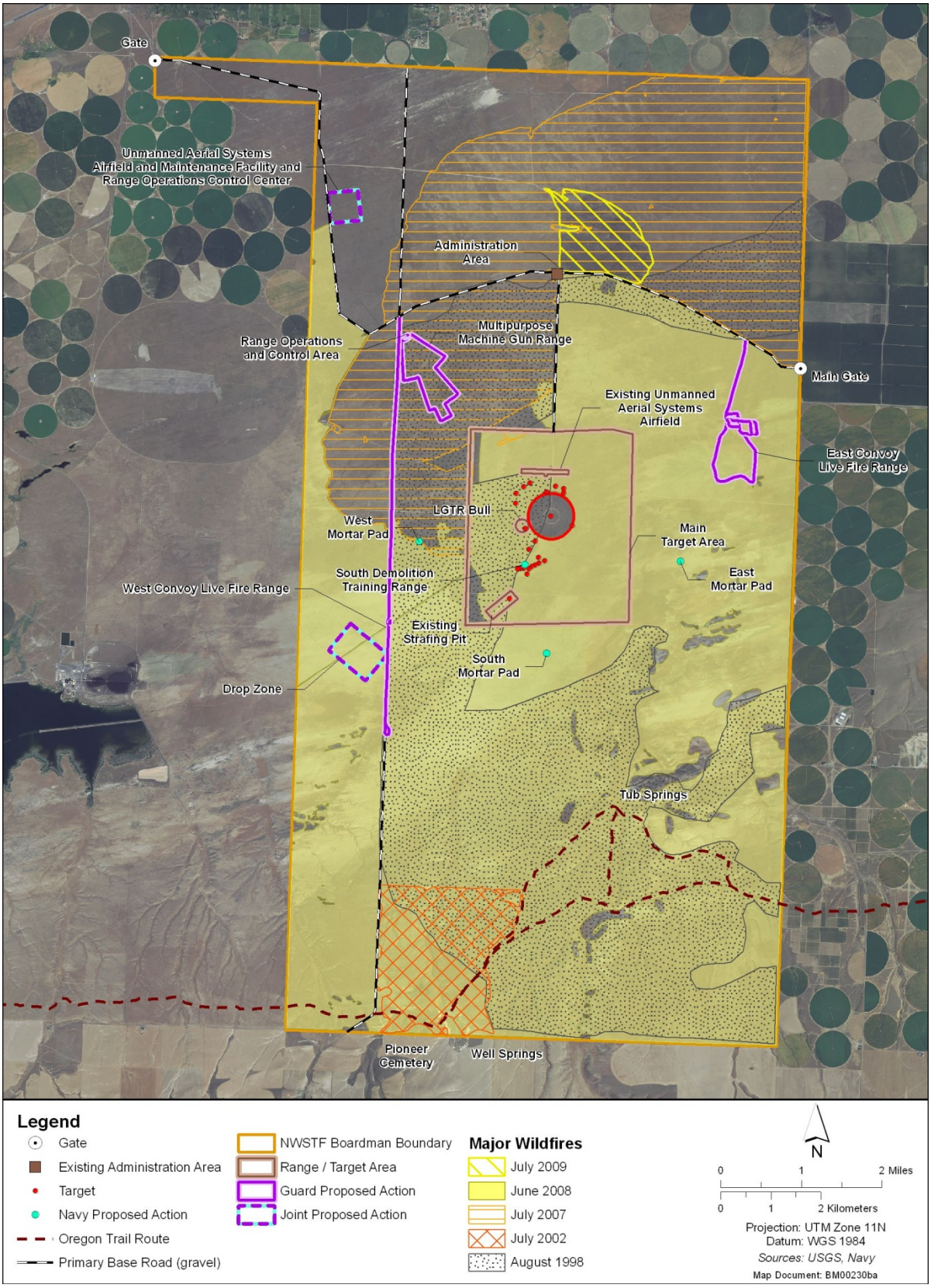


Figure 12. Extent of Major Wildfires at NWSTF Boardman

also reduce the quality of available forage. For these reasons, training-caused wildfire is expected to have long-term adverse effects on Washington ground squirrel habitat.

5.3.7 Summary and Combined Effects on Washington Ground Squirrel Habitat

This section provides a summary of the analyses presented above and synthesizes this information to consider the overall effects of the Proposed Action on Washington ground squirrel habitat. Consideration of the combined effects on habitat provides a better understanding of potential population-level effects and helps to define the scope of proposed habitat restoration and enhancement efforts to mitigation adverse effects.

As summarized in Table 17, the Proposed Action would result in some permanent habitat loss and long-term habitat degradation. Permanently lost habitat includes areas that would be converted to structures or facilities such as the UAS airfield, gravel roads, and targets. Complete loss of habitat functions and values would occur in these areas. Long-term habitat degradation, but not complete loss of habitat functions and values, is expected to occur in areas affected by temporary construction disturbance, projectiles striking the ground, training-caused wildfires, invasive plants, weapons firing noise on the MPMGR and CLFRs, and general disturbance caused by increased human activity. The spatial extent of habitat impacts associated with these stressors cannot be fully quantified. However, based on implementation of BMPs discussed in Section 1.4, the Navy and ORNG expect that long-term habitat degradation would primarily occur within the range enhancement footprints. One exception would be the 140 dBP contours for the MPMGR and CLFRs, 33 ac. (13.4 ha) of which fall outside the range footprints (Figure 13). Therefore, the area of long-term habitat degradation for the MPMGR and CLFRs was calculated as follows: (total range footprint – permanently lost habitat) + area of 140 dBP contour outside the range footprint. Figure 13 shows the total affected area for the MPMGR and CLFRs. Table 17 provides a summary of permanent habitat loss and long-term habitat degradation for each range enhancement, broken down by ecological condition class.

The area of permanently lost habitat would be 25 ac. (10 ha) and long-term habitat degradation is expected on 561 ac. (227 ha), for a total affected area of 586 ac. (237 ha). Approximately 90 percent of the affected area is known to be historically occupied Washington ground squirrels. However, based on the lack of recent, systematic survey data the entire affected area was assumed to be occupied by Washington ground squirrels for impact assessment and mitigation planning purposes. Assuming that the entire NSWTF Boardman property is suitable Washington ground squirrel habitat, 0.05 percent of the available habitat would be permanently lost and 1.7 percent would be degraded. Quantifying the population-level effects of these habitat impacts is not possible given the current limited knowledge of Washington ground squirrel population dynamics. While squirrel numbers could decline in response to lost and degraded habitat, the area affected would be relatively small compared to the total habitat available at NWSTF Boardman. Therefore, it is unlikely that the viability of the population would be threatened. Large areas of historically-occupied habitat would be unaffected by the action and some existing fire breaks (219 acres) would be restored. In addition, the proposed habitat mitigation measures discussed in Section 1.5 would help to ensure no net loss of habitat quantity or quality and a potential net benefit to Washington ground squirrel habitat. Proposed activities that would result in habitat loss or degradation will adversely affect the Washington ground squirrel.

Table 17. Summary of Habitat Impacts for Proposed Range Enhancements at NWSTF Boardman

Range Enhancement and Ecological Condition Classification of Affected Habitat	Permanent Habitat Loss (acres)	Long-term Habitat Degradation (acres)	Total (acres)
Multi-Purpose Machine Gun Range			
High	0	0	0
Medium-high	0	0	0
Medium	8	193	201
Medium-low	8	6	14
Low	0	0	0
Unclassified	0	20	20
Subtotal =	16	219	235
Eastern Convoy Live Fire Range			
High	0	0	0
Medium-high	0	8	8
Medium	0	97	97
Medium-low	0	6	6
Low	0	2	2
Unclassified	0	2	2
Subtotal =	0	113	113
Western Convoy Live Fire Range			
High	0	0	0
Medium-high	0	5	5
Medium	0	146	146
Medium-low	0	14	14
Low	0	0	0
Unclassified	0	63	63
Subtotal =	0	228	228
Demolition Training Range			
High	0	0	0
Medium-high	0	0	0
Medium	1	0	1
Medium-low	0	0	0
Low	0	0	0
Unclassified	0	0	0
Subtotal =	1	0	1
Unmanned Aerial Systems Airfield and Maintenance Facility and Range Operations and Control Center			
High	0	0	0
Medium-high	0	0	0
Medium	0	0	0
Medium-low	0	0	0
Low	8	1	9
Unclassified	0	0	0
Subtotal =	8	1	9
Total for All Range Enhancements			
High	0	0	0
Medium-high	0	13	13
Medium	9	435	444
Medium-low	8	26	34
Low	8	3	11
Unclassified	0	84	84
Total =	25	561	586

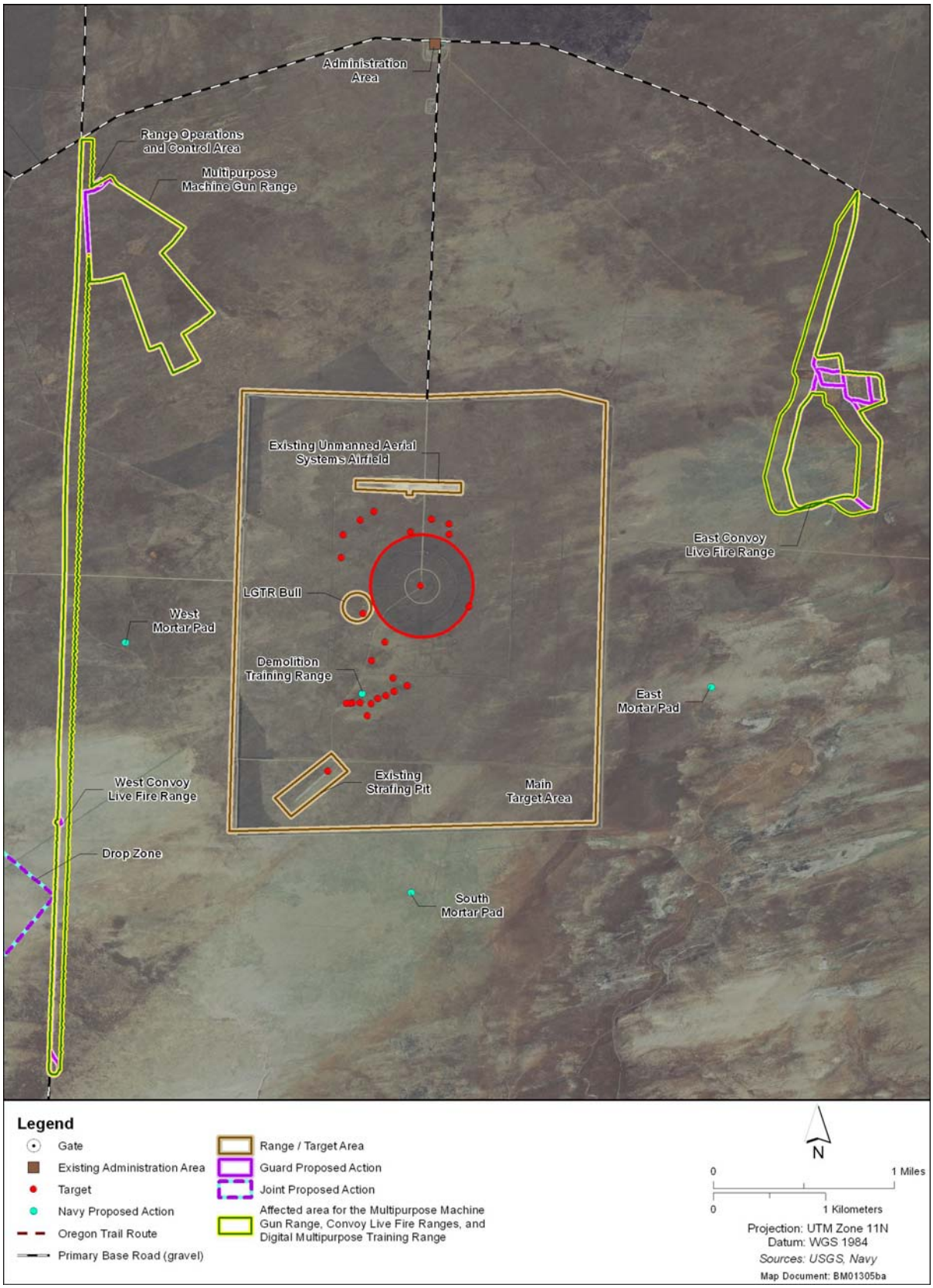


Figure 13. Area of Habitat Affected by the MPMGR and CLFR

5.4 Physical Strikes

5.4.1 Non-explosive Practice Munitions Strikes

Various types of non-explosive practice munitions (e.g., bullets and practice bombs) would be fired at or dropped on targets (Tables 2, 3, and 4) under the Proposed Action. Most projectiles would make contact at or near the designated target, with an occasional round landing within the larger surface or weapons danger zones. A Washington ground squirrel could be struck and killed in the unlikely event that the animal was at the point of physical impact at the time of projectile delivery.

Portions of the Main Target Area are highly disturbed from decades of use. Nonetheless, Washington ground squirrels have been detected in the area. Vegetation around target emplacements in the Main Target Area, where most projectiles would make contact, is periodically maintained by disking or plowing for fire safety and to provide visual cues to pilots. Vegetation around targets on the MPMGR and CLFRs would not be disked, but some level of habitat disturbance would result from projectile impacts. Washington ground squirrels are less likely to use these disturbed areas, reducing the likelihood of a strike. Noise is associated with non-explosive practice munitions use and a noise event often occurs prior to weapons firing. For example, pilots fly over the target area to make safety checks before dropping or firing ordnance during air-to-ground bombing and gunnery exercises. Squirrels might flee the immediate area or take cover underground in response to the fly over, reducing the likelihood of a strike. In addition, other weapons firing exercises take place in a deliberate progression, with target placement being followed by a few initial shots, after which feedback is obtained before firing the next series of shots. Again, the likelihood of a strike might be reduced by squirrels responding to the initial stages of an exercise. Also, the likelihood of a relatively small projectile and an animal co-occurring in time and space within the target area is low. Based on these factors, the risk of non-explosive practice munitions striking a Washington ground squirrel would be low. If strikes did occur, a limited number of individuals would be affected, and no population-level effects would be expected. For compliance purposes, the Navy and ORNG estimate that up to six Washington ground squirrel incidental mortalities could occur per year from a combination of non-explosive practice munitions strikes and vehicle strikes. As discussed in Section 1.6.4, *Monitoring*, range control personnel would inspect the target areas at the conclusion of a firing exercise to record and report any mortality. Non-explosive practice munitions strikes under the Proposed Action may have adverse effects to the Washington ground squirrel.

5.4.2 Vehicle and Equipment Strikes

Vehicle and equipment use at NWSTF Boardman would increase substantially under the Proposed Action during ground-based training events and during construction. During training activities, vehicles and military equipment would be driven on existing roads or new gravel roads constructed under the Proposed Action. No off-road maneuver training is proposed. Maximum travel speeds would be limited during training, but the potential exists for Washington ground squirrels to be struck along roads used during training. During construction, vehicle use would be confined to existing roads to the extent possible, but construction equipment would require access to off-road areas to accomplish the work. The potential for squirrel strikes also exists

during fire break and target maintenance activities. As discussed in Section 5.3.4, fire break maintenance activities would decrease substantially under the Proposed Action. The following measures would be implemented to avoid and minimize the risk of strikes:

- Washington ground squirrel locations would be identified during pre-construction surveys and monitoring would be conducted during construction to avoid strikes by construction equipment.
- Data from long-term Washington ground squirrel monitoring would be used, in part, to identify areas along heavily traveled roads and maintained fire breaks where squirrel encounters would be most likely. This information would be used to increase awareness and vigilance of range users and equipment operators.
- On NWSTF Boardman, to improve vehicle operation safety, be protective of wildlife, and reduce dust emissions, the vehicle speed limit for the range is 25 mph unless otherwise posted; however, emergency situations, operational necessities and certain training events may require vehicle speeds to exceed this standard speed limit. At all times on the range, vehicle operators shall use extreme caution and operate at a slow, safe speed consistent with the mission, safety, and current road and environmental conditions. Vehicle operators shall be cognizant and protective of pedestrians and wildlife while conducting all range activities.
    - The only road posted above 25 mph is the Admin Main road from the main gate access to the range from Bombing Range Road to the on-range road known as "The Interstate". Speed limit on the Admin Main Road is 30 mph.
    - It is not expected that training requirements will require speeds in excess of 25 mph on a routine basis; however in some training events, vehicles need to be able to react to changing tactical situations in training as they would in actual combat. Training differently than that which would be needed in an actual combat scenario would decrease training effectiveness and reduce the crew's abilities. During these activities, the 25 mph speed limit may need to be exceeded for brief periods.

Although the risk of vehicles or equipment striking a Washington ground squirrel cannot be eliminated, the measures listed above would minimize risk. If strikes did occur, a limited number of individuals would be affected, and no population level effects would be expected. For compliance purposes, the Navy and ORNG estimate that up to six Washington ground squirrel incidental mortalities could occur per year from a combination of non-explosive practice munitions strikes and vehicle strikes. As discussed in Section 1.6.4, *Monitoring*, range control personnel would inspect the training area, including target areas and heavily travelled roads, at the conclusion of a ground-based training exercise to record and report any mortality. Vehicle and equipment strikes are likely to cause adverse effects to Washington ground squirrels under the Proposed Action.

5.5 Electromagnetic Radiation

Electromagnetic radiation is a form of environmental pollution that may impact wildlife in various ways depending on type of radiation, duration of exposure, and the species of the receiving animal. Effects on birds may include reduced nesting success (Fernie and Reynolds 2005, Balmori 2009) and various behavioral and physiological responses to electromagnetic

fields (Fernie *et al.* 2000, Fernie and Bird 2001), such as disruption of normal sleep-wake cycles through interference with pineal gland and hormonal imbalance. Salford *et al.* (2003) and Marks *et al.* (1995) report various effects on mammals from electromagnetic exposure, including changes in alarm and aversion behavior, deterioration of health, reproductive problems, and changes in normal sleep wake patterns. Nishimura *et al.* (2010) reported response in lizards to low-frequency electromagnetic fields.

Experiments and field observations in these studies were based on continual and long-duration exposure. For instance, Balmori (2009) reports reduced bird activity (breeding and foraging) followed by extirpation within areas saturated with high microwave radiation (greater than 2 Volts/meter [V/m]). The same study reported anomalies in magpies (*Pica pica*), such as plumage deterioration, limps and deformities in limbs, partial albinism. In another study by Balmori and Halberg (2007), significant declines of house sparrow densities were observed in areas of high electromagnetic field strength. The study predicted that no sparrows would be expected in an electromagnetic field of greater than 4 V/m of long-term constant exposure.

Various forms of electromagnetic sources are used at NWSTF Boardman including radar, threat emitters, communications equipment, and electronic detection equipment, primarily during electronic combat training events. The likelihood of a Washington ground squirrel being exposed to a harmful dose of electromagnetic radiation is extremely low for the following reasons: (1) the sources of electromagnetic radiation are used at high altitudes in the NWSTF Boardman airspace or the source is directed into the airspace and (2) the sources of electromagnetic radiation would not expose squirrels to constant radiation; in other words, no area of NWSTF Boardman would be continuously saturated with electromagnetic fields. Electromagnetic radiation is not likely to cause any adverse effects to Washington ground squirrels.

5.6 Lasers

Military uses of lasers include applications such as target designation and ranging, defensive countermeasures, communications, and directed energy weapons. Targeting and ranging lasers are the only laser applications used during training and testing on the ground at NWSTF Boardman and within the airspace. These platforms and devices are described in Section 1, Description of Proposed Action. Target designation and ranging laser types are relatively low power lasers (compared to directed energy lasers or lasers used for defensive countermeasures). A targeting laser is a low-power laser pointer used to indicate a target for a precision-guided munition, typically launched from an aircraft. The guided munition adjusts its flight-path to home in to the laser light reflected by the target, enabling a great precision in aiming. The beam of the laser target designator is set to a pulse rate that matches that set on the guided munition to ensure munitions strike their designated targets and do not follow other laser beams which may be in use in the area (Northrop-Grumman 2010). The laser designator can be shone onto the target by an aircraft or ground-based personnel. Lasers used for this purpose are usually infrared lasers, so the enemy cannot easily detect the guiding laser light.

Vision damage is the primary concern for wildlife species for the lasers used at NWSTF Boardman. Most studies of the effects of lasers on terrestrial animals involve birds because of the interest in developing deterrents to minimize bird-aircraft strike hazards at airports and wind developments (Baxter 2007, Burton *et al.* 2011). Fewer studies are available for other species

groups, such as terrestrial mammals and reptiles, but the same range of responses (none to avoidance behavior) are expected.

Lustick (1973) conducted an experiment using pulsing light, which indicated that starlings and gulls were able to look directly into the laser beam and not change their behavior. A later study conducted through the National Wildlife Research Center's Mississippi Field Station demonstrated that there was no eye damage to double-crested cormorants (*Phalacrocorax auritus*) that had been exposed to a moderate-power red laser as close as 3 ft. (0.9 m) (Glahn *et al.* 2000). Furthermore, the bird eye is protected from thermal damage to retinal tissue associated with concentrated laser radiation (U.S. Department of Agriculture 2003).

For several decades, pulsing light has been used on aircraft, aircraft hangers, and high towers as a means of avian management or bird control. In 2001, the U.S. Department of Agriculture's National Wildlife Research Center conducted research on low- to moderate-power, long-wavelength lasers (630–650 nanometers) as an effective, environmentally safe means of dispersing specific bird species under low-light (sunset to dusk) conditions (Blackwell *et al.* 2002). Results of the U.S. Department of Agriculture research concluded that waterfowl species, wading birds, gulls, vultures, and American crows (*Corvus brachyrhynchos*) have all exhibited avoidance of laser beams during field trials (Blackwell *et al.* 2002, U.S. Department of Agriculture 2003). However, avoidance reaction times and duration are dependent upon context and species (Blackwell *et al.* 2002). In general, diurnal birds (active during the day and resting during the night) are not sensitive to extremely intense laser light and elicit a slow avoidance response to lasers. In contrast, nocturnal birds (active during the night and resting during the day) are more sensitive to light and react more quickly to avoid intense light (Blackwell *et al.* 2002). Blackwell and Bernhardt (2004) found that the avoidance response to pulsed white and wavelength-specific aircraft-mounted light was inconsistent across experiments with cowbirds (*Molothrus* spp.), and there was little or no avoidance behavior in experiments with other species. Also, some studies on the use of lasers for bird control have shown that birds may become habituated to light quickly, and there is a loss of effect as the distance increases from the bird and the laser (U.S. Department of Agriculture 2003).

Laser guided munitions are used during Air-to-Ground Bombing Exercises within the Main Target Area. There are 133 events of this type per year, but only 20 laser guided bombs are allocated for use (Tables 2, 3, and 4). Lasers used at NWSTF Boardman and in the airspace would be similar to the moderate-powered lasers from the studies cited above, and therefore no damaging effects on vision would be anticipated.

A Washington ground squirrel may experience a detectable response to a laser beam, but would recover after the exposure. The fitness of individual animals would not be affected by this temporary effect (the duration of the laser beam directly sighted on an animal's eyes) from lasers. The use of lasers may have some effect on Washington ground squirrels under the Proposed Action but any effects would be insignificant.

5.7 Soil Contamination

This section analyzes the potential effects of soil lead contamination on Washington ground squirrels. Some ammunition (5.56 mm, 7.63 mm, and .50 caliber tracer rounds) used in the Main

Target Area and on the MPMGR and CLFRs contain lead. These projectiles would accumulate in soil over time and lead is a constituent of concern because of its toxicity and its ability to persist in the environment (U.S. Army Environmental Center 1998).

Several factors influence the fate and transport of lead on a training range, including soil type, soil pH, annual precipitation rate, and topographic slope (U.S. Environmental Protection Agency 2005). Lead oxidizes when exposed to air and dissolves when exposed to acidic water or soil, but is generally insoluble and immobile under neutral or basic pH conditions (U.S. Environmental Protection Agency 2005). The corrosion products of lead bullets in soil environments consist primarily of hydrocerussite, which is relatively insoluble (Chen and Daroub 2002). However, Dermatas *et al.* (2004) demonstrated that, in the case of a lead bullet with a copper jacket, the presence of copper increased the solubility of lead significantly, due to a galvanic corrosion reaction. Lead and copper concentrations were highly elevated in surface soils at two small arms ranges on Fort Irwin, California, but quickly decreased as a function of increasing depth from the ground surface. Despite the galvanic corrosion reaction, the mobility of both metals was significantly reduced within the first 10 to 20 in. (25.4 to 50.8 cm) below the surface. The limited mobility was attributed to the alkaline characteristics of the soils (pH 7.48 to 7.65 on one range and 8.03 to 8.30 on the other) and the formation of secondary minerals such as hydrocerussite (Dermatas *et al.* 2004).

Ideal soil pH for firing ranges is 6.5 to 8.5 because the lead precipitates out of solution and binds to the soil within this pH range (U.S. Environmental Protection Agency 2005). This binding effect prevents the lead from migrating to the subsurface. Koehler and Quincy soils are found within and around the Main Target Area. The proposed MPMGR would be constructed on Koehler and Quincy soils, with pH values in the range of 7.3 to 7.9. The eastern CLFR would be sited on Koehler, Quincy, Royal, Ellum, and Sagehill soils, with pH values in the range of 7.2 to 7.9. Lead precipitates out of solution and binds to the soil within these pH ranges, preventing or limiting migration to the subsurface (Dermatas *et al.* 2004, U.S. Environmental Protection Agency 2005). Lead mobility would also be limited by the low annual precipitation rate at NWSTF Boardman (9 to 11 in. per year [23 to 28 cm]). Lead would weather slowly under these arid conditions because it would have limited contact with water. Low precipitation coupled with the flat terrain also makes it unlikely that lead would be transported outside the immediate target area by storm water runoff (U.S. Environmental Protection Agency 2005).

Spent projectiles and projectile fragments would accumulate over time in the vicinity of targets. Lead concentrations in surface soils would be expected to increase as the projectiles slowly corrode. Washington ground squirrels could be exposed to lead via the following pathways:

- Incidental ingestion of lead-contaminated soils while foraging or grooming
- Ingestion of plant materials covered in lead-contaminated soil dust
- Ingestion of plant materials that have accumulated lead from the soil
- Inhalation of lead-contaminated dust
- Incidental ingestion of projectile fragments

5.8 Interrelated/Interdependent Effects

Interrelated actions are those that are a part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Both interdependent and interrelated activities are assessed by applying the "but for" test, which asks whether any action and its associated impacts would occur "but for" the proposed action. The proposed project is not anticipated to have any interrelated or interdependent effects.

6. Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Conference Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

A list of reasonably foreseeable future actions was compiled for NWSTF Boardman and surrounding areas based on the Navy's scoping process, communications with other agencies, state and local officials, a review of other military activities, literature review, and other available information. Table 18 lists the other actions and other environmental considerations that were identified for the cumulative effects analysis and Figure 16 (in the Assessment) provides each project's geographic relation to NWSTF Boardman. The expected impacts may include temporary disturbance, habitat loss and degradation, habitat fragmentation, and incidental mortality.

Table 18: Other Actions Identified for the Cumulative Effects Analysis

Name of Action	Lead Agency or Proponent	Location	Timeframe
Leaning Juniper Wind Power Facility	Iberdrola Renewables, Inc.	Gilliam County	Past, Ongoing, Future
Montague Wind Power Facility	Iberdrola Renewables, Inc.	Gilliam County	Past, Ongoing, Future
Saddle Butte Wind Power Facilities	Saddle Butte Wind LLC	Morrow County and Gilliam County	Ongoing, Future
Baseline Wind Energy Facility	First Wind	Gilliam County	Future
Rock Creek Wind Power Facility	Rock Creek Wind Power, LLC	Gilliam County	Future
Echo Wind Farm (eight built inside 5701)	Oregon Wind Farms, LLC	Morrow and Umatilla County	Past

Name of Action	Lead Agency or Proponent	Location	Timeframe
Threemile Canyon Wind Farm	John Deere Wind Energy	Morrow County	Past, Ongoing, Future
Poplar Wind Farm	First Wind	Morrow County	Ongoing, Future
Perennial Wind Chaser Station	Perennial Power Holdings, Inc.	Umatilla	Future
Wheatridge Wind Energy Facility	Wheatridge Wind Energy, LLC	Morrow and Umatilla County	Future
Ward Butte Wind Farm	American Wind	Umatilla County	Future
Sullivan's Wind Farm (Horned Butte)	Invenergy	Gilliam County	Ongoing, Future
Butter Creek Projects (1-9)	Intelligent Wind Energy	Morrow and Umatilla County	Past, Ongoing, Future
Multi- Species Candidate Conservation Agreement – Habitat Conservation	Threemile Canyon Farms, Portland General Electric, The Nature Conservancy, and the Oregon Department of Fish and Wildlife	Morrow County	Past, Ongoing, Future

Future development, consisting of the specific projects listed in Table 18, along with regional growth of urban areas and regional increases in wind energy development would incrementally increase average sound levels during construction as well as during operation (e.g., wind turbines). Construction related to new development would result in short-term increases in daytime sound levels in the vicinity of those projects. In rural portions of Morrow, Gilliam, and Umatilla Counties, vehicle noise from increased traffic on local roads and regional highways would be the largest sources of increased noise. Daytime sound levels would likely increase more than nighttime sound levels. Substantial increases in sources of intrusive sound are not expected.

Johnson and Erickson (2011) evaluated the cumulative impacts of wind energy development projected to occur within the Columbia Plateau Ecoregion of eastern Washington and Oregon through 2015. Approximately 2,578 ac. (1,043 ha) of non-agricultural vegetation types, primarily grassland and shrub- steppe vegetation, would be lost in the Columbia Plateau Ecoregion to existing and proposed wind energy development through 2015. This loss of vegetation corresponds to a loss of wildlife habitat but it is unclear how much of this is Washington ground squirrel habitat. Impact estimates for the other projects are not yet available. All of these projects are subject to established environmental planning and review processes. Therefore, it is expected

that all of these projects will include measures to avoid and minimize impacts to wildlife, and restore wildlife habitat.

Several ongoing and future State or local actions in the region would also provide long-term benefits for shrub-steppe and grassland communities:

- The Multi- Species Candidate Conservation Agreement – Habitat Conservation is protecting and enhancing shrub-steppe and grassland communities at the Boardman Conservation Area adjacent to NWSTF Boardman. The Nature Conservancy is currently implementing a restoration plan for the Boardman Conservation Area, which includes eradicating invasive plants in degraded habitats and revegetating the areas with native plants.
- Continued management of lands at the Lindsay Prairie Preserve by The Nature Conservancy would protect and enhance shrub-steppe and grassland communities.
- Continued management of lands at the Horn Butte Area of Critical Environmental Concern by the Bureau of Land Management would protect and enhance shrub-steppe and grassland communities.

Future actions outside the boundaries of NWSTF Boardman, including wind energy projects and reuse development at UCD are expected to impact wildlife and wildlife habitat in the vicinity of NWSTF Boardman and in the region. Estimating the area of Washington ground squirrel habitat that would be impacted by other actions is not possible based on available information. However, it is expected that wind energy projects would create small patches (component footprints) of permanently lost habitat. Complete loss of habitat functions and values would occur in these areas. Additionally, long-term habitat degradation, but not complete loss of habitat functions and values, is expected to occur in areas affected by temporary construction disturbance and general disturbance caused by increased human activity. The spatial extent of habitat impacts associated with these stressors cannot be fully quantified. Quantifying the population-level effects of these habitat impacts is not possible given the current limited knowledge of Washington ground squirrel population dynamics. While squirrel numbers could decline in response to lost and degraded habitat, the area affected would be relatively small compared to the total habitat available. Proposed activities that would result in habitat loss or degradation would have adverse effects to the Washington ground squirrel.

7. Conclusion

After reviewing the current status of Washington ground squirrel, the environmental baseline for the action area, the effects of the proposed project activities, and anticipated cumulative effects, it is the Service's conference opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Washington ground squirrel. The Service reached this conclusion for the following reasons:

- Although the NWSTF Boardman is a key area for Washington ground squirrel conservation, the proposed action will occur over a relatively small area and the permanent loss of habitat (habitat removal and habitat degradation due to noise effects) is anticipated to be less than two percent of the total area of the Range. Large areas of the

currently and historically occupied habitat on NWSTF Boardman would be unaffected by the proposed action. Therefore, it is unlikely that the viability of the population would be threatened.

- Although there will be some reduced fitness of individuals and a reduction in the distribution of Washington ground squirrels in some areas on NWSTF Boardman, the NWSTF will still contain large blocks of unaffected habitat and the area's contribution as the main connection between smaller sites to the west of this area and possible movement east and south should be maintained.
- Best Management Practices (Conservation Measures) have been added to minimize or eliminate effects.
- Mitigation has been established to meet a "no net loss- net gain" condition for habitat loss (for both direct and indirect)
- Because of uncertainty, the Navy will implement an adaptive management and monitoring strategy so that adjustments/mitigation can be made if currently anticipated effects or the outcome of restoration efforts are different than analyzed or expected.

The project is not expected to appreciably reduce either the survival or recovery of Washington ground squirrel.

8. Incidental Take Statement

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the terms of Section 7 (b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of this project is not considered to be prohibited taking under the ESA provided that such taking is in compliance with this Incidental Take Statement.

The prohibitions against taking the species found in section 9 of the ESA do not apply until the species is listed. However, the Service advises the Navy to consider implementing the following reasonable and prudent measures. If this Conference Opinion is adopted as a Biological Opinion should the Washington ground squirrel be listed, these measures, with their implementing terms and conditions, will be non-discretionary.

8.1 Amount/Extent of Take Anticipated

The Service anticipates that take of the Washington ground squirrel is likely to occur in the form of harm caused by implementation of the proposed action. Incidental take of individual Washington ground squirrels, in most situations, will be difficult to detect or quantify for the

following reasons: l) the low likelihood of finding dead or injured adults or juveniles; 2) delayed injury (i.e., reduced fitness) or mortality; and, 3) the relationship between habitat conditions and the distribution and abundance of individuals is imprecise such that a specific number of affected individuals cannot be practically obtained with one exception discussed below. For that reason, the Service is using the amount of Washington ground squirrel-occupied habitat that is likely to be affected in a manner that causes the death or injury of affected squirrels as a surrogate to express the amount or extent of take of the squirrel and for purposes of monitoring take-related impacts, with the one exception discussed below. Based on our analysis of the *Effects of the Proposed Action* above, the Service anticipates the following forms and level of take are likely to occur as a result of activities associated with the project:

- Approximately 561 acres of Washington ground squirrel-occupied habitat (Figure 10) are likely to be subject to noise levels >140dBP that is likely to cause a hearing threshold shift in squirrels occupying those acres. Over the term of the proposed action, the Service anticipates these 561 acres are not likely to be occupied by the Washington ground squirrel due to these harm-related take impacts.

- Approximately 40 acres of Washington ground squirrel-occupied habitat (Figure 1; Table 5) are likely to be destroyed (25 acres permanently; 15 acres will be restored) due to construction of the MPMGR, Demolition Training Range, and UAS Airfield, Maintenance Facility, and Range Operations and Control Center. The Service anticipates the 25 acres of permanent lost habitat are not likely to be occupied by the Washington ground squirrel due to these harm-related take impacts and there will be a delay in re-occupation for the 15 acres of restored habitat.

- No more than six squirrels per year (see Section 5.4, *Physical Strikes*, above) are likely to be killed or wounded due to vehicle and equipment strikes and munitions strikes.

If it is determined that any of these activities are adversely affecting Washington ground squirrels beyond the extent identified above, then consultation will need to be reinitiated on that activity.

8.2 Effect of Take

In the accompanying Conference Opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the Washington ground squirrel.

8.3 Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize the impacts of incidental take of the Washington ground squirrel caused by the proposed action:

1. Design construction footprints to minimize direct impacts to Washington ground squirrel-occupied habitat.

2. Establish the schedule for construction activities outside of the above-ground activity period for Washington ground squirrels to the maximum extent possible.

3. Establish vehicular speed limits, road signage, and education of on-site personnel and training personnel on NWSTF Boardman to reduce the potential for collisions between vehicles and squirrels.

4. Develop and implement a take impact monitoring program.

8.4 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Navy must comply with the following terms and conditions, which will implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. If this Conference Opinion is adopted as a Biological Opinion, these terms and conditions become non-discretionary.

1. The following terms and conditions are necessary for the implementation of RPM 1:

    a. Conduct habitat surveys during the project design phase to identify existing Washington ground squirrel habitat, and evaluate the quality of that habitat. This information shall be used during project design to support micro-siting decisions such that areas of higher quality squirrel habitat (e.g., undisturbed areas with a relatively high percentage of native plant cover) or existing Washington ground squirrel burrows would be avoided in favor of areas of lower quality habitat (e.g., disturbed areas with a relatively high percentage of non-native plant cover), to the extent practicable.

2. The following term and condition is necessary for the implementation of RPM 2:

    a. Conduct construction activities, to the extent practicable, outside the above-ground period for Washington ground squirrels (January 1 through June 30). If construction must occur within this time period, avoid the key breeding period (mid-January through the 3rd week in February).

3. The following terms and conditions are necessary for the implementation of RPM 3:
    a. Establish a vehicle speed limit of 25 mph for the range to reduce potential vehicle strikes of Washington ground squirrels. The 25 mph speed limit may be exceeded for brief periods during some training events where vehicles need to be able to react to changing tactical situations in training as they would in actual combat.
    b. Avoid off-road vehicular travel, as much as practicable, in areas identified as suitable Washington ground squirrel habitat.
    c. Provide education on Washington ground squirrels, their habitat, and procedures for collecting dead Washington ground squirrels to on-site personnel and Navy and ORNG personnel utilizing the range.

4. The following term and condition is necessary for the implementation of RPM 4:

a. By July 1, 2014, prepare a take impact monitoring plan, in coordination with the Service, ODFW, and The Nature Conservancy (based on the framework described in Section 1.6 above) to address each of the take findings described above under the ***Amount/Extent of Take Anticipated*** section.

8.5 Reporting Requirements

If a dead, injured, or sick Washington ground squirrel is located, initial notification must be made to the Service Law Enforcement Office, located at 9025 SW Hillman Court, Suite 3134, Wilsonville, OR 97070; phone: 503-682-6131. The Service's La Grande Field Office, located at 3502 Highway 30, La Grande, OR 97850; phone 541-962-8584) should also be notified. Care should be taken in handling sick or injured Washington ground squirrels to ensure effective treatment or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. Dead squirrels should be collected as soon as possible, put in a plastic bag and then put in a freezer. Record the date, time of collection, location (GPS coordinates), and cause of death, if known. This information should accompany each carcass. The Service's La Grande Field Office will retrieve the collected carcasses from NWSTF Boardman.

Review Requirement: The Reasonable and Prudent Measures, with their implementing Terms and Conditions, are designed to minimize incidental take that might otherwise result from the proposed action. These measures should decrease the level of take of Washington ground squirrel to the degree possible, given the circumstances surrounding the proposed action. With implementation of these measures, the Service believes that some Washington ground squirrels may be incidentally taken as quantified above. If, during the course of the action, this minimized level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided, the Navy must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

9. Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Continue to work collaboratively with partners (i.e., The Nature Conservancy, ODFW, Defenders of Wildlife, the Service, etc.) to implement conservation actions to benefit Washington ground squirrels in the Columbia Basin of Oregon.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

10. Reinitiation – Closing Statement

This concludes the conference for the Navy's Military Readiness Activities at the NWSTF Boardman. You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation should the Washington ground squirrel be listed. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

After listing of the Washington ground squirrel as endangered/threatened and/or designation of critical habitat for the Washington ground squirrel and any subsequent adoption of this conference opinion, the Federal agency shall request Reinitiation of consultation if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect the species or critical habitat in a manner or to an extent not considered in this conference opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the species or critical habitat that was not considered in this conference opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

The incidental take statement provided in this Conference Opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the Washington ground squirrel has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the Washington ground squirrel may occur between the listing of the Washington ground squirrel and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

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Appendix A

Revegetation Plan for Areas Disturbed by Construction and Operation Of Weapons Training Ranges and Other Facilities on Naval Weapons Systems Training Facility Boardman

DRAFT - Revegetation Plan for Areas Disturbed by Construction and Operation of Weapons Training Ranges and Other Facilities on Naval Weapons Systems Training Facility Boardman

Prepared by Jeff Mach, Oregon Military Department
August 2011

Species. Revegetation of disturbed areas on NWSTF Boardman would consist of three actions:

1. Cryptogammic crust (aka biological soil crust) would be collected from facility sites prior to construction and stored. Collected crust material would be screened to produce a homogenous material that would be applied to disturbed areas after completion of construction, either dry or in slurry, to innoculate the soil.

2. A mixture of the following grass would be broadcast onto disturbed sites, at a rate of 12.71 pounds pure live seed per acre:

Species	Native? (y/n)	Noxious? (y/n)	Wildlife value (cover/forage)	Mature height (cm)	Life cycle	# Pure Live Seeds per square meter (PLS/m^2)	Seeding rate in grams/hectare (g/ha)	Seeding rate in pounds PLS per acre (lbs/ac)
bluebunch wheatgrass, *Pseudoroegneria spicatum* (= *Agropyron spicatum*)	Y	N	C/F	30-60	Perennial	100	4,097	3.61
Sandberg bluegrass, *Poa secunda* (= *Poa Sandbergii*)	Y	N	C/F	30-60	Perennial	100	715	0.63
Festuca idahoensis (Idaho fescue)	Y	N	C/F	60+	Perennial	125	1,703	1.50
needle and thread grass, *Hesperostipa comata* (= *Stipa comate*)	Y	N	C	60+	Perennial	25	1,668	1.47
bottlebrush squirrel-tail grass, *Elymus elymoides* (= *Sitanion hystrix*)	Y	N	C/F	30-60	Perennial	50	1,589	1.40
Indian ricegrass, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*)	Y	N	C/F	30-60	Perennial	100	4,654	4.10
TOTALS						500 PLS/m^2 coverage	14,426 g PLS/ha	12.71 lbs PLS /ac

3. Basin big sagebrush (*Artemesia tridentata* ssp *tridentata*) seed would be broadcast on selected focus areas, typically upwind and outside of weapons training range areas which have a higher potential to burn, at a rate of 1.6 pound per acre (lb/ac).

Site Preparation and Application: Preparation of areas for cryptogam inoculation and grass seeding will consist of finish soil grading. No site preparation is planned for basin big sagebrush seeding focus areas. Cyptogam innoculation would be accomplished by direct application of cryptogam material either in a dry form or in a slurry. Grass seed would be applied using a hydroseeder. The grass seed would be applied with SOIL-GUARD™ or cellulose mulch with tackifier. Fertilizer would not be used with this seed mixture. Basin big sagebrush seed would be hand broadcast onto firm, but not compacted, ground and pressed, rolled or dragged to improve seed-to-soil contact, with the goal of leaving the seed at a depth of about 1/16 inch. Fertilizer would not be applied to basin big sagebrush seeding areas.

Schedule: Cryptogam inoculation and grass seeding would be conducted between October 1 and January 31. Cryptogam inoculation would be conducted before grass seeding. Sagebrush seeding would be conducted between November 1 and December 31.

Revegetation Success Criteria: Cryptogam inoculation will be considered successful upon completion of the action. Grass revegetation would be considered successful if seeding results in a stand of grass providing a uniform coverage of at least 80% density of a representative bunchgrass stand area within two to three years of seeding. If an acceptable stand of grass is not achieved, then the area would be re-seeded between October 1 and January 31. Sagebrush revegetation would be considered successful if one seedling per square meter is established over a 10 square meter area in each seeding focus area after one year. Seeding will be repeated if needed to meet the success criteria.

Appendix B

Summary of Commitments in the NWSTF Boardman INRMP and Additional Procedures, Mitigation, and Monitoring Described in the Proposed Action

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
NOISE			
NONE			
		From January through August, charges greater than 50 lb. NEW would not be detonated to avoid and minimize noise impacts on Washington ground squirrels and nesting birds, unless necessitated by operational or disposal requirements.	Mitigation
		Public notice would be given prior to detonation of 100 lb. NEW or greater.	Mitigation
		To the maximum extent possible, detonation training would be conducted only during days when the weather is favorable. Studies have shown that variation of temperature and wind velocity with altitude can cause a noise event to be inaudible at one time (favorable) and audible at another time (unfavorable). A number of factors affect noise propagation during training events, and are considered by range managers and users when planning and conducting activities to help mitigate noise impacts. Conditions that can enhance the propagation of sound include steady winds; clear days on which 'layering' of smoke, fog, or clouds are observed; cold, hazy or foggy mornings; large temperature swings on the previous day; and high barometer/low temperatures.	BMP
		Explosive Ordnance Disposal measures for reducing noise impacts during land detonation training include conducting detonation training only during normal working hours (10:00 a.m.–4:00 p.m.).	BMP
		DTR training includes additional BMPs to help reduce noise levels for training with charges of 100 lb. (45.4 kg) NEW or greater. These could include: training during times with optimal weather conditions to attenuate noise, burying the explosive charge, or bunkering the charge with sand bags.	BMP
VEGETATION			

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
All training and facility operation actions at NWSTF Boardman are reviewed by the Naval Air Station Whidbey Island/NWSTF Boardman Natural Resources Manager for potential invasive plant and noxious weed issues.	FY 2012 – FY 2016		
V-1: Monitor and control noxious weeds and invasive, non-native plants. The annual monitoring component of this project is used to identify priority areas for invasive plant control actions. Similar annual monitoring would continue following implementation of the Proposed Action, with appropriate modifications to address conditions resulting from construction and operation of the new ranges.	FY 2012 – FY 2016	Invasive plants would continue to be managed and controlled under the *NWSTF Boardman INRMP*, with an increase in control effort to reflect new threats introduced by the Proposed Action. The Plan would be updated in cooperation with ORNG, USFWS, ODFW, and The Nature Conservancy during routine annual reviews to reflect the evolving invasive plant management situation associated with construction and operation of the new ranges. Updates to the Plan would include provisions for short- and long-term monitoring of invasive plants; responsibilities and procedures for integrating efforts of the Navy, ORNG, and The Nature Conservancy; criteria for prioritizing management actions and adaptive management strategies to control invasive plants; and annual work plans, including funding requirements and funding sources. After range becomes operational, qualitative surveys would be conducted annually within the range footprint to detect noxious weeds (Morrow County list of noxious weeds) within the identified affected areas. The purpose of these surveys is to detect noxious weeds so that they can be controlled immediately, most likely through targeted application of a glyphosate herbicide. Surveys would continue indefinitely, and controls would be implemented as necessary.	Monitoring/BMP
V-3: Use high-resolution aerial photography to map all vegetation; produce GIS-based vegetation map. This project is currently programmed for fiscal year 2014 to update vegetation mapping that is more than 10 years old and to document changes in vegetation communities resulting from wildfires and changes that have occurred since grazing leases were	FY 2014		

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
terminated. This project will also provide new baseline data prior to implementing the Proposed Action and information to support micrositing decisions.			
V-4: Recover monumented vegetation plots and resurvey vegetation using established protocol; produce GIS data layers. This project will resurvey plots established in the 1980s to provide ground truthing for the V-3 project above, trend analysis for vegetation change, and permanent locations to measure future vegetation change or stability. Plots located within the area of disturbance for the Proposed Action will provide new baseline data.	FY 2012, FY 2014, FY 2016		
V-5: Monitor previously burned areas for vegetation recovery. Pedestrian surveys conducted under this project will assist in evaluating natural recovery to pre-fire habitat types and identify priority areas for potential post-fire restoration measures. Information obtained during this project will also be used to identify potential restoration sites in the southern portion of NWSTF Boardman to mitigate impacts of the Proposed Action. Similar monitoring would be conducted in the area of disturbance for the Proposed Action to evaluate success of post-construction restoration efforts.	FY 2012, FY 2013		
V-7: Move RNA-A. The Navy, in cooperation with The Nature Conservancy, is proposing to relocate Research Natural Area (RNA)-A to a more suitable location. Three RNAs (A, B, and C; Figure 1-5 in the EIS) were established on NWSTF Boardman in 1978 and are co-managed by The Nature Conservancy. RNA-A encompasses the	FY 2014		

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
Main Target Area, which must be used and maintained to meet mission requirements. Portions of the Main Target Area are highly disturbed by military use, and this area is not currently functioning as an RNA (not providing the intended scientific and educational benefits of an RNA). The new RNA would be sited to avoid possible conflicts with military activities and would be more representative of the unique habitat types RNAs are designed to protect. Similar to existing RNAs B and C, access to the relocated RNA would be limited to research activities, invasive plant control, and emergency response. Vegetation communities would benefit from the increased protection and management provided by relocating RNA-A to a more suitable location.			
V-8: Map noxious weeds and invasive, non-native plants. This project is currently programmed for fiscal year 2014 to update the NWSTF Boardman-wide invasive plant survey conducted in 1997 and to help prioritize control. This project will also provide new baseline data prior to implementing the Proposed Action, information to support micrositing decisions, and help identify potential restoration sites in the southern portion of NWSTF Boardman to mitigate impacts of the Proposed Action.	FY 2014		
		Vegetation temporarily disturbed during construction would be restored in accordance with the proposed post-construction restoration plan.	BMP
		Explosive detonations are not conducted when the fire danger rating is unacceptable based on the Fire Danger Rating and Wildland Fire Risk Management Matrix contained in the *NWSTF Boardman Draft*	BMP

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
		Integrated Wildland Fire Management Plan, unless approved by the Commanding Officer, Naval Air Station Whidbey Island.	
FM-1: Fire break analysis for relocation. Develop a comprehensive assessment of fire breaks for the installation. Include the results of fire break success from the 2008 fire and alternative techniques such as "green stripping" with herbicide or fire resistant vegetation.	FY 2013 - COMPLETED	The *NWSTF Boardman Draft Integrated Wildland Fire Management Plan* would be finalized and implemented. In addition to other fire protection measures, the Plan includes proposed modifications to the existing system of fire breaks. The width of some fire breaks would be reduced to the width of the adjacent road, some fire breaks that do not follow roads would be eliminated, and some new fire breaks would be created. The total area of fire breaks that would be maintained annually by mechanical disturbance (plowing or disking with a tractor) would decrease from 462 acres (ac.) (187 hectares [ha]) to 243 ac. (98 ha). A long-term revegetation plan would be implemented to restore the areas removed from mechanical maintenance. These areas would be re-vegetated with native bunchgrasses, primarily Sandberg's bluegrass with some needle and thread or bluebunch wheatgrass, to provide a low-structure and low-fuel load area next to the road/fire break. Grass revegetation would be considered successful if seeding results in a stand of grass providing a uniform coverage of at least 80% density of a representative bunchgrass stand area within 2 to 3 years of seeding. Selective herbicide treatments or other appropriate management actions would be used to control invasive plants until these areas are completely restored.	BMP
WILDLIFE			
		Applicable erosion control measures would be implemented during construction to avoid and minimize the potential for wind and water erosion in accordance with the Oregon Department of Environmental Quality *Erosion and Sediment Control Manual* (Oregon Department of Environmental Quality 2005).	BMP
		Drip pads would be placed under equipment when parked to avoid soil contamination from leaking fluids.	BMP
		Under the Navy's RSEPA, Range Condition Assessment 5-year Reviews would continue to be conducted and appropriate steps would be taken to analyze environmental conditions on the range	BMP

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
		and to prevent or respond to a release or substantial threat of a release of munitions constituents of potential concern to off-range areas that could pose risks to human health or the environment. RSEPA focus would be expanded to incorporate new range activities and new training areas under periodic assessments.	
		Assessments would be conducted for the MPMGR and both CLFRs in accordance with the Army's Operational Range Assessment Program. These assessments would first determine qualitatively if munitions constituents were leaving the operational range footprint and whether pathways exist for human or ecological receptors. A quantitative assessment would be conducted if the qualitative assessment were inconclusive. The assessments would be conducted on a 5-year review cycle, even if the initial qualitative assessment identified no issues. ORNG would proactively manage the new ranges using applicable strategies outlined in the *Army Small Arms Training Range Environmental Best Management Practices Manual*.	BMP
		Surveys would be conducted during the project design phase to identify existing habitat, evaluate habitat quality, and identify wildlife currently using these habitats. This information would be used during project design to support micrositing decisions. Areas of higher quality habitat (e.g., undisturbed areas with a relatively high percentage of native plant cover) or high wildlife use (e.g., existing Washington ground squirrel burrows) would be avoided in favor of areas of lower quality habitat (e.g., disturbed areas with a relatively high percentage of non-native plant cover), to the extent practicable. Micrositing efforts would be limited to buildings and structures, as opposed to targetry or other range components, because even minor changes to the range design could affect the associated surface danger zone or impact range safety in other ways. The survey data would also be used to support post-construction restoration efforts.	Monitoring/BMP
		On NWSTF Boardman, the vehicle speed limit for the range is 25 miles per hour unless otherwise posted; however, emergency	BMP

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
		situations, operational necessities, and certain training events may require vehicle speeds to exceed this standard speed limit. At all times on the range, vehicle operators shall use extreme caution and operate at a slow, safe speed consistent with the mission, safety, and current road and environmental conditions. Vehicle operators shall be cognizant and protective of pedestrians and wildlife while conducting all range activities. The only road posted above 25 miles per hour is the Admin Main road from the main gate access to the range from Bombing Range Road to the on-range road known as "The Interstate". Speed limit on the Admin Main Road is 30 miles per hour. It is not expected that training requirements will require speeds in excess of 25 miles per hour on a routine basis; however in some training events, vehicles need to be able to react to changing tactical situations in training as they would in actual combat. Training differently than that which would be needed in an actual combat scenario would decrease training effectiveness and reduce the crew's abilities. During these activities, the 25 mile per hour speed limit may need to be exceeded for brief periods.	
V-6: Native Vegetation Restoration. Areas previously impacted by Navy mission, land management activities, or wildfire will be treated to re-establish native plant communities. This will not apply to areas encumbered by UXO.	FY 2014, FY 2016	Habitat restoration activities would occur at selected locations on the southern portion of NWSTF Boardman. This resource management area of the range consists of approximately 11,226 ac. (4,543 ha.). Restoration efforts at NWSTF Boardman would focus on: 1) reducing threats to existing high-quality native grassland and shrub-steppe and 2) increasing the proportion of native-dominated grassland and shrub-steppe by restoring degraded sites to the greatest extent possible. This would be completed by: • Begin implementing habitat restoration/enhancement for permanently lost habitat at 2:1+ ratio (ratio between 2:1 and 3:1 depending on existing ecological condition) within 2 years following construction. Achieve site specific restoration objectives within 3 years of beginning restoration effort. • Implement habitat restoration/enhancement for degraded habitat at 1.25:1+ (ratio between 1:25 and 2:25 depending	Mitigation

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
		on existing ecological condition) starting 3 years following construction at a rate of at least 50 ac. (20 ha) per year until requirements are met. Achieve specific restoration objectives for individual restoration sites within 3 years of initial restoration effort. Restoration efforts would be allocated by priority until the agreed-upon mitigation acreage requirements have been met. Priorities would be based on the plant species composition of the restoration site, its proximity to high or medium-high quality native plant communities, and Washington ground squirrel occupancy. Reducing threats to high-quality native habitats by restoring degraded adjacent sites would be a top priority. This habitat restoration would be completed based on ratios of disturbed habitats, habitat quality, and implemented as each proposed action is constructed over time.	
WL-2: Washington ground squirrel surveys. Washington ground squirrels are a state protected species. Military training can impact the ground squirrel population on the installation. Burrow and population estimate data is available from past surveys, but new data is required to assess changes or stability due to 1) termination of grazing and resulting changes in vegetation, 2) recent fires, and 3) new mission requirements.	FY 2013 – FY 2016	**Long-term facility-wide monitoring program for Washington ground squirrels.** A long-term, facility-wide monitoring program would be initiated to inform the adaptive management process and assess the effects of the increased training on the Washington ground squirrel. The Navy will develop a site-specific sampling design in cooperation with USFWS and ODFW that will incorporate a random stratified sampling strategy which would be designed to provide an index of population trends over the entire property and support the evaluation of effects of training activities. Given the large size of NWSTF Boardman and the fact that most or all of the property is potentially suitable Washington ground squirrel habitat, methods would be evaluated to identify the most effective and efficient approach to collecting facility-wide squirrel data. Additionally, the sampling design would also consider how to incorporate existing long-term term monitoring plots. Since training is not scheduled to begin immediately, the timeline would allow the Navy to implement a before and after control impacts design to collect baseline data to also support the assessment of impacts due to facilities construction. Information collected would be used to	Monitoring

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
		continuously inform the adaptive management process, with appropriate modifications based on findings.	
		Pre-construction surveys for Washington ground squirrels. Site specific survey protocols per the Long-term Facility-wide Monitoring, described above, would be used to survey individual construction sites prior to construction. Data from the long-term facility-wide monitoring would be used to meet these data needs to the extent possible. These surveys would cover the "affected area" of a range enhancement where permanent habitat loss or long-term habitat degradation is expected to occur. These areas include the range enhancement footprints for all projects and areas within the single-event 140 dBP contours associated with the MPMGR and CLFRs. This data would provide baseline information and would be used to avoid impacts on Washington ground squirrels during construction.	Monitoring
		Construction Monitoring and After-Action Inspections. Construction monitoring and after-action inspections would be conducted to report any Washington ground squirrel mortality to the USFWS. Monitoring would be conducted during construction to avoid strikes by construction equipment. Any incidental mortality during construction would be documented, reported to the NWSTF Boardman Natural Resources Manager, and included in the annual report to USFWS. Standard operating procedures for after-action range inspections would be updated to include identification and reporting of Washington ground squirrel mortality that might be associated with training activities. Range control personnel would inspect target locations and heavily travelled roads at the conclusion of a ground-based training exercise. Location and description of any observed Washington ground squirrel carcasses would be recorded and photographed. Any Washington ground squirrel mortality would be reported to the NWSTF Boardman Natural Resources Manager and included in the annual report to the USFWS.	Monitoring
		Project-specific Washington ground squirrel surveys. Site specific survey protocols would be used to measure achievement of	Monitoring

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
		management objective 1c (interim) (ensure that Washington ground squirrel continue to occupy habitat in areas adjacent to the proposed ranges). These surveys would be conducted in areas adjacent to the identified affected areas for the MPMGR, eastern CLFR, western CLFR, and DTR and in control areas. "Adjacent areas" are defined as a 1,312 ft. (400 m) buffer around the affected areas. These areas are outside the range enhancement footprints, but could be exposed to single-event noise levels less than 140 dBP. Based on the analysis, no habitat loss, long-term habitat degradation, or decline in Washington ground squirrel numbers is expected in these adjacent areas. The proposed surveys are intended to help validate conclusions of the analysis and reduce uncertainty. When possible, data from the long-term facility-wide monitoring surveys would be used to meet these data needs. The project-specific Washington ground squirrel survey areas would encompass the following approximate acreages: • MPMGR: 1,120 acres • Western CLFR: 1,375 acres (exclusive of the area overlapped by MPMGR monitoring) • Eastern CLFR: 1,020 acres • DTR: 300 acres • Control areas: 300 acres each One or more paired controls would be established for each survey location. The controls would be located on NWSTF Boardman (well outside areas affected by the action) or on the adjacent Boardman Conservation Area in areas with similar soils and vegetation. Baseline surveys would be conducted prior to the start of construction for the CLFRs and the DTR, and for two years prior to the MPMGR. After a range is operational, surveys would be conducted once every 2 years for a period of 10 years to evaluate long-term trends. Vegetation surveys would also be conducted within the survey areas to help determine if any observed differences in squirrel abundance or distribution might be attributable to vegetation conditions.	

INRMP Measures	FUNDED THROUGH (FY)	Additional Procedure/Mitigation/Monitoring Defined by FEIS	Classification
FM-2: Annually, as needed, map all wildfire perimeters and assess natural resource damage from the event to be used for future monitoring needs and restoration prioritization.	FY 2012 – FY 2016	The causes, size, and location of all wildfires at NWSTF Boardman and associated suppression efforts would continue to be documented. This information would be reviewed after each wildfire to identify lessons learned and opportunities to improve fire prevention and suppression efforts.	Monitoring

Appendix C

Tribal and Cultural Correspondence

TABLE OF CONTENTS

NOTICE OF INTENT CORRESPONDENCE

NOTICE OF INTENT CORRESPONDENCE TO HONORABLE HARRY SMISKIN, CONFEDERATED TRIBES AND BANDS OF THE YAKAMA INDIAN NATION, OCTOBER 1, 2010.

NOTICE OF INTENT CORRESPONDENCE TO HONORABLE RON SUPPAH, CONFEDERATED TRIBES OF WARM SPRINGS, OCTOBER 1, 2010.

NOTICE OF INTENT CORRESPONDENCE TO HONORABLE DEBRA CROSWELL, CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, OCTOBER 1, 2010.

NOTICE OF INTENT CORRESPONDENCE TO HONORABLE MCCOY OATMAN, NEZ PERCE TRIBE, OCTOBER 1, 2010.

REVISED NOTICE OF INTENT CORRESPONDENCE

NOTICE OF INTENT CORRESPONDENCE TO HONORABLE HARRY SMISKIN, CONFEDERATED TRIBES AND BANDS OF THE YAKAMA INDIAN NATION, JANUARY 3, 2011.

NOTICE OF INTENT CORRESPONDENCE TO HONORABLE STANLEY SMITH, CONFEDERATED TRIBES OF WARM SPRINGS, JANUARY 3, 2011.

NOTICE OF INTENT CORRESPONDENCE TO HONORABLE DAVE TOVEY, CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, JANUARY 3, 2011.

NOTICE OF INTENT CORRESPONDENCE TO HONORABLE BROOKLYN BAPTISTE, NEZ PERCE TRIBE, JANUARY 3, 2011.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO MS. TEARA FARROW FERMAN, PROGRAM MANAGER, CULTURAL RESOURCES, CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, APRIL 22, 2011.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO MR. PATRICK BAIRD, TRIBAL HISTORIC PRESERVATION OFFICER, NEZ PERCE TRIBE, APRIL 25, 2011.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO MS. SALLY BIRD, CULTURAL RESOURCE MANAGER, CONFEDERATED TRIBES OF THE WARM SPRINGS, APRIL 25, 2011.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO MS. KATE VALDEZ, TRIBAL HISTORIC PRESERVATION OFFICER, CULTURAL RESOURCES, CONFEDERATED TRIBES AND BANDS OF THE YAKIMA INDIAN NATION, APRIL 25, 2011.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION RESPONSE FROM MS. SALLY BIRD, CULTURAL RESOURCE MANAGER, CONFEDERATED TRIBES OF THE WARM SPRINGS, MAY 19, 2011.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE, PROPOSED AREA OF POTENTIAL EFFECTS (APE) TO MS. CATHERINE DICKSON, CULTURAL RESOURCES PRINCIPAL INVESTIGATOR, CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, JUNE 12, 2012.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE, PROPOSED AREA OF POTENTIAL EFFECTS (APE) TO DR. DENNIS GRIFFIN, STATE ARCHAEOLOGIST, OREGON PARKS AND RECREATION DEPARTMENT, STATE HISTORIC PRESERVATION OFFICE, JUNE 12, 2012.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE, PROPOSED AREA OF POTENTIAL EFFECTS (APE) RESPONSE FROM DR. DENNIS GRIFFIN, STATE ARCHAEOLOGIST, OREGON PARKS AND RECREATION DEPARTMENT, STATE HISTORIC PRESERVATION OFFICE, JUNE 20, 2012.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE, DRAFT EIS COMMENTS ON PROPOSED AREA OF POTENTIAL EFFECTS (APE) FROM MR. JASON ALLEN, OREGON PARKS AND RECREATION DEPARTMENT, STATE HISTORIC PRESERVATION OFFICE, SEPTEMBER 18, 2012.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE, DRAFT EIS COMMENTS ON PROPOSED AREA OF POTENTIAL EFFECTS (APE) FROM DR. DENNIS GRIFFIN, STATE ARCHAEOLOGIST, OREGON PARKS AND RECREATION DEPARTMENT, STATE HISTORIC PRESERVATION OFFICE, SEPTEMBER 25, 2012.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO MR. JOHNSON MENINICK, PROGRAM MANAGER, CULTURAL RESOURCES PROGRAM, CONFEDERATED TRIBES AND BANDS OF THE YAKIMA INDIAN NATION, NOVEMBER 26, 2012.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO MS. CATHERINE DICKSON, CULTURAL RESOURCES PROTECTION PROGRAM, CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, NOVEMBER 26, 2012.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO DR. DENNIS GRIFFIN, STATE ARCHAEOLOGIST, OREGON PARKS AND RECREATION DEPARTMENT, STATE HISTORIC PRESERVATION OFFICE, NOVEMBER 26, 2012.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE FROM DR. DENNIS GRIFFIN, STATE ARCHAEOLOGIST, OREGON PARKS AND RECREATION DEPARTMENT, STATE HISTORIC PRESERVATION OFFICE, DECEMBER 18, 2012.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO MR. JASON ALLEN, OREGON PARKS AND RECREATION DEPARTMENT, STATE HISTORIC PRESERVATION OFFICE, JULY 12, 2013.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO MR. REID NELSON, DIRECTOR, ADVISORY COUNCIL ON HISTORIC PRESERVATION, MAY 1, 2014.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION CORRESPONDENCE TO DR. DENNIS GRIFFIN, STATE ARCHAEOLOGIST, OREGON PARKS AND RECREATION DEPARTMENT, STATE HISTORIC PRESERVATION OFFICE, JUNE 5, 2014.

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION – MEMORANDUM OF AGREEMENT

EIS CORRESPONDENCE

ENVIRONMENTAL IMPACT STATEMENT CORRESPONDENCE FROM MR. ERIC QUATEMPS, DIRECTOR, DEPARTMENT OF NATURAL RESOURCES, CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, DECEMBER 20, 2012.

ENVIRONMENTAL IMPACT STATEMENT CORRESPONDENCE TO MR. ERIC QUATEMPS, DIRECTOR, DEPARTMENT OF NATURAL RESOURCES, CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, APRIL 25, 2013.

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/1042
01 Oct 10

The Honorable Harry Smiskin
Confederated Tribes and Bands of the Yakama Indian Nation
P.O. Box 151
Toppenish, WA 98948

Dear Honorable Smiskin:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

The U.S. Navy, in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG), is beginning the process to prepare an EIS for military training activities in airspace above and on land within NWSTF Boardman, Oregon (Enclosure 1).

NWSTF Boardman serves as a regional training range for Navy and other military units located in the Pacific Northwest area, including naval aviation units homeported at Naval Air Station Whidbey Island, Washington, and the ORNG. Additionally, NWSTF Boardman supports other non-resident users and their training requirements. The Navy's proposed action is a step toward ensuring the continued vitality of this essential military training asset.

The Navy and the National Guard propose to conduct military readiness training activities and research, development, test and evaluation activities (referred to as "training and testing") at NWSTF Boardman. The locations of each of the proposed actions, including alternative locations, are shown in Enclosure 2. To both achieve and maintain military readiness, the Navy proposes to:

- Maintain baseline training and testing activities at current levels.

- Increase certain training and testing activities from current levels as necessary to support Navy and ORNG requirements.

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

- Develop appropriate ranges and facilities, as necessary, to support training requirements.

- Accommodate mission requirements associated with force structure changes and the introduction of new weapons and systems for training.

- Implement range enhancements.

Additional information on this project can be found by visiting www.NWSTFBoardmanEIS.com.

The Navy and the National Guard are aware of the significant value of natural and cultural resources of Native American Tribes and Nations within the NWSTF Boardman EIS study area. The purpose of this letter is to formally initiate Government-to-Government consultation in accordance with legislation, Executive Orders, regulations and policy, including sections 101 and 106 of the National Historic Preservation Act of 1966, as amended, and 36 Code of Federal Regulations 800.

We look forward to working with you to address any concerns you may have on this project. We are available to meet with you and your staff in person. If you would like to arrange such a meeting, please contact Mr. John Mosher at 360-257-3234 or john.g.mosher@navy.mil or Mrs. Amy Burt at 360-396-0924 or amy.burt@navy.mil.

Sincerely,

D. A. MCNAIR
Captain, U.S. Navy
Deputy Fleet Civil Engineer
By direction

Enclosures: 1. NWSTF Boardman Special Use Air Space
2. Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/1043
01 Oct 10

The Honorable Ron Suppah
Confederated Tribes of Warm Springs
1233 Veterans St.
Warm Springs, OR 97761

Dear Honorable Suppah:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

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- Increase certain training and testing activities from current levels as necessary to support Navy and ORNG requirements.

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

- Develop appropriate ranges and facilities, as necessary, to support training requirements.

- Accommodate mission requirements associated with force structure changes and the introduction of new weapons and systems for training.

- Implement range enhancements.

Additional information on this project can be found by visiting www.NWSTFBoardmanEIS.com.

The Navy and the National Guard are aware of the significant value of natural and cultural resources of Native American Tribes and Nations within the NWSTF Boardman EIS study area. The purpose of this letter is to formally initiate Government-to-Government consultation in accordance with legislation, Executive Orders, regulations and policy, including sections 101 and 106 of the National Historic Preservation Act of 1966, as amended, and 36 Code of Federal Regulations 800.

We look forward to working with you to address any concerns you may have on this project. We are available to meet with you and your staff in person. If you would like to arrange such a meeting, please contact Mr. John Mosher at 360-257-3234 or john.g.mosher@navy.mil or Mrs. Amy Burt at 360-396-0924 or amy.burt@navy.mil.

Sincerely,

D. A. MCNAIR
Captain, U.S. Navy
Deputy Fleet Civil Engineer
By direction

Enclosures: 1. NWSTF Boardman Special Use Air Space
2. Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/1050
01 Oct 10

The Honorable Debra Croswell
Confederated Tribes of the Umatilla Indian Reservation
46411 Timíne Way
Pendleton, OR 97801

Dear Honorable Croswell:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

The U.S. Navy, in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG), is beginning the process to prepare an EIS for military training activities in airspace above and on land within NWSTF Boardman, Oregon (Enclosure 1).

NWSTF Boardman serves as a regional training range for Navy and other military units located in the Pacific Northwest area, including naval aviation units homeported at Naval Air Station Whidbey Island, Washington, and the ORNG. Additionally, NWSTF Boardman supports other non-resident users and their training requirements. The Navy's proposed action is a step toward ensuring the continued vitality of this essential military training asset.

The Navy and the National Guard propose to conduct military readiness training activities and research, development, test and evaluation activities (referred to as "training and testing") at NWSTF Boardman. The locations of each of the proposed actions, including alternative locations, are shown in Enclosure 2. To both achieve and maintain military readiness, the Navy proposes to:

- Maintain baseline training and testing activities at current levels.

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SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

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COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:

5090
Ser N01CE1/1051
01 Oct 10

The Honorable McCoy Oatman
Nez Perce Tribe
P.O. Box 305
Lapwai, ID 83540

Dear Honorable Oatman:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

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Captain, U.S. Navy
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COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:

5090
Ser N01CE1/0008
03 Jan 11

The Honorable Harry Smiskin
Confederated Tribes and Bands of the Yakama Indian Nation
P.O. Box 151
Toppenish, WA 98948

Dear Honorable Smiskin:

SUBJECT: REVISED NOTICE OF AN ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

The U.S. Navy, in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG), is in the process of preparing an EIS for military readiness training and testing activities in airspace above and on land within NWSTF Boardman, Oregon. The Navy, NGB and ORNG have revised the scope of the EIS for continued and increased training activities on NWSTF Boardman. The Navy, NGB and ORNG invite your comments on the scope, content and issues to be considered during the preparation of the revised EIS.

The scope of the EIS has been revised since the October 5, 2010, publication of the original Notice of Intent in the Federal Register (75 FR 61452) because the Navy is modifying its proposed action to include the addition of new Special Use Airspace in the form of a Military Operations Area (MOA). This new MOA would preserve required training capabilities at NWSTF Boardman that are necessary to maintain military readiness.

The overall strategic mission of NWSTF Boardman is to support naval and joint services operational readiness by providing a suitable range within the geographical vicinity for U.S. Pacific Fleet and ORNG forces in the northwest. The development of structures of significant height on lands beneath the existing Special Use Airspace associated with NWSTF Boardman has and is expected to continue to result in the loss of ability to train at the range. In order to preserve training capabilities, the Navy is proposing to establish a new MOA to the northeast of the existing Special Use Airspace at NWSTF Boardman. Adding the MOA is consistent with the Navy's proposed action at NWSTF Boardman, announced on October 5, 2010, which included range enhancements

and changes to training activities, capacities and facilities as they currently exist.

The new Boardman Northeast MOA would have two parts, A and B, and the current Boardman Air Traffic Control Assigned Airspace (ATCAA) would be extended to include the area above the new MOA. The floor of MOA A would begin at 500 feet Above Ground Level (AGL) and extend upwards to, but not including, 4,000 feet above Mean Sea Level (MSL). MOA A would overlap a portion of existing Restricted Airspace R-5706 that starts at 3,500 feet MSL and underlie the existing MOA (Boardman MOA) that starts at 4,000 feet MSL to the northeast of the NWSTF Boardman property. The floor of MOA B airspace would begin at 4,000 feet MSL and extend upwards to, but not including 18,000 feet MSL, and would abut the existing Boardman MOA. The dimensions of the Boardman Northeast MOA would be approximately 11 nautical miles west to east and approximately five nautical miles north to south. The extension of the ATCAA would be approximately six nautical miles west to east and approximately five nautical miles north to south. The Boardman ATCAA would permit the continuation of flight activities above the new MOA and 18,000 feet MSL. Aircraft flying under visual flight rules (VFR) will not be permitted to enter the Boardman ATCAA when active. The ATCAA is not depicted on aeronautical charts.

Hours of operations for the new MOA would be consistent with the existing Boardman MOA, 7:30 a.m. to 11:59 p.m. Monday through Friday, and at other times by Notice to Airman six hours in advance. Civilian or other nonparticipating air traffic flying with an air traffic control clearance and under instrument flight rules (IFR) will be restricted from entering the Northeast MOA when it is in use by the military. Civilian or other nonparticipating air traffic flying under VFR would be informed of Northeast MOA activation and advised to avoid the area; however, it is not compulsory that civilian or other nonparticipating air traffic flying under VFR, or under IFR without air traffic control clearance, remain clear of the area.

The proposed Northeast MOA would be established by the Federal Aviation Administration (FAA) according to authority given to the FAA under 49 U.S. Code (U.S.C.) Section 40103. In regulations found at 14 C.F.R. 73.1 *et seq.* and FAA Joint Order 7400.2H, Procedures for Handling of Airspace, FAA sets forth the procedures for establishing various types of Special Use Airspace, including MOAs. According to FAA Order 1050.1E, Change 1, Environmental Impacts: Policies and Procedures, and a Memorandum of Understanding between the Department of Defense and FAA signed

October 4, 2005, since the Navy proposes the designation of the MOA, Navy will serve as lead agency under NEPA and invite FAA as a cooperating agency. That Memorandum of Understanding indicates that "the resultant environmental documents of the lead agency are accepted and used in decisions and planning by all agencies involved with the proposed action." Therefore, once the EIS is complete and Navy has made its decision on whether to proceed with a designation request, the FAA will then proceed with their airspace designation process, described in the above mentioned authorities.

The new MOA would be analyzed in Alternatives 1 and 2, both of which would support an increase in training activities. In addition to the new MOA, Alternative 1 would include force structure changes associated with the introduction of new weapon systems, vehicles and aircraft, in addition to accommodating training activities currently conducted on the range. Alternative 1 would also include the implementation of range enhancements to allow NWSTF Boardman to comply with Navy and National Guard requirements to enable military personnel to qualify on weapon systems. These required range enhancements could include the construction of a Multi-Purpose Machine Gun Range, a Digital Multi-Purpose Training Range, a Convoy Live Fire Training Range, a Demolition Training Range, and construction of a joint range operations center/Unmanned Aerial System (UAS) maintenance building and UAS landing strip.

Alternative 2 would consist of all elements of Alternative 1, plus the addition of a second Convoy Live Fire Training Range, three mortar firing points and construction of a separate range operations center building, independent of the UAS maintenance building and UAS landing strip. The No Action Alternative remains unchanged.

Your input in identifying specific issues and concerns that should be assessed in these areas, and any additional areas, is important to the EIS process. The Navy is reopening the scoping period to identify new community concerns and local issues to be addressed in the EIS as a result of the proposal to request establishment of a new MOA at NWSTF Boardman. Scoping comments previously submitted following publication of the original October 5, 2010, Notice of Intent are still valid and need not be resubmitted. The Navy encourages Federal, state and local agencies, Federally Recognized Native American Tribes and all interested persons to provide written or electronic comments to the Navy to identify any new specific environmental issues or

topics of environmental concern related to the Navy's proposal to include designation of a new MOA as part of the proposed action. The Draft EIS is anticipated to be released in the summer of 2012 for a 45-day public review and comment period.

Please send written comments to the following address:

Naval Facilities Engineering Command, Northwest
Attn: Mrs. Amy Burt – NWSTF Boardman EIS Project Manager
1101 Tautog Circle, Suite 203
Silverdale, WA 98315-1101

You may also submit comments on the project website at **www.NWSTFBoardmanEIS.com.** All comments must be postmarked or received by **January 27, 2012,** to be considered in the revised Draft EIS.

For additional information about the NWSTF Boardman EIS and the proposed new MOA, please visit the project website. If you would like additional information, please contact Mrs. Amy Burt at 360-396-0924 or amy.burt@navy.mil.

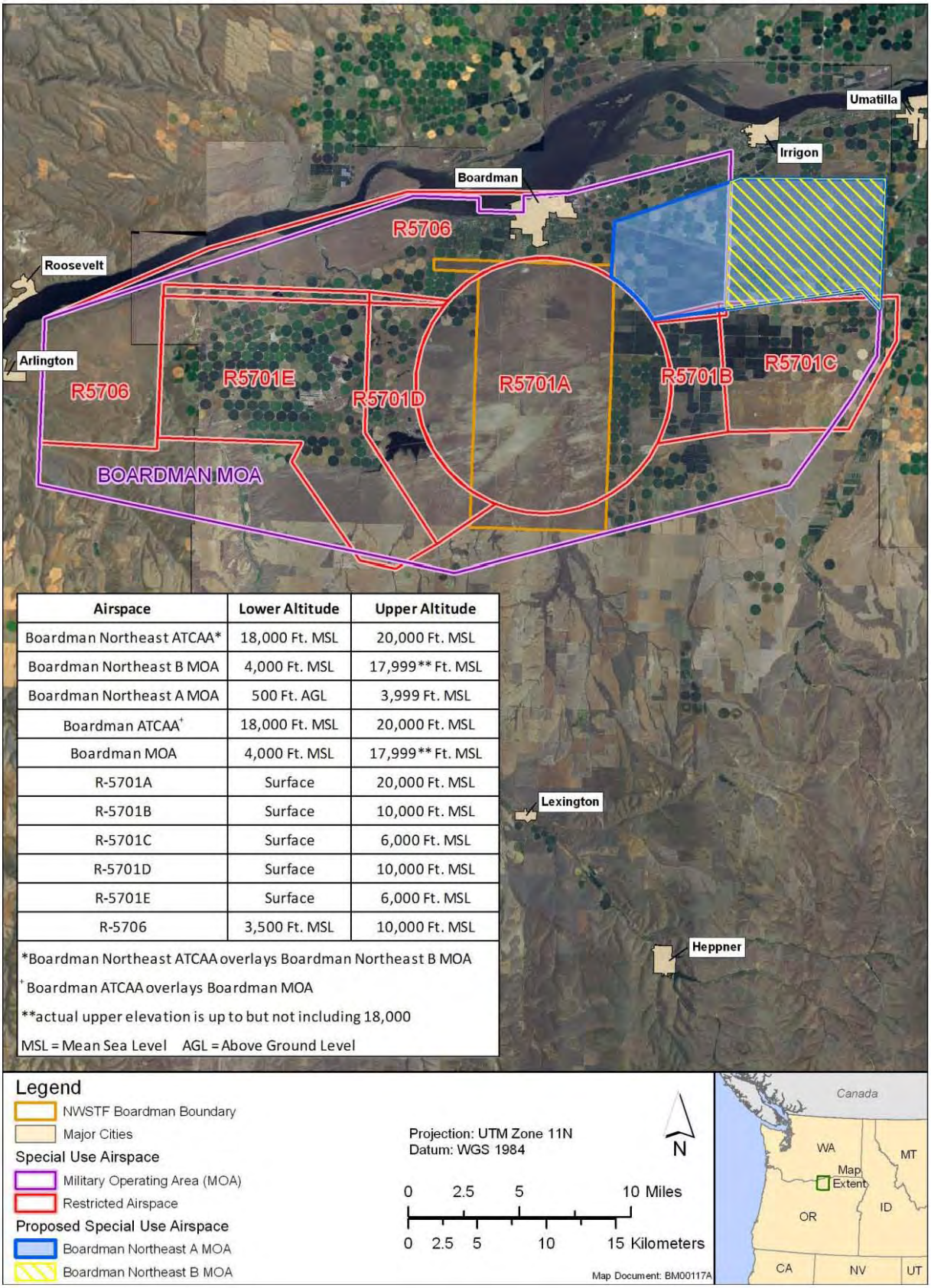
Sincerely,

Larry M. Foster

L. M. FOSTER
Director, Environmental Readiness
By direction

Enclosures: 1. NWSTF Boardman and Special Use Airspace, including proposed Special Use Airspace
2. Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman

Enclosure 1: NWSTF Boardman and Special Use Airspace, including proposed Special Use Airspace



Airspace	Lower Altitude	Upper Altitude
Boardman Northeast ATCAA*	18,000 Ft. MSL	20,000 Ft. MSL
Boardman Northeast B MOA	4,000 Ft. MSL	17,999** Ft. MSL
Boardman Northeast A MOA	500 Ft. AGL	3,999 Ft. MSL
Boardman ATCAA+	18,000 Ft. MSL	20,000 Ft. MSL
Boardman MOA	4,000 Ft. MSL	17,999** Ft. MSL
R-5701A	Surface	20,000 Ft. MSL
R-5701B	Surface	10,000 Ft. MSL
R-5701C	Surface	6,000 Ft. MSL
R-5701D	Surface	10,000 Ft. MSL
R-5701E	Surface	6,000 Ft. MSL
R-5706	3,500 Ft. MSL	10,000 Ft. MSL

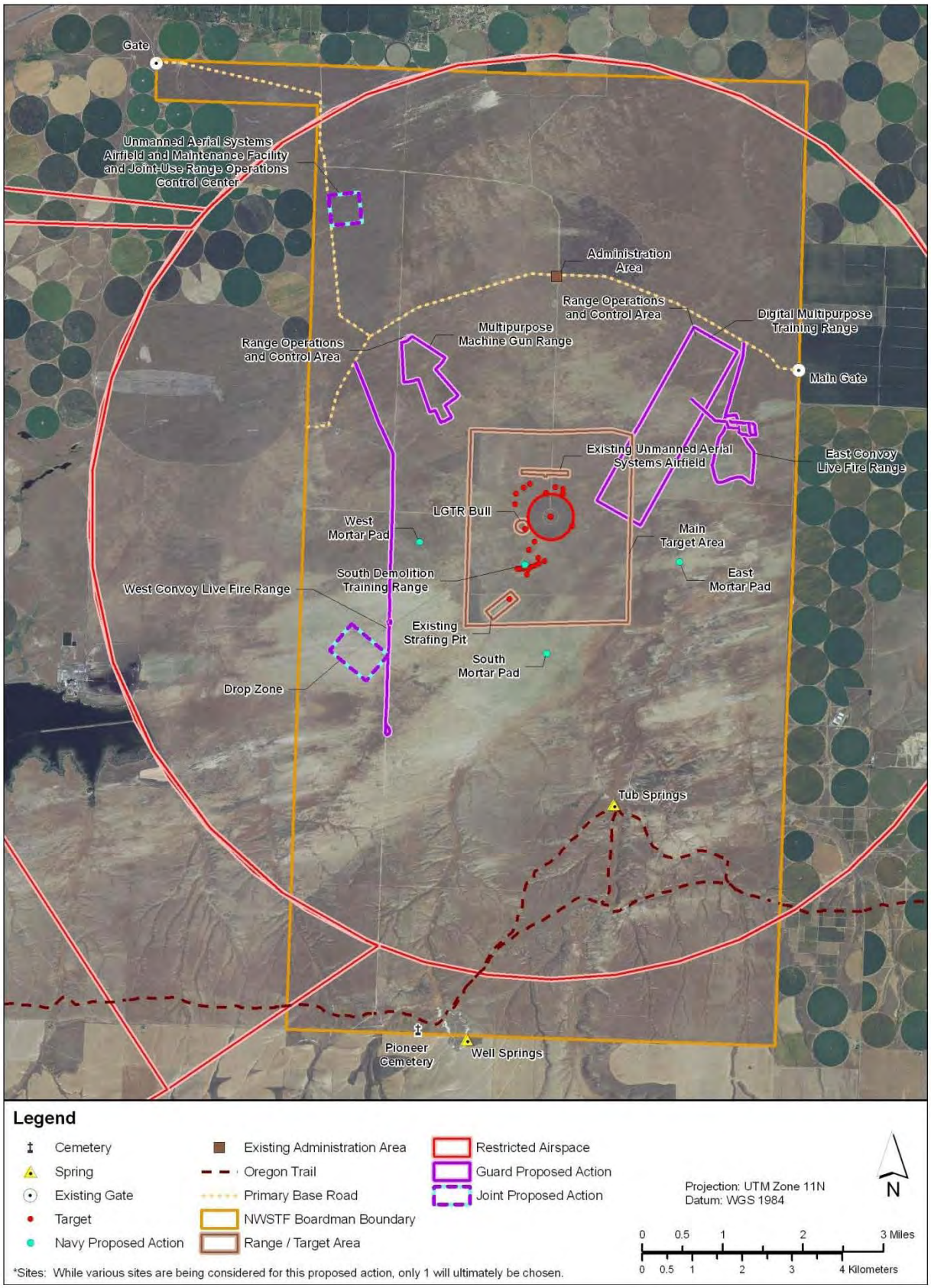
*Boardman Northeast ATCAA overlays Boardman Northeast B MOA

+ Boardman ATCAA overlays Boardman MOA

**actual upper elevation is up to but not including 18,000

MSL = Mean Sea Level AGL = Above Ground Level

Enclosure 2: Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman



DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:

5090
Ser N01CE1/0009
03 Jan 11

The Honorable Stanley Smith
Confederated Tribes of Warm Springs
1233 Veterans Street
Warm Springs, OR 97761

Dear Honorable Smith:

SUBJECT: REVISED NOTICE OF AN ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

The U.S. Navy, in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG), is in the process of preparing an EIS for military readiness training and testing activities in airspace above and on land within NWSTF Boardman, Oregon. The Navy, NGB and ORNG have revised the scope of the EIS for continued and increased training activities on NWSTF Boardman. The Navy, NGB and ORNG invite your comments on the scope, content and issues to be considered during the preparation of the revised EIS.

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The new Boardman Northeast MOA would have two parts, A and B, and the current Boardman Air Traffic Control Assigned Airspace (ATCAA) would be extended to include the area above the new MOA. The floor of MOA A would begin at 500 feet Above Ground Level (AGL) and extend upwards to, but not including, 4,000 feet above Mean Sea Level (MSL). MOA A would overlap a portion of existing Restricted Airspace R-5706 that starts at 3,500 feet MSL and underlie the existing MOA (Boardman MOA) that starts at 4,000 feet MSL to the northeast of the NWSTF Boardman property. The floor of MOA B airspace would begin at 4,000 feet MSL and extend upwards to, but not including 18,000 feet MSL, and would abut the existing Boardman MOA. The dimensions of the Boardman Northeast MOA would be approximately 11 nautical miles west to east and approximately five nautical miles north to south. The extension of the ATCAA would be approximately six nautical miles west to east and approximately five nautical miles north to south. The Boardman ATCAA would permit the continuation of flight activities above the new MOA and 18,000 feet MSL. Aircraft flying under visual flight rules (VFR) will not be permitted to enter the Boardman ATCAA when active. The ATCAA is not depicted on aeronautical charts.

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Sincerely,

Larry M. Foster

L. M. FOSTER
Director, Environmental Readiness
By direction

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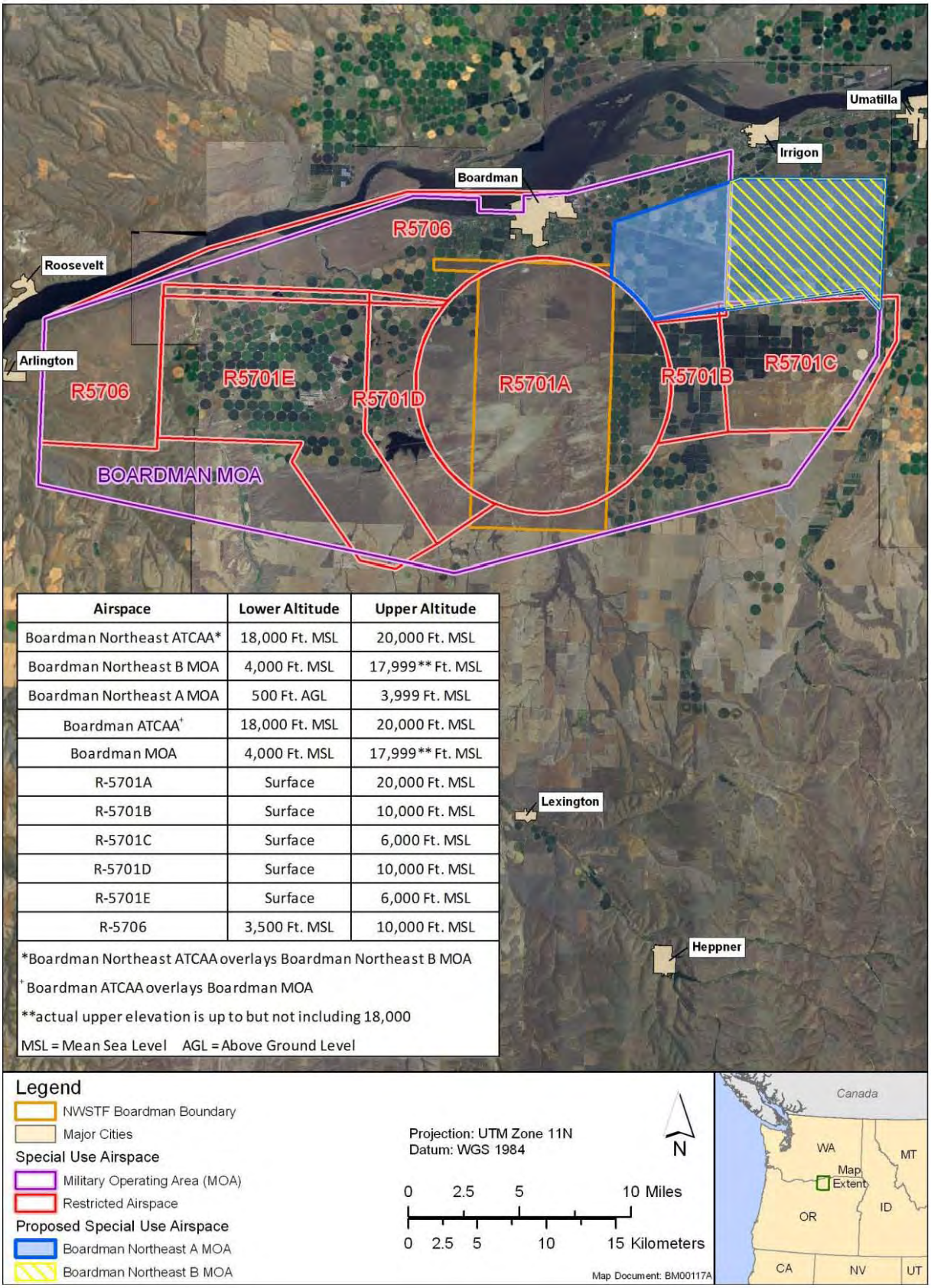
2. Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman

Enclosure 1: NWSTF Boardman and Special Use Airspace, including proposed Special Use Airspace



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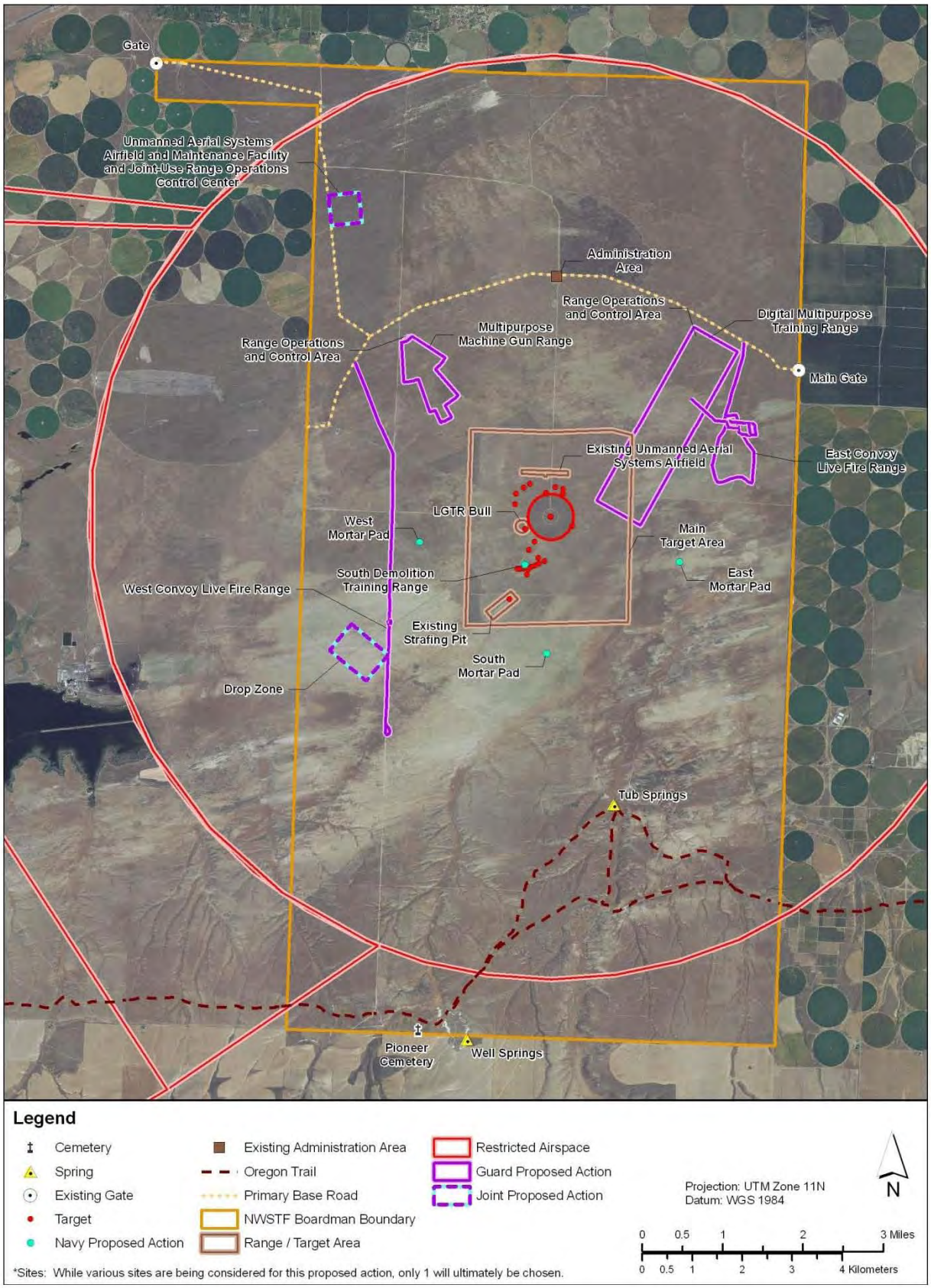
Enclosure 2: Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman



DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:

5090
Ser N01CE1/0007
03 Jan 11

The Honorable Dave Tovey
Confederated Tribes of the Umatilla Indian Reservation
46411 Timíne Way
Pendleton, OR 97801

Dear Honorable Tovey:

SUBJECT: REVISED NOTICE OF AN ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

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and changes to training activities, capacities and facilities as they currently exist.

The new Boardman Northeast MOA would have two parts, A and B, and the current Boardman Air Traffic Control Assigned Airspace (ATCAA) would be extended to include the area above the new MOA. The floor of MOA A would begin at 500 feet Above Ground Level (AGL) and extend upwards to, but not including, 4,000 feet above Mean Sea Level (MSL). MOA A would overlap a portion of existing Restricted Airspace R-5706 that starts at 3,500 feet MSL and underlie the existing MOA (Boardman MOA) that starts at 4,000 feet MSL to the northeast of the NWSTF Boardman property. The floor of MOA B airspace would begin at 4,000 feet MSL and extend upwards to, but not including 18,000 feet MSL, and would abut the existing Boardman MOA. The dimensions of the Boardman Northeast MOA would be approximately 11 nautical miles west to east and approximately five nautical miles north to south. The extension of the ATCAA would be approximately six nautical miles west to east and approximately five nautical miles north to south. The Boardman ATCAA would permit the continuation of flight activities above the new MOA and 18,000 feet MSL. Aircraft flying under visual flight rules (VFR) will not be permitted to enter the Boardman ATCAA when active. The ATCAA is not depicted on aeronautical charts.

Hours of operations for the new MOA would be consistent with the existing Boardman MOA, 7:30 a.m. to 11:59 p.m. Monday through Friday, and at other times by Notice to Airman six hours in advance. Civilian or other nonparticipating air traffic flying with an air traffic control clearance and under instrument flight rules (IFR) will be restricted from entering the Northeast MOA when it is in use by the military. Civilian or other nonparticipating air traffic flying under VFR would be informed of Northeast MOA activation and advised to avoid the area; however, it is not compulsory that civilian or other nonparticipating air traffic flying under VFR, or under IFR without air traffic control clearance, remain clear of the area.

The proposed Northeast MOA would be established by the Federal Aviation Administration (FAA) according to authority given to the FAA under 49 U.S. Code (U.S.C.) Section 40103. In regulations found at 14 C.F.R. 73.1 *et seq.* and FAA Joint Order 7400.2H, Procedures for Handling of Airspace, FAA sets forth the procedures for establishing various types of Special Use Airspace, including MOAs. According to FAA Order 1050.1E, Change 1, Environmental Impacts: Policies and Procedures, and a Memorandum of Understanding between the Department of Defense and FAA signed

October 4, 2005, since the Navy proposes the designation of the MOA, Navy will serve as lead agency under NEPA and invite FAA as a cooperating agency. That Memorandum of Understanding indicates that "the resultant environmental documents of the lead agency are accepted and used in decisions and planning by all agencies involved with the proposed action." Therefore, once the EIS is complete and Navy has made its decision on whether to proceed with a designation request, the FAA will then proceed with their airspace designation process, described in the above mentioned authorities.

The new MOA would be analyzed in Alternatives 1 and 2, both of which would support an increase in training activities. In addition to the new MOA, Alternative 1 would include force structure changes associated with the introduction of new weapon systems, vehicles and aircraft, in addition to accommodating training activities currently conducted on the range. Alternative 1 would also include the implementation of range enhancements to allow NWSTF Boardman to comply with Navy and National Guard requirements to enable military personnel to qualify on weapon systems. These required range enhancements could include the construction of a Multi-Purpose Machine Gun Range, a Digital Multi-Purpose Training Range, a Convoy Live Fire Training Range, a Demolition Training Range, and construction of a joint range operations center/Unmanned Aerial System (UAS) maintenance building and UAS landing strip.

Alternative 2 would consist of all elements of Alternative 1, plus the addition of a second Convoy Live Fire Training Range, three mortar firing points and construction of a separate range operations center building, independent of the UAS maintenance building and UAS landing strip. The No Action Alternative remains unchanged.

Your input in identifying specific issues and concerns that should be assessed in these areas, and any additional areas, is important to the EIS process. The Navy is reopening the scoping period to identify new community concerns and local issues to be addressed in the EIS as a result of the proposal to request establishment of a new MOA at NWSTF Boardman. Scoping comments previously submitted following publication of the original October 5, 2010, Notice of Intent are still valid and need not be resubmitted. The Navy encourages Federal, state and local agencies, Federally Recognized Native American Tribes and all interested persons to provide written or electronic comments to the Navy to identify any new specific environmental issues or

topics of environmental concern related to the Navy's proposal to include designation of a new MOA as part of the proposed action. The Draft EIS is anticipated to be released in the summer of 2012 for a 45-day public review and comment period.

Please send written comments to the following address:

Naval Facilities Engineering Command, Northwest
Attn: Mrs. Amy Burt – NWSTF Boardman EIS Project Manager
1101 Tautog Circle, Suite 203
Silverdale, WA 98315-1101

You may also submit comments on the project website at **www.NWSTFBoardmanEIS.com.** All comments must be postmarked or received by **January 27, 2012,** to be considered in the revised Draft EIS.

For additional information about the NWSTF Boardman EIS and the proposed new MOA, please visit the project website. If you would like additional information, please contact Mrs. Amy Burt at 360-396-0924 or amy.burt@navy.mil.

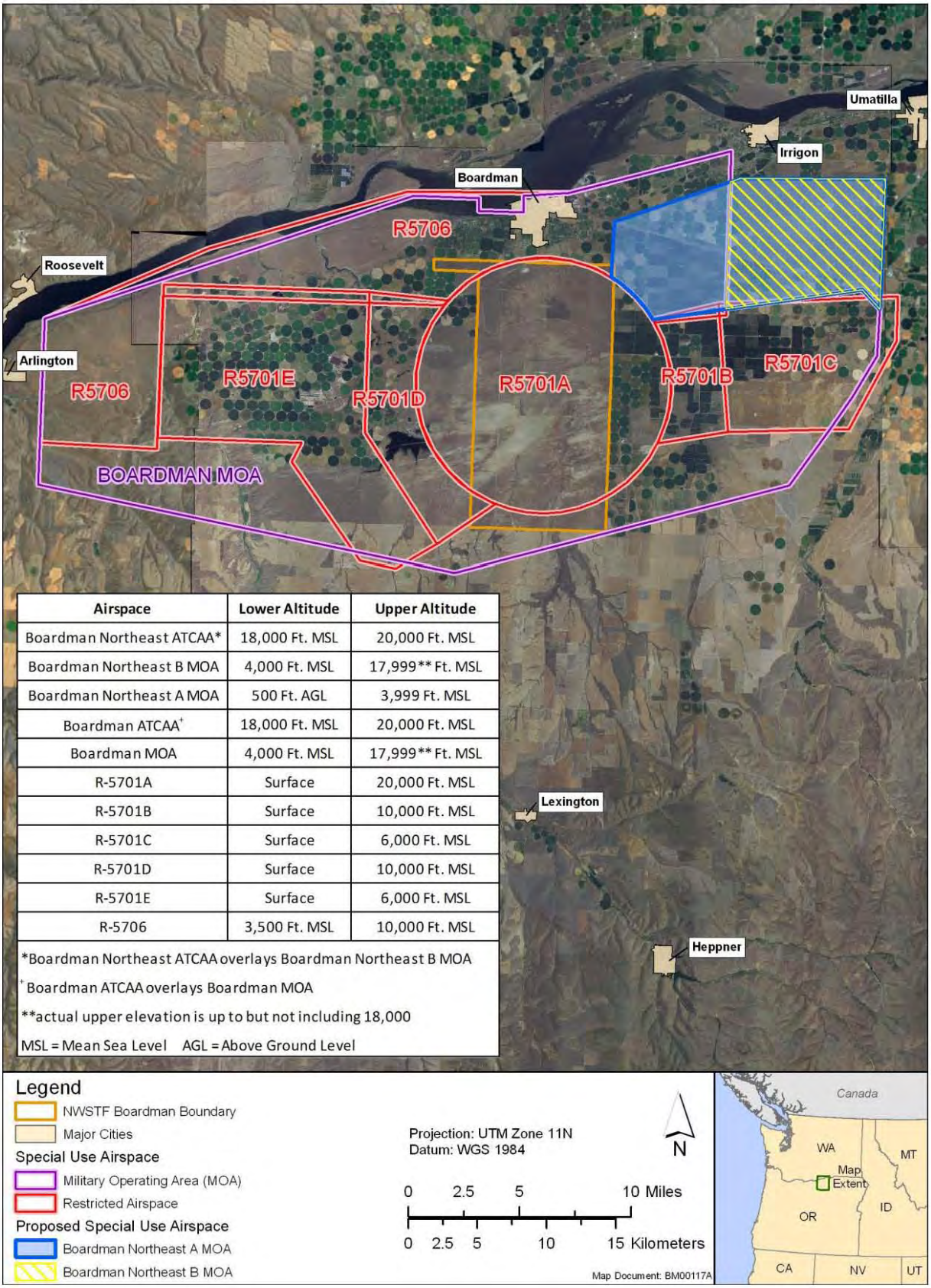
Sincerely,

Larry M. Foster

L. M. FOSTER
Director, Environmental Readiness
By direction

Enclosures: 1. NWSTF Boardman and Special Use Airspace, including proposed Special Use Airspace
2. Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman

Enclosure 1: NWSTF Boardman and Special Use Airspace, including proposed Special Use Airspace



Airspace	Lower Altitude	Upper Altitude
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Boardman Northeast B MOA	4,000 Ft. MSL	17,999** Ft. MSL
Boardman Northeast A MOA	500 Ft. AGL	3,999 Ft. MSL
Boardman ATCAA+	18,000 Ft. MSL	20,000 Ft. MSL
Boardman MOA	4,000 Ft. MSL	17,999** Ft. MSL
R-5701A	Surface	20,000 Ft. MSL
R-5701B	Surface	10,000 Ft. MSL
R-5701C	Surface	6,000 Ft. MSL
R-5701D	Surface	10,000 Ft. MSL
R-5701E	Surface	6,000 Ft. MSL
R-5706	3,500 Ft. MSL	10,000 Ft. MSL

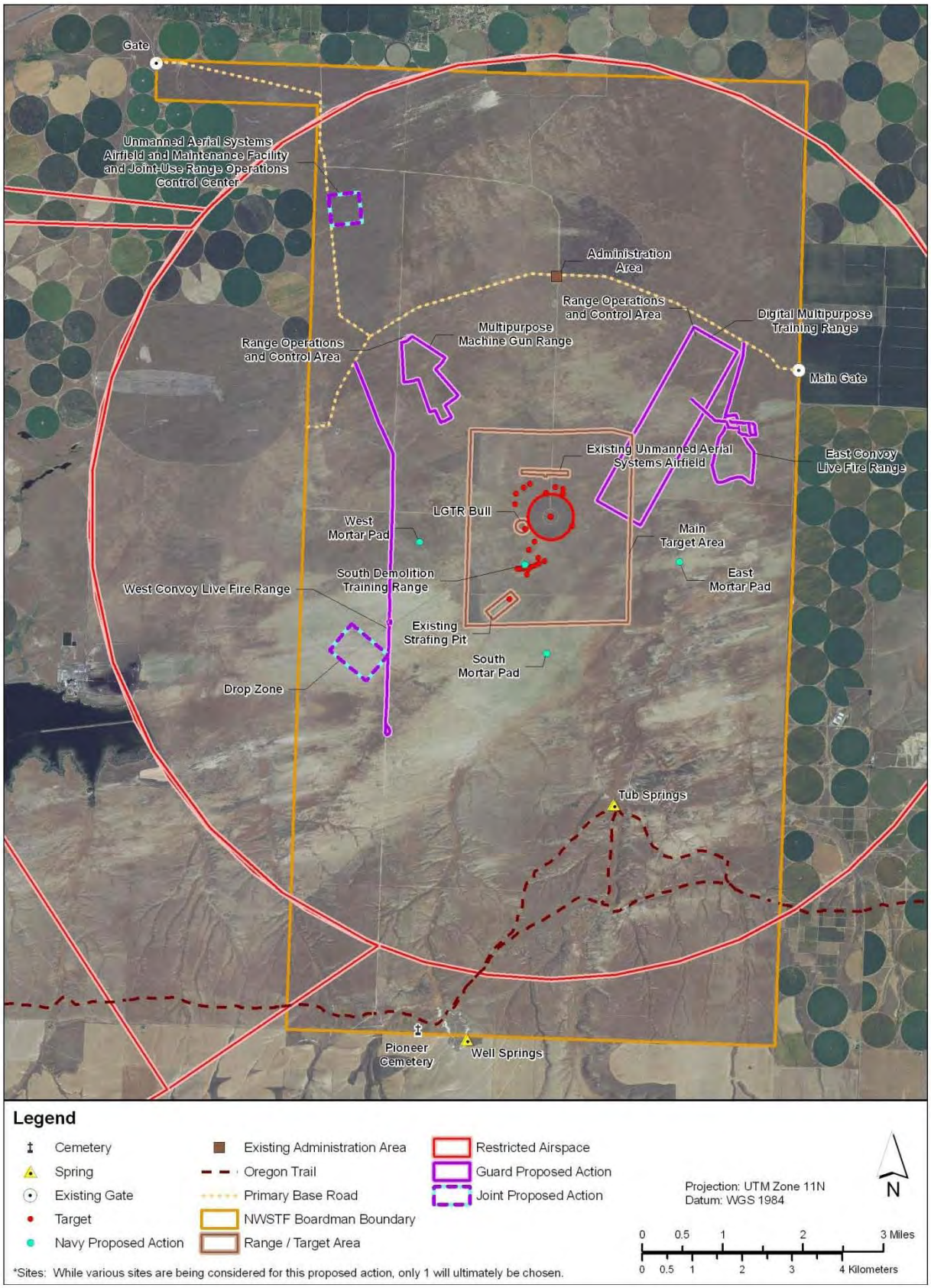
*Boardman Northeast ATCAA overlays Boardman Northeast B MOA

+ Boardman ATCAA overlays Boardman MOA

**actual upper elevation is up to but not including 18,000

MSL = Mean Sea Level AGL = Above Ground Level

Enclosure 2: Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman



DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:

5090
Ser N01CE1/0010
03 Jan 11

The Honorable Brooklyn Baptiste
Nez Perce Tribe
P.O. Box 305
Lapwai, ID 83540

Dear Honorable Baptiste:

SUBJECT: REVISED NOTICE OF AN ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN

The U.S. Navy, in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG), is in the process of preparing an EIS for military readiness training and testing activities in airspace above and on land within NWSTF Boardman, Oregon. The Navy, NGB and ORNG have revised the scope of the EIS for continued and increased training activities on NWSTF Boardman. The Navy, NGB and ORNG invite your comments on the scope, content and issues to be considered during the preparation of the revised EIS.

The scope of the EIS has been revised since the October 5, 2010, publication of the original Notice of Intent in the Federal Register (75 FR 61452) because the Navy is modifying its proposed action to include the addition of new Special Use Airspace in the form of a Military Operations Area (MOA). This new MOA would preserve required training capabilities at NWSTF Boardman that are necessary to maintain military readiness.

The overall strategic mission of NWSTF Boardman is to support naval and joint services operational readiness by providing a suitable range within the geographical vicinity for U.S. Pacific Fleet and ORNG forces in the northwest. The development of structures of significant height on lands beneath the existing Special Use Airspace associated with NWSTF Boardman has and is expected to continue to result in the loss of ability to train at the range. In order to preserve training capabilities, the Navy is proposing to establish a new MOA to the northeast of the existing Special Use Airspace at NWSTF Boardman. Adding the MOA is consistent with the Navy's proposed action at NWSTF Boardman, announced on October 5, 2010, which included range enhancements

and changes to training activities, capacities and facilities as they currently exist.

The new Boardman Northeast MOA would have two parts, A and B, and the current Boardman Air Traffic Control Assigned Airspace (ATCAA) would be extended to include the area above the new MOA. The floor of MOA A would begin at 500 feet Above Ground Level (AGL) and extend upwards to, but not including, 4,000 feet above Mean Sea Level (MSL). MOA A would overlap a portion of existing Restricted Airspace R-5706 that starts at 3,500 feet MSL and underlie the existing MOA (Boardman MOA) that starts at 4,000 feet MSL to the northeast of the NWSTF Boardman property. The floor of MOA B airspace would begin at 4,000 feet MSL and extend upwards to, but not including 18,000 feet MSL, and would abut the existing Boardman MOA. The dimensions of the Boardman Northeast MOA would be approximately 11 nautical miles west to east and approximately five nautical miles north to south. The extension of the ATCAA would be approximately six nautical miles west to east and approximately five nautical miles north to south. The Boardman ATCAA would permit the continuation of flight activities above the new MOA and 18,000 feet MSL. Aircraft flying under visual flight rules (VFR) will not be permitted to enter the Boardman ATCAA when active. The ATCAA is not depicted on aeronautical charts.

Hours of operations for the new MOA would be consistent with the existing Boardman MOA, 7:30 a.m. to 11:59 p.m. Monday through Friday, and at other times by Notice to Airman six hours in advance. Civilian or other nonparticipating air traffic flying with an air traffic control clearance and under instrument flight rules (IFR) will be restricted from entering the Northeast MOA when it is in use by the military. Civilian or other nonparticipating air traffic flying under VFR would be informed of Northeast MOA activation and advised to avoid the area; however, it is not compulsory that civilian or other nonparticipating air traffic flying under VFR, or under IFR without air traffic control clearance, remain clear of the area.

The proposed Northeast MOA would be established by the Federal Aviation Administration (FAA) according to authority given to the FAA under 49 U.S. Code (U.S.C.) Section 40103. In regulations found at 14 C.F.R. 73.1 *et seq.* and FAA Joint Order 7400.2H, Procedures for Handling of Airspace, FAA sets forth the procedures for establishing various types of Special Use Airspace, including MOAs. According to FAA Order 1050.1E, Change 1, Environmental Impacts: Policies and Procedures, and a Memorandum of Understanding between the Department of Defense and FAA signed

October 4, 2005, since the Navy proposes the designation of the MOA, Navy will serve as lead agency under NEPA and invite FAA as a cooperating agency. That Memorandum of Understanding indicates that "the resultant environmental documents of the lead agency are accepted and used in decisions and planning by all agencies involved with the proposed action." Therefore, once the EIS is complete and Navy has made its decision on whether to proceed with a designation request, the FAA will then proceed with their airspace designation process, described in the above mentioned authorities.

The new MOA would be analyzed in Alternatives 1 and 2, both of which would support an increase in training activities. In addition to the new MOA, Alternative 1 would include force structure changes associated with the introduction of new weapon systems, vehicles and aircraft, in addition to accommodating training activities currently conducted on the range. Alternative 1 would also include the implementation of range enhancements to allow NWSTF Boardman to comply with Navy and National Guard requirements to enable military personnel to qualify on weapon systems. These required range enhancements could include the construction of a Multi-Purpose Machine Gun Range, a Digital Multi-Purpose Training Range, a Convoy Live Fire Training Range, a Demolition Training Range, and construction of a joint range operations center/Unmanned Aerial System (UAS) maintenance building and UAS landing strip.

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topics of environmental concern related to the Navy's proposal to include designation of a new MOA as part of the proposed action. The Draft EIS is anticipated to be released in the summer of 2012 for a 45-day public review and comment period.

Please send written comments to the following address:

Naval Facilities Engineering Command, Northwest
Attn: Mrs. Amy Burt – NWSTF Boardman EIS Project Manager
1101 Tautog Circle, Suite 203
Silverdale, WA 98315-1101

You may also submit comments on the project website at **www.NWSTFBoardmanEIS.com.** All comments must be postmarked or received by **January 27, 2012,** to be considered in the revised Draft EIS.

For additional information about the NWSTF Boardman EIS and the proposed new MOA, please visit the project website. If you would like additional information, please contact Mrs. Amy Burt at 360-396-0924 or amy.burt@navy.mil.

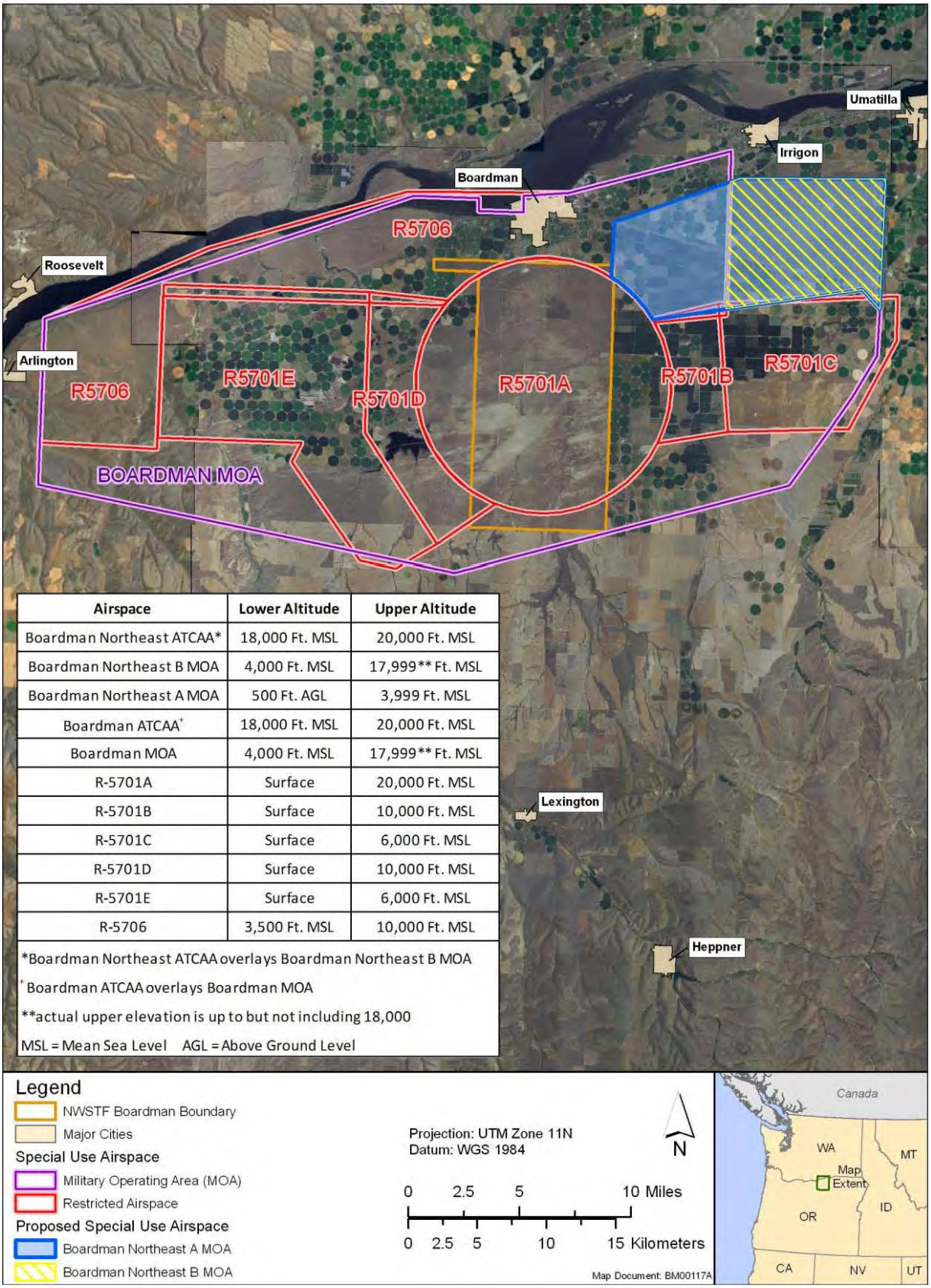
Sincerely,

Larry M. Foster

L. M. FOSTER
Director, Environmental Readiness
By direction

Enclosures: 1. NWSTF Boardman and Special Use Airspace, including proposed Special Use Airspace
2. Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman

Enclosure 1: NWSTF Boardman and Special Use Airspace, including proposed Special Use Airspace



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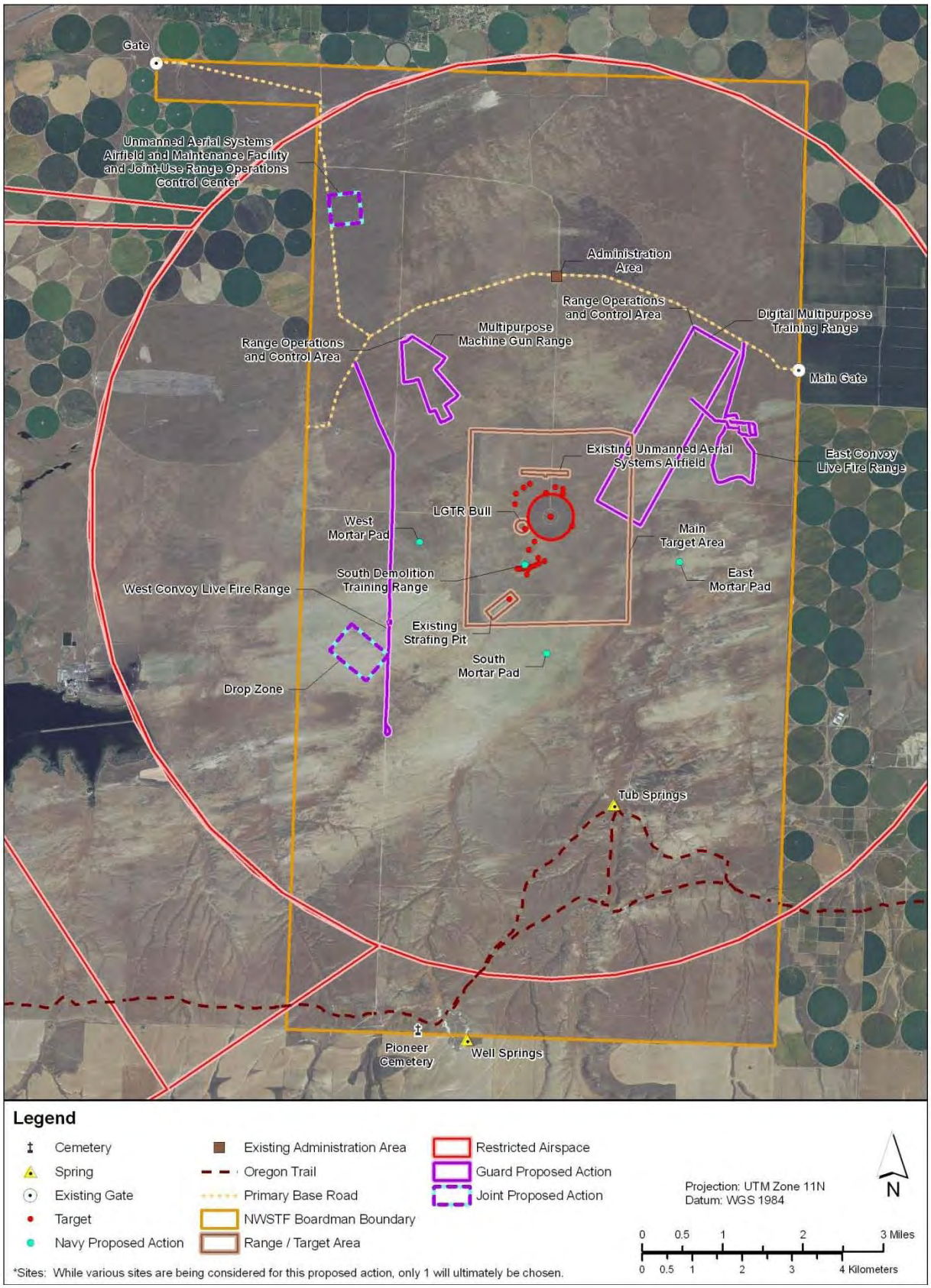
MSL = Mean Sea Level AGL = Above Ground Level

Enclosure 2: Proposed Actions for U.S. Navy and Oregon National Guard at NWSTF Boardman



DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0470
April 25, 2011

Mr. Patrick Baird
Tribal Historic Preservation Officer
Cultural Resource Program
Nez Perce Tribe
P.O. Box 365
Lapwai, ID 83540-0365

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN (NWSTF), MORROW COUNTY, OR (SHPO CASE NO. 10-2331)

Dear Mr. Baird:

The U.S. Navy, in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG) is preparing an Environmental Impact Statement (EIS) for military readiness training and testing activities in airspace above and on land within NWSTF Boardman, Morrow County, Oregon. The Navy, NGB and ORNG request initiation of early coordination and consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) to support the activities that will be addressed in the EIS.

The Navy and the National Guard propose to conduct military readiness activities at NWSTF Boardman, including the construction of several new live-fire range areas (Enclosure 1). Although it remains to be determined whether there is potential to effect historic properties, if implemented, several of the planned activities would include ground disturbance at a future time and are considered "undertakings" under the NHPA. The Navy and National Guard are requesting Section 106 consultation early in the EIS process to allow better integration of NHPA requirements with development of the EIS analysis.

In order to further identify the area of potential effect (APE) and to gather information on historic properties within the APE, the Navy has contracted with an archeological firm to conduct

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN, MORROW COUNTY, OR (SHPO CASE NO. 10-2331)

additional archeological surveys of areas on NWSTF Boardman that could see future ground disturbance (Enclosure 2). These surveys will build on previous Navy surveys and those conducted by the National Guard in 2005 during their Environmental Assessment project and related Section 106 consultation (SHPO case number 05-0193).

We look forward to your participation to assist in our efforts to review existing information on historic properties within the APE, and in gathering additional information to ensure an effective balance between military readiness and protection of cultural resources. If you are not interested in further participation, please let us know. We have also sent a similar letter to the Oregon State Historic Preservation Officer requesting their participation in this process.

For more information about the NWSTF Boardman EIS, please visit the project website at www.NWSTFBoardmanEIS.com or contact my program manager for the EIS, Mr. John Mosher at 360-257-3234 or john.g.mosher@navy.mil.

Respectfully,

L. M. FOSTER
By direction

Enclosures: 1. Proposed Actions for NWSTF Boardman
2. Existing and Proposed Cultural Resource Archeological Survey Areas at NWSTF Boardman

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0465
April 22, 2011

Ms. Teara Farrow Ferman
Program Manager, Cultural Resources
The Confederated Tribes of the Umatilla Indian Reservation
46411 Timine Way
Pendleton, OR 97801

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN (NWSTF), MORROW COUNTY, OR (SHPO CASE NO. 10-2331)

Dear Ms. Ferman:

The U.S. Navy, in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG) is preparing an Environmental Impact Statement (EIS) for military readiness training and testing activities in airspace above and on land within NWSTF Boardman, Morrow County, Oregon. The Navy, NGB and ORNG request initiation of early coordination and consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) to support the activities that will be addressed in the EIS.

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additional archeological surveys of areas on NWSTF Boardman that could see future ground disturbance (Enclosure 2). These surveys will build on previous Navy surveys and those conducted by the National Guard in 2005 during their Environmental Assessment project and related Section 106 consultation (SHPO case number 05-0193).

We look forward to your participation to assist in our efforts to review existing information on historic properties within the APE, and in gathering additional information to ensure an effective balance between military readiness and protection of cultural resources. If you are not interested in further participation, please let us know. We have also sent a similar letter to the Oregon State Historic Preservation Officer requesting their participation in this process.

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Respectfully,

Kay M. Foster

L. M. FOSTER
By direction

Enclosures: 1. Proposed Actions for NWSTF Boardman
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DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0471
April 25, 2011

Ms. Sally Bird
Cultural Resource Manager
The Confederated Tribes of the Warm Springs
P.O. Box 460
Warm Springs, OR 97761

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN (NWSTF), MORROW COUNTY, OR (SHPO CASE NO. 10-2331)

Dear Ms. Bird:

The U.S. Navy, in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG) is preparing an Environmental Impact Statement (EIS) for military readiness training and testing activities in airspace above and on land within NWSTF Boardman, Morrow County, Oregon. The Navy, NGB and ORNG request initiation of early coordination and consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) to support the activities that will be addressed in the EIS.

The Navy and the National Guard propose to conduct military readiness activities at NWSTF Boardman, including the construction of several new live-fire range areas (Enclosure 1). Although it remains to be determined whether there is potential to effect historic properties, if implemented, several of the planned activities would include ground disturbance at a future time and are considered "undertakings" under the NHPA. The Navy and National Guard are requesting Section 106 consultation early in the EIS process to allow better integration of NHPA requirements with development of the EIS analysis.

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SUBJECT: NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN, MORROW COUNTY, OR (SHPO CASE NO. 10-2331)

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Respectfully,

L. M. FOSTER
By direction

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2. Existing and Proposed Cultural Resource Archeological Survey Areas at NWSTF Boardman

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0469
April 25, 2011

Ms. Kate Valdez
Tribal Historic Preservation Officer, Cultural Resources
The Confederated Tribes and Bands of the Yakama Indian Nation
P.O. Box 151
Toppenish, WA 98948

SUBJECT: NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION FOR MILITARY READINESS ACTIVITIES AT NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN (NWSTF), MORROW COUNTY, OR (SHPO CASE NO. 10-2331)

Dear Ms. Valdez:

The U.S. Navy, in cooperation with the National Guard Bureau (NGB) and the Oregon National Guard (ORNG) is preparing an Environmental Impact Statement (EIS) for military readiness training and testing activities in airspace above and on land within NWSTF Boardman, Morrow County, Oregon. The Navy, NGB and ORNG request initiation of early coordination and consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) to support the activities that will be addressed in the EIS.

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Respectfully,

L. M. FOSTER
By direction

Enclosures: 1. Proposed Actions for NWSTF Boardman
2. Existing and Proposed Cultural Resource Archeological Survey Areas at NWSTF Boardman

THE CONFEDERATED TRIBES OF THE WARM SPRINGS RESERVATION OF OREGON

Warm Springs, Oregon 97761 / (541) 553-2001/2002

May 19, 2011

Mr. L.M Foster
Department of the Navy
250 Makalapa Drive
Pearl Harbor HI 96860

RE: NHPA Section 106 Consultation for Military Readiness Activities at Naval Weapons Systems Training Facility Boardman (NWSTF), Morrow County, OR

Dear Mr. L.M Foster:

Thank you for the opportunity to comment on the NHPA Section 106 Consultation for Military Readiness Activities at Naval Weapons Systems Training Facility Boardman (NWSTF), Morrow County, OR. At this time the Confederated Tribes of the Warm Springs Reservation of Oregon would like to defer comment to the Confederated Tribes of the Umatilla Indian Reservation as the proposed project is located on their ceded lands.

If you have any questions or concerns please contact Roberta Kirk at 541.553.3555 or via email at rkirk@wstribes.org.

Respectfully,

Sally Bird
Cultural Resource Manager

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0790
June 12, 2012

Ms. Catherine Dickson
Cultural Resources Principal Investigator
The Confederated Tribes of the Umatilla Indian Reservation
46411 Timine Way
Pendleton, OR 97801

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS) PROPOSED AREA OF POTENTIAL EFFECTS (APE)

Dear Ms. Dickson:

This letter is to follow-up on the NWSTF Boardman EIS project meeting of February 15, 2012, and as a continuation of the National Historic Preservation Act (NHPA) Section 106 consultation process (Oregon SHPO case number 10-2331). Having described the proposed action of the NWSTF Boardman EIS in a briefing to the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) on March 3, 2011, in follow-up correspondence of April 22, 2011, and again at our February 15 meeting, the Navy and Oregon National Guard have prepared the attached graphics to identify our preliminary determination of the proposed action APE, defined to include both direct and indirect effects.

APE (Direct). Figure 1 in Enclosure 1 depicts those areas that may be directly affected by ground disturbing activities such as construction or training. As previously discussed, not all of the areas depicted would necessarily be affected, but any ground disturbance that occurs would be located within the areas shown. For instance, total disturbance for construction of the Unmanned Aerial Systems (UAS) facility would be approximately 5-6 acres, including building footprint, parking area, landing strip, construction lay-down area, and similar construction. This proposed 5-6 acres of disturbance would occur somewhere within the 96-acre box depicted in the northwest corner of the graphic. Since the exact locations of the undertakings have not been sited, we have proposed this larger area to serve as the APE for Section 106 consultation to ensure that potential historic properties are not overlooked. Therefore, the Navy and National Guard feel that

the areas depicted in Figure 1, as the APE for potential direct ground-disturbing effects, would require archaeological surveys.

We have not included the Surface Danger Zones (SDZs) depicted in Figure 2 as part of the direct effect APE. The SDZ for each proposed range area is generated by a computer model for safety reasons, and is not a predictor of ground disturbance. The statistical probability of a bullet/projectile landing in the area outside the range SDZ as a result of ricochet or accident is less than one in one million, and the statistical possibility of a bullet/projectile landing within the SDZ is greater than one in one million. In reality, the vast majority of bullets/projectiles land in immediate proximity of the intended target, typically in the constructed berm in front of or behind the targets, and are concentrated near the target emplacement. Greater than one-in-one-million odds for a bullet/projectile impact is significant when it comes to personnel safety, but does not constitute a significant potential for ground disturbance. This is especially true when comparing the nature of surface disturbance caused by a potential bullet/projectile landing on the ground with surface disturbance already caused by natural forces, such as movement of elk, deer, and pronghorn herds through the area; wind erosion; and periodic hail storms. All of the proposed target locations for each range, including a substantial buffer area, are within the APE depicted for potential direct effects.

APE (Indirect). In consultation with the CTUIR, the Navy and Oregon National Guard have determined that noise from proposed training ranges and low-altitude aircraft activities have the potential to affect Traditional Cultural Properties (TCPs), should any be determined to exist within those affected areas. This is based on the assumption that some TCP-related practices would necessitate quiet conditions or at least minimal unnatural noise interruptions. Consequently, we have developed a series of graphics based on noise contour lines to help define what geographic areas might be considered for APE.

For noise analysis, the US Army Institute of Public Health defines 115 db (PK15)[1] to be the threshold of a "moderate" risk of receiving noise complaints, based on the nature of impulse noises related to live-fire and demolition ranges. Small and large arms noise contours are depicted on Figure 3 for the Multi-Purpose

[1] The peak sound level, factoring in the statistical variations caused by weather, which is likely to be exceeded only 15% of the time (i.e. 85% certainty that sound will be within this range).

Machine Gun Range (MPMGR), Multi-Purpose Training Range (MPTR), and Western Convoy Live Fire Range (CLFR). Noise contour lines are not depicted for the Eastern CLFR, as they are subsumed by those of the MPTR. The majority of the central portion of NWSTF Boardman falls within the 115 db noise contour associated with the MPTR large arms (120 mm Abrams Tank main gun).

The largest possible noise contours for the proposed Demolition Training Range (DTR) are associated with detonation of a 220 pound net explosive weight charge, and are depicted on Figure 4, labeled "Proposed DTR Noise Contours - PK15". Though not likely to be a regular training event, the potential for such explosive training activities would yield a noise contour greater than those associated with all other proposed training ranges. The 115 db (PK 15) noise contour encompasses all of the NWSTF Boardman property and includes adjacent agricultural lands and urban portions of the city of Boardman. As the greatest extent of potential noise associated with proposed range development, the Navy and Oregon National Guard have preliminarily determined that this noise contour should form the boundary of the APE for indirect effects to TCPs, should any exist in this area.

For noise analysis, the Navy defines the threshold of medium risk of noise complaint for low altitude jet aircraft to be at 65 or 70 db (L_{dmnr})[2]. This unit of measure is designed to take into account the sudden onset of low level aircraft within Special Use Airspace during the busiest month of the training year, as opposed to the more routine day-to-day operations of established airfields. Projections of this level of noise; depicted in Figure 5, show it to be relatively localized to an east/west linear area just west of the NWSTF Boardman property, over property owned by Threemile Canyon Farms. Though this is the area projected for noise disturbance by computer modeling, Day-Night Average Sound Levels may not adequately address potential adverse effects to TCP areas. It is important to note that jet aircraft are authorized by the FAA to fly at low altitudes anywhere within the surface-up restricted airspace (labeled R-5701(A-E)) and would be allowed by the FAA to fly as low as 500 feet Above Ground Level (AGL) within the proposed airspace shown as the Northeast Military Operating Area (NE MOA). Since any low-level jet aircraft training within the NWSTF Boardman surface-up Special Use Airspace could adversely affect potential TCP sites, the Navy and Oregon National Guard propose that the boundaries of the R-5701 restricted airspace and

[2] Onset-Rate Adjusted Monthly Day-Night Average Sound Level.

the proposed NE MOA be the APE for indirect effects to potential TCP sites related to low-altitude aircraft training noise.

Assuming that TCP sites are more likely to be located in less disturbed and less developed areas, and not as likely to be located in agricultural or urban developed areas, the 47,432-acre NWSTF Boardman property appears to represent the largest portion of high probability area for TCP sites within the proposed APE for both direct and indirect effects. As such, the Navy and Oregon National Guard propose to conduct a TCP study for the entire NWSTF Boardman property as representative of the highest probability areas for TCPs within the APE for direct and indirect effects.

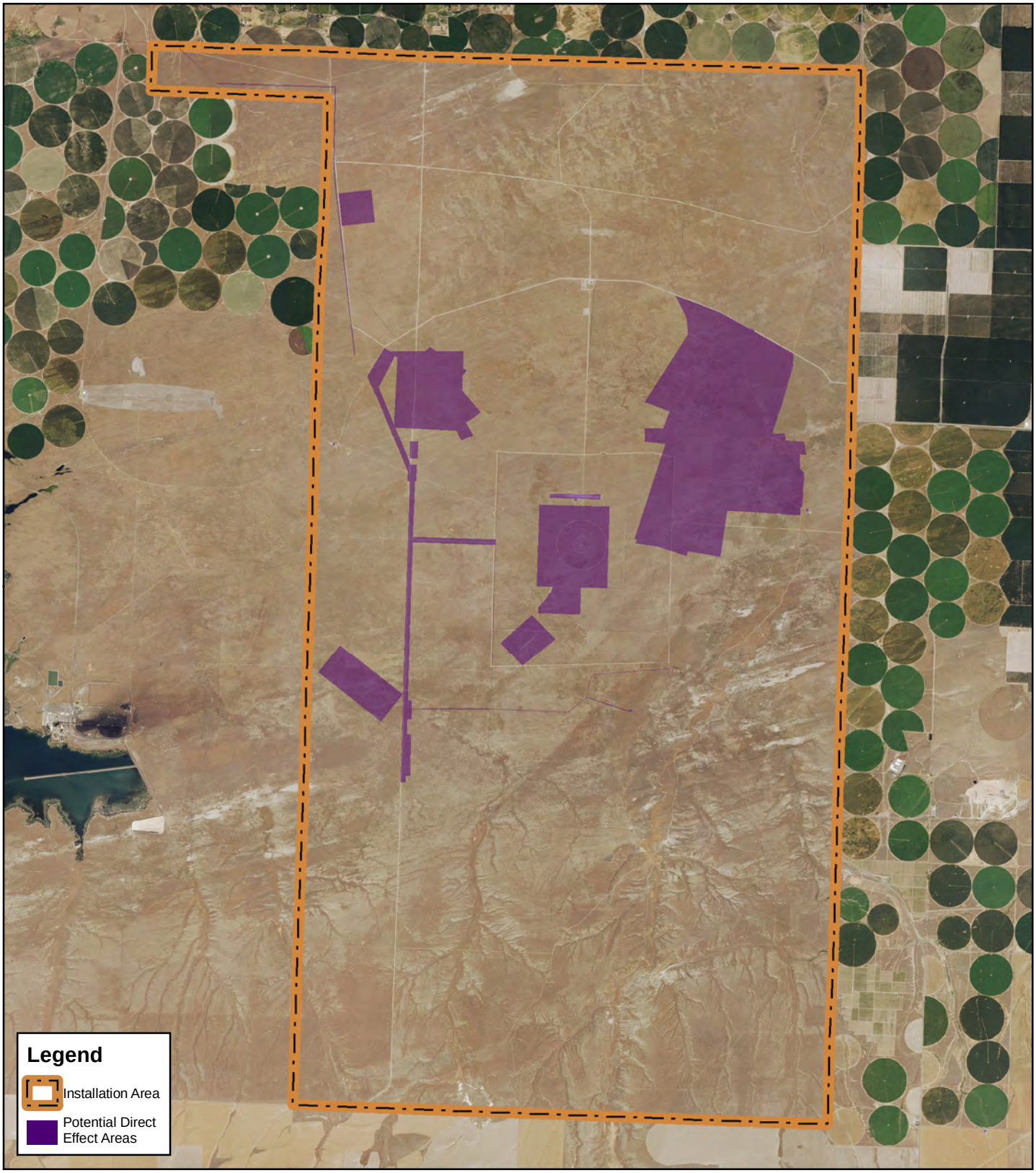
As discussed in our last meeting, the Navy and Oregon National Guard seek your concurrence on our preliminary determination of the APE for this proposed action, and on our approach to conduct a TCP survey of the NWSTF Boardman property. If you have any questions, please contact my program manager for the NWSTF Boardman EIS, Mr. John Mosher at 360-257-3234 or john.g.mosher@navy.mil.

Respectfully,

L. M. FOSTER
By direction

Enclosure 1: Figure 1: Areas of Direct Potential Effect; Figure 2: Surface Danger Zones for Proposed Ranges (MPMGR, MPTR, CLFW, CLFE); Figure 3: Small and Large Arms Noise Contours - MPMG, MPTR, and WLFCR Ranges; Figure 4: Proposed Demolition Training Noise Contours - PK15; Figure 5: Special Use Airspace Allowing Aircraft Near Ground Surface and Aircraft Noise L_{dmnr} Map

Enclosure 1
Figure 1: Areas of Potential Direct Effect
NWSTF BOARDMAN, OR



N

0 0.5 1 2 Miles

0 500 1,000 2,000 3,000 4,000 Meters

1:100,000

1 inch = 1.6 miles

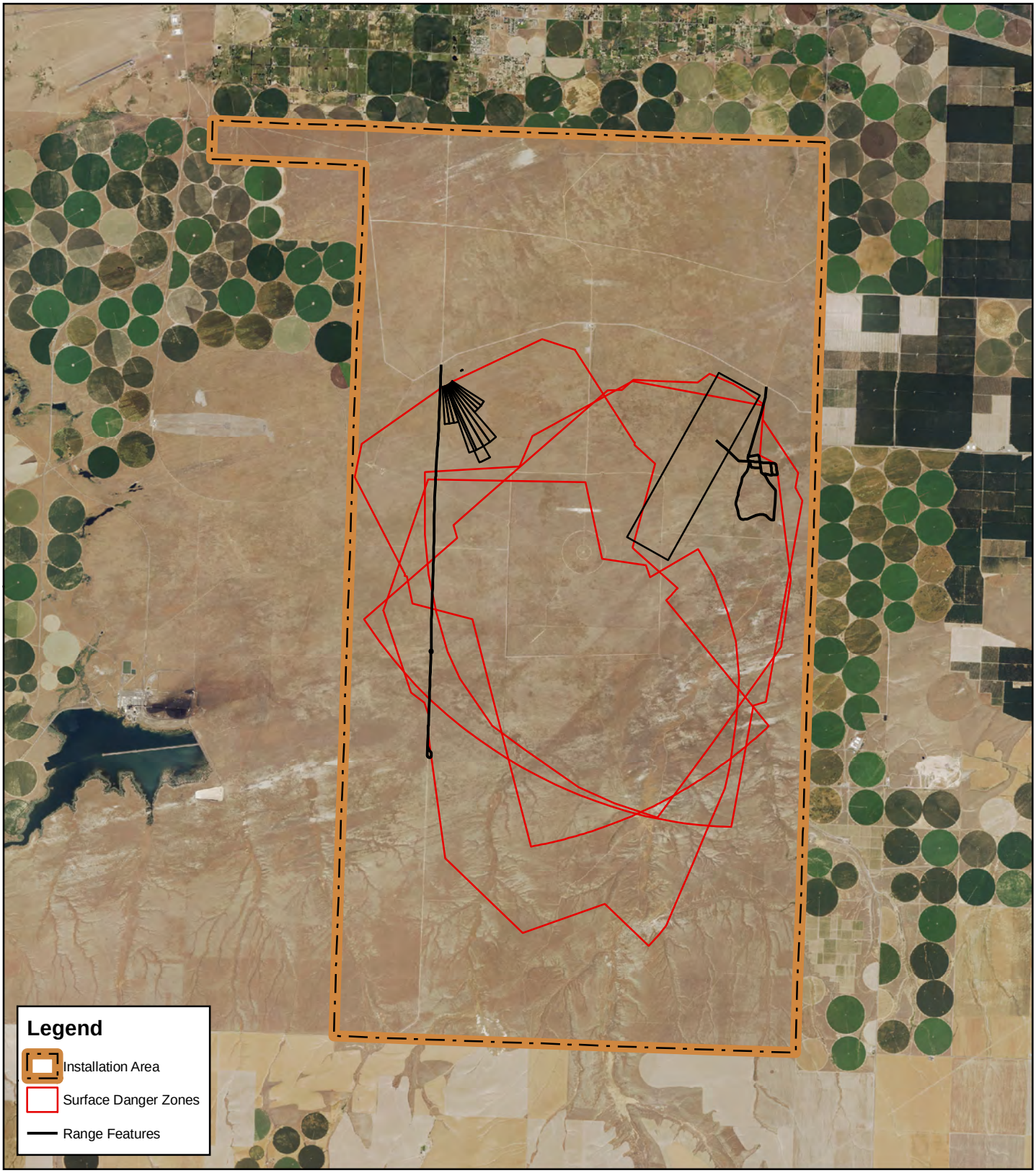
Projected Coordinate System:
WGS 1984 UTM Zone 11N
Military Grid Reference: 11T

Map Author: C. Anderson
JFHQ OMD AGI-E
POC: Kris Mitchell
Date of Map: 30 May 2012

No warranty is made by the Oregon Military Department as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document" in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.

Map Document Name: Boardman_Areas_of_Potential_Direct_Effect.mxd

Enclosure 1
Figure 2: Surface Danger Zones for Proposed Ranges (MPMGR, MPTR, CLFW, CLFE)
NWSTF BOARDMAN, OR



N

0 0.4 0.8 1.6 Miles

0 800 1,600 3,200 4,800 6,400 Meters

1 inch = 1.8 miles

Projected Coordinate System:
WGS 1984 UTM Zone 11N
Military Grid Reference: 11T

Map Author: C. Anderson
JFHQ OMD AGI-E
POC: Kris Mitchell
Date of Map: 30 May 2012

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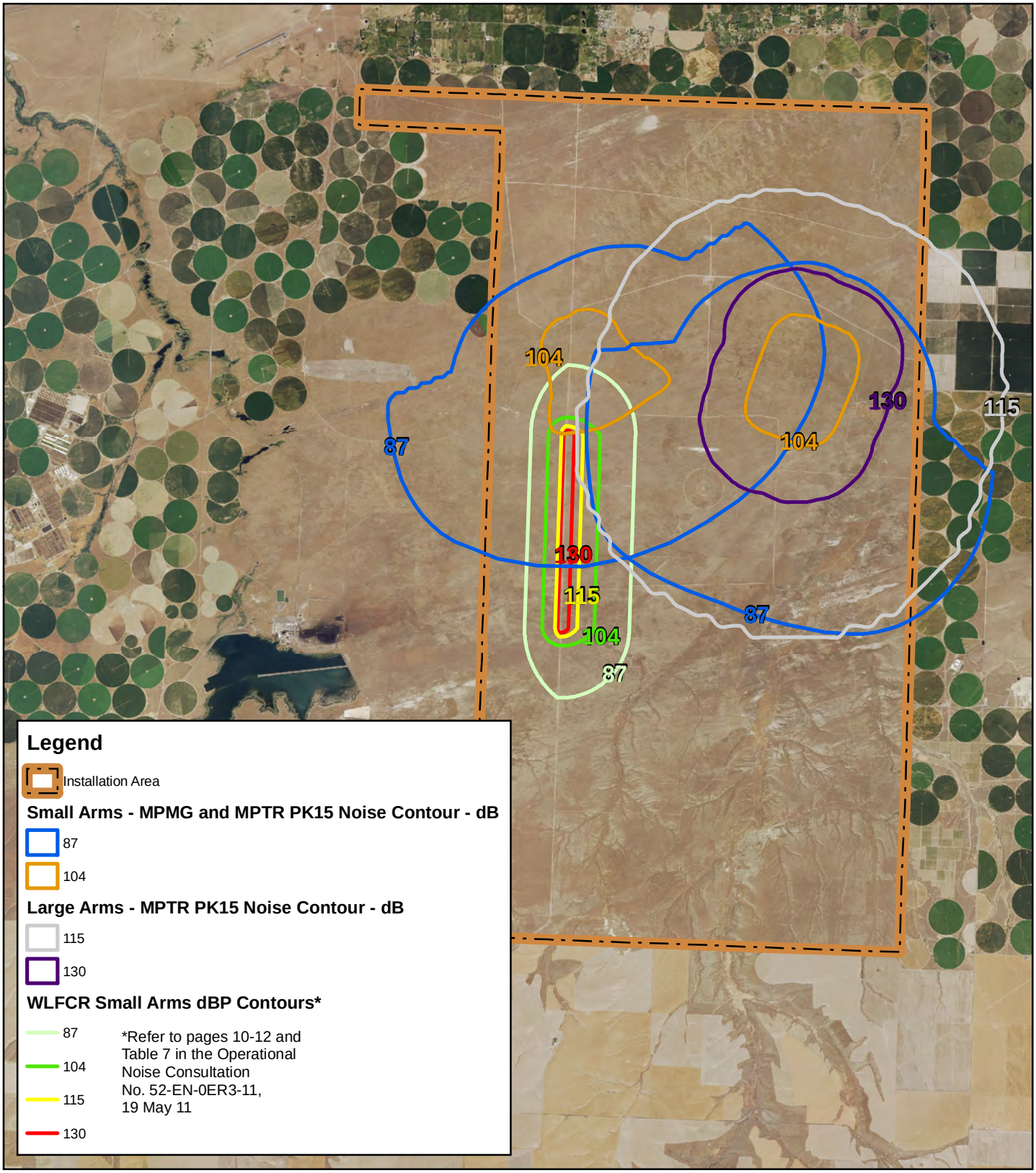
Map Document Name: Boardman_Noise_Proposed_Ordnance_PK15_Final.mxd

Enclosure 1
Figure 3: Small and Large Arms Noise Contours - MPMG, MPTR, and WLFCR Ranges - NWSTF BOARDMAN, OR



N

0 0.5 1 2 Miles

0 1,000 2,000 4,000 6,000 8,000 Meters

1:125,000

1 inch = 2 miles

Projected Coordinate System:
WGS 1984 UTM Zone 11N
Military Grid Reference: 11T

Map Author: C. Anderson
JFHQ OMD AGI-E
POC: Kris Mitchell
Date of Map: 30 May 2012

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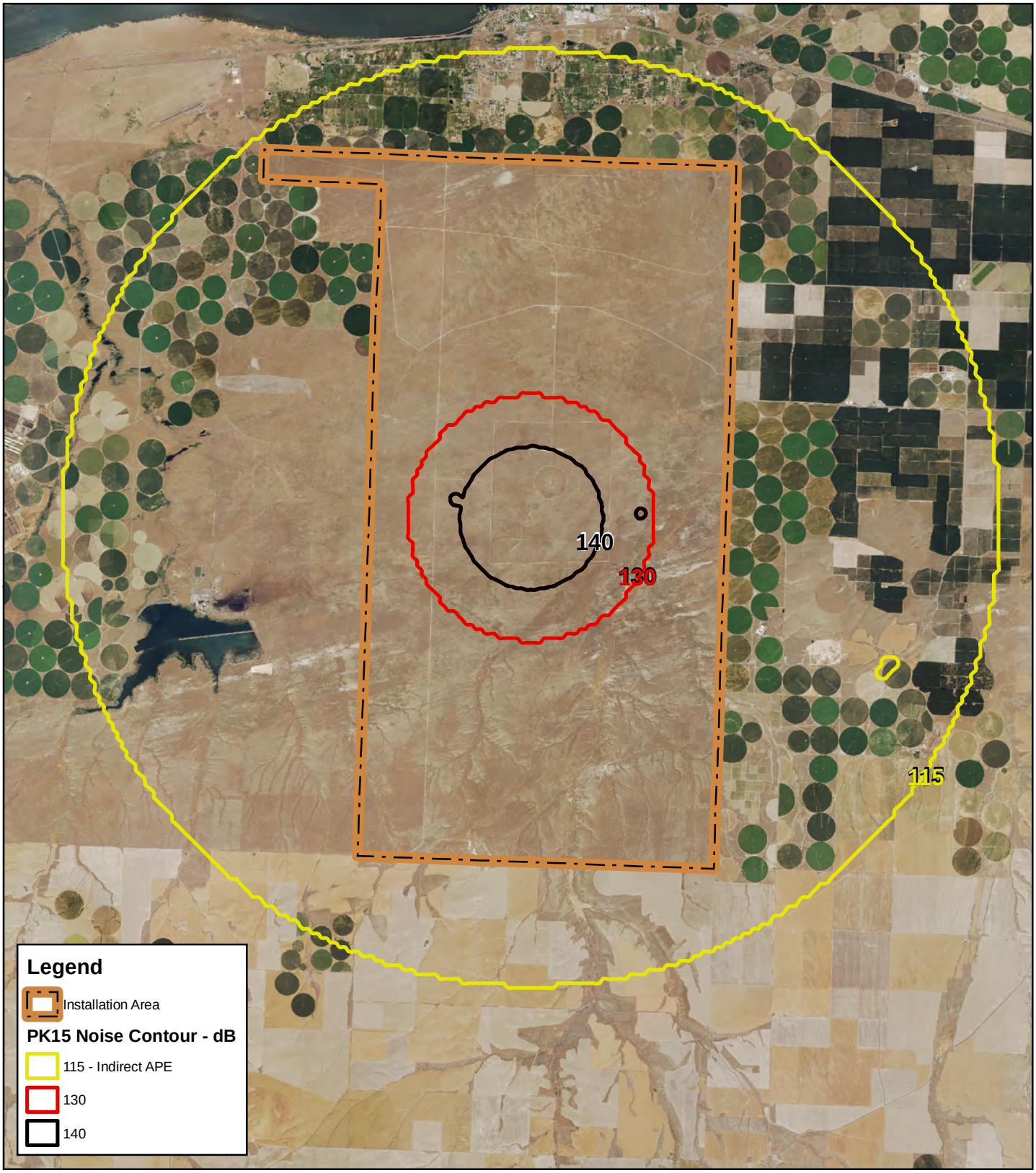
Map Document Name: Boardman_Noise_Small_and_Large_Arms_MPMG_MPTR_WCLFR_Final.mxd

Enclosure 1
Figure 4: Proposed Demolition Training Noise Contours - PK15
NWSTF BOARDMAN, OR



N

0 0.5 1 2 Miles

0 1,000 2,000 4,000 6,000 8,000 Meters

1:150,000

1 inch = 2.4 miles

Projected Coordinate System:
WGS 1984 UTM Zone 11N
Military Grid Reference: 11T

Map Author: C. Anderson
JFHQ OMD AGI-E
POC: Kris Mitchell
Date of Map: 30 May 2012

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Map Document Name: Boardman_Noise_Proposed_Demolition_Training_PK15_Final.mxd

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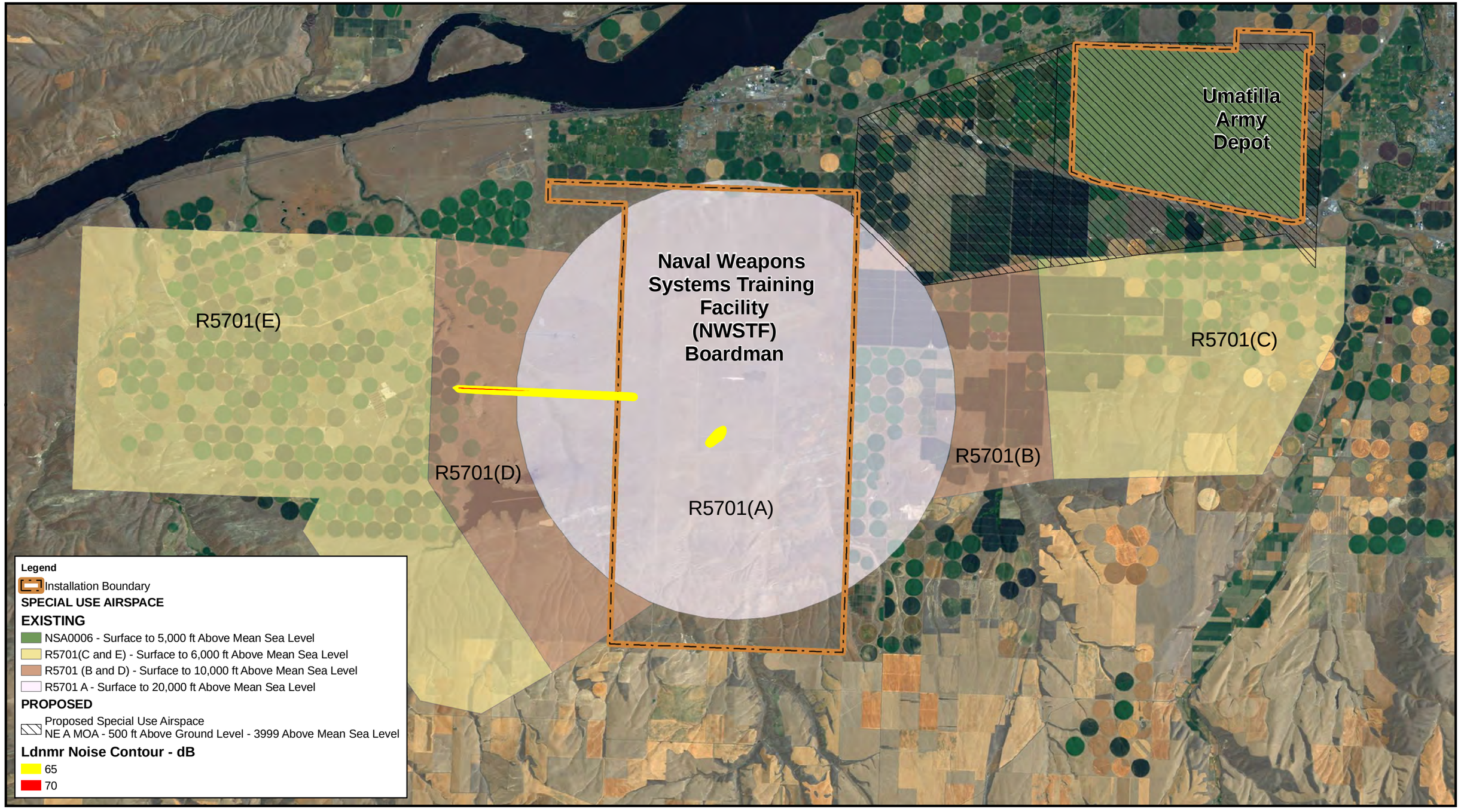
Enclosure 1 - Figure 5: Special Use Airspace Allowing Aircraft Near Ground Surface and Aircraft Noise Ldmnr Map - NWSTF BOARDMAN, OR



N

0 1.5 3 6 Miles

0 1,500 3,000 6,000 9,000 12,000 Meters

1:150,000

1 inch = 2.4 miles

Projected Coordinate System:
WGS 1984 UTM Zone 11N
Military Grid Reference: 11T

Map Author: C. Anderson
JFHQ OMD AGI-E
POC: Kris Mitchell
Date of Map: 30 May 2012

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Map Document Name: Boardman_Special_Use_Airspace_Overview_Final.mxd

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DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0791
June 12, 2012

Dr. Dennis Griffin
State Archaeologist
Oregon Parks and Recreation Department
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97301-1266

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS) PROPOSED AREA OF POTENTIAL EFFECTS (APE) (SHPO CASE NO. 10-2331)

Dear Mr. Griffin:

This letter is to follow-up on the NWSTF Boardman EIS project meeting of February 17, 2012, and as a continuation of the National Historic Preservation Act (NHPA) Section 106 consultation process (Oregon SHPO case number 10-2331). The Navy and Oregon National Guard have prepared the attached graphics to describe our preliminary determination of the proposed action APE, defined to include both direct and indirect effects.

Area of Potential Effects (Direct). Figure 1 of Enclosure 1 depicts those areas that may be directly affected by ground disturbing activities such as construction or training. Not all of the areas depicted would necessarily be affected, but any ground disturbance that occurs would be located within the areas shown. For instance, total disturbance for construction of the Unmanned Aerial Systems (UAS) facility would be approximately 5-6 acres, including building footprint, parking area, landing strip, construction lay-down area, and similar construction. This proposed 5-6 acres of disturbance would occur somewhere within the 96-acre box depicted in the northwest corner of the graphic. Since the exact locations of the undertakings have not been sited, we have proposed this larger area to serve as the APE for Section 106 consultation to ensure that potential historic properties are not overlooked. Therefore, the Navy and National Guard feel that the areas depicted in Figure 1, as the APE for potential direct ground-disturbing effects, would require archaeological surveys.

We have not included the Surface Danger Zones (SDZs); depicted in Figure 2, as part of the direct effect APE. The SDZ for each proposed range area is generated by a computer model for safety reasons, and is not a predictor of ground disturbance. The statistical probability of a bullet/projectile landing in the area outside the range SDZ as a result of ricochet or accident is less than one in one million, and the statistical possibility of a bullet/projectile landing within the SDZ is greater than one in one million. In reality, the vast majority of bullets/projectiles land in immediate proximity of the intended target, typically in the constructed berm in front of or behind the targets, and are concentrated near the target emplacement. Greater than one-in-one-million odds for a bullet/projectile impact is significant when it comes to personnel safety, but does not constitute a significant potential for ground disturbance. This is especially true when comparing the nature of surface disturbance caused by a potential bullet/projectile landing on the ground with surface disturbance already caused by natural forces, such as movement of elk, deer, and pronghorn herds through the area; wind erosion; and periodic hail storms. All of the proposed target locations for each range, including a substantial buffer area, are within the APE depicted for potential direct effects.

Areas of Potential Effect (Indirect). In consultation with the CTUIR, the Navy and Oregon National Guard have determined that noise from proposed training ranges and low-altitude aircraft activities have the potential to affect Traditional Cultural Properties (TCPs), should any be determined to exist within those affected areas. This is based on the assumption that some TCP-related practices would necessitate quiet conditions or at least minimal unnatural noise interruptions. Consequently, we have developed a series of graphics based on noise contour lines to help define what geographic areas might be considered for APE.

For noise analysis, the US Army Institute of Public Health defines 115 db (PK15)[1] to be the threshold of a "moderate" risk of receiving noise complaints, based on the nature of impulse noises related to live-fire and demolition ranges. Small and large arms noise contours are depicted on Figure 3 for the Multi-Purpose Machine Gun Range (MPMGR), Multi-Purpose Training Range (MPTR), and Western Convoy Live Fire Range (CLFR). Noise contour lines are not depicted for the Eastern CLFR, as they are subsumed by

[1] The peak sound level, factoring in the statistical variations caused by weather, which is likely to be exceeded only 15% of the time (i.e. 85% certainty that sound will be within this range).

those of the MPTR. The majority of the central portion of NWSTF Boardman falls within the 115 db noise contour associated with the MPTR large arms (120 mm Abrams Tank main gun).

The largest possible noise contours for the proposed Demolition Training Range (DTR) are associated with detonation of a 220 pound net explosive weight charge, and are depicted on Figure 4, labeled "Proposed DTR Noise Contours - PK15". Though not likely to be a regular training event, the potential for such explosives training activities would yield a noise contour greater than those associated with all other proposed training ranges. The 115 db (PK 15) noise contour encompasses all of the NWSTF Boardman property and includes adjacent agricultural lands and urban portions of the city of Boardman. As the greatest extent of potential noise associated with proposed range development, the Navy and Oregon National Guard have preliminarily determined that this noise contour should form the boundary of the APE for indirect effects to TCPs, should any exist in this area.

For noise analysis, the Navy defines the threshold of medium risk of noise complaint for low altitude jet aircraft to be at 65 or 70 db (L_{dmnr})[2]. This unit of measure is designed to take into account the sudden onset of low level aircraft within Special Use Airspace during the busiest month of the training year, as opposed to the more routine day-to-day operations of established airfields. Projections of this level of noise; depicted in Figure 5, show it to be relatively localized to an east/west linear area just west of the NWSTF Boardman property, over property owned by Threemile Canyon Farms. Though this is the area projected for noise disturbance by computer modeling, Day-Night Average Sound Levels may not adequately address potential adverse effects to TCP areas. It is important to note that jet aircraft are authorized by the FAA to fly at low altitudes anywhere within the surface-up restricted airspace (labeled R-5701(A-E)) and would be allowed by the FAA to fly as low as 500 feet Above Ground Level (AGL) within the proposed airspace shown as the Northeast Military Operating Area (NE MOA). Since any low-level jet aircraft training within the NWSTF Boardman surface-up Special Use Airspace could adversely affect potential TCP sites, the Navy and Oregon National Guard propose that the boundaries of the R-5701 restricted airspace and the proposed NE MOA be the APE for indirect effects to potential TCP sites related to low-altitude aircraft training noise.

---

[2] Onset-Rate Adjusted Monthly Day-Night Average Sound Level.

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS) PROPOSED AREA OF POTENTIAL EFFECTS (APE) (SHPO CASE NO. 10-2331)

Assuming that TCP sites are more likely to be located in less disturbed and less developed areas, and not as likely to be located in agricultural or urban developed areas, the 47,432-acre NWSTF Boardman property appears to represent the largest portion of high probability area for TCP sites within the proposed APE for both direct and indirect effects. As such, the Navy and Oregon National Guard propose to conduct a TCP study with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) for the entire NWSTF Boardman property as representative of the highest probability areas for TCPs within the APE for direct and indirect effects.

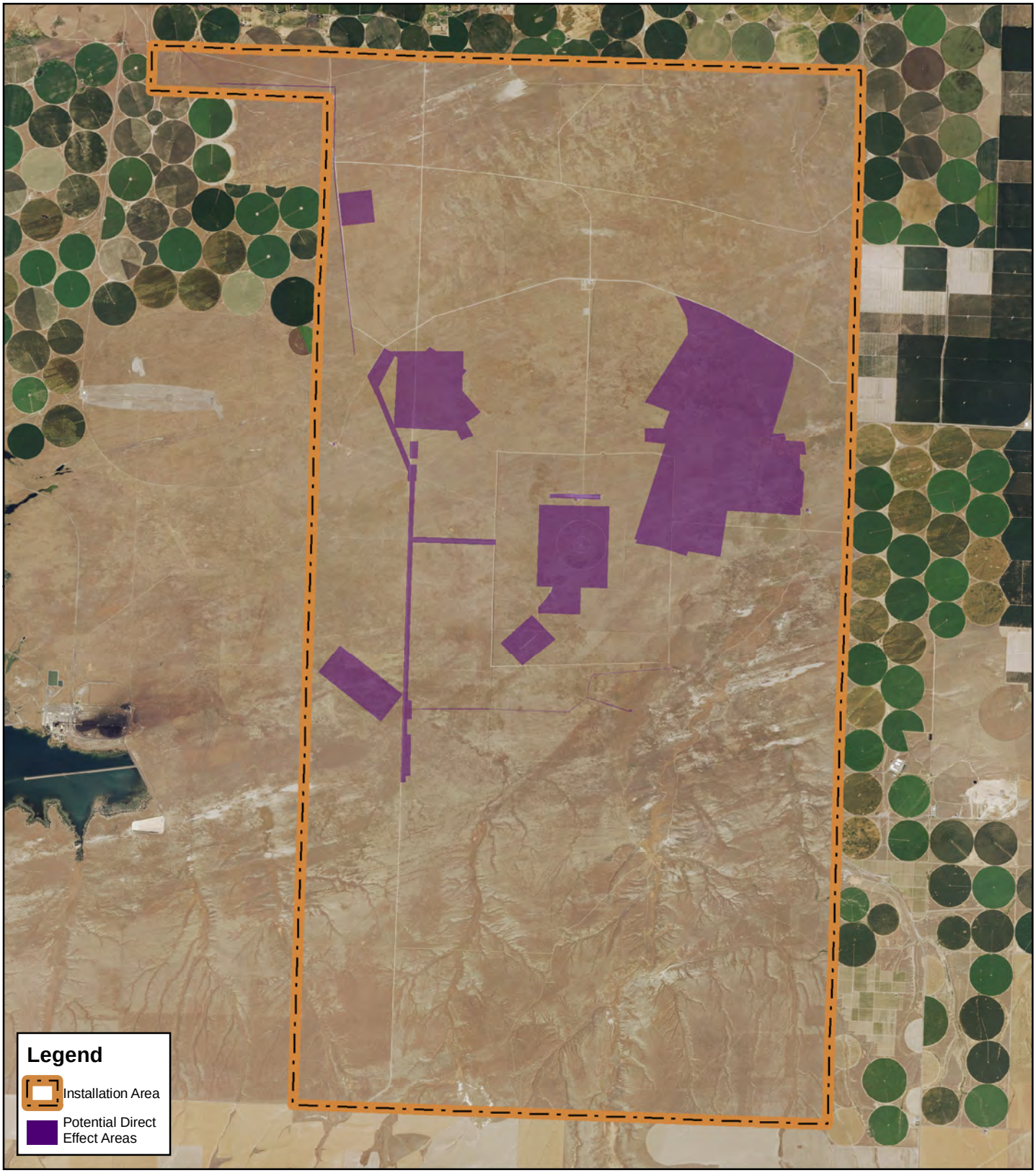
As discussed in our last meeting, the Navy and Oregon National Guard seek your concurrence on our preliminary determination of the APE for this proposed action, and on our approach to conduct a TCP survey of the NWSTF Boardman property. If you have any questions, please contact my program manager for the NWSTF Boardman EIS, Mr. John Mosher at 360-257-3234 or john.g.mosher@navy.mil.

Respectfully,

L. M. FOSTER
By direction

Enclosure 1: Figure 1: Areas of Direct Potential Effect; Figure 2: Surface Danger Zones for Proposed Ranges (MPMGR, MPTR, CLFW, CLFE); Figure 3: Small and Large Arms Noise Contours - MPMG, MPTR, and WLFCR Ranges; Figure 4: Proposed Demolition Training Noise Contours - PK15; Figure 5: Special Use Airspace Allowing Aircraft Near Ground Surface and Aircraft Noise L_{dmnr} Map

Enclosure 1
Figure 1: Areas of Potential Direct Effect
NWSTF BOARDMAN, OR



N

0 0.5 1 2 Miles

0 500 1,000 2,000 3,000 4,000 Meters

1:100,000

1 inch = 1.6 miles

Projected Coordinate System:
WGS 1984 UTM Zone 11N
Military Grid Reference: 11T

Map Author: C. Anderson
JFHQ OMD AGI-E
POC: Kris Mitchell
Date of Map: 30 May 2012

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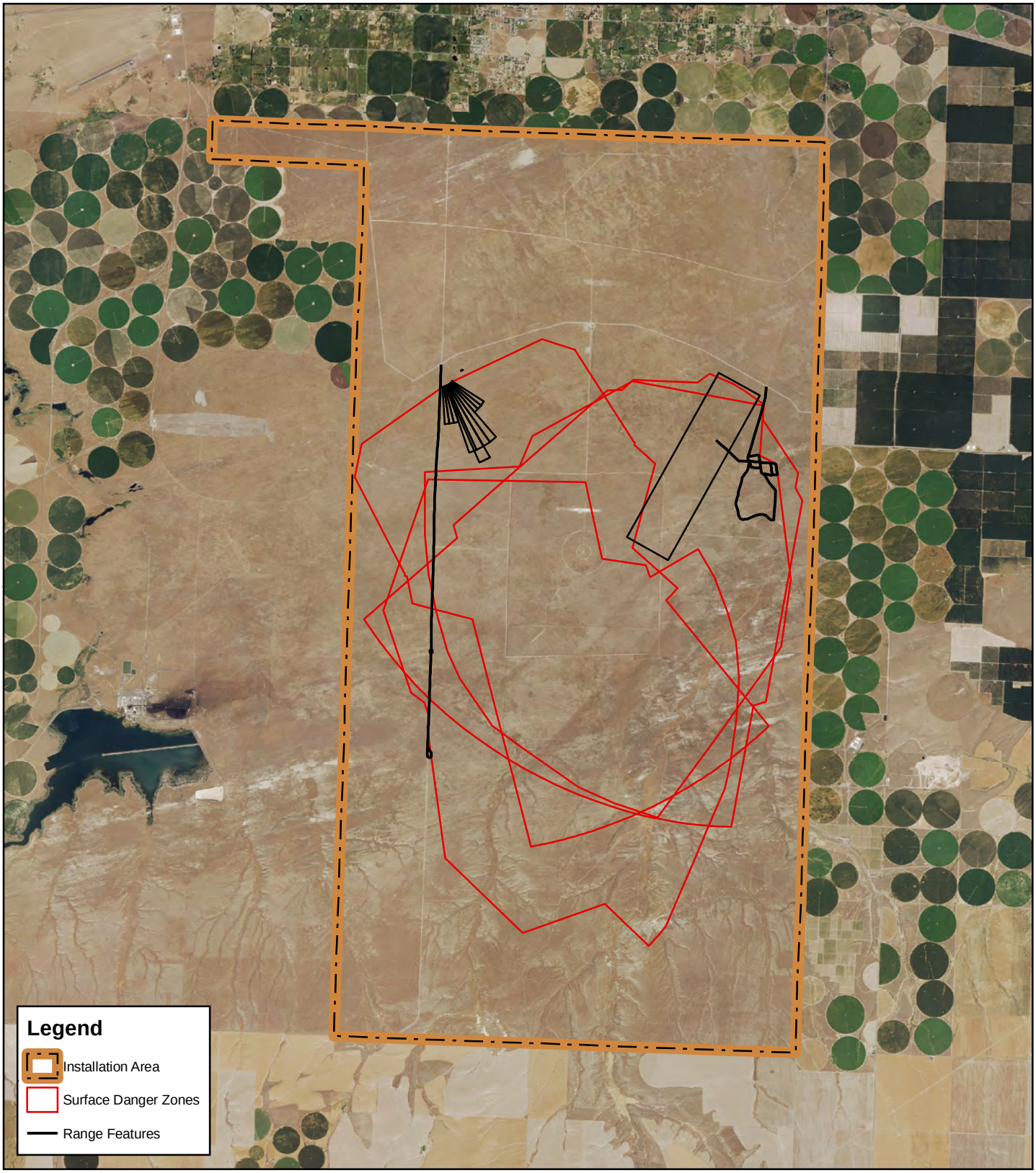
Map Document Name: Boardman_Areas_of_Potential_Direct_Effect.mxd

Enclosure 1
Figure 2: Surface Danger Zones for Proposed Ranges (MPMGR, MPTR, CLFW, CLFE)
NWSTF BOARDMAN, OR



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0 800 1,600 3,200 4,800 6,400 Meters

1 inch = 1.8 miles

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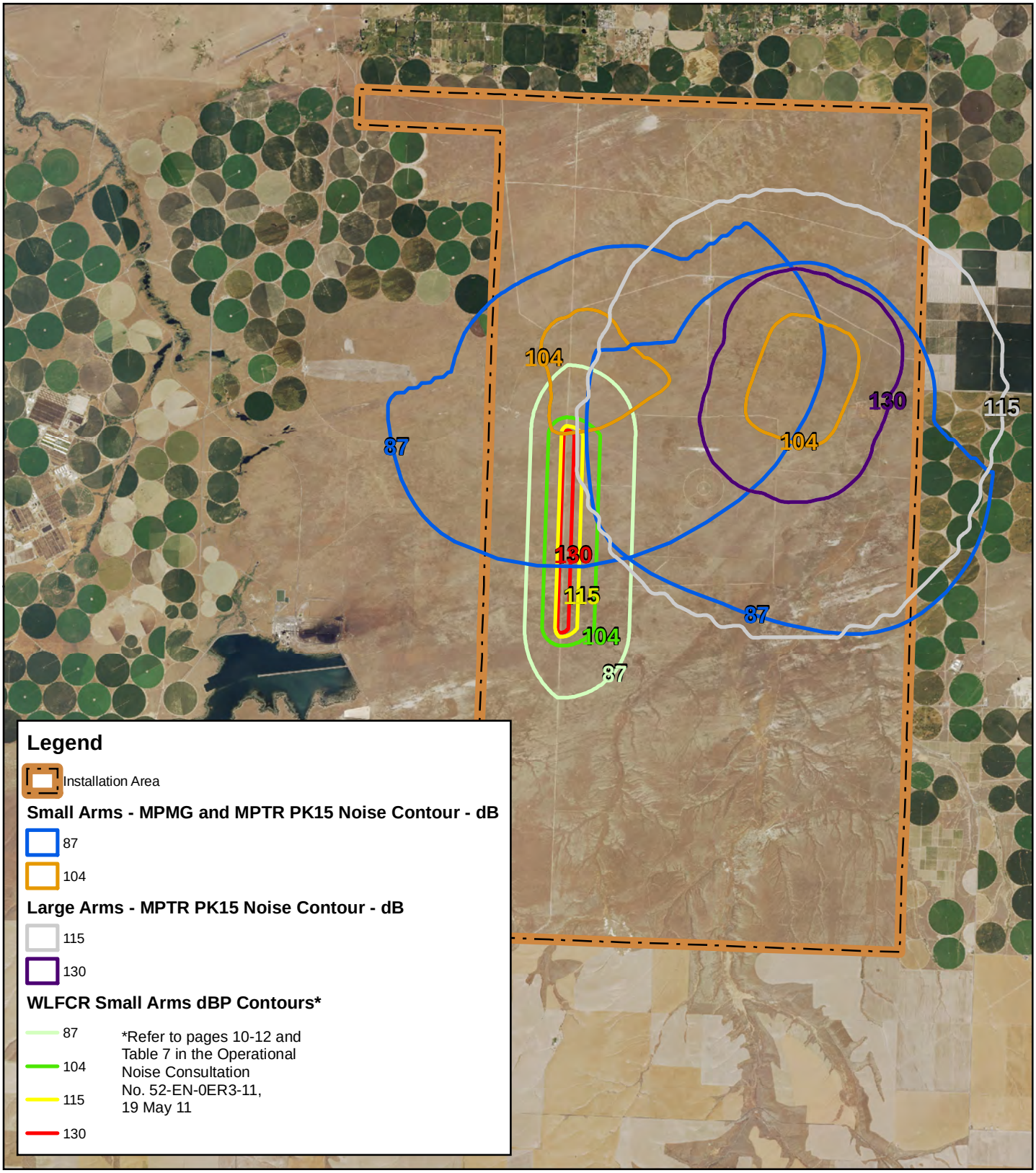
Map Document Name: Boardman_Noise_Proposed_Ordnance_PK15_Final.mxd

Enclosure 1
Figure 3: Small and Large Arms Noise Contours - MPMG, MPTR, and WLFCR Ranges - NWSTF BOARDMAN, OR



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1:125,000

1 inch = 2 miles

Projected Coordinate System:
WGS 1984 UTM Zone 11N
Military Grid Reference: 11T

Map Author: C. Anderson
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POC: Kris Mitchell
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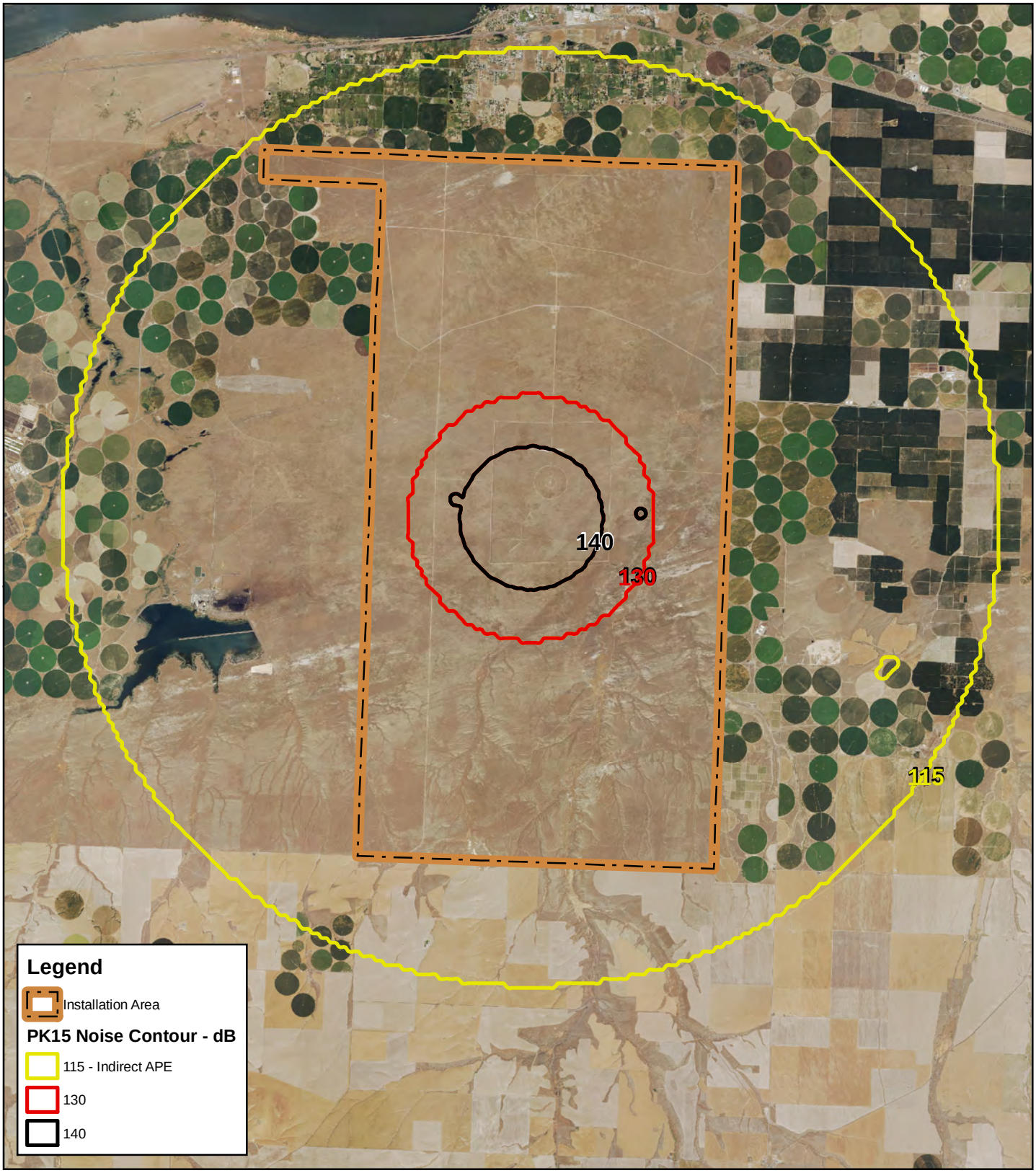
Enclosure 1
Figure 4: Proposed Demolition Training Noise Contours - PK15
NWSTF BOARDMAN, OR



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0 1,000 2,000 4,000 6,000 8,000 Meters

1:150,000

1 inch = 2.4 miles

Projected Coordinate System:
WGS 1984 UTM Zone 11N
Military Grid Reference: 11T

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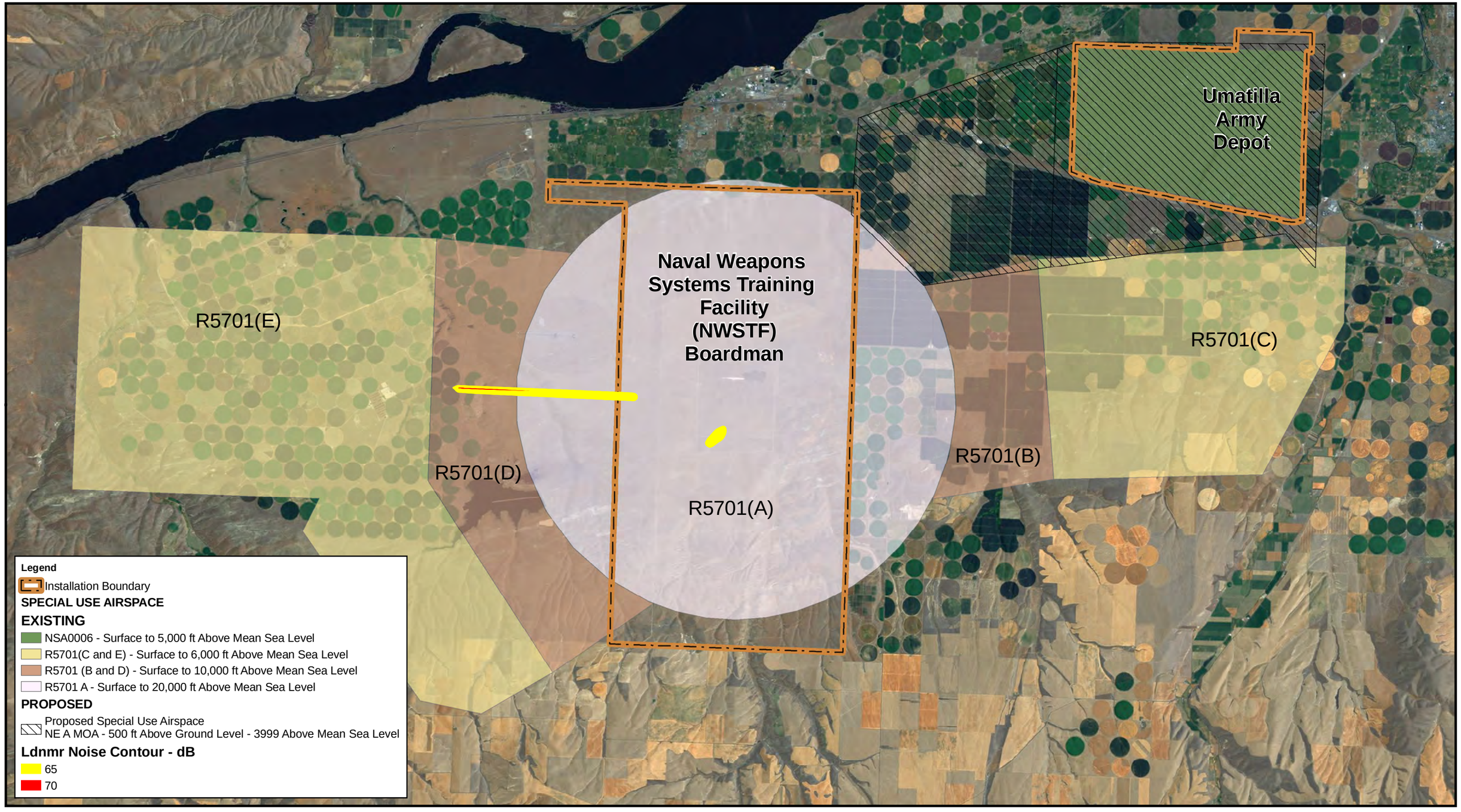
Enclosure 1 - Figure 5: Special Use Airspace Allowing Aircraft Near Ground Surface and Aircraft Noise Ldmnr Map - NWSTF BOARDMAN, OR



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0 1,500 3,000 6,000 9,000 12,000 Meters

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1 inch = 2.4 miles

Projected Coordinate System:
WGS 1984 UTM Zone 11N
Military Grid Reference: 11T

Map Author: C. Anderson
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Map Document Name: Boardman_Special_Use_Airspace_Overview_Final.mxd

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Oregon
John A. Kitzhaber, MD, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Ste C
Salem, OR 97301-1266
(503) 986-0671
Fax (503) 986-0793
www.oregonheritage.org

June 20, 2012

Mrs. Amy Burt
NWSTF Boardman EIS Project Manager
Department of the Navy
Silverdale, WA 98315-1101

RE: SHPO Case No. 10-2331
NWSTF Boardman Proj
CRS/site forms/EIS for military readiness training/testing
Dept. of the Navy/ORNG
Multiple legals, Boardman, Morrow County

Dear Mrs. Burt:

I have looked over the letter and maps you have submitted to our office. Since the actual lands to be affected by the proposed project are not known, but will fall within the larger APE as you have depicted in Figure 1, our office approves the APE as you have defined it. We look forward to receiving more detailed information when the location of ground disturbing activities can be more positively identified. We agree with your assessment that a cultural survey will be needed for these lands.

Oregon SHPO also concurs with your decision to conduct a TCP survey of the proposed project area. Let me know how our office can be of further assistance to you with your project. If you have any questions or comments regarding this letter, please do not hesitate to contact me at your convenience. In order to help us track your project accurately, please be sure to reference the SHPO case number above in all correspondence.

Sincerely,

Dennis Griffin

Dennis Griffin, Ph.D., RPA
State Archaeologist
(503) 986-0674
dennis.griffin@state.or.us

Oregon
John A. Kitzhaber, MD, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Ste C
Salem, OR 97301-1266
(503) 986-0671
Fax (503) 986-0793
www.oregonheritage.org

September 18, 2012

Mrs. Amy Burt
NWSTF Boardman EIS Project Manager
Department of the Navy
Silverdale, WA 98315-1101

RE: SHPO Case No. 10-2331
NWSTF Boardman Proj
CRS/site forms/EIS for military readiness training/testing
Dept. of the Navy/ORNG
Multiple legals, Boardman, Morrow County

Dear Mrs. Burt:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the NWSTF Boardman Military Readiness Activities Project. We have reviewed the DEIS, and have the following comments:

1. The Area of Potential Effects appears to have been insufficiently surveyed for the purposes of identification of historic properties and the analysis of impacts that may result from the implementation of the proposed project. The DEIS appears to have considered properties listed in or eligible for listing in the NRHP before the current undertaking, as well as an inventory of the Naval Weapons Systems Training Facility Boardman (Hardlines Design Company 2010). That inventory, however, appears to have been limited to the boundaries of the facility itself, and did not include the APE for visual, noise, and vibration effects. Section 3.10.2.2 (Architectural Resources) of the DEIS notes that "most of the area within the APE for noise, vibration, and visual intrusions is agricultural land and small farms with limited architectural resources (farmhouses and outbuildings). This area should be inventoried, and all architectural resources within them should be evaluated for NRHP-eligibility and effects that may arise form the project.

2. On page 3.10-2, the DEIS states that "a historic property must also possess integrity of location, design, setting, materials, workmanship, feeling, and association to convey its significance and qualify it for the National Register of Historic Places." While these aspects of integrity are those defined by the National Park Service, an eligible resource need not exhibit integrity across all of these aspects. National Register Bulletin #15 "How to Apply the National Register Criteria for Evaluation," indicates that "to retain historical integrity, a property will always possess several, and usually most of the aspects."

These comments reflect our review for historic built resources only. Archaeological review is occurring separately. If you have any questions, or need additional clarification on either of the above points, please do not hesitate to contact me.

Sincerely,

Jason Allen, M.A., Historic Preservation Specialist
(503) 986-0579; jason.allen@state.or.us

Oregon
John A. Kitzhaber, MD, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Ste C
Salem, OR 97301-1266
(503) 986-0671
Fax (503) 986-0793
www.oregonheritage.org

September 25, 2012

Mrs. Amy Burt
NWSTF Boardman EIS Project Manager
Department of the Navy
Silverdale, WA 98315-1101

RE: SHPO Case No. 10-2331
NWSTF Boardman Proj
CRS/site forms/EIS for military readiness training/testing
Dept. of the Navy/ORNG
Multiple legals, Boardman, Morrow County

Dear Mrs. Burt:

I have reviewed the draft EIS for the above project and have a number of comments that I would like to make regarding potential impacts to cultural resources through the proposed alternatives. My comments include:

1). In the EIS you state that the Navy is waiting for concurrence from SHPO regarding the latest Applied Archaeological Research (AAR) report and concurrence on eligibility for the three sites discovered during that survey (i.e. 35MW215, 35MW216, 35MW217), in addition to the number of isolates. Our office reviewed the AAR report and sent a letter to your office on February 24, 2012 regarding the report and site forms (copy attached). The report has been added to our database (SHPO# 24933) and our office has been waiting for a letter from you as to your determinations of eligibility for the sites identified in the report. We are aware of the recommendations made by AAR but not the Navy's determinations of eligibility. Once we receive a letter asking for concurrence on such determinations we will get back to you in regards to site eligibility.

2. Alternatives 1 & 2 note that the draft Integrated Wildland Fire Management Plan calls for the creation of new firebreaks (10 acres). Our office looks forward to receiving a copy of the proposed APE for this component of the project and a copy of a cultural resource survey once one can be completed.

4. We have noted that the TCP study of the project area is being conducted by the Confederated Tribes of the Umatilla Reservation. We look forward to receiving a copy upon its completion.

Sincerely,

Dennis Griffin

Dennis Griffin, Ph.D., RPA
State Archaeologist
(503) 986-0674
dennis.griffin@state.or.us

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/1532
November 26, 2012

Mr. Johnson Meninick
Program Manager, Cultural Resources Program
Yakama Nation
P.O. Box 151
Toppenish, Washington 98948

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Dear Mr. Meninick:

This is to follow-up our letter of April 25, 2011 regarding Section 106 consultation for the NWSTF Boardman EIS. Please see the enclosed report, ***Cultural Resources Survey of Lands at the Naval Weapons Systems Training Facility, Boardman, Morrow County, Oregon*** (SHPO Number 24933).

The Navy supports the assessment of Applied Archaeological Research (AAR) and has made the preliminary determination that the three historic-era archaeological sites and the four historic-era isolates identified during pedestrian and subsurface survey work are not eligible for inclusion on the National Register of Historic Places (NRHP), as they do not appear to offer additional research potential under Criterion D.

These findings are consistent with previous archaeological survey work related to this project and completed in 2005 (SHPO Case Number 05-0193 and Report Number 19557). In the 2005 work, another three historical-era sites and eight historical-era isolates were located and determined not eligible for inclusion on the NRHP, in consultation with the State Historic Preservation Office (SHPO).

This report completes 100 percent survey of the direct Area of Potential Effects that could experience ground disturbance should the proposed actions of the Navy and Oregon National Guard proceed after completion of the on-going EIS.

The Navy requests your review and input regarding this report and our preliminary determinations of eligibility. We have also

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS)

sent copies of this report to the Oregon SHPO and the Confederated Tribes of the Umatilla Indian Reservation under separate cover letters to seek their input. Should you have questions or wish to discuss this in greater detail, please contact Mr. John Mosher, EIS Program Manager at 360-257-3234 or john.g.mosher@navy.mil.

Respectfully,

L. M. FOSTER
By direction

Enclosure 1: Final Report Cultural Resources Survey of Lands at the Naval Weapons Systems Training Facility, Boardman

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/1531
November 26, 2012

Ms. Catherine Dickson
Confederated Tribes of the Umatilla Indian Reservation
Cultural Resources Protection Program
46411 Timíne Way
Pendleton, Oregon 97801

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Dear Ms. Dickson:

This letter continues our Section 106 consultation for the NWSTF Boardman EIS and is a follow-up to our meeting of July 31, 2012, regarding the draft report ***Cultural Resources Survey of Lands at the Naval Weapons Systems Training Facility, Boardman, Morrow County, Oregon*** (SHPO Number 24933).

The Navy supports the assessment of Applied Archaeological Research (AAR) and has made the preliminary determination that the three historic-era archaeological sites and the four historic-era isolates identified during pedestrian and subsurface survey work are not eligible for inclusion on the National Register of Historic Places (NRHP), as they do not appear to offer additional research potential under Criterion D.

These findings are consistent with previous archaeological survey work related to this project and completed in 2005 (SHPO Case Number 05-0193 and Report Number 19557). In the 2005 work, another three historical-era sites and eight historical-era isolates were located and determined not eligible for inclusion on the NRHP, in consultation with the State Historic Preservation Office (SHPO) and review input from your office.

The enclosed final report completes 100 percent survey of the direct Area of Potential Effects that could experience ground disturbance should the proposed actions of the Navy and Oregon National Guard proceed after completion of the on-going EIS.

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (EIS)

The Navy requests your review and input regarding this report and our preliminary determinations of eligibility.

We have also sent copies of this report to the Oregon SHPO and the Yakama Nation under separate cover letters to seek their input. Should you have questions or wish to discuss this in greater detail, please contact Mr. John Mosher, EIS Program Manager at 360-257-3234 or john.g.mosher@navy.mil.

Respectfully,

L. M. FOSTER
By direction

Enclosure 1: Final Report Cultural Resources Survey of Lands at the Naval Weapons Systems Training Facility, Boardman

Copy to (without enclosure): Sally Bird, The Confederated Tribes of the Warm Springs

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/1530
November 26, 2012

Dr. Dennis Griffin
Oregon Parks and Recreation Department
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97301-1266

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (SHPO CASE NO. 10-2331)

Dear Dr. Griffin:

This is in response to your letter dated September 25, 2012, regarding the draft Environmental Impact Statement (EIS) for NWSTF Boardman. Enclosure 1 is the final report ***Cultural Resources Survey of Lands at the Naval Weapons Systems Training Facility, Boardman, Morrow County, Oregon***, dated October 12, 2011 (SHPO Number 24933).

The Navy supports the assessment of Applied Archaeological Research in the report and has made the preliminary determination that the three historic-era archaeological sites and the four historic-era isolates identified during pedestrian and subsurface survey work are not eligible for inclusion on the National Register of Historic Places (NRHP), as they do not appear to offer additional research potential under Criterion D.

These findings are consistent with previous archaeological survey work related to this project and completed in 2005 (SHPO Case Number 05-0193 and Report Number 19557). In the 2005 work, another three historical-era sites and eight historical-era isolates were located and determined not eligible for inclusion on the NRHP, in consultation with your office.

This final report completes 100 percent survey of the areas that could experience ground disturbance should the proposed actions of the Navy and Oregon National Guard proceed after completion of the on-going EIS for NWSTF Boardman.

The Navy requests your review of the final report and concurrence with our preliminary determinations of eligibility.

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN ENVIRONMENTAL IMPACT STATEMENT (SHPO CASE NO. 10-2331)

We have also sent copies of this report to the Confederated Tribes of the Umatilla Indian Reservation and the Yakama Nation under separate cover letters to seek their input.

Additionally, in your letter of September 25, you noted that the NWSTF Boardman draft Integrated Wildland Fire Management Plan proposes the creation of new firebreaks on the range. Finalization of the Fire Management Plan is envisioned to follow completion of the EIS process. At that time, if it is determined that the additional fire breaks are a practical and effective fire management measure, then the Navy will define a proposed Area of Potential Effects (APE) and appropriate cultural resource survey work in coordination with your office.

Should you have questions or wish to discuss this matter in greater detail, please contact Mr. John Mosher, EIS Program Manager at 360-257-3234 or john.g.mosher@navy.mil.

Respectfully,

Larry M. Foster

L. M. FOSTER
By direction

Enclosure 1: Final Report Cultural Resources Survey of Lands at the Naval Weapons Systems Training Facility, Boardman

Oregon
John A. Kitzhaber, MD, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Ste C
Salem, OR 97301-1266
(503) 986-0671
Fax (503) 986-0793
www.oregonheritage.org

December 18, 2012

Mr. Larry M. Foster
Department of the Navy, US Pacific Fleet
250 Makalapa Drive
Pearl Harbor, Hawaii 96860

RE: SHPO Case No. 10-2331
NWSTF Boardman Proj
CRS/site forms/EIS for military readiness training/testing
Dept. of the Navy/ORNG
Multiple legals, Boardman, Morrow County

Dear Mr. Foster:

Our office recently received your letter and report about the project referenced above. I have reviewed your report (SHPO# 24933) and agree that the project will have no effect on any known cultural resources. Our office concurs with your determination that sites 35MW215-217 are not eligible to the National Register. No further archaeological research is needed with this project.

Please be aware, however, that if during development activities you or your staff encounters any cultural material (i.e., historic or prehistoric), all activities should cease immediately and an archaeologist should be contacted to evaluate the discovery. Under state law (ORS 358.905-955) it is a Class B misdemeanor to impact an archaeological site on public or private land in Oregon. Impacts to Native American graves and cultural items are considered a Class C felony (ORS 97.740-760). If you have any questions regarding any future discovery or my letter, feel free to contact our office at your convenience.

Sincerely,

Dennis Griffin

Dennis Griffin, Ph.D., RPA
State Archaeologist
(503) 986-0674
dennis.griffin@state.or.us

DEPARTMENT OF THE NAVY
COMMANDER
UNITED STATES PACIFIC FLEET
250 MAKALAPA DRIVE
PEARL HARBOR, HAWAII 96860-3131

IN REPLY REFER TO:
5090
Ser N01CE1/0855
12 July 2013

Mr. Jason Allen
Oregon Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Suite C
Salem, OR 97301-1266

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN (SHPO CASE NO. 10-2331)

Dear Mr. Allen:

This is a follow-up to your letter of September 18, 2012 and our meeting of March 14, 2013. We appreciate your review of the Draft Environmental Impact Statement (EIS) to support Military Readiness Activities at Naval Weapons Systems Training Facility (NWSTF) Boardman.

Your first comment was related to the adequacy of our survey and research for potentially historic properties within the Area of Potential Effect (APE) for noise, vibration, and visual intrusion. Of particular concern were the potential effects of low-level flights on historic structures. As we discussed during our meeting, aircraft operating procedures and regulations are in place that would prevent aircraft from flying close enough to any structures to cause adverse effects.

Federal Aviation Administration (FAA) regulations at 14 CFR 91.119, titled "Minimum safe Altitudes: General", allow aircraft flying over "other than congested areas" to be no lower than 500 feet over the highest structure. Of the roughly 3,700 annual flights in the NWSTF Boardman Special Use Airspace, approximately 30% are considered low level (below 3,000 feet above ground level); a portion of these occur as low as 500 feet above ground level (AGL). To meet the FAA safety regulations noted above, Navy pilots conducting low level flights must avoid structures by at least 500 feet vertically, and additionally avoid structures by approximately one mile horizontally due to the high rate of speed of the aircraft and reaction times. Enclosure 1 depicts the Navy's current airspace structure around NWSTF Boardman, including the highlighted area where these low level flights may occur.

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY (NWSTF) BOARDMAN (SHPO CASE NO. 10-2331)

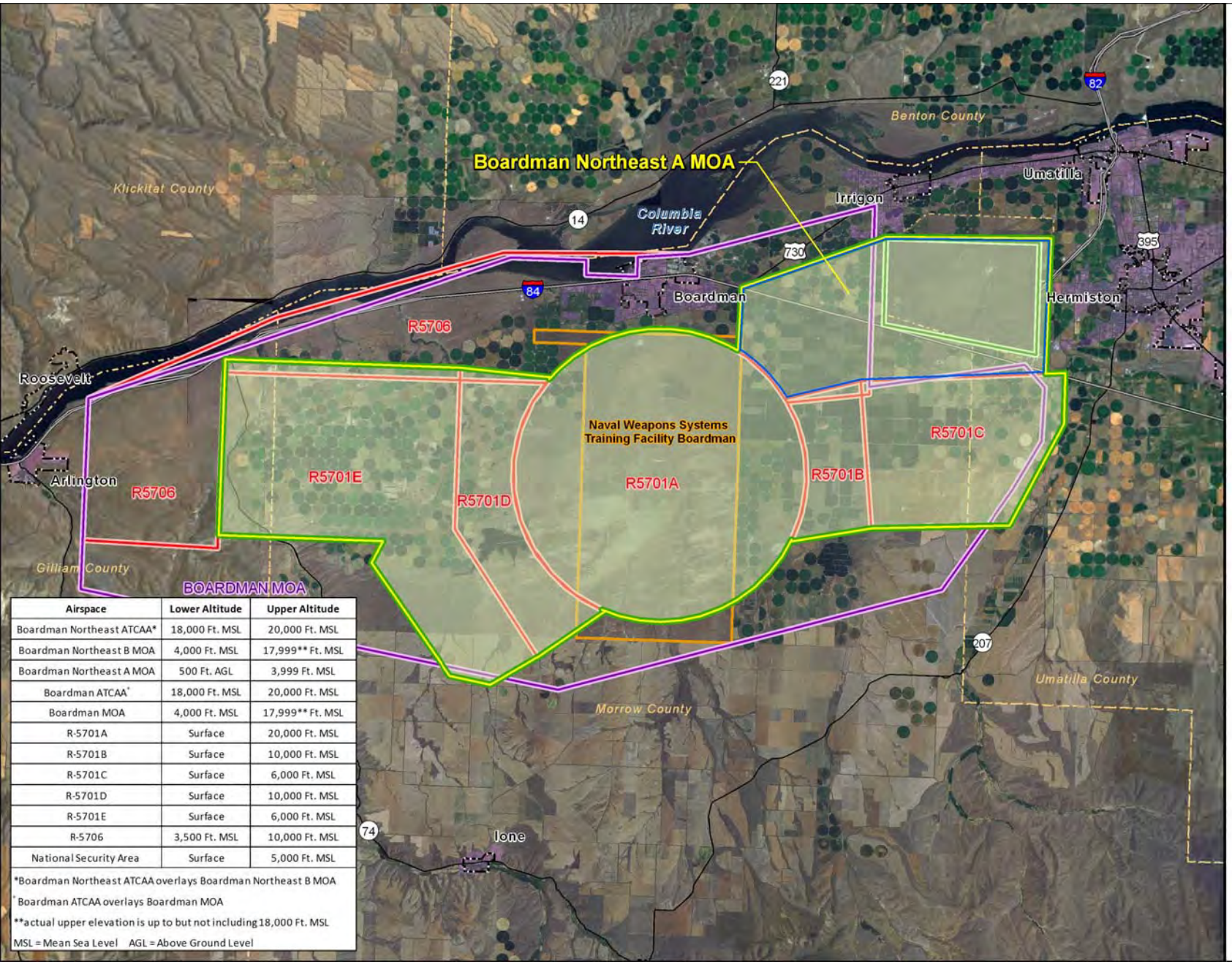
Your second comment addressed the seven aspects of integrity related to National Register Eligibility determinations. The Navy acknowledges that all seven aspects are not necessarily required for eligibility and will incorporate additional language in the Final EIS in Section 3.10, Cultural Resources, to make this clearer.

Should you have questions or wish to discuss this in greater detail, please contact Mrs. Amy Burt at (360) 396-0924 or amy.burt@navy.mil.

L. M. FOSTER
By direction

Enclosure: 1. NWSTF Boardman Area of Potential Indirect Effects

Copy to:
Chrissy Curran, Associate Deputy SHPO
COMNAVREGNW BANGOR, WA (N40/N45)



Airspace	Lower Altitude	Upper Altitude
Boardman Northeast ATCAA*	18,000 Ft. MSL	20,000 Ft. MSL
Boardman Northeast B MOA	4,000 Ft. MSL	17,999** Ft. MSL
Boardman Northeast A MOA	500 Ft. AGL	3,999 Ft. MSL
Boardman ATCAA'	18,000 Ft. MSL	20,000 Ft. MSL
Boardman MOA	4,000 Ft. MSL	17,999** Ft. MSL
R-5701A	Surface	20,000 Ft. MSL
R-5701B	Surface	10,000 Ft. MSL
R-5701C	Surface	6,000 Ft. MSL
R-5701D	Surface	10,000 Ft. MSL
R-5701E	Surface	6,000 Ft. MSL
R-5706	3,500 Ft. MSL	10,000 Ft. MSL
National Security Area	Surface	5,000 Ft. MSL

*Boardman Northeast ATCAA overlays Boardman Northeast B MOA

'Boardman ATCAA overlays Boardman MOA

**actual upper elevation is up to but not including 18,000 Ft. MSL

MSL = Mean Sea Level AGL = Above Ground Level

Legend

- City Limits
- County Boundary
- Residential
- NWSTF Boardman Boundary
- Area of Potential Effect

Special Use Airspace

- Military Operations Area (MOA)
- Restricted Area Airspace
- National Security Area (not part of NWSTF Boardman airspace)

Proposed Special Use Airspace

- Boardman Northeast A MOA

Transportation

- Interstate
- Highway
- Minor Arterial
- Railroad

N

0 2 4 6 Miles

0 2 4 6 Kilometers

Projection: UTM Zone 11N
Datum: WGS 1984

Sources: ESRI, USGS, NGA, Navy

Map Document: BM00117af

DEPARTMENT OF THE NAVY
NAVAL AIR STATION WHIDBEY ISLAND
OAK HARBOR, WASHINGTON 98278-5000

5090
Ser N44/ 0580
May 1, 2014

Mr. Reid Nelson
Director, Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Ave., N.W., Ste 803
Washington, D.C. 20004

Dear Mr. Nelson:

SUBJECT: NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN ENVIRONMENTAL IMPACT STATEMENT

Per 36 Code of Federal Regulation (CFR) 800.6(a)(1), Naval Air Station Whidbey Island is notifying the Advisory Council on Historic Preservation (ACHP) of the adverse effect finding regarding military readiness activities proposed in the Naval Weapons Systems Training Facility (NWSTF) Boardman Environmental Impact Statement to Traditional Cultural Properties (TCPs) that may be considered eligible for inclusion in the National Register of Historic Places at NWSTF Boardman in Morrow County, Oregon.

We would like to invite the ACHP to participate in continued consultation to develop a Memorandum of Agreement with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the Oregon State Historic Preservation Office (SHPO). A website for the project has been created at www.NWSTFBoardmanEIS.com to provide a description of the undertaking and other pertinent information. Due to the nature of the historic property, for confidentiality reasons we are not including a map of the location of the TCP's, however we have included a map of the area of potential effect. In addition we are including a copy of the TCP cover letter sent with the TCP study from the CTUIR to provide the supporting documentation required by 36 CFR 800.11(e). Please advise if the ACHP will participate in the continued consultation.

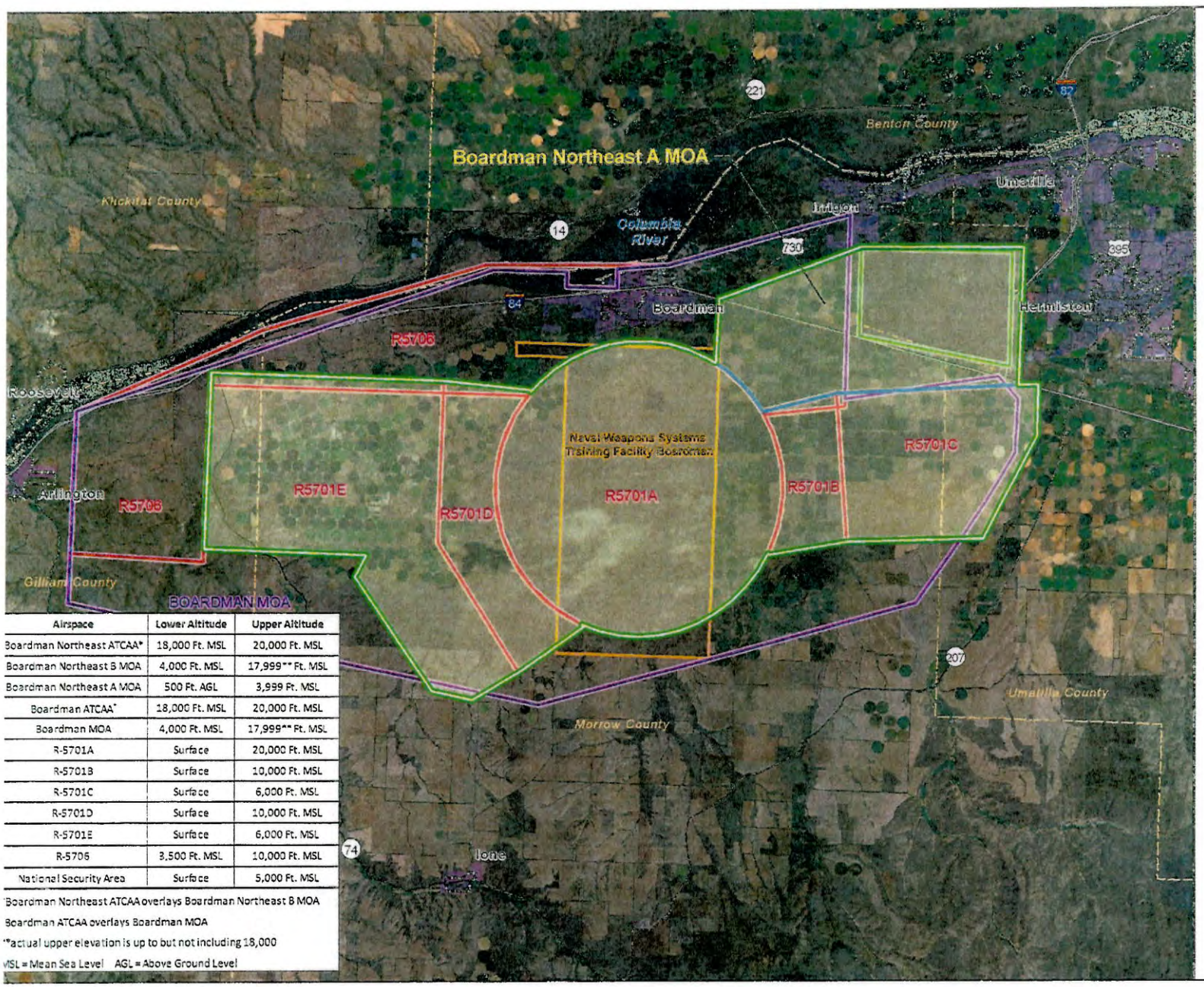
5090
Ser N44/

We look forward to working with the ACHP, CTUIR, and SHPO to resolve effects associated with the proposed actions. If you have any concerns, or require further information regarding the proposed actions and continued consultation, please contact my Cultural Resources Program Manager, Ms. Kendall Campbell at COMM: (360)257-6780 or kendall.campbell1@navy.mil.

Sincerely,

M. K. NORTIER
Captain, U.S. Navy
Commanding Officer

Enclosures:
1. Proposed Actions for NWSTF Boardman and Area of Potential Indirect Effects
2. Copy of cover letter accompanying CTUIR TCP Study of 21 Mar 13
3. Correspondence and Project Briefings held with Native American Tribes, Proposed Military Readiness Activities, NWSTF Boardman, Oregon



Airspace	Lower Altitude	Upper Altitude
Boardman Northeast ATCAA*	18,000 Ft. MSL	20,000 Ft. MSL
Boardman Northeast B MOA	4,000 Ft. MSL	17,999** Ft. MSL
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Boardman ATCAA*	18,000 Ft. MSL	20,000 Ft. MSL
Boardman MOA	4,000 Ft. MSL	17,999** Ft. MSL
R-5701A	Surface	20,000 Ft. MSL
R-5701B	Surface	10,000 Ft. MSL
R-5701C	Surface	6,000 Ft. MSL
R-5701D	Surface	10,000 Ft. MSL
R-5701E	Surface	6,000 Ft. MSL
R-5706	3,500 Ft. MSL	10,000 Ft. MSL
National Security Area	Surface	5,000 Ft. MSL

*Boardman Northeast ATCAA overlays Boardman Northeast B MOA

*Boardman ATCAA overlays Boardman MOA

**actual upper elevation is up to but not including 18,000

MSL = Mean Sea Level AGL = Above Ground Level

Legend

- City Limits
- County Boundary
- Residential
- NWSTF Boardman Boundary
- Area of Potential Effect

Special Use Airspace

- Military Operations Area (MOA)
- Restricted Area Airspace
- National Security Area (not part of NWSTF Boardman airspace)

Proposed Special Use Airspace

- Boardman Northeast A MOA

Transportation

- Interstate
- Highway
- Minor Arterial
- Railroad

0 2 4 6 Miles

0 2 4 6 Kilometers

N

Projection: UTM Zone 11N
Datum: WGS 1984

Sources: ESRI, USGS, NGA, Navy

Map Document: BM00117af

Enclosure 1

DEPARTMENT OF THE NAVY
NAVAL AIR STATION WHIDBEY ISLAND
3730 NORTH CHARLES PORTER AVENUE
OAK HARBOR, WASHINGTON 98278-5000

5090
Ser N44/ 0790
June 5, 2014

Dr. Dennis Griffin
State Archaeologist
Oregon Parks & Recreation Department
725 Summer St NE, Suite C
Salem, OR 97301

Dear Dr. Griffin:

In accordance with section 106 of the National Historic Preservation Act (NHPA), this is to request your concurrence with the Navy's finding for the proposed alternatives under consideration for the Naval Weapons Systems Training Facility (NWSTF) Boardman Environmental Impact Statement (EIS). The Navy finds the proposed alternatives to have a Historic Properties Adversely Affected on two areas identified by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) as potential Traditional Cultural Properties (TCPs) within the southern portion of NWSTF Boardman, Morrow County, Oregon.

This letter continues the Navy's section 106 consultation in preparation of the EIS for military readiness training and testing activities at NWSTF Boardman, in accordance with the National Environmental Policy Act and Navy directives. This EIS analyzes the environmental impacts of testing and training activities on the ground at NWSTF Boardman and in the military operating area special use airspace. The Navy has established a public web site for the EIS: www.NWSTFBoardmanEIS.com. This public website includes up-to-date information on the project, consultation history, and schedule.

The Oregon State Historic Preservation Officer (SHPO) was consulted on the definition of the Area of Potential Effect for the proposed alternatives in the EIS and concurred with the Navy's definition on June 20, 2012 (SHPO Case No. 10-2331). The SHPO also concurred with the Navy's decision to conduct a TCP survey of the proposed project area in the same correspondence. Through the CTUIR, the Navy has completed the TCP study. The results of that study are found in the report titled, ***Traditional Use Study of the NWSTF Boardman Bombing Range, Morrow County, Oregon***, dated March 21, 2013, forwarded to your office under separate cover by the CTUIR on September 25, 2013.

5090
Ser N44/ 0790
June 5, 2014

Due to the nature of these historic properties, for confidentiality reasons we are not including a map of the location of the TCPs. In consultation with the CTUIR, the Navy finds the proposed project as a Historic Properties Adversely Affected to the TCPs identified by the CTUIR.

The Navy requests your concurrence with its finding of effect to the proposed TCPs. I also wish to initiate consultation in the development of an appropriate Memorandum of Agreement to address the adverse effects the proposed alternatives have on the identified TCPs. The Navy has initiated consultation with the CTUIR.

I look forward to receiving your concurrence within 30 days of receipt of this letter. If you require additional information, my point of contact is Ms. Kendall Campbell, Naval Air Station Whidbey Island Cultural Resources Manager. Ms. Campbell can be reached by telephone at (360)257-6780 or by e-mail at kendall.campbell1@navy.mil.

Sincerely,

M. K. NORTIER
Captain, U.S. Navy
Commanding Officer

MEMORANDUM OF AGREEMENT
AMONG
COMMANDER, NAVY REGION NORTHWEST,
AND
THE OREGON STATE HISTORIC PRESERVATION OFFICE,
THE CONFEDERATED TRIBES OF UMATILLA INDIAN RESERVATION,
AND THE
ADVISORY COUNCIL ON HISTORIC PRESERVATIONREGARDING THE
MILITARY READINESS ACTIVITIES AT
NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN,
MORROW COUNTY, OREGON
2015

WHEREAS, Commander, Navy Region Northwest (hereinafter the "Navy") as landowner and operator of the Naval Weapons Systems Training Facility (NWSTF) Boardman, in Morrow County, Oregon and the associated special use airspace currently conducts military training operations, to include aircraft overflights and related air and ground operations; and

WHEREAS, the Navy anticipates the continuation of current operations, increases in the number and frequency of ground and air operations, and the construction and operation of new ranges for proposed military readiness activities (hereinafter the Undertaking) to include the Oregon Military Department's use of NWSTF Boardman; and

WHEREAS, the Navy is preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) in support of the proposed Undertaking which analyzes the environmental impacts of continuing and expanded operations on NWSTF Boardman; and

WHEREAS, the preferred alternative analyzed in the EIS includes the continuation of current operations, increases in the number and frequency of ground and air operations, and the construction and operation of new ranges described in the Military Readiness Activities at NWSTF Boardman EIS; and

WHEREAS, the Navy is the lead agency for compliance with Section 106 of the National Historic Preservation Act (NHPA), 54 U.S.C. § 306108, and its implementing regulations, 36 CFR Part 800; and

WHEREAS, the Navy has identified two Areas of Potential Effect (APEs) per 36 CFR §800.16(d) that are:

a) APE 1- the boundary of 19 non-contiguous project sites within NWSTF Boardman installation boundary where direct ground disturbance could occur, and
b) APE 2- the aggregate external boundary of all special use airspace (existing or proposed) that supports low altitude military training where aircraft are allowed to train from surface or 500 feet; and

WHEREAS, the Navy identified two Traditional Cultural Properties (TCPs) in the APEs, The Wells Springs-Sand Hallow Battle site area and *Sisúpa,* and consulted with the Oregon State Historic Preservation Office (SHPO) in accordance with 36 CFR Part 800; and

WHEREAS, the Navy in furtherance of their Section 106 obligations to identify effects on properties eligible or potentially eligible for inclusion in the National Register of Historic Places (NRHP) within the APEs solicited a Traditional Use Survey of NWSTF Boardman from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR); and

WHEREAS, the CTUIR are signatories of the Walla Walla, Cayuse, and Umatilla Treaty of 1855, which ceded identified tribal lands in the Territory of Washington and the Oregon Territory to the United States, to include a section thereof which is now known as NWSTF Boardman; and

WHEREAS, the Navy acknowledges the CTUIR's reserved treaty rights related to hunting and gathering and pasturing stock on unclaimed lands in common with citizens; and

WHEREAS, a portion of NWSTF Boardman is open to the public for restricted use and activities; and

WHEREAS, the Navy has consulted with the CTUIR, to identify historic properties of religious and cultural significance eligible for listing on the National Register of Historic Places within the APEs at NWSTF Boardman,; and

WHEREAS, the Navy has determined that the undertaking may have an adverse effect on two TCPs eligible for inclusion in the National Register of Historic Places (NRHP); and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), the Navy has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination providing the specified documentation, and the ACHP has chosen to participate in the consultation pursuant to 36 C.F.R. § 800.6(a)(1)(iii); and

WHEREAS, the CTUIR have agreed to consult on this MOA and are Invited Signatory Parties because of their direct relation to the subject matter of the MOA; and

WHEREAS, the Navy, SHPO, and ACHP are each a "Signatory" to this MOA, and CTUIR an "Invited Signatory," hereafter, the "Signatory Party(ies);" and

NOW, THEREFORE, the Navy, SHPO, CTUIR, and ACHP agree that should the Navy decide to implement the Undertaking, the following stipulations will be implemented in order to take into account the effect of the undertaking on historic properties, and that these stipulations shall govern all aspects of the Undertaking until this MOA expires or is terminated.

STIPULATIONS

The Navy will ensure that the following stipulations are implemented.

I. Mitigation of Potential Effects of the Undertaking.

A. The Navy will ensure that all mitigation stipulations will be carried out under the supervision of a cultural resource professional(s) meeting the Secretary of the Interior (SOI) Professional Qualifications as defined in 36 CFR Part 61.

B. Within one year of execution of this agreement, the Navy, in consultation with the SHPO and CTUIR, will develop a monitoring plan for all known and subsequently identified historic properties at NWSTF Boardman in accordance with Section 110(a) of the NHPA and in Section 2(b) of the Intention and Purpose section of the Archaeological Resources Protection Act (ARPA). The Navy will invite tribal participation to assess the potential for unforeseen effects of increased noise and vibration on the integrity and character of the historic properties.

C. Within six months of the execution of this agreement, the Navy, in consultation with the SHPO and CTUIR, will develop education and training materials for personnel who manage or use the range as follows:

1. The Navy will provide personnel stationed at NWSTF Boardman with cultural resources protection materials highlighting confidentiality requirements under Section 304 of the NHPA and Section 9(a) of ARPA and identifying nonspecific locations of archaeological and cultural sensitivity.

2. The Navy will share available information on local ARPA Law Enforcement Training opportunities to personnel stationed at NWSTF for the purpose of improving and increasing monitoring and protection of known and subsequently identified historic properties.

3. The Navy will prepare education materials to be included in the NWSTF Boardman Unexploded Ordnance (UXO) brief for all range users to improve the physical security and integrity of known and subsequently identified historic properties.

4. The Navy will provide copies of all training materials to the SHPO and CTUIR.

D. Within four years of this agreement, in consultation with the SHPO and CTUIR:

1. The Navy will install signage in the public access area to promote the protection of historic properties.

2. The Navy will complete an initial review of the perimeter fencing surrounding the public access area to identify needed repairs and maintenance. Annual reviews will commence within one year after the completion of all initially identified repairs in order to maintain the integrity of the fence line.

3. The Navy will reroute the portion of the road that bisects 35MW105.

E. In the event the Navy determines hunting and/or gathering are appropriate uses on all or some portions of NWSTF Boardman, the Navy will work with the CTUIR to formalize an access plan for the facility.

F. The CTUIR may request the Navy refrain from training during specific times to accommodate the performance of cultural activities in the public access area.

1. The Navy will consider the CTUIR's request and make accommodations when training requirements permit.

2. All requests will be submitted to the NWSTF Boardman Cultural Resources Program Manager (CRPM) no later than ten (10) business days prior to the desired date.

3. The Navy will forward a response within five (5) business days after receipt of the request.

ADMINISTRATIVE PROVISIONS

II. DISPUTE RESOLUTIONS

A. The Navy will consult directly with any Signatory Party submitting a written objection regarding proposed or completed Navy actions over which a Signatory Party has jurisdiction.

B. If after initiating notification and engaging in consultation with the Navy, the objecting Signatory Party determines that the objection cannot be resolved, the Navy will forward all relevant documentation, to include the Navy's proposed response, to the ACHP.

C. Within thirty (30) calendar days after receipt of all relevant documentation, the ACHP will exercise one of the following options;

1. Concur with the Navy's proposed response; or

2. Disagree with the Navy's proposed response and provide recommendations for amending the proposed response. The Navy will consider the recommendations before making a final decision on how to proceed; or

3. Determine that further consultations will not be productive and provide a written consultation termination notice to the Navy and the Navy will review and respond within thirty (30) days of receipt.

4. If the ACHP has not responded within the thirty (30) day timeframe, the Navy may make a final decision on the objection and proceed.

VIII. ANTI-DEFICIENCY ACT

A. The Anti-Deficiency Act, 31 U.S.C. § 1341, prohibits federal agencies from incurring an obligation of funds in advance of or in excess of available appropriations. Accordingly, the Signatory Parties agree that any requirement for the obligation of funds arising from the terms of this MOA will be subject to the availability of appropriated funds for that purpose. The Stipulations contained in this MOA will not be interpreted as requiring the obligation or expenditure of funds in violation of the Anti-Deficiency Act.

B. If compliance with the Anti-Deficiency Act impairs the Navy's ability to implement the Stipulations of this MOA, the Navy will consult with the Signatory Parties to determine alternative means to ensure full implementation of this MOA. If an amendment is necessary, the provisions of Stipulation IX will be followed.

IX. AMENDMENTS

A. Any Signatory Party may propose an amendment.

B. The amendment process starts when a Signatory notifies the other Signatory Parties in writing requesting an amendment. The notification will include the proposed amendments and the reasons supporting them. All Signatory Parties will consult to consider any proposed amendment.

C. An amendment will not take effect until it has been agreed to and executed in writing by all Signatory Parties and submitted to the ACHP.

X. EFFECTIVE DATE AND TERMINATION

A. Any Signatory Party of this MOA may terminate it in part or in whole by providing thirty (30) days notice to the other parties, providing that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that will avoid termination. In the event of full termination, all Signatory Parties will comply with 36 CFR § 800 regarding individual projects included in the Undertaking. In the event only a portion of the MOA is terminated, the remainder of the Stipulations will remain in effect and the MOA will be amended to reflect the change in accordance with this document.

B. This MOA will become effective upon execution by all Signatory Parties and will remain in effect for ten (10) years unless terminated earlier.

XI. COORDINATION

A. The Navy will ensure that each Signatory Party is provided a copy of the fully executed MOA.

XII. Post Review Discovery

A. If during the performance of the Undertaking or in the course of the duration of the MOA previously unknown historic properties are discovered the Boardman Inadvertent Discovery Plan (Attachment A) will be immediately implemented, and:

1. Any activities within the immediate area will be halted and reasonable measures to avoid or minimize impacts to the items discovered and surrounding property will be undertaken.

2. The Boardman CRPM will be immediately notified. Within forty-eight (48) hours the SHPO and interested tribes will be contacted via e-mail with the details of the discovery and allowed the opportunity to respond within 7 (seven) business days with recommendations regarding National register eligibility and proposed actions. Activities will not resume in the discovery area until the CRPM or his/her designee provide written authorization, e.g., email.

3. Upon discovery of human remains, the activity will immediately stop and the Boardman CRPM notified. The CRPM will contact the appropriate authorities and follow the applicable procedures specified in the Inadvertent Discovery Plan.

XIII. SIGNATORY PARTIES

A. Execution and implementation of the terms of this MOA evidence the fact that the Navy has afforded the ACHP and Signatory Parties an opportunity to comment on this Undertaking, and that the Navy has taken into account the effects of the Undertaking on historic properties.

B. All the undersigned Signatory Parties certify that they have full authority to represent and bind their respective agency for the purpose of entering into this MOA.

10-8331

MEMORANDUM OF AGREEMENT
AMONG
COMMANDER, NAVY REGION NORTHWEST,
THE OREGON STATE HISTORIC PRESERVATION OFFICE,
CONFEDERATED TRIBES OF UMATILLA INDIAN RESERVATION,
AND THE
ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
MILITARY READINESS ACTIVITIES AT
NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN
MORROW COUNTY, OREGON
2015

Signature Page

DEPARTMENT OF THE NAVY

By: Jeffrey A Ruth Date: 5 NOV 15
J.S. RUTH, Rear Admiral, U.S. Navy
Commander, Navy Region Northwest

By: MKN Date: 6 NOV 2015
M.K. NORTIER, Captain, U.S. Navy
Commander NAS Whidbey Island

CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

By: Gary Burke Date: 11-30-15
GARY BURKE
Board of Trustees Chairman

OREGON STATE HISTORIC PRESERVATION OFFICE

By: Christine Curran Date: 11.25.15
CHRISTINE CURRAN
Deputy Oregon State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: John M. Fowler Date: 12/8/15
JOHN M. FOWLER
Executive Director, Advisory Council on Historic Preservation

Confederated Tribes *of the*
Umatilla Indian Reservation
Department of Natural Resources
Administration

46411 Timíne Way
Pendleton, OR 97801

www.ctuir.org ericquaempts@ctuir.org
Phone 541-276-3165 Fax: 541-276-3095

December 20, 2012

Naval Facilities Engineering Command, Northwest
Attention Amy Burt – NWSTF Boardman EIS Project Manager
1101 Tautog Circle, Suite 203
Silverdale, WA 98315-1101

Dear Ms. Burt:

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Natural Resources (DNR) appreciates the opportunity to review the Military Readiness Activities at Naval Weapons Systems Training Facility Boardman, Draft Environmental Impact Statement (DEIS). DNR is encouraged by the work we have done in the recent past with the Navy regarding the Boardman Bombing Range (BBR). Nevertheless, large portions of the site suffer from the effects of extreme neglect over the years that must be remedied through the INRMP, ICRMP and DEIS. Further, the DEIS needs to acknowledge the presence of Native American resources at the BBR, to which the CTUIR retains rights pursuant to the Treaty of 1855.

The CTUIR provided comments on the draft Integrated Natural Resources Management Plan (INRMP) for the BBR on July 8, 2010. I have attached those comments for reference. The DEIS should include a discussion of the CTUIR's Treaty Rights, similar to the one contained in the final INRMP. The DEIS does not contain any discussion of the Treaty of 1855 beyond one paragraph in the Cultural Resources section. At a minimum, the DEIS should contain references to the Treaty in the Socioeconomics and Environmental Justice sections, and also in the Federal Requirements section. Treaty Rights should be analyzed in a dedicated section rather than relegated to a subsection of the Cultural Resources analysis.

At numerous locations the DEIS states that no Native American resources have been identified that may be impacted by the proposed action. DEIS pages 3.10-15, -17, -18, -19, 4-28, 6-2 and 6-3. The DEIS defines Native American resources as:

> Native American resources are sites, areas, and materials important to Native Americans for religious or heritage reasons. Resources may include prehistoric sites and artifacts, contemporary sacred areas, traditional use areas (e.g., native plant or animal habitat), sources used in the production of sacred objects and traditional implements, or traditional cultural properties. Traditional cultural properties are resources that are considered eligible for or listed in the National Register of Historic Places and may be associated with Native Americans. Sacred places important to religion may also be present and include mountain peaks, springs, and burial sites. Traditional rituals may prescribe the use of particular native plants, animals, or minerals from specific places. Therefore, activities that may affect sacred areas, their accessibility, or the availability of materials used in traditional practices may be of concern.

DEIS page 3.10-1.

Prehistoric sites, traditional gathering locations and traditional resources such as plants and wildlife that were used by tribal members are clearly within the impact area. The CTUIR has confirmed on multiple occasions that there are traditional resources on the BBR, most recently in our letter of July 8, 2010, expressing interest in hunting opportunities and the desire for tribal members to hunt on these lands. Hunting is a traditional use, which CTUIR members engaged in at (what is now) the BBR since time immemorial. While the Navy recently closed the BBR to all hunting, the opportunity to hunt the area remains important to the CTUIR. Even if the present generation of tribal members does not have access to BBR for hunting, the CTUIR has a strong interest in preserving wildlife habitat and populations for future generations. Given this, it is inaccurate to state there are no Native American resources within this project's impact area.

The CTUIR suggests the following revisions to the definition of Native American resources to improve accuracy and clarity:

> Native American resources include, but are not limited to, sites, areas, and materials important to Native Americans for religious or traditional and cultural reasons. Resources may include prehistoric sites and artifacts, sacred sites, traditional use areas (e.g., native plant gathering areas or wildlife habitat), material sources, sites for cultural practices, and traditional cultural properties. Traditional cultural properties are areas that are or may be eligible for inclusion in the National Register of Historic Places and may be associated with Native Americans. Many TCPs are also sacred places important to Native Americans and may include mountain peaks, springs, and burial sites. Traditional uses may prescribe the use of particular native plants, animals, or minerals from specific places. Therefore, activities that may affect sacred areas, their accessibility, or the availability of materials used in traditional practices are of concern.

The CTUIR met with the Navy on October 23, 2012, and attended the meeting between the Navy, the U.S. Fish and Wildlife Service, and the Oregon Department of Fish and Wildlife (ODFW) on October 25, 2012, at Boardman. The CTUIR agrees with many of the concerns that have been raised by ODFW, the Nature Conservancy, the U.S. Fish and Wildlife Service and the Defenders of Wildlife. I will not repeat all the concerns raised but I will reiterate a few. The proposed activities for Alternatives 1 and 2 "would result in significant increases in the potential for wildfire…." DEIS, page ES-16. Both the fire-break system (blading without vegetative treatment) and post-fire natural seeding increase the spread of noxious weeds. The BBR needs an aggressive fire monitoring and response capacity on-site at all times during training and fire seasons regardless of whether Alternatives 1 or 2 are implemented or not. Inadequate funding to address noxious weeds is a critical problem in management of the BBR. If the Navy does not have the capacity to meet its current obligations regarding natural resource management, it certainly does not have the resources to meet its natural resource obligations under expanded operations.

Further, as discussed in October, ongoing and proposed activities will result in habitat destruction and fragmentation through disturbance and noise. Activities must be scheduled to avoid disturbing sensitive wildlife species such as long-billed curlew and Washington ground squirrel. There has never been a complete survey of the BBR for wildlife under a consistent and uniform protocol. The Navy should immediately implement a survey and monitoring protocol for all areas, whether proposed for development or not, so that it will have baseline data to determine the wildlife impacts of increased activity and to monitor the effectiveness of mitigation measures. The BBR and adjacent conservation lands represent "one of the largest remaining single blocks of predominantly native shrub-steppe and grassland habitats in Oregon's portion of the Columbia Plateau Ecoregion." DEIS 3.5.2.2, page 3.5-3. Habitat in this endangered area should not be impacted without careful analysis, and all measures to avoid impact should be addressed. Finally, all proposed mitigation measures must be funded prior to implementation of expanded operations. If mitigation does not occur, neither should expanded operations.

The DEIS does not propose any monitoring mitigation measures for cultural resources. DEIS 3.10-19. As the Integrated Cultural Resources Management Plan (ICRMP) is not complete, it is unclear how the entire facility will be managed for cultural resources. However, it would be prudent to monitor ground disturbance for cultural resources. Further, section 3.10.3.4.3 provides that the only avenue for identification of Native American resources is through consultation. Clearly the Navy could encounter Native American resources (i.e., archaeological sites) inadvertently through construction or during survey. As the Traditional Use Study is not yet completed, it is certainly premature to conclude that there are no historic properties of religious or cultural significance to Indian tribes. Hopefully that study can be thoroughly incorporated into the Final EIS before it is published. It is our understanding the Navy intends to complete the ICRMP prior to the Final EIS. How exactly will the ICRMP influence implementation of the EIS?

The CTUIR DNR supports the Current Requirements and Management Practices to "[e]nforce federal laws that prohibit vandalism of cultural resources on federal properties through law enforcement, monitoring, and public awareness." Too much of the landscape of the BBR has been neglected over the years. Monitoring, enforcement and training are critical to protect the resources that are present on the BBR. The Navy must have sufficient full-time staffing to prevent trespassing and archaeological site destruction. The fences need to be maintained and monitored daily and violators should be prosecuted.

We recommend the following specific changes to the EIS:

Table 6-1 on page 6-2 includes references to obligations under §106 of the National Historic Preservation Act (NHPA). Section 110 should also be added to this discussion regarding the obligation of the Navy to survey all of their lands for historic properties.

On page 3.10-11 the DEIS has the following to say about the Treaty of 1855:

> In 1855, a treaty establishing the Umatilla Indian Reservation was signed by Isaac Stevens, governor of Washington Territory and its superintendent of Indian affairs, and headmen who were seen as representatives of the various bands of the Umatilla, Cayuse, and Walla Walla. Stevens and his associates were forced to yield certain concessions, including a reservation separate from the Nez Perce for the Umatilla, Cayuse, and Walla Walla, and allowing them to retain rights to their traditional lands. The treaty was ratified in 1860, and the Confederated Tribes of the Umatilla, Cayuse, and Walla Walla Reservation were removed to reservation lands. However, large numbers of the Umatilla and Walla Walla remained in their homelands along the Columbia River and continued their seasonal use of the region (Stern 1998:415).

First of all, the Treaty of 1855 did more than establish the Umatilla Indian Reservation. In 1855, the Cayuse, Umatilla, and Walla Walla Tribes ceded to the United States more than 6.4 million acres of land in what is now northeastern Oregon and southeastern Washington, including the BBR. A parcel of land, designated the Umatilla Indian Reservation, was retained by the tribes as a permanent homeland. Also in the Treaty of 1855, the tribes reserved pre-existing rights to fish, hunt, and gather traditional foods and medicines throughout our traditional areas. The tribes still protect and exercise those rights within the 6.4 million acres of ceded land and beyond notwithstanding current state borders and boundaries. It is important to understand that the U.S. Government and the Treaty did not "give" tribal people those rights to fish, hunt, and gather foods and medicines. They are rights that we have had and exercised since time immemorial. Further, to say the United States was "forced to yield certain concessions" is a ridiculous overstatement that misrepresents the negotiating power of the tribes at the treaty council. If anything, the roles were reversed. The representatives of the United States may have been outnumbered, but the provision regarding a separate reservation for the Cayuse, Umatilla and Walla Walla tribes was hardly "forced" upon the United States, which best interests were well-served by entering into the treaties to avoid continuing warfare. Finally, the treaty was ratified in 1859, not 1860.

The CTUIR provided comments to the INRMP in 2010. We were not provided a draft INRPM before the final was published, and there are errors we would like to correct. For instance, the Treaty of 1855 to which the Umatilla, Walla Walla and Cayuse tribes were a party is not the same Treaty of 1855 to which the Yakama were a party. They are two different treaties. The CTUIR Treaty is 12 Stat. 945, the Yakama Treaty is 12 Stat. 951. In the event there is a revision to the INRMP, we look forward to working with the Navy on it. The CTUIR understands the Navy has determined that hunting is no longer appropriate for the BBR, however, as noted in the INRMP, the CTUIR would like to work with the Navy through ongoing consultation to explore options whereby parts of the southern portion of the BBR may be determined appropriate for traditional uses such as hunting and gathering.

Finally, the CTUIR DNR requests that the Navy respond to our comments in writing so that we can ensure our concerns are addressed clearly and cooperatively. Similarly, we would like the opportunity to review a final draft before it is published to minimize any further inaccuracies.

The CTUIR DNR will continue to review the DEIS and will notify the Navy of any additional concerns. It would be prudent anf worthwhile to schedule a meeting with the Navy and the Board of Trustees to discuss this project pursuant to your invitation to consult on a Government-to-Government level. Please have your staff contact Audie Huber, Intergovernmental Affairs Manager of DNR, at 541-429-7228 to schedule this meeting.

Sincerely,

Eric Quaempts, Director
Department of Natural Resources

Attachments:

CTUIR DNR July 8, 2010 letter
East Oregonian Article, Morrow County Leaders talk Navy swap, May 28, 2010
CTUIR Statement on Consultation

DEPARTMENT OF THE NAVY
NAVAL AIR STATION WHIDBEY ISLAND
3730 NORTH CHARLES PORTER AVENUE
OAK HARBOR, WASHINGTON 98278-5000

IN REPLY REFER TO:

5090
Ser N00RM/ 0511
April 25, 2013

Mr. Eric Quaempts
Director, Department of Natural Resources
Confederated Tribes of the Umatilla Indian Reservation
46411 Timíne Way
Pendleton, OR 97801

Dear Mr. Quaempts:

Thank you for your review of the Navy's September 2012 Draft Environmental Impact Statement (EIS) for military training activities at Naval Weapons Systems Training Facility (NWSTF) Boardman. As requested in your letter of December 20, 2012, the following information is in response to comments made regarding the proposed actions of the EIS and Navy programs involved in the long-term management of NWSTF Boardman.

The Navy recognizes the relationship with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), especially with respect to treaty-reserved resources. On page 3.10-12 of the Draft EIS, the Navy acknowledges the presence of Native American resources at NWSTF Boardman, stating, "…"historic properties of religious and cultural significance" are located on NWSTF Boardman (Dickson, 2010)." The Final EIS will expand upon this discussion as applicable, based on the results of the Traditional Use Study of the NWSTF Boardman Bombing Range, completed with the CTUIR.

The Navy agrees that the Final EIS should include a thorough discussion of the CTUIR's Treaty Rights, and that this discussion should be in a separate section. This change will be reflected in the Final EIS. The Socioeconomics, Environmental Justice, and the Cultural Resources sections will include a reference to this separate section for readability. This new section will also incorporate your comments on the definition of Native American resources to improve accuracy and clarity. In response to your comment about the Treaty language on page 3.10-11 in the Draft EIS, the Navy will also incorporate your provided language on the Treaty of 1855 in the Final EIS in this new section and correct our inaccuracies in this statement.

Regarding Native American resources, the Draft EIS stated that these resources have not yet been identified in the project Areas of Potential Effect (APE). This is because at the time of the Draft EIS preparation, the Traditional Use Study was not yet completed with the CTUIR. The EIS team received the Traditional Use Study report on March 21, 2013 and will now incorporate the appropriate level of information from the study into the Final EIS analysis, and potential impacts will be evaluated in consultation with the CTUIR.

Your letter included comments regarding fire management at NWSTF Boardman. The Draft EIS included a draft Wildland Fire Management Plan that will be implemented as applicable based on which alternative is ultimately chosen in the Record of Decision for the EIS. The management practices in the draft Wildland Fire Management Plan will be finalized and adopted as appropriate once an alternative is chosen. As identified in the draft Wildland Fire Management Plan, if Alternatives 1 or 2 are implemented, Oregon National Guard fire resources would be present during all National Guard training activities. With this comment, your letter also discusses noxious weed management at NWSTF Boardman. Additional resources to address noxious weed management will be applied if Alternatives 1 or 2 are chosen for implementation. These measures would be a part of an updated Integrated Natural Resources Management Plan (INRMP) that will be revised if Alternative 1 or 2 are chosen for implementation. Updates to the INRMP would include: provisions for short and long-term monitoring of invasive plants; responsibilities and procedures for integrating efforts of the Navy, Oregon National Guard, and The Nature Conservancy; criteria for prioritizing management actions and adaptive management strategies to control invasive plants; and annual work plans, including funding requirements and funding sources.

The Draft EIS does determine that the implementation of Alternatives 1 and 2 will result in potentially significant effects to wildlife populations on NWSTF Boardman. For this reason, the Navy and the Oregon Guard are working on developing a comprehensive adaptive management plan for Washington ground squirrels, which includes a detailed monitoring protocol. The Navy and Oregon National Guard agree that baseline data are needed to monitor impacts of increased activity and the effectiveness of mitigation measures. The conferencing process with the U.S. Fish and Wildlife Service (USFWS) has progressed since completion of the Draft EIS, and a draft conferencing

package for the Washington ground squirrel was recently submitted to USFWS. This conferencing package includes a proposed adaptive management and monitoring process to help reduce uncertainty associated with the effects of the Proposed Action and incorporates best management practices and mitigation measures.

The Navy has identified two adaptive management goals which: 1) limit impacts on the Washington ground squirrel to the affected areas identified in the impact analysis, and 2) achieves a net benefit of habitat quantity and quality through restoration and enhancement projects.

In order to determine if management goal 1 is met, various monitoring efforts are proposed to be implemented to determine if and how the various activities affect Washington ground squirrels on the range. Long-term monitoring would be conducted to obtain data on Washington ground squirrel distribution, status, and trends throughout NWSTF Boardman. The monitoring program would consist of long-term facility-wide monitoring, pre-construction surveys, construction monitoring and after-action inspections, Washington ground squirrel density surveys, noxious weed surveys and control, and wildfire monitoring. In order to achieve management goal 2, habitat restoration and enhancement for permanently lost or degraded habitat will be performed at a greater than 1:1 ratio within 3 years following construction. Specific site restoration objectives will be determined and the objectives will be met within an agreed upon timeframe. The specific management goals, monitoring requirements and habitat restoration/enhancement efforts are currently being developed through ongoing conferencing efforts between the Navy, Oregon National Guard and USFWS.

Mitigation measures are also mentioned in your comment letter. Table 5-1 in the Draft EIS lists all proposed mitigation measures that would be committed to under implementation of Alternative 1 or 2 and identifies which agency is responsible for implementing the mitigation measures. The Record of Decision for the EIS, which will be issued by the Assistant Secretary of the Navy for Energy, Installations and the Environment, will choose an alternative and commit to the appropriate mitigation measures to be implemented with the chosen alternative. If mitigation measures cannot be completed in accordance with the Record of Decision, the proposed actions in the chosen alternative cannot be implemented without further environmental analysis.

Cultural resources was another topic of comments submitted in your letter. An Integrated Cultural Resources Management Plan (ICRMP) for NWSTF Boardman is currently in the process of being developed, and is targeted for completion prior to the Final EIS being published in November 2013. Monitoring mitigation measures for archaeological resources will be incorporated into the Final EIS based on the finalization of the NWSTF Boardman ICRMP in 2013. In the Oregon State Historic Preservation Office (SHPO) concurrence letter received on December 18, 2012, SHPO stated that the Final EIS should include a mitigation measure similar to what you suggested in your comment letter. The Final EIS will include a mitigation measure that states, "If during development activities the Navy or Oregon National Guard inadvertently discovers any cultural material (i.e., historic or prehistoric), all activities shall cease immediately and the Naval Air Station Whidbey Island Cultural Resources manager shall be contacted to evaluate the discovery."

5090

Ser NOORM/0511
April 25, 2013

In response to your comments on Table 6-1 of the Draft EIS, Section 110 of the National Historic Preservation Act is not included in Table 6-1 because this table focuses on the federal compliance requirements for the specific proposed actions analyzed in the EIS and not all actions that may impact cultural resources at NWSTF Boardman in general. The importance of the National Historic Preservation Act Section 110 and its broader applicability to influence cultural resource management on federal property is more appropriately included in the ICRMP, and will be.

I understand the EIS team is communicating to finalize another meeting with CTUIR staff members in early May to discuss these and possibly other comments regarding the NWSTF Boardman EIS project. Additionally, I fully agree that a Government-to-Government level meeting between the Navy and the CTUIR Board of Trustees is a long overdue and worthwhile idea, and I look forward to such a meeting at our earliest mutual convenience. Please direct additional inquiries regarding the NWSTF Boardman EIS to Mr. John Mosher at (360) 257-3234 or email john.g.mosher@navy.mil.

Sincerely,

M. K. NORTIER
Captain, U.S. Navy
Commanding Officer

Appendix D

Air Quality Summaries

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN AIR POLLUTANT EMISSIONS CALCULATIONS - SUMMARY

SOURCE	NO ACTION ALTERNATIVE EMISSIONS (tons/year)						ALTERNATIVE 1 EMISSIONS (tons/year)					
	Criteria Pollutants					GHG	Criteria Pollutants					GHG
	CO	NO_x	VOC	SO_x	PM_{10}	CO_{2e}	CO	NO_x	VOC	SO_x	PM_{10}	CO_{2e}
Aircraft	15	31	2	7	29	14,707	9	148	1	21	64	49,521
Ordnance	0.05	0.01			0.02		2.60	0.44			1.48	
Vehicles	1	2	0	0	0	4	61	542	14		11	369
Total	16	33	2	7	29	14,711	73	690	15	21	76	49,890
						Increase:	57	657	13	14	48	35,179

SOURCE	ALTERNATIVE 2 EMISSIONS (tons/year)					
	Criteria Pollutants					GHG
	CO	NO_x	VOC	SO_x	PM_{10}	CO_{2e}
Aircraft	9	148	1	21	64	49,521
Ordnance	0.82	0.09			0.28	
Vehicles	47	121	11		5	238
Total	57	270	12	21	69	49,760
Increase:	41	237	10	14	40	35,049

Notes: GHG - greenhouse gases, CO - carbon monoxide, NO_x - nitrogen oxides, VOC - volatile organic compounds, SO_x - sulfur oxides, PM_{10} - particulates <10 microns, CO_{2e}

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - AIRCRAFT

SOURCE INFORMATION[1]										
Platform	Activity Information by Alternative									Fuel Flow (lb/hr)
	No Action Alternative			Alternative 1			Alternative 2			
	Sorties	Flight Time (Hours)	Percent Above 3,000 ft MSL	Sorties	Flight Time (Hours)	Percent Above 3,000 ft MSL	Sorties	Flight Time (Hours)	Percent Above 3,000 ft MSL	
Fixed-Wing Aircraft										
EA-6B Prowler	448	672	25%	0	0	0%	0	0	0%	6,390
EA-18G Growler	201	302	35%	1348	2791	35%	1348	2791	35%	10,358
F-15E	60	120	35%	60	120	35%	60	120	35%	6,316
F-16C/D	5	8	35%	5	8	35%	5	8	35%	5,053
F-35	0	0	0%	64	126	35%	64	126	35%	5,053
FA-18 C/D	129	154	35%	129	154	35%	129	154	35%	6,636
AV-8	4	6	35%	0	0	0%	0	0	0	6,000
P-3/EP-3/P-8	0	0	0%	9	18	35%	9	18	35%	4,800
C-130, C-17, CH-47 or C-23	0	0	0%	12	12	50%	12	12	50%	4,500
Total	**847**	**1,262**		**1,627**	**3,229**		**1,627**	**3,229**		
Helicopters										
CH-47 Chinook	54	81	0%	65	97	0%	65	97	0%	1,100
UH-60 Blackhawk	18	27	0%	22	32	0%	22	32	0%	1,200
Total	**72**	**108**		**87**	**129**		**87**	**129**		
Unmanned Aerial Systems										
RQ-7 Shadow	52	104	85%	204	408	85%	204	408	85%	38 hp
RQ-11 Raven	13	26	85%	30	100	85%	30	100	85%	electric
SCANEAGLE	831	3754.9	85%	1475	5900	85%	1475	5900	85%	1.9 hp
Total	**896**	**3,885**		**1,709**	**6,408**		**1,709**	**6,408**		
Grand Total	**1,815**	**5,255**		**3,423**	**9,766**		**3,423**	**9,766**		

Notes: MSL - mean sea level. [1]See "Source Information" tab for additional documentation of engine type, # of engines, flight mode, fuel flow, and emissions factors.

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - AIRCRAFT

SOURCE INFORMATION[1]								
Platform	Fuel Use (pounds/year) <3,000 feet			Emissions Factor (pounds/1,000 pounds fuel)				
	No Action	Alt 1	Alt 2	CO	NO_x	VOC	SO_x	PM_{10}
Fixed-Wing Aircraft								
EA-6B Prowler	3,220,560	0	0	7.99	5.71	1.09	2.04	12.12
EA-18G Growler	2,033,275	18,790,966	18,790,966	0.72	14.75	0.12	2.04	6.56
F-15E	492,648	492,648	492,648	1.17	15.05	0.20	2.04	0.14
F-16C/D	26,276	26,276	26,276	3.84	11.57	0.05	2.04	0.11
F-35	0	413,841	413,841	3.84	11.57	0.05	2.04	0.11
FA-18 C/D	664,264	664,264	664,264	2.44	6.74	0.44	2.04	6.36
AV-8	23,400	0	0	8.80	6.71	0.28	2.04	7.10
P-3/EP-3/P-8	0	56,160	56,160	1.82	8.43	0.41	2.04	3.97
C-130, C-17, CH-47 or C-23	0	27,000	27,000	2.07	8.16	0.47	2.04	3.97
Total	**6,460,423**	**20,471,154**	**20,471,154**					
Helicopters								
CH-47 Chinook	89,100	106,700	106,700	3.20	7.30	0.40	2.04	0.50
UH-60 Blackhawk	32,400	38,400	38,400	6.25	6.40	0.55	2.04	4.20
Total	**121,500**	**145,100**	**145,100**					
Unmanned Aerial Systems								
RQ-7 Shadow				0.25	1.2	0.09	0.08	0.08
RQ-11 Raven								
SCANEAGLE				0.01	0.06	0.01	0.00	0.00
Total	**6,581,923**	**20,616,254**	**20,616,254**					

Notes: lb - pounds, yr - year, ft - foot, CO - carbon monoxide, Nox - nitrogen oxides, VOC - volatile organic compounds, SOx - sulfur oxides, PM10 - particulates <10 microns

[1]See "Source Information" tab for additional documentation of engine type, # of engines, flight mode, fuel flow, and emissions factors.

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - AIRCRAFT

Platform	CRITERIA AIR POLLUTANT EMISSIONS (tons/year)									
	No-Action Alternative					Alternatives 1/2				
	CO	NO_x	VOC	SO_x	PM_{10}	CO	NO_x	VOC	SO_x	PM_{10}
Fixed-Wing										
EA-6B Prowler	12.9	9.2	1.8	3.3	19.5	0.0	0.0	0.0	0.0	0.0
EA-18G Growler	0.7	15.0	0.1	2.1	6.7	6.8	138.6	1.1	19.2	61.6
F-15E	0.3	3.7	0.0	0.5	0.0	0.3	3.7	0.0	0.5	0.0
F-16C/D	0.1	0.2	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0
F-35	0.0	0.0	0.0	0.0	0.0	0.8	2.4	0.0	0.4	0.0
FA-18 C/D	0.8	2.2	0.1	0.7	2.1	0.8	2.2	0.1	0.7	2.1
AV-8	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
P-3/EP-3/P-8	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.1
C-130, C-17, CH-47 or C-23	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Total	14.9	30.4	2.1	6.6	28.4	8.79	147.42	1.35	20.88	63.97
Helicopters										
CH-47 Chinook	0.1	0.3	0.0	0.1	0.0	0.2	0.4	0.0	0.1	0.0
UH-60 Blackhawk	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1
Total	0.2	0.4	0.0	0.1	0.1	0.29	0.51	0.03	0.15	0.11
Unmanned Aerial Systems										
RQ-7 Shadow	0.0	0.0	0.0	0.0	0.0	0.01	0.04	0.00	0.00	0.00
RQ-11 Raven										
SCANEAGLE	0.0	0.0	0.0	0.0	0.0	0.01	0.03	0.00	0.00	0.00
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Grand Total	**15.1**	**30.8**	**2.1**	**6.7**	**28.5**	**9.1**	**148.0**	**1.4**	**21.0**	**64.1**
					Change	**-6.0**	**117.2**	**-0.7**	**14.3**	**35.6**

s.

Notes: CO - carbon monoxide, Nox - nitrogen oxides, VOC - volatile organic compounds, SOx - sulfur oxides, PM10 - particulate < 10 microns

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - AIRCRAFT

Platform	No Action Alternative					
	Annual Fuel Use		Greenhouse Gas Emissions (pounds/year)			
	Pounds	Gallons	CO_2	N_2O	CH_4	CO_{2-e}
Fixed-Wing						
EA-6B Prowler	4,294,080	631,482	13,295,229	431	376	13,436,824
EA-18G Growler	3,128,116	460,017	9,685,199	314	274	9,788,346
F-15E	757,920	111,459	2,346,654	76	66	2,371,646
F-16C/D	40,424	5,945	125,160	4	4	126,493
F-35	0	0	0	0	0	0
FA-18 C/D	1,021,944	150,286	3,164,119	103	89	3,197,817
AV-8	36,000	5,294	111,462	4	3	112,649
P-3/EP-3/P-8	0	0	0	0	0	0
C-130, C-17, CH-47 or C-23	0	0	0	0	0	0
Total	9,278,484	1,364,483	28,727,824	932	812	29,033,775
Helicopters						
CH-47 Chinook	89100	13103	275869	9	8	278,807
UH-60 Blackhawk	32400	4765	100316	3	3	101,384
Total	121,500	17,868	376,185	12	11	380,192
Unmanned Aerial Systems						
RQ-7 Shadow						
RQ-11 Raven						
SCANEAGLE						
Total						
Grand Total	**9,399,984**	**1,382,351**	**29,104,009**	**944**	**822**	**29,413,967**
					Tons per Year =	14,707

Notes: CO_2 - carbon dioxide, N_2O - nitrous oxide, CH_4 - methane, CO_{2-e} - carbon dioxide equivalent

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - AIRCRAFT

Platform	Alternative 1 / 2					
	Annual Fuel Use		GHG Emissions (lb/yr)			
	Pounds	Gallons	CO_2	N_2O	CH_4	CO_{2-e}
Fixed-Wing						
EA-6B Prowler	0	0	0	0	0	0
EA-18G Growler	28,909,178	4,251,350	89,507,917	2,904	2,530	90,461,176
F-15E	757,920	111,459	2,346,654	76	66	2,371,646
F-16C/D	40,424	5,945	125,160	4	4	126,493
F-35	636,678	93,629	1,971,267	64	56	1,992,261
FA-18 C/D	1,021,944	150,286	3,164,119	103	89	3,197,817
AV-8	0	0	0	0	0	0
P-3/EP-3/P-8	86,400	12,706	267,510	9	8	270,359
C-130, C-17, CH-47 or C-23	54,000	7,941	167,194	5	5	168,974
Total	31,506,544	4,633,315	97,549,820	3,165	2,757	98,588,725
Helicopters						
CH-47 Chinook	106,700	15,691	330,362	11	9	333,880
UH-60 Blackhawk	38,400	5,647	118,893	4	3	120,159
Total	145,100	21,338	449,255	15	13	454,040
Unmanned Aerial Systems						
RQ-7 Shadow						
RQ-11 Raven						
SCANEAGLE						
Total						
Grand Total	**31,651,644**	**4,654,654**	**97,999,075**	**3,179**	**2,770**	**99,042,765**
					Tons	49,521
Increase (lb):	**22,251,660**	**3,272,303**	**68,895,066**	**2,235**	**1,947**	**69,628,798**
Increase (tons)	**11,126**	**1,636**	**34,448**	**1**	**1**	**34,814**

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - ORDNANCE

SOURCE INFORMATION							EMISSION FACTOR (pound/ pound)				
Ordnance Type		Filler Type	NAA	Alt 1	Alt 2	NEW (lb)	CO	NO_x	PM_{10}	$PM_{2.5}$	Lead
Non-Explosive Practice Bombs	MK-76	inert - spotting charge	392	392	392	3	0.026	0.008	0.026	0.019	0.0002
	MK-82	inert - spotting charge	10	10	10	3	0.026	0.008	0.026	0.019	0.0002
	MK-83	inert - spotting charge	3	3	3	3	0.026	0.008	0.026	0.019	0.0002
	MK-84	inert - spotting charge	2	2	2	3	0.026	0.008	0.026	0.019	0.0002
	LGTR	inert - no spotting charge	20	20	20	0	0.026	0.008	0.026	0.019	0.0002
Mortar Rounds	M224 60mm	explosive	0	0	1,440	0.8	0.030	0.004	0.032	0.017	0.0002
		propellant	0	0	1,440	1	0.026	0.008	0.026	0.019	0.0002
Tank Cannon Rounds	120 mm	explosive	0	3,000	0	6.5	0.026	0.008	0.026	0.019	0.0002
		propellant	0	3,000	0	17.6	0.026	0.008	0.026	0.019	0.0002
Missiles	TOW Missile (non-explosive)	explosive	0	35	0	8.6	0.026	0.008	0.026	0.019	0.0002
		propellant	0	35	0	1.2	0.026	0.008	0.026	0.019	0.0002
Small and Medium Caliber Rounds	5.56 mm		18,000	469,500	269,500	0.004	3.50E-01	1.60E-02	1.20E-02	8.40E-03	5.10E-06
	7.62 mm		12,000	813,000	333,000	0.006	3.60E-01	1.50E-02	8.10E-03	6.10E-03	4.90E-06
	20 mm		26,000	88,800	88,800	0.08	0.007	0.0016	0.0066	0.013	NA
	25 mm	M115 percussion primer	0	20,000	0	0.214	0.007	0.0016	0.0066	0.013	NA
	40 mm		250	58,500	10,500	0.1	6.00E-02	1.30E-02	1.10E-01	5.60E-02	7.30E-05
	0.50-caliber		1000	252,000	102,000	0.033	1.10E-02	1.20E-03	3.10E-04	1.90E-04	1.30E-05
Explosives	HE Charge	RDX	0	50	50	200	2.60E-02	7.90E-03	2.60E-02	1.90E-02	1.70E-04

Notes: NAA - No Action Alternative, Alt - Alternative, NEW - net explosive weight, lb - pound, LGTR - Laser-Guided Training Round, HE - high explosive, TOW - tube-launched, optically tracked, wire-guided, RDX - Research Demolition Explosive, CO - carbon monoxide, NO_x - nitrogen oxides, PM10 - particulates <10 microns, PM2.5 - particulates <2.5 microns

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - ORDNANCE

ORDNANCE TYPE		CRITERIA POLLUTANTS - NO ACTION ALTERNATIVE EMISSIONS (lb/year)				
		CO	NO_x	PM_{10}	$PM_{2.5}$	Lead
Non-Explosive Practice Bombs	MK-76	30.58	9.29	30.58	22.34	0.20
	MK-82	0.78	0.24	0.78	0.57	0.01
	MK-83	0.23	0.07	0.23	0.17	0.00
	MK-84	0.16	0.05	0.16	0.11	0.00
	LGTR	0.00	0.00	0.00	0.00	0.00
Mortar Rounds	M224 60mm	0.00	0.00	0.00	0.00	0.00
		0	0	0	0	0
Tank Cannon Rounds	120 mm	0.00	0.00	0.00	0.00	0.00
		0	0	0	0	0
Missiles	TOW Missile (non-explosive)	0	0	0	0	0
		0	0	0	0	0
Small and Medium Caliber Rounds	5.56 mm	25.20	1.15	0.86	0.60	0.00
	7.62 mm	27.22	1.13	0.61	0.46	0.00
	20 mm	14.56	3.33	13.73	27.04	0.00
	25 mm	0.00	0.00	0.00	0.00	0.00
	40 mm	1.50	0.33	2.75	1.40	0.00
	0.50-caliber	0.36	0.04	0.01	0.01	0.00
Explosives	HE Charge	0.00	0.00	0.00	0.00	0.00
	Total (lb)	**100.6**	**15.6**	**49.7**	**52.7**	**0.2**
	Total (tons)	**0.05**	**0.01**	**0.02**	**0.03**	**0.0001**

Notes: lb - pound, LGTR - Laser-Guided Training Round, HE - high explosive,

TOW - tube-launched, optically tracked, wire-guided, CO - carbon monoxide, NO_x - nitrogen oxides,

PM10 - particulates <10 microns, PM2.5 - particulates <2.5 microns

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - ORDNANCE

ORDNANCE TYPE		CRITERIA POLLUTANTS - ALTERNATIVE 1 EMISSIONS (lb/year)				
		CO	NO_x	PM_{10}	$PM_{2.5}$	Lead
Non-Explosive Practice Bombs	MK-76	31	9.29	30.58	22.34	0.20
	MK-82	1	0.24	0.78	0.57	0.01
	MK-83	0	0.07	0.23	0.17	0.00
	MK-84	0	0.05	0.16	0.11	0.00
	LGTR	0	0.00	0.00	0.00	0.00
Mortar Rounds	M224 60mm	0	0.00	0.00	0.00	0.00
		0	0.00	0.00	0.00	0.00
Tank Cannon Rounds	120 mm	507	154.05	507.00	370.50	3.32
		1,373	417.12	1,372.80	1,003.20	8.98
Missiles	TOW Missile (non-explosive)	8	2.38	7.83	5.72	0.05
		1	0.33	1.09	0.80	0.01
Small and Medium Caliber Rounds	5.56 mm	657	30.05	22.54	15.78	0.01
	7.62 mm	1,844	76.83	41.49	31.24	0.03
	20 mm	50	11.37	46.89	92.35	0.00
	25 mm	30	6.85	28.25	55.64	0.00
	40 mm	351	76.05	643.50	327.60	0.43
	0.50-caliber	91	9.98	2.58	1.58	0.11
Explosives	HE Charge	260	79.00	260.00	190.00	1.70
	Total (lb)	5,203.8	873.6	2,965.7	2,117.6	14.8
	Total (tons)	2.60	0.44	1.48	1.06	0.01
	NAA (tons)	0.05	0.01	0.02	0.03	0.00
	Change	2.55	0.43	1.46	1.03	0.01

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - ORDNANCE

ORDNANCE TYPE		CRITERIA POLLUTANTS - ALTERNATIVE 2 EMISSIONS (lb/year)				
		CO	NO_x	PM_{10}	$PM_{2.5}$	Lead
Non-Explosive Practice Bombs	MK-76	31	9.29	30.58	22.34	0.20
	MK-82	1	0.24	0.78	0.57	0.01
	MK-83	0	0.07	0.23	0.17	0.00
	MK-84	0	0.05	0.16	0.11	0.00
	LGTR	0	0.00	0.00	0.00	0.00
Mortar Rounds	M224 60mm	35	4.84	36.86	19.58	0.26
		37	11.38	37.44	27.36	0.24
Tank Cannon Rounds	120 mm	0	0.00	0.00	0.00	0.00
		0	0.00	0.00	0.00	0.00
Missiles	TOW Missile (non-explosive)	0	0.00	0.00	0.00	0.00
		0	0.00	0.00	0.00	0.00
Small and Medium Caliber Rounds	5.56 mm	377	17.25	12.94	9.06	0.01
	7.62 mm	755	31.47	16.99	12.80	0.01
	20 mm	50	11.37	46.89	92.35	0.00
	25 mm	0	0.00	0.00	0.00	0.00
	40 mm	63	13.65	115.50	58.80	0.08
	0.50-caliber	37	4.04	1.04	0.64	0.04
Explosives	HE Charge	260	79.00	260.00	190.00	1.70
	Total (lb)	1,646.0	182.6	559.4	433.8	2.6
	Total (tons)	0.82	0.09	0.28	0.22	0.001
	NAA (tons)	0.05	0.01	0.02	0.03	0.00
	Change	0.77	0.08	0.25	0.19	0.00

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - VEHICLES ALTERNATIVE 1

SOURCE INFORMATION											
Vehicle	Miles Per Year		miles per gallon	Gallons / Year by Alternative			Emission Factor (pounds per gallon)				
	No Action	Alt 1		No Action	1		CO	NO_x	VOC	PM_{10}	$PM_{2.5}$
ASV	0	242	1	0	242		4.2	10.84	0.95	0.41	0.41
Bus	0	4676	1	0	4,676		4.2	10.84	0.95	0.41	0.41
GSA P/U	354	1382	1	354	1,382		4.2	10.84	0.95	0.41	0.41
HEMTT	0	39	1	0	39		4.2	10.84	0.95	0.41	0.41
HMMWV	435	53593	14	31	3,828		4.4	10.84	0.94	0.43	0.43
LMTV	0	6514	1	0	6,514		4.2	10.84	0.95	0.41	0.41
M1068	0	391	1	0	391		4.2	10.84	0.95	0.41	0.41
M113	0	713	1	0	713		4.2	10.84	0.95	0.41	0.41
M1A2 Tank	0	3936	0.6	0	6,560		0.45	118.8	0.06	1.56	1.52
M2A3	0	5480	1.7	0	3,224		4.2	10.84	0.95	0.41	0.41
M3A3	0	753	1.7	0	443		4.2	10.84	0.95	0.41	0.41
M7 BFIST	0	783	1.7	0	461		4.2	10.84	0.95	0.41	0.41
M88 Wrecker	0	321	0.7	0	459		4.2	10.84	0.95	0.41	0.41
MTV	0	5725	1	0	5,725		4.2	10.84	0.95	0.41	0.41

Notes: CO - carbon monoxide, NO_x - nitrogen oxides, VOC - volatile organic compounds, PM_{10} - particulates <10 microns, $PM_{2.5}$ - particulates <2.5 microns

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - VEHICLES ALTERNATIVE 1

Vehicle	CRITERIA AIR POLLUTANT EMISSIONS									
	No Action Alternative Emissions (pounds/year)					Alternative 1 Emissions (pounds/year)				
	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$
ASV	0	0	0	0	0	1,016	2,623	230	99	99
Bus	0	0	0	0	0	19,639	50,688	4,442	1,917	1,917
GSA P/U	1,487	3,837	336	145	145	5,804	14,981	1,313	567	567
HEMTT	0	0	0	0	0	164	423	37	16	16
HMMWV	137	337	29	13	13	16,844	41,496	3,598	1,646	1,646
LMTV	0	0	0	0	0	27,359	70,612	6,188	2,671	2,671
M1068	0	0	0	0	0	1,642	4,238	371	160	160
M113	0	0	0	0	0	2,995	7,729	677	292	292
M1A2 Tank	0	0	0	0	0	2,952	779,328	394	10,234	9,971
M2A3	0	0	0	0	0	13,539	34,943	3,062	1,322	1,322
M3A3	0	0	0	0	0	1,860	4,801	421	182	182
M7 BFIST	0	0	0	0	0	1,934	4,993	438	189	189
M88 Wrecker	0	0	0	0	0	1,926	4,971	436	188	188
MTV	0	0	0	0	0	24,045	62,059	5,439	2,347	2,347
Total (pounds)	1,624	4,174	366	159	159	121,720	1,083,885	27,046	21,829	21,567
Total (tons)	0.8	2.1	0.2	0.1	0.1	61	542	14	11	11
					NAA (tons):	0.8	2.1	0.2	0.1	0.1
					Change:	60	540	13	11	11

Notes: CO - carbon monoxide, NO_x - nitrogen oxides, VOC - volatile organic compounds, PM_{10} - particulates <10 microns, $PM_{2.5}$ - particulates <2.5 microns

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - VEHICLES ALTERNATIVE 1

Vehicle	GREENHOUSE GAS EMISSIONS (pounds / year)							
	No Action Alternative				Alternative 1			
	CO_2	N_2O	CH_4	CO_{2-e}	CO_2	N_2O	CH_4	CO_{2-e}
ASV	0	0	0	0	5,095	0	0	5,149
Bus	0	0	0	0	98,449	3	3	99,497
GSA P/U	7,453	0	0	7,532	29,097	1	1	29,407
HEMTT	0	0	0	0	821	0	0	830
HMMWV	654	0	0	661	80,596	3	2	81,455
LMTV	0	0	0	0	137,146	4	4	138,606
M1068	0	0	0	0	8,232	0	0	8,320
M113	0	0	0	0	15,012	0	0	15,171
M1A2 Tank	0	0	0	0	138,114	4	4	139,585
M2A3	0	0	0	0	67,868	2	2	68,591
M3A3	0	0	0	0	9,326	0	0	9,425
M7 BFIST	0	0	0	0	9,697	0	0	9,801
M88 Wrecker	0	0	0	0	9,655	0	0	9,758
MTV	0	0	0	0	120,534	4	3	121,818
Total (pounds)				8,194				737,412
Total (tons)				4				369
							Increase (tons)	**365**

Notes: CO - carbon monoxide, NO_x - nitrogen oxides, VOC - volatile organic compounds, PM_{10} - particulates <10 microns, $PM_{2.5}$ - particulates <2.5 microns

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - VEHICLES ALTERNATIVE 2

SOURCE INFORMATION											
Vehicle	Miles Per Year		miles per gallon	Gallons / Year by Alternative			Emission Factor (pounds per gallon)				
	No Action	Alt 2		No Action	2		CO	NO_x	VOC	PM_{10}	$PM_{2.5}$
ASV	0	242	1	0	242		4.2	10.84	0.95	0.41	0.41
Bus	0	4676	1	0	4,676		4.2	10.84	0.95	0.41	0.41
GSA P/U	354	1382	1	354	1,382		4.2	10.84	0.95	0.41	0.41
HEMTT	0	39	1	0	39		4.2	10.84	0.95	0.41	0.41
HMMWV	435	53593	14	31	3,828		4.4	10.84	0.94	0.43	0.43
LMTV	0	6514	1	0	6,514		4.2	10.84	0.95	0.41	0.41
M1068	0	0	1	0	0		4.2	10.84	0.95	0.41	0.41
M113	0	0	1	0	0		4.2	10.84	0.95	0.41	0.41
M1A2 Tank	0	0	0.6	0	0		0.45	118.8	0.06	1.56	1.52
M2A3	0	0	1.7	0	0		4.2	10.84	0.95	0.41	0.41
M3A3	0	0	1.7	0	0		4.2	10.84	0.95	0.41	0.41
M7 BFIST	0	0	1.7	0	0		4.2	10.84	0.95	0.41	0.41
M88 Wrecker	0	0	0.7	0	0		4.2	10.84	0.95	0.41	0.41
MTV	0	5725	1	0	5,725		4.2	10.84	0.95	0.41	0.41

Notes: CO - carbon monoxide, NO_x - nitrogen oxides, VOC - volatile organic compounds, PM_{10} - particulates <10 microns, $PM_{2.5}$ - particulates <2.5 microns

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - VEHICLES ALTERNATIVE 2

Vehicle	CRITERIA AIR POLLUTANT EMISSIONS									
	No Action Alternative Emissions (pounds/year)					Alternative 2 Emissions (pounds/year)				
	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$	CO	NO_x	VOC	PM_{10}	$PM_{2.5}$
ASV	0	0	0	0	0	1,016	2,623	230	99	99
Bus	0	0	0	0	0	19,639	50,688	4,442	1,917	1,917
GSA P/U	1,487	3,837	336	145	145	5,804	14,981	1,313	567	567
HEMTT	0	0	0	0	0	164	423	37	16	16
HMMWV	137	337	29	13	13	16,844	41,496	3,598	1,646	1,646
LMTV	0	0	0	0	0	27,359	70,612	6,188	2,671	2,671
M1068	0	0	0	0	0	0	0	0	0	0
M113	0	0	0	0	0	0	0	0	0	0
M1A2 Tank	0	0	0	0	0	0	0	0	0	0
M2A3	0	0	0	0	0	0	0	0	0	0
M3A3	0	0	0	0	0	0	0	0	0	0
M7 BFIST	0	0	0	0	0	0	0	0	0	0
M88 Wrecker	0	0	0	0	0	0	0	0	0	0
MTV	0	0	0	0	0	24,045	62,059	5,439	2,347	2,347
Total (pounds)	1,624	4,174	366	159	159	94,871	242,882	21,247	9,263	9,263
Total (tons)	0.8	2.1	0.2	0.1	0.1	47	121	11	4.6	5
					NAA (tons):	0.8	2.1	0.2	0.1	0.1
					Change:	47	119	10	5	5

Notes: CO - carbon monoxide, NO_x - nitrogen oxides, VOC - volatile organic compounds, PM_{10} - particulates <10 microns, $PM_{2.5}$ - particulates <2.5 microns

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - VEHICLES ALTERNATIVE 2

Vehicle	GREENHOUSE GAS EMISSIONS (pounds / year)							
	No Action Alternative				Alternative 2			
	CO_2	N_2O	CH_4	CO_{2-e}	CO_2	N_2O	CH_4	CO_{2-e}
ASV	0	0	0	0	5,095	0	0	5,149
Bus	0	0	0	0	98,449	3	3	99,497
GSA P/U	7,453	0	0	7,532	29,097	1	1	29,407
HEMTT	0	0	0	0	821	0	0	830
HMMWV	654	0	0	661	80,596	3	2	81,455
LMTV	0	0	0	0	137,146	4	4	138,606
M1068	0	0	0	0	0	0	0	0
M113	0	0	0	0	0	0	0	0
M1A2 Tank	0	0	0	0	0	0	0	0
M2A3	0	0	0	0	0	0	0	0
M3A3	0	0	0	0	0	0	0	0
M7 BFIST	0	0	0	0	0	0	0	0
M88 Wrecker	0	0	0	0	0	0	0	0
MTV	0	0	0	0	120,534	4	3	121,818
Total (pounds)				8,194				476,761
Total (tons)				4				238
							Increase (tons)	**234**

Notes: CO - carbon monoxide, NO_x - nitrogen oxides, VOC - volatile organic compounds, PM_{10} - particulates <10 microns, $PM_{2.5}$ - particulates <2.5 microns

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN EIS AIR POLLUTANT EMISSIONS CALCULATIONS - SOURCE INFORMATION

Platform	Engine	# Engines	Flight Mode	Fuel Flow/Engine (pounds per hour)	References for Fuel Flow and Emissions Factors
Fixed-Wing Aircraft					
EA-6B Prowler	J52-P-408A	**2**	circle	3195	AESO Memorandum Report No. 9941, Revision B, December 2009.
EA-18G Growler	F414-GE-400	**2**	approach	5179	AESO Memorandum Report No. 9933, Revision D, March 2011.
F-15E	F100-PW-229	**2**	approach	3158	Air Force Center for Engineering and the Environment, December 2009.
F-16C/D	F110-GE-129	**1**	approach	5053	Air Force Center for Engineering and the Environment, December 2009.
F-35	F135-PW-400	**1**	approach	5053	F-16 info used as a surrogate aircraft.
FA-18C/D	F404-GE-400	**2**	approach	3318	AESO Memorandum Report No. 9933, Revision D, March 2011.
AV-8B	F402-RR-408	**1**	approach	6000	AESO Memorandum Report No. 9963, Revision C, November 2009.
P-3EP-3/P-8	T56-A-14	**4**	ASUW	1200	AESO Memorandum Report No. 9948, Revision C, March 2010.
C-130, C-17, CH-47 or C-23	T56-A-16 Turboprop	**4**	circle	1125	AESO Memorandum Report No. 2000-10B, January 2001.
Helicopters					
CH-47 Chinook	T55-L-712	**2**	-	550	U.S. Army Forces Command, 1997 (fuel flow rate not reported - estimated).
UH-60 Blackhawk	T700-GE-401C	**2**	approach	600	AESO Memorandum Report No. 9953 Revision B, June 2011.
Unmanned Aerial Systems					
RQ-7 Shadow	Wankel UAV Engine 741	**1**		38 hp	Horsepower from manufacturer's fact sheet. AP-42 emissions factors used to estimate emissions based on horsepower.
RQ-11 Raven	Aveox 27/26/7-AV electric motor	**1**		electric	Information from Aerovironment Fact Sheet. Assume no emissions.
SCANEAGLE	3W 2-stroke piston engine; 1.5 hp	**1**		1.9 hp	Horsepower from Boeing fact sheet. AP-42 emissions factors used to estimate emissions based on horsepower.

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Appendix E

Supporting Noise Studies

TABLE OF CONTENTS

AIRCRAFT, ORDNANCE, AND SMALL ARMS NOISE STUDY FOR NAVAL WEAPONS SYSTEM TRAINING FACILITY BOARDMAN, OREGON

OREGON STATEWIDE NOISE PLAN

GUARD NOISE ADDENDUM

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NOISE STUDY FOR
NAVAL WEAPONS SYSTEMS TRAINING FACILITY
BOARDMAN, OREGON

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Noise Study for

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Contents

Acronyms & Abbreviations vii
Executive Summary ix

Sections

1 Introduction and Background 1
2 Study Methodology and Data Collection 3
2.1 Data Collection 3
2.2 Noise Modeling 4
2.2.1 Noise Metrics 4
2.2.2 Noise Models 8
2.3 Impact and Geospatial Analysis 10
2.3.1 Topographical Data 10
3 Boardman Range 11
3.1 Regional and Local Settings 11
3.2 Climatic/Weather Conditions 11
4 Baseline Scenario 15
4.1 Aircraft Noise 15
4.1.1 Aircraft Sorties 15
4.1.2 Modeled Airspace 17
4.1.3 Modeled Flight Performance Profiles 21
4.1.4 Baseline Aircraft Noise Exposure 22
4.2 Ordnance Noise 24
4.2.1 Firing and Target Areas 24
4.2.2 Ordnance Operations Modeling 24
4.2.3 Baseline Ordnance Noise Exposure 25
4.3 Small Arms Weapon Fire Noise 30

4.3.1 Firing and Target Areas 30
4.3.2 Small Arms Event Modeling 30
4.3.3 Baseline Small Arms Weapon Noise Exposure 32
5 Proposed Scenarios 1 & 2 35
5.1 Aircraft Noise 35
5.1.1 Aircraft Sorties 35
5.1.2 Modeled Airspace and Flight Performance Profiles 36
5.1.3 Aircraft Noise Exposure for Proposed Scenarios 1 and 2 36
5.2 Ordnance Noise 40
5.2.1 Firing and Target Areas 40
5.2.2 Ordnance Operations Modeling 40
5.2.3 Proposed Scenarios 1 and 2 Ordnance Noise Exposure 42
5.3 Small Arms Weapon Noise 52
6 Proposed Scenario 3 53
6.1 Aircraft Noise 53
6.1.1 Aircraft Sorties 53
6.1.2 Modeled Airspace 53
6.1.3 Modeled Flight Performance Profiles 53
6.1.4 Aircraft Noise Exposure for Proposed Scenario 3 55
6.2 Ordnance Noise 58
6.3 Small Arm Weapon Noise 58
7 Biological Assessment 59
7.1 Maximum Un-weighted Sound Levels (L_{max}) 59
7.2 Numbers-of-Events At or Above (NA) L_{max} 120 dB 63
7.3 SEL and L_{max} for Modeled Profiles 67
7.4 SEL and L_{max} Comparison for All Aircraft 69

References 71
Appendix A: Supportive Tabular and Graphic Data A-1

Figures

Figure 2-1 Major Phases of the Noise Study 3
Figure 2-2 Frequency Response Characteristics of A- and C-Weighting Networks 4
Figure 2-3 Example of Maximum Sound Level and Sound Exposure Level from an Individual Event 5
Figure 2-4 Example of Day-Night Average Sound Level Computed from Hourly Equivalent Sound Levels 6
Figure 3-1 Regional Map of NWSTF Boardman 12
Figure 3-2 Vicinity of NWSTF Boardman 13
Figure 4-1 Modeled Average Daily LATT Flight Tracks and Corridors 18
Figure 4-2 Modeled Average Daily Bombing Flight Tracks and Corridors 19
Figure 4-3 Modeled Average Daily Strafe Flight Tracks and Corridors 20
Figure 4-4 Aircraft L_{dnmr} Contours for Baseline Average Daily Operations During Busiest Month 23
Figure 4-5 CDNL Contours for Baseline Average Daily Ordnance Activity 26
Figure 4-6 Areas of Risk of Noise Complaints and Potential for Structural Damage from Baseline Ordnance Activity 27
Figure 4-7 Peak Levels (L_{pk}) for MK-76 Training Round 28
Figure 4-8 Peak Levels (L_{pk}) for Strafe Fire Pass 29
Figure 4-9 Small Arms Firing and Target Location 31
Figure 4-10 Figure 4-10 Areas of Risk of Noise Complaints from Baseline Small Arms Weapon Fire 33
Figure 5-1 Aircraft L_{dnmr} Contours for Scenarios 1 &2 Average Daily Operations During Busiest Month 38
Figure 5-2 Difference in Aircraft L_{dnmr} betweenScenarios 1 &2 and Baseline 39
Figure 5-3 Modeled Ordnance Site Locations for Scenarios 1, 2 and 3 41
Figure 5-4 CDNL Contours for Scenarios 1, 2 and 3 Average Daily Ordnance Activity 43
Figure 5-5 Areas of Risk of Noise Complaints and Potential for Structural Damage from Scenarios 1,2 and 3 Ordnance Activity 44
Figure 5-6 Peak Level (L_{pk}) Contours for Mortar Fire from Three Pad Locations 45
Figure 5-7 Peak Level (L_{pk}) Contours for EOD of 220lbs Net Explosive Weight 46
Figure 5-8 Peak Level (L_{pk}) Contours for EOD of 176lbs Net Explosive Weight 47
Figure 5-9 Peak Level (L_{pk}) Contours for EOD of 139lbs Net Explosive Weight 48
Figure 5-10 Peak Level (L_{pk}) Contours for EOD of 88lbs Net Explosive Weight 49
Figure 5-11 Peak Level (L_{pk}) Contours for EOD of 44lbs Net Explosive Weight 50
Figure 5-12 Peak Level (L_{pk}) Contours for EOD of 26lbs Net Explosive Weight 51
Figure 6-1 Modeled Average Daily LATT Flight Tracks and Corridors for Scenario 3 54
Figure 6-2 Aircraft L_{dnmr} Contours for Scenario 3 Average Daily Operations During Busiest Month 56
Figure 6-3 Differences in Aircraft L_{dnmr} between Scenario 3 and Baseline 57
Figure 7-1 Aircraft Instantaneous Maximum Sound Levels for Baseline 60
Figure 7-2 Aircraft Instantaneous Maximum Sound Levels for Proposed Scenarios 1 and 2 61
Figure 7-3 Aircraft Instantaneous Maximum Sound Levels for Proposed Scenario 3 62
Figure 7-4 Average Daily NA 120 dB L_{max} for Baseline 64
Figure 7-5 Average Daily NA 120 dB L_{max} for Proposed Scenarios 1 and 2 65
Figure 7-6 Average Daily NA 120 dB L_{max} for Proposed Scenario 3 66

Tables

Table 4-1 Baseline Annual Area-type Aircraft Sorties 16
Table 4-2 Baseline Annual Route-type Aircraft Sorties and Passes 16
Table 4-3 Baseline Modeled Area-Type Flight Profiles 21
Table 4-4 Baseline Modeled Route-Type Flight Profiles 22
Table 4-5 Baseline Ordnance and Strafing Operations 24
Table 4-6 Small Arms Weapon Range Firing Orientations 30
Table 4-7 Baseline Small Arms Weapon Fire Operations 32
Table 4-8 Complaint Risk of 40mm Grenade Launcher Inert Round Fire 34
Table 5-1 Area-type Aircraft Sorties for Proposed Scenarios 1, 2 and 3 35
Table 5-2 Route-type Aircraft Sorties for Scenarios 1, 2 and 3 36
Table 5-3 Proposed Ordnance Events for Scenarios 1, 2 and 3 40
Table 5-4 Proposed EOD Events by Charge Weight for Proposed Scenarios 1, 2 and 3 42
Table 7-1 Un-Weighted Maximum Sound Levels (L_{max}) and Sound Exposure Levels (SEL) and Number of Events Above for Area-Type Sorties 67
Table 7-2 Un-Weighted Maximum Sound Levels (L_{max}) and Sound Exposure Levels (SEL) and Number of Events Above for Route-Type Sorties 68
Table 7-3 Un-Weighted Maximum Sound Levels (L_{max}) and Sound Exposure Levels (SEL) for Applicable Aircraft Types 69

Acronyms & Abbreviations

ID	Definition
°F	degrees Fahrenheit
AAD	Annual Average Daily
AGL	Above Ground Level
APE	Area of Potential Effect
ATCAA	Air Traffic Control Assigned Airspace
BFM	Basic Fighter Maneuvers
BNOISE	Blast Noise Prediction
CDNL	C-Weighted Day-Night Average Sound Level
CHABA	Committee on Hearing, Bioacousitcis, and Biomechanics
CY	Calendar Year
dB	Decibel
dBA	A-Weighted Decibels
dBC	C-Weighted Decibels
DEM	Digital Elevation Map
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DoN	Department of the Navy
ECM	Electronic Counter Measures
EIS	Environmental Impact Statement
EOD	Explosive Ordnance Disposal
EPR	Engine Pressure Ratio
ESHP	Equivalent Shaft Horsepower
ETR	Engine Thrust Request (ETR)
FAA	Federal Aviation Administration
FICAN	Federal Interagency Committee on Aviation Noise
ft	Feet
HARMEX	High-Speed Anti-Radiation Missile Exercise
HE	High Explosive
HLL	High Light Level
Hz	Hertz
ID	Identification
in	inch
in-lbs	inch pounds (torque)
in Hg	inches of mercury
kts	Knots
LATT	Low Altitude Tactical Training
LC_{dn}	C-Weighted Day-Night Average Sound Level
L_{dnmr}	Onset-Rate Adjusted Monthly Day-Night Average Sound Level
$L_{eq(h)}$	Hourly Average Sound Level
LGTR	Laser Guided Training Round
LLL	Low Light Level
L_{max}	Maximum Sound Level
L_{pk}	Peak Sound Level
MOA	Military Operations Area

ID	Definition
MR_NMAP	MOA Range Noise Model
MSL	Mean Sea Level
MTR	Military Training Route
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NC	Core RPM (rotational speed)
NEPA	National Environmental Policy Act
NMAP	NOISEMAP
NWSTF	Naval Weapons Station Training Facility
ORANG	Oregon Air National Guard
ORNG	Oregon National Guard
PDX	Portland International Airport
POI	Point of Interest
RAICUZ	Range Air Installations Compatible Use Zones
RH	Relative Humidity
RNM	Rotorcraft Noise Model
RPM	Revolutions Per Minute
SACT	Surface to Air Counter Tactics
SARNAM	Small Arms Range Noise Assessment Model
SDZ	Safety Danger Zone
SEL	Sound Exposure Level
SEL_r	Onset-rate Adjusted Sound Exposure Level
SUA	Special Use Airspace
TNT	Trinitrotoluene
U.S.	United States
UAS	Unmanned Aerial Systems
VIP	Very Important Person

Executive Summary

This report presents the results of a noise study in support of a National Environmental Policy Act (NEPA)-governed Environmental Impact Statement (EIS) for the proposed continued use and projected future operations at Naval Weapons Systems Training Facility (NWSTF) Boardman. The NWSTF consists of the Boardman Range, Restricted Areas R-5706 and R-5701 and the Boardman Military Operations Area (MOA). Currently, NWSTF Boardman supports aircraft air-to-ground training and use of the designated special use airspace for EA-6B Prowler and EA-18G Growler aircraft stationed at Naval Air Station (NAS) Whidbey Island and occasional aircraft from other Department of Defense (DoD) installations such as FA-18 Hornets from NAS Lemoore and F-15 Eagles from the Oregon National Guard (ORNG).

The noise study considered the following scenarios: Baseline Calendar Year 2010 (CY2010), two Scenarios (CY2013) for additional/proposed aircraft, mortar and Explosive Ordnance Disposal (EOD) activity at NWSTF Boardman, and one Scenario (CY2016) for additions to the Boardman airspace. Scenarios 1 and 2 would maintain the same MOA as the existing Boardman MOA but Scenario 3 would introduce additional airspace to the northeast corner of the Boardman MOA. The name and number of scenarios in this noise study differs slightly from the EIS document because they had been chosen prior to the EIS document alternatives were finalized.

Operational data provided by the Navy and the ORNG was utilized in DoD computer-based noise models Military Operating Area and Range Noise Model (MR_NMAP), Blast Noise Prediction (BNOISE), and Small Arms Range Noise Assessment Model (SARNAM 2) to develop estimates of aircraft, ordnance, and small arms weapon fire noise exposure. Aircraft noise exposure was presented in terms of Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}) for the average day during the busiest month of activity. Ordnance noise exposure was presented in terms of C-weighted DNL (CDNL) for annual average daily activity for land use compatibility purposes and Single Event Peak Sound Level Exceeded by 15 Percent of Events [PK 15(met)] for noise complaint risk assessment (i.e., "low", "medium" and "high") and the potential for physiological/structural damage.

For Baseline (CY2010) aircraft activity totaling approximately 1,800 route- and area-type sorties per year, the 65 dBA L_{dnmr} extends more than 4 miles beyond the western range boundary. The only civilian land use exposed to 65 dBA L_{dnmr} or greater is agricultural. For Baseline (CY2010) ordnance activity totaling over 400 training bombs and 26,000 rounds of 20 mm strafing, no residents outside of NWSTF property are exposed to 62 decibel (dBC) CDNL or greater and no residents reside within the NWSTF property. Areas of medium noise complaint risk, defined by PK 15[met] levels of 87 dB or greater, do not extend beyond the Range boundary. The area for potential damage to structures is also contained within the Range boundary. For Baseline (CY2010) small arms weapon fire of approximately 110,000 annual live fire rounds occurring at four firing ranges, no residents outside of NWSTF property are within the medium complaint risk area.

For the Scenarios 1 and 2 (CY2013) and Scenario 3 (CY2016) area- and route-type sorties would increase by 98 percent and 25 percent, respectively. For all three Scenarios, the only civilian land use exposed to 65 dBA L_{dnmr} or greater would be agricultural.

For ordnance activities, the three Scenarios would include the same number of training bombs as Baseline but 240 percent more strafing rounds, approximately 1400 annual rounds of 60 mm mortar fire and 50

annual EODs of 25-200 lbs of net explosive weight each. Only two events at the maximum 200 lbs weight are expected to occur per year.

In terms of risk of noise complaints, the high noise complaint risk area would not extend beyond the Range boundary for the proposed EOD Site. The area of medium noise complaint risk would extend up to 5 miles from the Range boundary to the east and west and up to 3 miles to the north and south primarily due to the two 200 lb EOD events per year. This would affect the area just south of the city of Boardman.

In terms of the potential for physiological/structural damage, no residents or structures outside of NWSTF property would be within the area potentially affected. No none government owned structures exist within the NWSTF property. The area potentially affected is contained within the range boundary.

Un-weighted sound exposure levels (SEL) and maximum sound levels (L_{max}) were computed for single-events for each of the modeled aircraft. The existing EA-6B aircraft are up to 11 greater in SEL and 9 dB greater in L_{max} than the EA-18G which will replace it. Low Altitude Tactics (LAT) Training is the primary cause of SEL and L_{max} events exceeding 120 dB. The frequency of aircraft events which exceed 120 dB SEL or L_{max} will increase by a factor of nearly three for all of the proposed scenarios but the majority of these additional events would either occur within the Boardman Range boundary or within 5 miles east or west of the boundary over farmland.

SECTION 1

Introduction and Background

This study is to provide modeling of various noise producing actions projected on the Naval Weapons Systems Training Facility (NWSTF) Boardman range in order to support environmental and public health, safety and welfare analysis under the National Environmental Policy Act (NEPA). Commander, U.S. Pacific Fleet is preparing an Environmental Impact Statement (EIS) to cover ongoing and future uses of NWSTF Boardman by both the Navy and Oregon National Guard (ORNG). Resources to be evaluated under the NEPA analysis include acoustic environment, wildlife, public health and safety, socioeconomics and environmental justice, as well as other resources. Having detailed technical information regarding noise levels of particular activities planned is critical to ensuring thorough NEPA review. The information contained in this study could also support later study in the future by the Navy under its Range Air Installations Compatible Use Zones (RAICUZ) program for NWSTF Boardman separate from this NEPA process. RAICUZ includes range safety and noise analysis, and also provides land use recommendations for compatibility between the military operations and surrounding land uses.

This report presents the results of detailed noise impact analysis that addresses not only aircraft noise, but ordnance and small arms weapon operations. This study provides the detailed noise contours which have been developed by Department of Defense (DoD) computer-based noise models reflecting site-specific conditions and operational data (flight tracks, type of aircraft, weapons employed).

In addition to baseline (CY2010) activities and proposed added future range activities on the ground at the NWSTF, the NEPA analysis that this report will support includes consideration of an additional Military Operations Area (MOA) northeast of the NWSTF. Therefore, the noise study will the evaluate impact of new flight tracks within that airspace as well as the airspace detailed in Section 6.

Boardman Range is currently used by Naval Air Station (NAS) Whidbey Island-based EA-6B Prowler and EA-18G Growler aircraft for competency training including Low Altitude Tactical Training (LATT). The ORNG conducts strafe fire exercises and air-to-air combat training. Bombing practice at Boardman Range is conducted primarily by FA-18 Hornet aircraft from locations such as NAS Lemoore. The Navy proposes potential increases in use of the land property of NWSTF Boardman with potential new training ranges for ORNG activities, continued use of the restricted airspace above NWSTF Boardman and surrounding area, addition of a new MOA in the airspace to the northeast of the existing NWSTF Boardman airspace as well as the addition of an Explosive Ordnance Disposal (EOD) training range.

This report has six sections followed by an Appendix. Section 2 presents the study's methodology including the tools and metrics used to conduct the noise exposure analysis. Section 3 provides an overview of the NWSTF Boardman. Section 4 describes in detail and presents the noise exposure for the current conditions for aircraft, ordnance, and small arms weapon generated noise. Section 5 describes Proposed Scenarios 1 and 2 (CY2013) and presents the resulting noise exposure. Section 6 describes Proposed Scenario 3 (CY2016) and the resulting noise exposure. Appendix A contains supportive tabular and graphic data.

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SECTION 2

Study Methodology and Data Collection

This section provides an overview of the methodology, noise metrics, analysis tools and geospatial capabilities that were used in the performance of the study.

The assessment of noise exposure utilizes tested methodologies, approved regulatory modeling tools, and a strong quality assurance process.

2.1 Data Collection

The noise analysis process begins with a comprehensive data collection and validation process that makes use of all available data sources for range operations and features. This process relies heavily on interviews with base personnel as well as Range and squadron operators. In various cases, additional data is collected from transient squadrons. The goal of the data collection effort is to assemble the most current and comprehensive set of information representing the busy month conditions at the range.

The data collection phase began with a site visit to both NAS Whidbey Island and the Portland Oregon Air National Guard (ORANG) Base on December 7 and December 8, 2010, respectively. Data gathered included range information (e.g., geographic coordinates of range boundary and targets), flight tracks, flight profiles and types and quantities of ordnance used. Follow-up data validation packages were provided to NASWI personnel for review and validation (Kester 2011). The data validation process was conducted to ensure the completeness and validity of the data upon which the noise modeling was based.

Figure 2-1 below provides an overview of the major phases of the study and their associated quality control and program performance steps.

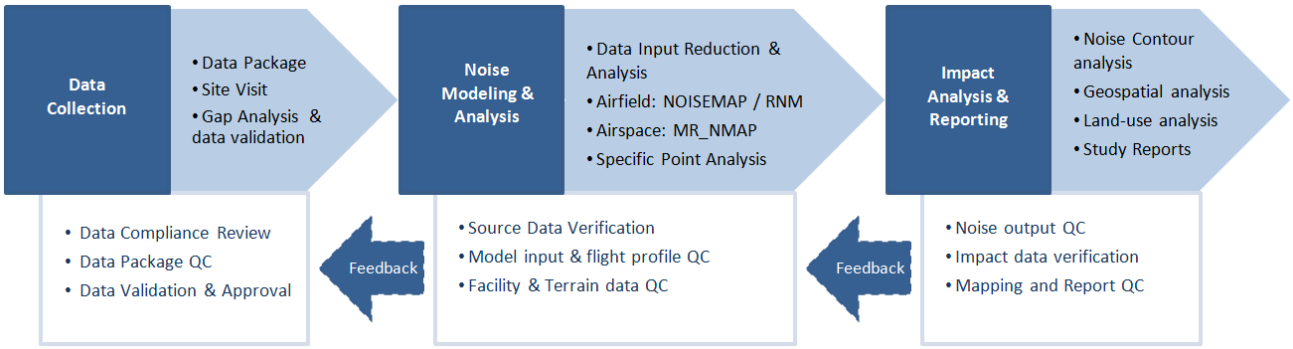

Figure 2-1 Major Phases of the Noise Study

2.2 Noise Modeling

2.2.1 Noise Metrics

The Federal Interagency Committee on Aviation Noise[1] (FICAN) uses three types of metrics to describe noise exposure:

1) A measure of the highest sound level occurring during an individual aircraft overflight
2) A combination of the maximum level of that single event with its duration; and
3) A description of the cumulative noise environment based on all noise events over a period of time.

The DoD and other FICAN members use Maximum Sound Level (L_{max}), Sound Exposure Level (SEL) and Day-Night Average Sound Level (DNL) for the aforementioned three types, respectively.

The metrics used to describe aircraft noise in this study are presented in terms of A-weighted decibels (dBA), which de-emphasizes low-frequency noise, i.e., noise containing components less than 200 Hertz (Hz), to approximate the response and sensitivity of the human ear. Ordnance noise, which is impulsive, contains more low-frequency noise energy, and is best described in terms of C-weighted decibels (dBC), with little low-frequency de-emphasis as shown in Figure 2-2. Because they typically contain more low-frequency energy, impulsive sounds may induce secondary effects, such as shaking of a structure, rattling of windows, and inducing vibrations. These secondary effects can cause additional annoyance and complaints.

Sections 2.2.1.1 through 2.2.1.3 of this report address the airspace noise metrics while Sections 2.2.1.4 through 2.2.1.6 describe the ordnance noise metrics.

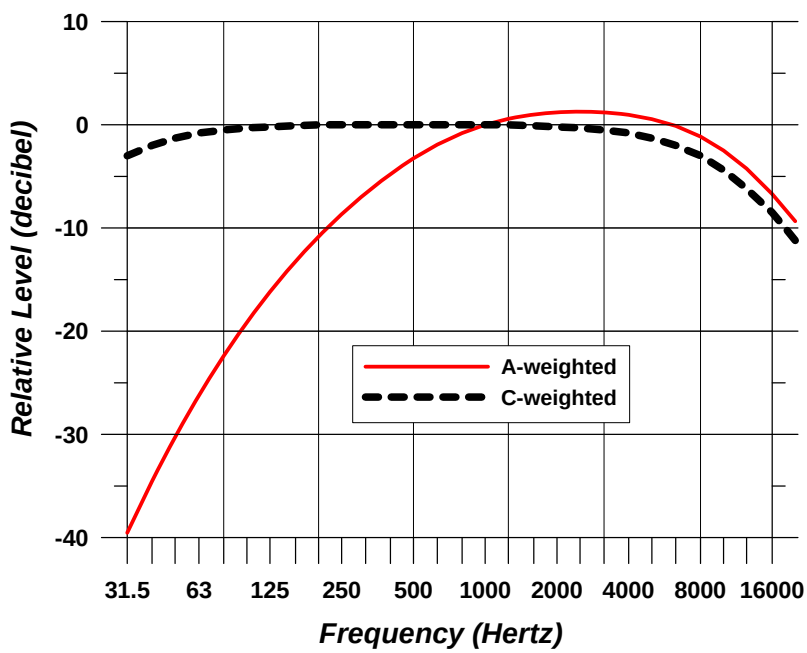

Figure 2-2 Frequency Response Characteristics of A- and C-Weighting Networks

Source: ANSI S1.4A -1985 "Specification of Sound Level Meters"

[1] DoD is a member of FICAN.

2.2.1.1 Maximum Sound Level (L_{max}) and Sound Exposure Level (SEL)

During an aircraft overflight, the noise level starts at the ambient or background noise level, rises to the maximum level as the aircraft flies closest to the observer, and returns to the background level as the aircraft recedes into the distance. The variation in sound level with time is shown by the solid red line in Figure 2-3. The Maximum Sound Level, $L_{max,}$ is the instantaneous maximum sound level measured/heard during the event. The L_{max} is important in judging the interference caused by a noise event with conversation, TV or radio listening, sleep, or other common activities. Although it provides some measure of the intrusiveness of the event, it does not completely describe the total event, because it does not include the period of time that the sound is heard.

The Sound Exposure Level, SEL, is a composite metric that represents all of the sound energy of the event and includes both the intensity of a sound and its duration. The SEL metric is the best metric to compare noise levels from overflights of different aircraft types. For sound from military aircraft overflights, the SEL is usually 5 to 10 dBA greater than the L_{max}. For example, the L_{max} of the sample event in Figure 2-3 is 93.5 dBA whereas the SEL is 102.7 dBA.

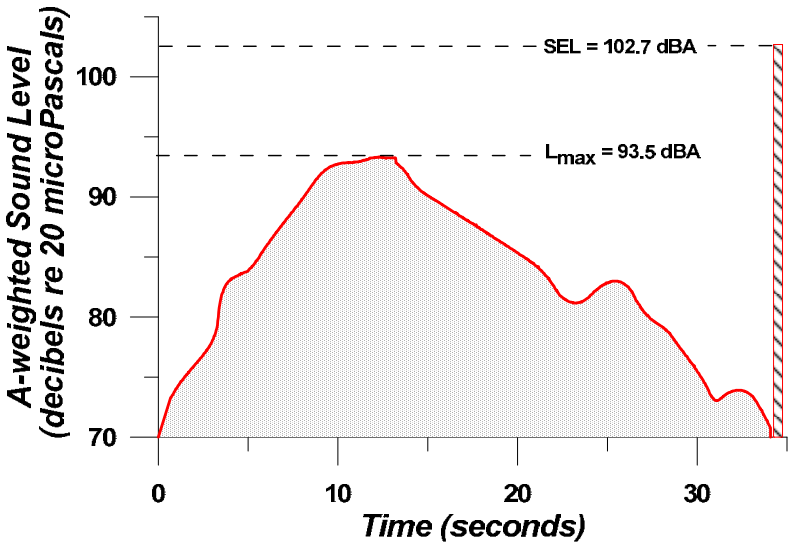

Figure 2-3 Example of Maximum Sound Level and Sound Exposure Level from an Individual Event

2.2.1.2 Day-Night Average Sound Level (DNL)

The Day-Night Average Sound Level, DNL, is a composite noise metric accounting for the A-weighted sound of all noise events in a 24-hour period. In order to account for increased human sensitivity to noise at night, a 10 dB penalty is applied to nighttime events (10:00 p.m. to 7:00 a.m. time period). Noise-sensitive land uses, such as housing, schools, and medical facilities are considered as being acceptable in areas where the DNL is less than 65 dB. Noise sensitive land uses are discouraged in areas where the DNL is between 65 and 69 dB, and strongly discouraged where the DNL is between 70 and 74 dB. At higher levels, i.e. greater than 75 dB, land use and related structures are not compatible and should be prohibited.

Because it is an energy-based quantity, DNL tends to be dominated by the noisier events. As a simple example, consider a case in which only one daytime aircraft overflight occurs over a 24-hour period, creating a sound level of 100 dB for 30 seconds. During the remaining 23 hours, 59 minutes and 30 seconds of the day, the ambient sound level is 50 dB. The resultant DNL would be 66 dB. In comparison, consider a second example that 10 such 30-second overflights occur during daytime hours

instead, with the same ambient sound level of 50 dB during the remaining 23 hours and 55 minutes. The resultant DNL would be 76 dB. The energy averaging of noise over a 24-hour period does not ignore the louder single events and tends to emphasize both the sound levels and the number of those events.

Figure 2-4 graphically describes DNL using notional hourly average noise levels ($L_{eq(h)}$) for each hour of the day as an example. Note the $L_{eq(h)}$ for the hours between 10 pm and 7 am have a 10 dB penalty assigned. The DNL for the example noise distribution shown in Figure 2-4 is 65 dB.

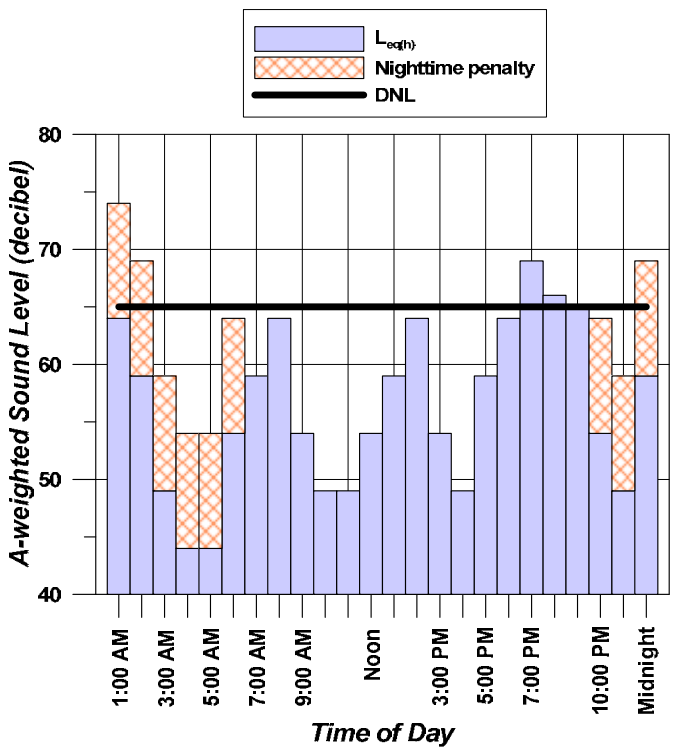

Figure 2-4 Example of Day-Night Average Sound Level Computed from Hourly Equivalent Sound Levels

2.2.1.3 Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr})

Military aircraft utilizing Special Use Airspace (SUA) such as Military Training Routes (MTRs), MOAs and Restricted Areas/Ranges, generate a noise environment that is somewhat different from that associated with airfield operations. As opposed to patterned or continuous noise environments associated with airfields, flight activity in SUAs is highly sporadic and often seasonal ranging from ten per hour to less than one per week. Individual military overflight events also differ from typical community noise events in that noise from a low-altitude, high-airspeed flyover can have a rather sudden onset, exhibiting a rate of increase in sound level (onset rate) of up to 150 dB per second.

To represent these differences, the conventional SEL metric is adjusted to account for the "surprise" effect of the sudden onset of aircraft noise events on humans with an adjustment ranging up to 11 dB above the normal SEL (Stusnick, et al, 1992). Onset rates between 15 to 150 dB per second require an adjustment of 0 to 11 dB, while onset rates below 15 dB per second require no adjustment. The adjusted SEL is designated as the onset-rate adjusted sound exposure level (SEL_r).

Because of the sporadic characteristic of SUA activity, noise assessments are normally conducted for the month with the most operations or sorties -- the so-called busiest month. The cumulative exposure to

noise in these areas is computed by the Day-Night Average Sound Level (DNL) over the busy month, but using SEL_r instead of SEL. This monthly average is denoted L_{dnmr}.

2.2.1.4 C-weighted Day-Night Average Sound Level (CDNL)

Noise produced by artillery fire and detonation of air-to-ground or ground-to-ground live ammunition, such as shell bursts, surface blasting, cratering charges and aircraft bombs and rockets, are analyzed differently than other noise sources, e.g., those produced by aircraft engines because of the significantly higher energy created at low frequencies by these blasts. The report by the Committee on Hearing, Bioacoustics, and Biomechanics (CHABA) Working Group 84 recommends using the C-weighted Day-Night Average Sound Level (CDNL or L_{Cdn}) cumulative metric to define high-energy impulsive sounds (ANSI S12.9 1996). CDNL is computed from annual average daily ordnance events.

2.2.1.5 Peak Sound Pressure Level (L_{pk})

The Peak Sound Pressure Level is the highest instantaneous level obtained by a sound level measurement device. The L_{pk} is typically measured using a 20 microseconds or faster sampling rate, and is commonly based on un-weighted or linear response of the meter. The peak sound pressure level (L_{pk}) can be used to determine impacts to animals in the areas surrounding impulsive events like the training rounds and the strafe fire. In support of the EIS analysis of impacts to animals, L_{pk} contours from 105 dB and up in 5 dB increments are presented in this study. Because L_{pk} sound levels are the maximum sound pressure level for an event, the reported peak levels only exist for a fraction of a second which can be as short as a few microseconds. The short duration of these events could make them much less noticeable than longer duration events at similar sound pressure levels.

2.2.1.6 Single Event Peak Sound Level Exceeded by 15 Percent of Events [PK 15(met)]

The Single Event Peak Sound Level Exceeded by 15 Percent of Events [PK 15(met)] is a metric used in addition to cumulative noise metrics to provide more information on the effects of noise from ordnance activity. PK 15(met) is the calculated peak noise level, without frequency weighting, expected to be exceeded by 15 percent of all modeled events. It allows assessment of the risk of noise complaints from large caliber impulsive noise resulting from armor, artillery, mortars and demolition activities, as well as from small arms ranges. The metric PK 15(met) is similar to L_{pk} but accounts for statistical variation in single event peak noise level that is due to variable meteorological conditions.

The Navy allows for the use of supplemental metrics, such as PK 15(met), to provide additional information about the effects and impacts of noise due to range activity (OPNAV 3550.1A). PK 15(met) is analyzed in this study to assess the risk of complaints due to impulsive noise. The only DoD regulation or instruction which addresses the risk of complaints is Army Regulation 200-1 (U.S. Department of the Army 2007), which states PK 15(met) less than 115 dB corresponds to areas of low risk of noise complaints from large caliber weapons. Noise sensitive land uses are discouraged in areas where PK 15(met) is between 115 and 130 dB with medium risk of complaints. Noise sensitive land uses are strongly discouraged in areas where PK 15(met) is equal to or greater than 130 dB with high risk of noise complaints. With large caliber weapons PK 15(met) exceeding 140 dB, there is a risk of physiological damage to unprotected human ears and structural damage claims. With small arms weapon fire, 20mm or smaller diameter, PK 15(met) less than 87 dB corresponds to areas of low risk of noise complaints. The lower thresholds for annoyance for small arms were identified in the Army regulation due to the different ways that the noise is perceived. Additionally, small arms weapon fire is commonly more repetitive in nature which decreases the levels at which it becomes annoying. Noise sensitive land uses are discouraged in areas where PK 15(met) from small arms weapons is between 87 and 104 dB with medium risk of

complaints. Noise sensitive land uses are strongly discouraged in areas where PK 15(met) from small arms weapons is equal to or greater than 104 dB with high risk of noise complaints.

The best method to determine disturbance to people and the potential for complaints from surround communities for small arms weapon fire is to analyze the peak contours (PK 15(met)). Analysis of resulting DNL exposure would be insufficient because a large amount of activity is required to generate contours that reflect where people are actually hearing and complaining about the activity. In this case the DNL contours only occur in the vicinity of each firing and target locations well within the Boardman Range boundary and offer minimal insight on the disturbance to residents outside of NWSTF property so they are not presented.

2.2.1.7 Number-of Events At or Above

For the analysis of frequency of event occurrence, the Number-of Events At or Above a Selected Noise Threshold (NA) metric was computed for aircraft flight events to aid in the biological assessment address in the EIS. While A-weighting better corresponds to the human ear's response, wildlife has a different sensitivity to different frequencies so un-weighted sound levels were for selected for this portion of the analysis. The applicable metric in this study is L_{max} and the level or threshold is 120 dB un-weighted. The NA120 metric provides the total number of noise events greater than or equal to 120 dB L_{max}. The 120 dB L_{max} threshold was selected by the Navy based on the type of wildlife in the vicinity of NWSTF Boardman.

2.2.2 Noise Models

This study utilized the following DoD computer-based programs for analysis of aircraft, ordnance, and small arms weapon fire noise exposure and compatible land uses: Military Operating Area and Range Noise Model (MR_NMAP; Version 2.2), Blast Noise Prediction (BNOISE; Version 2), and Small Arms Range Noise Assessment Model (SARNAM 2, version 2.6) and NOISEMAP Version 7.2. The Rotorcraft Noise Model, Version 8 also had a limited role. This section briefly describes these analysis tools used to calculate the noise levels in this report.

The programs described below are most accurate and useful for comparing "before-and-after" noise levels that would result from scenarios when calculations are made in a consistent manner. The programs allow noise exposure prediction of such proposed actions without actual implementation and/or noise monitoring of those actions.

2.2.2.1 MR_NMAP

When the aircraft flight tracks are not well defined, but are distributed over a wide area, such as in MOAs, Range/Restricted Areas, and MTRs with wide corridors, noise is assessed using the MR_NMAP program (Lucas and Calamia, 1997). MR_NMAP is a distributed flight track and area model that allows for entry of airspace information, the distribution of operations, flight profiles (average power settings, altitude distributions, and speeds), and numbers of sorties. "Distribution of operations" refers to the modeling of airspace utilization via three general representations: broadly distributed operations for modeling of MOA and Range events, operations laterally distributed for modeling of MTR events, and operations on specific tracks for modeling of unique MOA, Range, MTR, or target area activity. The core program MR_NMAP incorporates the number of monthly operations by time period, specified distributions, volume of the airspaces, and profiles of the aircraft to primarily calculate: (a) L_{dnmr} at many points on the ground, (b) average L_{dnmr} for entire airspaces, or (c) maximum L_{dnmr} under MTRs or specific tracks.

From the grid of points, lines of equal L_{dnmr} (contours) of 60 dBA through 85 dBA (if applicable), in 5 dBA increments, were plotted.

2.2.2.2 NOISEMAP

Analyses of aircraft noise exposure and compatible land uses around DoD airfield-like facilities are normally accomplished using a group of computer-based programs, collectively called NOISEMAP (Czech and Plotkin 1998; Wasmer and Maunsell 2006a; Czech 2008; Wasmer and Maunsell 2006b; Page, et al, 2008). The core computational programs of the NOISEMAP suite are NMAP (Version 7.2) and the Rotorcraft Noise Model (RNM; version 8.0).

The NOISEMAP suite is most appropriate for assessing aircraft noise when the flight tracks are well defined, such as those near an airfield or along some military training routes with narrow corridors. NOISEMAP typically requires the entry of runway coordinates, airfield information, flight tracks, flight profiles along each flight track for each aircraft, numbers of daily flight operations, run-up coordinates, run-up profiles, and run-up operations. Flight and run-up profiles include the number of DNL daytime (0700-2200) and nighttime (2200-0700) events. The NOISEMAP process results in a "grid" file containing noise levels at different points of a user specified rectangular area. The spacing of the grid points for this study was 500 feet (ft). From the grid of points, lines of equal DNL (contours) of 60 dB through 85 dB (if applicable), in 5 dB increments, were plotted. NOISEMAP can also compute DNL for specific points of interest, e.g., noise-sensitive receptors, and determine the primary contributors to the overall DNL at each point.

RNM Version 8.0 has the additional capability of handling fixed-wing aircraft in addition to rotary-wing vehicles. In this study, RNM was only utilized for the computation of un-weighted SEL and L_{max} sound levels for the biological assessment in Section 7. No other DoD models possess the capability to compute un-weighted sound levels for the conditions required.

2.2.2.3 BNOISE

Noise from ordnance delivery (blast noise) is impulsive in nature and of short duration. Blast noise can consist of two components, the firing of the projectile from the weapon and the detonation of the projectile if it contains a high-explosive (HE) charge. When a projectile or bomb is released from an aircraft, and the projectile contains HE material, only the noise resulting from the detonation of the projectile is calculated. The same process is applied to a projectile that is ground-delivered. If the projectile is non-HE, only the noise resulting from the firing of the projectile is calculated. All projectiles and bombs used on NWSTF are training round with a small spotting charge, not HE. Vibrations of buildings and structures induced by blast noise may result in increased annoyance and risk of noise complaints or damage. Although several types of range activity is included in the potential for structure damage, the EOD events are the only activity that includes HE.

Blast noise contours are developed using the DoD's Blast Noise Prediction (BNOISE) program. BNOISE is a suite of computer programs, which together can produce L_{Cdn} contours for blasting activities or military operations resulting in impulsive noise. Input into BNOISE includes range outline data, temperature statistics for the area of study, information on the assessment period and selected noise metric firing points and their geographic coordinates, target points and their geographic coordinates, rectangular grid definition (southwest corner coordinates, length, width and the spacing between two consecutive grid points), and the firing/target pair, the ammunition type, the propellant trinitrotoluene- (TNT) equivalent data, the height of the explosion, and the acoustical day and night firings for each activity. Similar to NOISEMAP, the BNOISE computer program processes the above files to generate a grid file, as

explained in Section 2.2.2.1, which is simply an array of noise levels at equally spaced points within a rectangular area.

BNOISE can compute CDNL, which is typically used for land use compatibility assessments. From the grid of points, lines of equal L_{Cdn} (contours) of 62 dBC and 70 dBC were plotted.

For purposes of assessing the risk of noise complaints and the potential for physiological and structural damage, BNOISE computes PK 15(met). For noise complaint risk, the areas described in section 2.2.1.6 were plotted. For physiological or structural damage, contours of 140 dB PK 15(met) were plotted.

2.2.2.4 SARNAM

For small arms range complexes, SARNAM Version 2 calculates and plots noise contours for a variety of noise management tasks, such as assessing long-term community noise impact, examining noise levels resulting from single firing events, or planning range operations. SARNAM is capable of analyzing small arms rounds up to 20mm in diameter. It includes consideration of weapon and ammunition type, spectrum and directivity for both muzzle blast and projectile bow shock, number of rounds fired, time at which rounds are fired, range attributes, frequency weighting, propagation conditions, noise metrics, noise assessment penalties, and long-term assessment period and procedure. Effects of terrain on sound propagation are not considered in the program (a flat terrain assumption). This draft EA also does not address blast/demolition/avalanche prevention noise.

2.3 Impact and Geospatial Analysis

2.3.1 Topographical Data

The Boardman Range varies in elevation by only several hundred feet. Main Bullseye target is at an elevation of 689 feet above Mean Sea Level (MSL), with a magnetic declination is 15.3 degrees East (USGS 2011).

MR_NMAP does not have the capability to model varying terrain or ground impedance and assumes flat ground and a constant ground impedance of approximately 200 kPa-s/m^2. The ground at Boardman range is relatively flat so MR_NMAP's modeling of flat ground is a reasonable approximation.

The BNOISE2 computer program includes atmospheric sound propagation effects over varying terrain, including hills and mountainous regions. Elevation grid files are created to model the area surrounding Boardman Range with a grid spacing of three arc-seconds (approximately 300 feet) based on Digital Elevation Map (DEM) data obtained from the USGS website (USGS 2011).

SECTION 3 Boardman Range

The following three subsections present the NWSTF Boardman's geographic setting, its basic operational profile and the applicable climatic conditions.

3.1 Regional and Local Settings

NWSTF Boardman is located in northern Oregon along the Washington state border and approximately 150 miles east of Portland, Oregon. Figure 3-1 shows the Boardman Range region including the city of Boardman, after which the NWSTF is named, to the northeast.

NWSTF Boardman consists of over 73 square miles of land and approximately 358 square miles of special use airspace (SUA). The primary flight areas utilized are the Boardman MOA, Restricted Areas R-5701 and R-5706, and the Boardman Air Traffic Control Assigned Airspace (ATCAA) as shown in Figure 3-2. R-5701 A-E extends down to the ground surface while R-5706 has a minimum required altitude of 3,500 ft MSL. The Boardman ATCAA overlays Boardman MOA extending the usable altitude range from 18,000 ft up to 20,000 ft MSL. Both land and air operational training are available at NWSTF Boardman, including air-to ground exercises.

3.2 Climatic/Weather Conditions

At the northern Oregon border the climate is semi-arid, warm, and dry in the summer and cool and dry in the winter. January is typically the wettest month while July is generally the driest. Average annual precipitation is 14 inches per year.

Daily weather conditions for NWSTF Boardman are not tracked. To account for weather effects in the propagation of noise, the computer models require input of the average daily temperatures in degrees Fahrenheit (°F) and percent Relative Humidity (% RH) for each month of a year. In the absence of specific temperature and humidity data, standard conditions of 59 F and 70% RH were used. That condition corresponds to low attenuation of sound, and so is a conservative approximation that will slightly over predict noise levels.

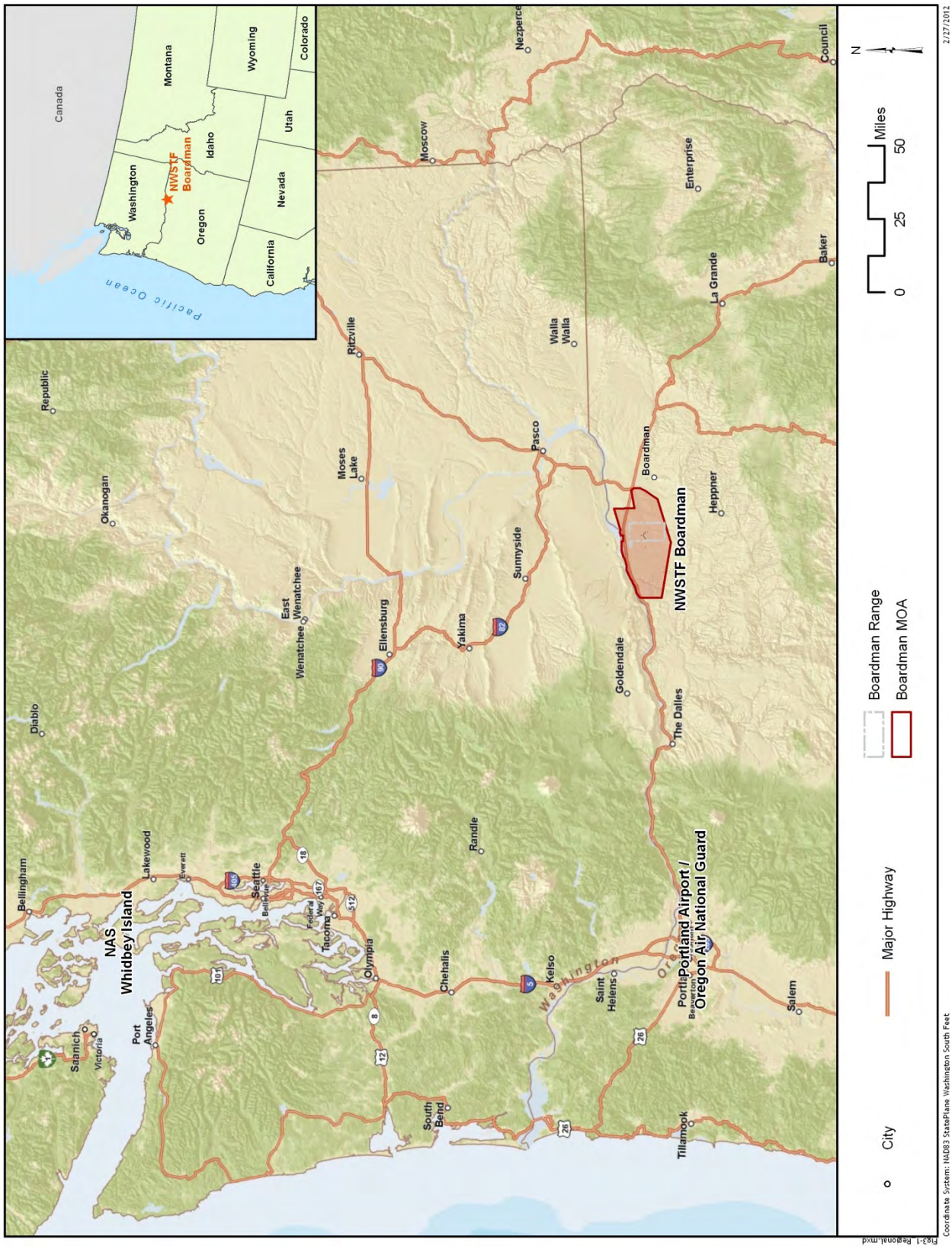

Figure 3-1 Regional Map of NWSTF Boardman

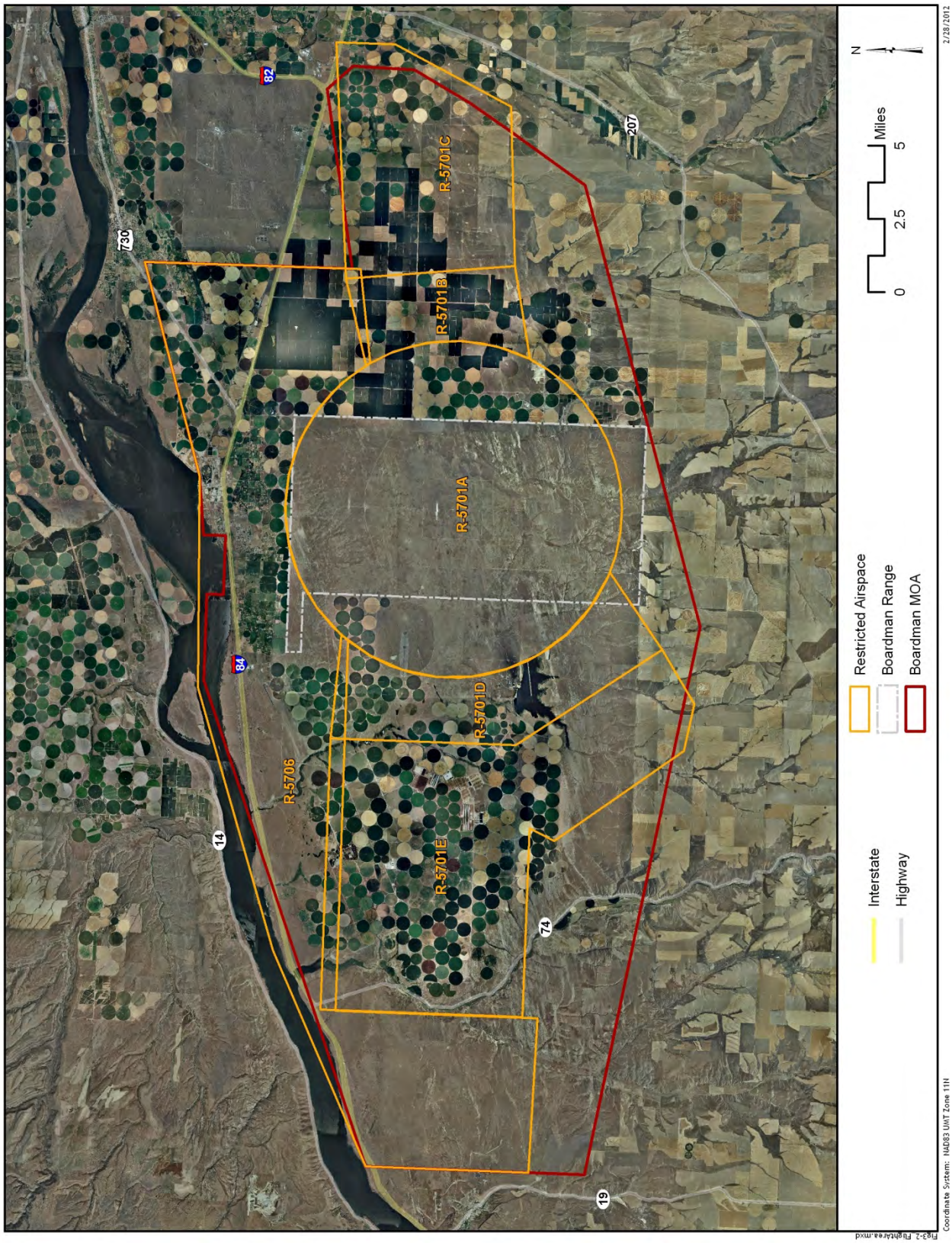

Figure 3-2 Vicinity of NWSTF Boardman

3.3 Operational Users

The primary users of Boardman Range are Navy EA-6B and EA-18G aircraft based at NASWI. Boardman Range serves as the primary location for LATT for these aircraft pilots as well as for Electronic Counter Measures (ECM) and simulated High-speed Anti-Radiation Missile Exercise (HARMEX) training. All HARMEX training at NWSTF are not live but instead simulated within the aircraft and no actual missile is used. Transient Navy FA-18C/D and FA-18E/F Hornets also utilize the Main Bullseye target for bombing practice using inert training rounds. The ORNG includes both Oregon Air National Guard and the Oregon Army National Guard. The Oregon Air National Guard 142nd Fighter Wing, based at Portland International Airport (PDX), flying F-15E Eagles conduct strafe firing exercises to the Boardman Range strafe pit. The Oregon Air National Guard helicopters conduct training along tactical Low-level routes and the Oregon Army National Guard conducts small arms weapon fire at four firing ranges. Unmanned Aerial Systems (UAS) testing and training is also conducted. Additionally, USMC AV-8B aircraft occasionally utilize NWSTF Boardman.

Ordnance events occurring at NWSTF Boardman can be categorized as Air-to-Ground or Ground events. All Air-to-Ground events originate from an aircraft and impact the ground within the Boardman Range boundary. Air-to-Ground events include strafing and bombing practice using inert rounds with small spotting charges. Ground events typically consist of EOD at ground level or weapon fire such as mortar fire from a firing location toward a ground target. Small arms weapon fire events occur at designated firing locations toward ground based targets.

SECTION 4 Baseline Scenario

This section describes the operations for the existing conditions, defined as CY2010, associated with activities at NWSTF Boardman. Section 4.1 details the aircraft noise modeling and resulting noise exposure. Section 4.2 explains the ordnance noise modeling analysis and resulting noise exposure. Section 4.3 describes the small arms weapon noise modeling analysis and resulting noise exposure.

4.1 Aircraft Noise

The modeling of aircraft generated noise from activities associated with NWSTF Boardman is described in this section. Section 4.1.1 describes the existing aircraft sorties. Section 4.1.2 explains the modeled airspace at which the aircraft sorties occur. Section 4.1.3 details the modeled flight profiles. Section 4.1.4 presents the resulting noise expose due to existing aircraft operations.

4.1.1 Aircraft Sorties

The term "aircraft sortie" is used to describe flight operations to and from the specified airspace. The operation of an aircraft entering a Restricted Area or MOA and conducting its assigned mission within the airspace is counted as one sortie. For modeling purposes, aircraft activities at NWSTF Boardman were categorized as either area-type sorties or route-type sorties. Randomly-distributed area-type modeling is best suited for aircraft operations which do not follow a defined route while route-type sortie modeling is best suited when a typical or defined flight route exists.

Annual baseline (CY2010) area-type sorties total 1,636 and are tabulated in Table 4-1. The simulated HARMEX, ECM, and LATT are currently conducted by a mix of Navy EA-6B and EA-18G aircraft. The Navy is in the process of transitioning/replacing the EA-6B with the EA-18G. For the existing condition the ratio of sorties between these aircraft is approximately 70 and 30 percent for the EA-6B and the EA-18G, respectively. The ORNG F-15E, US Air Force F-16, and USMC AV-8B aircraft conduct approximately 10, 5, and 4 Basic Fighter Maneuvers (BFM) sorties per year at NWSTF Boardman, respectively. UAS are assumed to be similar in noise output to a T-41 (Cessna 152) single–engine propeller aircraft and operate at relatively high altitudes. On a single-event basis, UAS are estimated to be significantly quieter than the manned fighter jets so, even though the UAS account for more than half of the total existing sorties, their noise contribution to the overall aircraft Ldnmr is negligible and UAS were not modeled in this analysis. The ORNG occasionally conduct helicopter operations within the Boardman MOA, but helicopters are significantly quieter than the fighter jets so their noise contribution to the overall aircraft Ldnmr is negligible. All area-type sorties typically occur during the daytime hours (0700-2200).

A total of 203 annual baseline (CY2010) route-type sorties were modeled as listed in Table 4-2. Navy legacy Hornet and Super Hornet aircraft conduct bombing practice at the Main Bullseye using Mk-76, Mk-80 inert bomb series, and Laser Guided Training Round (LGTR) inert bombs for an estimated 133 sorties with a total of 427 target passes. The aircraft mix was estimated by the Navy at 85 and 15 percent for the FA-18C/D and the FA-18E/F, respectively. The ORNG F-15s and the Navy FA-18s conducted a combined total of 70 Strafe sorties with an average of 8 target passes per sortie resulting in 560 total strafing passes. All route-type sorties typically occur during the daytime hours (0700-2200). This timeframe is not to be confused with 'daylight' as operations do occur after dark. The Navy estimated the busiest month has 10 percent more sorties than the average month thus all sorties were multiplied by 1.10 prior to input to the computer model.

Table 4-1 Baseline Annual Area-type Aircraft Sorties

Mission Description	Aircraft	Sorties
HARMEX (simulated)	EA-6B	55
	EA-18G	10
Subtotal		*65*
ECM	EA-6B	164
	EA-18G	29
Subtotal		*193*
SACT/LATT/ECM low(2)	EA-6B	229
	EA-18G	162
Subtotal		*391*
BFM (3)	F-15E	10
	F-16	5
	AV-8B	4
Subtotal		*19*
VIP/logistic runs (1)	Helos/Other	2
ORNG Helo (1)	Helicopter	70
UAS (1)	n/a	896
Subtotal		*968*
Grand Total		**1,636**

Notes:
(1) Not modeled
(2) Surface to Air Counter Tactics (SACT)/Low Altitude Tactical Training (LATT)
(3) Basic Fighter Maneuvers (BFM)

Table 4-2 Baseline Annual Route-type Aircraft Sorties and Passes

Mission Description	Weapon	Aircraft	Baseline (CY2010)	
			Sorties	Target Passes
Bombing Target (2)	Mk-76	FA-18C/D/E/F (1)	98	392
	Mk-80 series	FA-18C/D/E/F (1)	15	15
	LGTR	FA-18C/D/E/F (1)	20	20
Subtotal			*133*	*427*
Strafe	20 mm	F-15E (ORANG)	50	400
		FA-18E/F	20	160
Subtotal			*70*	*560*
Grand Total			**203**	**987**

Notes:
(1) Modeled 85 and 15 percent of Hornet sorties as FA-18C/D and FA-18E/F, respectively
(2) Assuming 1 bomb equals 1 target pass except the Mk-76 with multiple passes per bomb; all bombs are inert

4.1.2 Modeled Airspace

The area-type sorties (simulate HARMEX, ECM, LATT, and BFM) utilize all of Boardman MOA modeled with no stand-off distance. LATT events are very random in nature but the Navy has identified corridors of highest use as depicted in Figure 4-1. It was estimated that 75 percent of all LATT event time is spent within these corridors while the remaining 25 percent spread throughout the entire Boardman MOA. The LATT and ECM sorties extend to altitudes below 4,000 ft MSL which can occur only within the restricted area. For the purposes of modeling, the restricted areas were modeled as one contiguous area extending from the floor up though the overlaying ATCAA ceiling. The remaining portions of the Boardman MOA to the southwest and southeast which exist beyond the Restricted Areas have minimum altitude requirements of 4,000 ft MSL. These areas were modeled separately with aircraft altitudes adjusted up to 4,000 ft MSL or above. The total range sorties were distributed to the contiguous restricted area, the Boardman MOA portion to the southwest, and the Boardman MOA portion to the southeast proportional to the area encompassed by each.

The modeled bombing flight corridors and track centerlines are shown in Figure 4-2 for the route-type sorties. Bombing target approaches are flown to the Main Bullseye with an easterly heading and a left-handed pattern. The flight corridors vary along the tracks and funnel in towards the target with a much smaller lateral separation in the vicinity of the target. The strafing patterns flown by the ORNG most frequently follow the right-handed corridor and track centerline depicted as "SR" in Figure 4-3 but up to 10 percent of sorties are flown on the left-handed track "SL". Similar to the bombing corridors, the strafe corridors are modeled to funnel in towards the strafe target. The modeled corridors are up to 0.5nm wide, either side of corridor centerline.

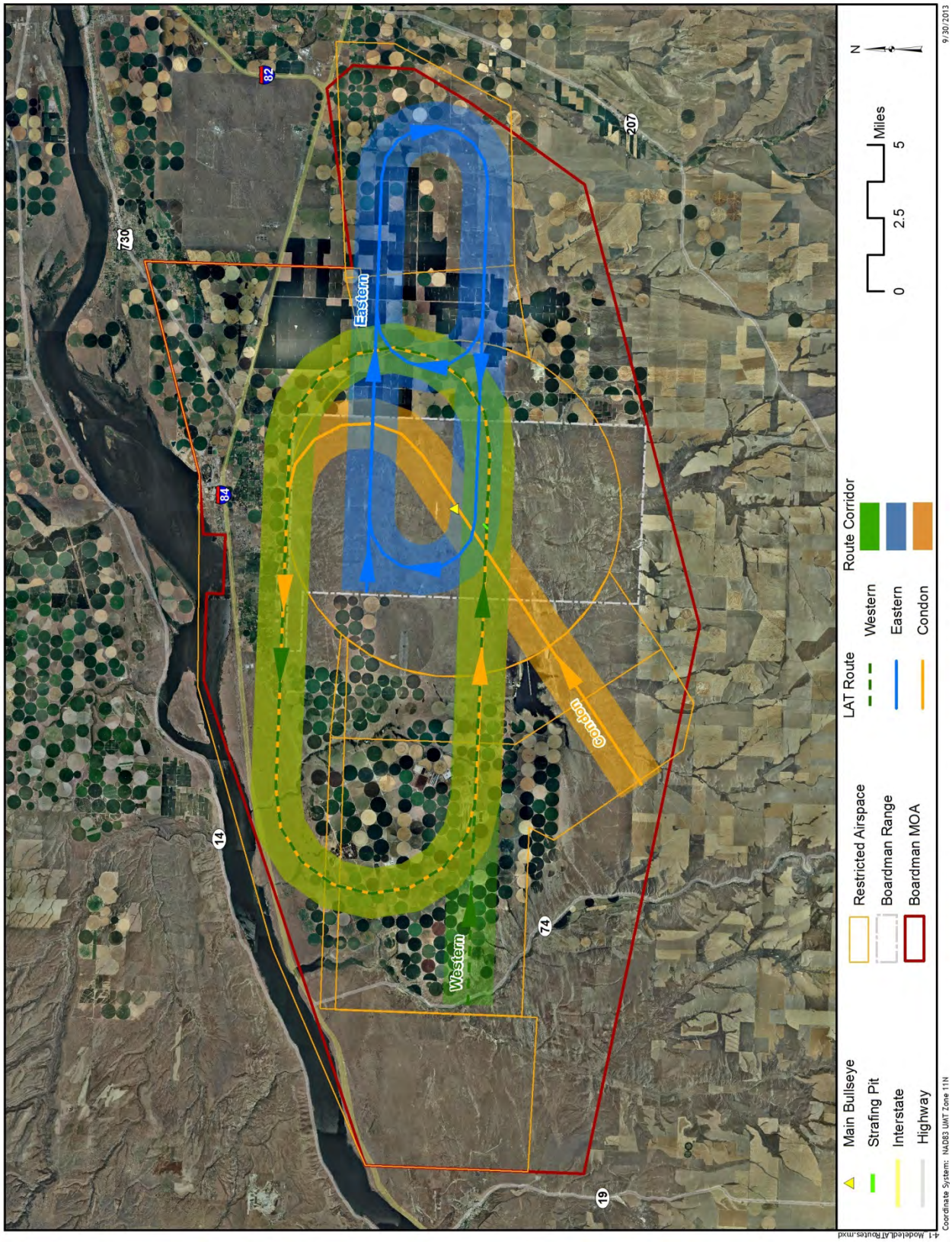

Figure 4-1 Modeled Average Daily LATT Flight Tracks and Corridors

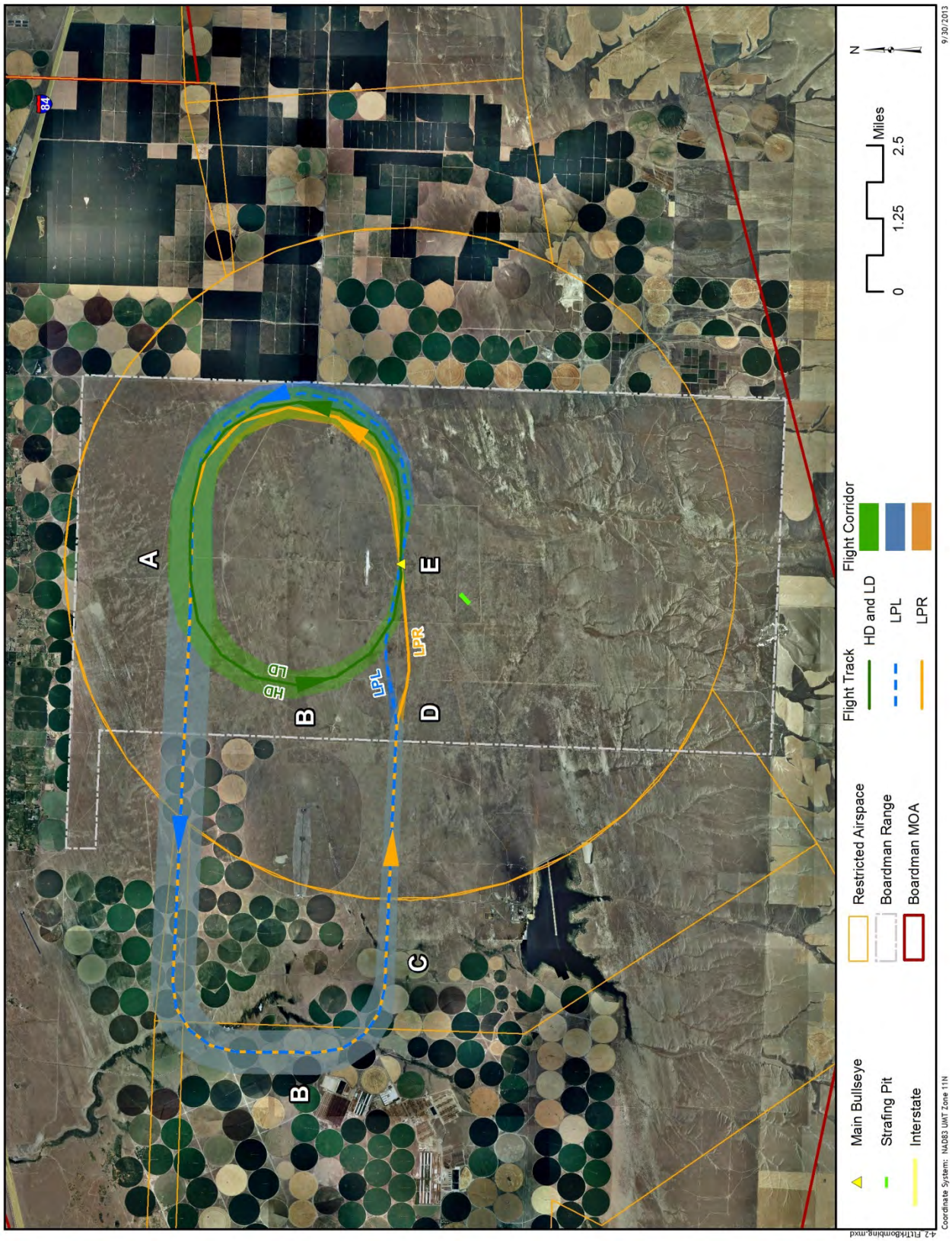

Figure 4-2 Modeled Average Daily Bombing Flight Tracks and Corridors

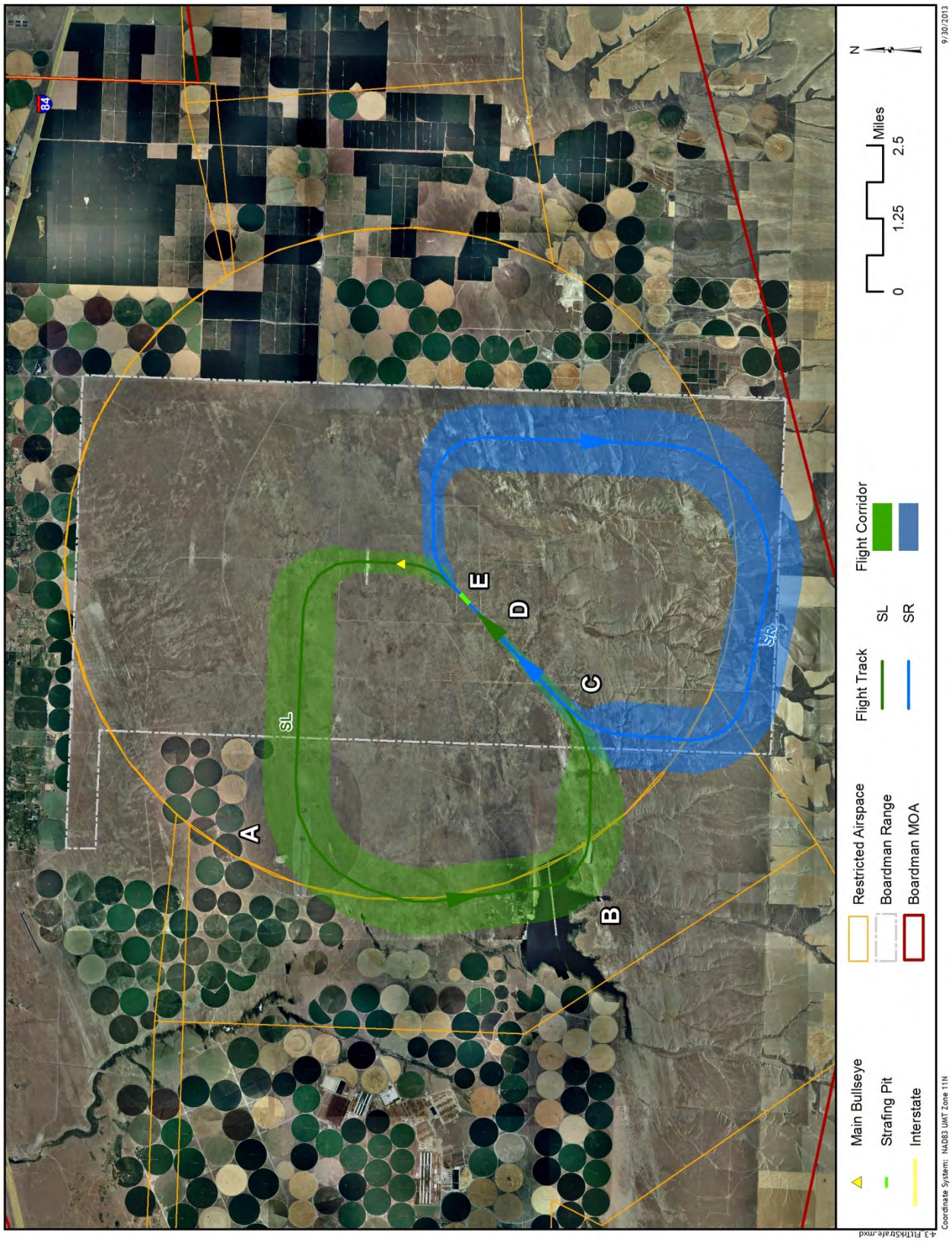

Figure 4-3 Modeled Average Daily Strafe Flight Tracks and Corridors

4.1.3 Modeled Flight Performance Profiles

For modeling purposes, the area-type and route-type sorties described above also require definition of their flight profile, i.e., inputs for typical/average speed, altitude, and power setting. The simulated HARMEX, ECM, BFM, and 25 percent of LATT sorties were modeled as area-type sorties with MR_NMAP as described in Table 4-3. The remaining 75 percent of LATT events were modeled as route-type sorties along the LATT corridors shown in Figure 4-1 with the same speed, power setting, and altitude distribution as the area sorties. Based on the modeled corridor lengths and average aircraft speeds, an average of six LATT corridor passes are required to reach the 45-minute sortie duration.

Table 4-3 Baseline Modeled Area-Type Flight Profiles

Mission Description	Aircraft type	Notes	Average Speed (KIAS)		Average Power Setting (%NC)(5)		Typical Altitude Distribution (ft AGL)							Average Time Spent in Range (minutes)
			Reported	Modeled	*Reported*	Modeled (if different)	200-499	499-500	500-5k	5k-10k	6k-10k	10k-15k	10k-20k	
LATT (4)	EA-6B	1	*400-450*	425	*90% NC*	--	10%	45%	20%	5%		20%		45
	EA-18G	2	*400-450*	400	*90% NC*	84.5% NC	10%	45%	20%	5%		20%		45
HARMEX (simulated) (6)	EA-6B	1	*400-450*	425	*90% NC*	--						100%		90
	EA-18G	2	*400-450*	400	*90% NC*	84.5% NC						100%		90
ECM	EA-6B	1	*400-450*	425	*90% NC*	--	5%	5%	50%	20%		20%		90
	EA-18G	2	*400-450*	400	*90% NC*	84.5% NC	5%	5%	50%	20%		20%		90
BFM (ORANG)	F-15E	3	*500*	570	*90% NC*	88% NC					67%		33%	25

Notes:

(1) Modeled as A-6A (max speed of 250 kts) with speed and power settings extrapolated; EA-6B not in database.
(2) Modeled with MR_NMAP FA-18E/F on Midspeed Training Route
(3) Modeled as MR_NMAP F-15A on High Speed Training Route
(4) SACT/LATT/ECM low operations modeled as LATT profile; minutes listed in distribution vice percentages
(5) %NC percent core RPM (rotational speed)
(4) HARMEX sortie duration was modeled conservatively at 90 minutes. A typical sortie may only require 60 minutes or less time on range

The ORNG and transient Navy aircraft strafe firing passes to the strafe pit at NWSTF Boardman were also modeled with MR_NMAP route corridors with the speeds, power settings, and altitudes listed in Table 4-4. The bombing passes flown to the Main Bullseye were modeled in a similar manner as the strafe profiles and are presented in further detail in Appendix A.

Table 4-4 Baseline Modeled Route-Type Flight Profiles

Mission Description	Distribution %s	Flight Track	Aircraft type	*Reported Average Speed (KIAS)*	Modeled Average Speed (KIAS)	*Reported Average Power Setting*	Modeled Average Power Setting	Altitude Distribution (ft AGL) Along Flight Corridor Points (1)				
								A (downwind)	B (crosswind)	C (2) (begin final)	D (2) (prior to target)	E (target)
High Dive	55%	HD	F/A-18C/D	*350-480*	500	*89-97% NC*	92% NC	12,000	12,000			3,000
			F/A-18E/F	*350-480*	500	*90-94% NC*	90.5% NC	12,000	12,000			3,000
Low Dive	35%	LD	F/A-18C/D	*350-480*	500	*89-97% NC*	92% NC	5,000	5,000			1,000
			F/A-18E/F	*350-480*	500	*90-94% NC*	90.5% NC	5,000	5,000			1,000
Low Pop Left	5%	LPL	F/A-18C/D	*300-500*	500	*84-97% NC*	92% NC	3,500	3,500	200	3,000	500
			F/A-18E/F	*300-500*	500	*85-95% NC*	90.5% NC	3,500	3,500	200	3,000	500
Low Pop Right	5%	LPR	F/A-18C/D	*300-500*	500	*84-97% NC*	92% NC	3,500	3,500	200	3,000	500
			F/A-18E/F	*300-500*	500	*85-95% NC*	90.5% NC	3,500	3,500	200	3,000	500
Strafe	90% SL, 10% SR		F-15E	*300-400*	350	*80-92% NC*	92% NC	9,000 MSL	9,000 MSL	9,000 MSL	4,000	1,500
			F/A-18E/F	*300-400*	350	*88-97% NC*	97% NC	9,000 MSL	9,000 MSL	9,000 MSL	4,000	1,500

Notes:

(1) Points along track are depicted in Figures 4-1 through 4-3

(2) Points C and D not applicable to High Dive and Low Dive tracks

4.1.4 Baseline Aircraft Noise Exposure

Using the data described in Sections 4.1.1 through 4.1.3, MR_NMAP was used to calculate the 60 dBA through 85 dBA L_{dnmr} contours, in 5 dBA increments, for the Baseline aircraft average daily area- and route-type operations during the busiest month. The resulting L_{dnmr} contours are plotted in Figure 4-4. Due to insufficient activity to generate 80 dBA L_{dnmr} (or greater) contours, only 60, 65, 70, and 75 dBA L_{dnmr} contours are shown in Figure 4-4.

The 60 and 65 dBA L_{dnmr} contours completely cover R-5701 due primarily to LATT by the EA-6B at altitudes as low as 200 ft AGL. To the east of the range 60 and 65 dBA L_{dnmr} extend up to 2 miles north and south due to the increased aircraft activity along the eastern LATT corridor in that location. Although LATT operations occur in all areas within the Boardman MOA, R-5706 to the north has a minimum altitude requirement ("floor") of 3,500 ft MSL while the areas to the southwest and southeast of R-5701 have floors of 500 ft. Due to the floors in those areas the LATT occurs at higher altitudes resulting in lower L_{dnmr}.

The 70 dBA L_{dnmr} contour closely follows the three LATT corridors while inside R-5701 but does not extend beyond R-5701 due to the higher floors in surrounding areas which require the aircraft to increase altitude to enter. The 75 dBA L_{dnmr} contour, approximately 4 miles long, within Boardman Range in the vicinity of the target is due to a combination of the low altitude portions of Dive and Low Pop bombing practice patterns by FA-18C/D and E/F Hornets. Although the altitudes are slightly higher than the LATT, the operations are much more concentrated in a small area resulting in higher L_{dnmr}.

The only civilian land use exposed to 65 dBA L_{dnmr} or greater is agricultural, i.e., farmlands surrounding the Boardman Range. It is possible that people could be exposed to 65-75 dBA L_{dnmr}. Population counts were not within the scope of the noise study.

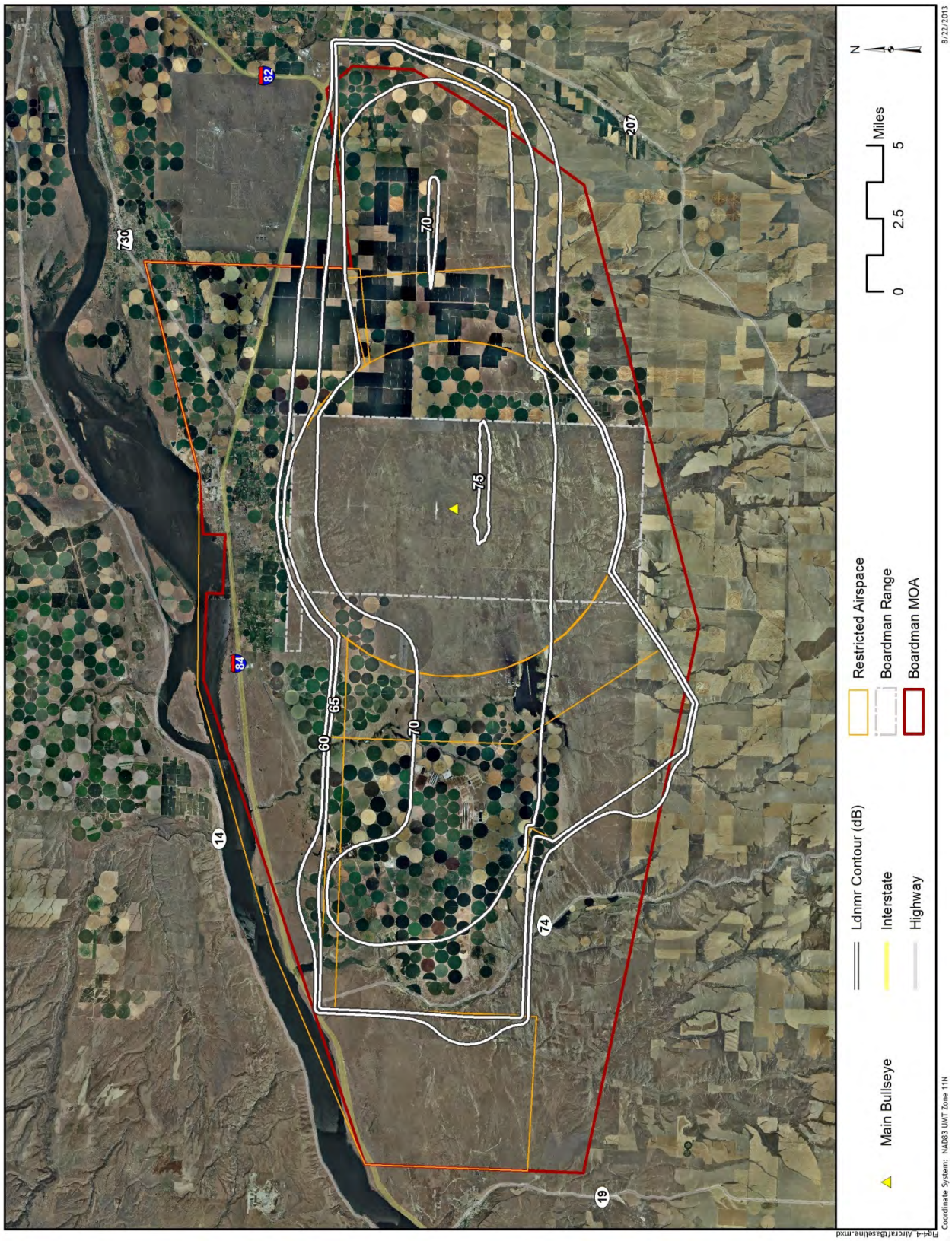

Figure 4-4 Aircraft L_{dnmr} Contours for Baseline Average Daily Operations During Busiest Month

4.2 Ordnance Noise

This section details the modeling for the analysis of ordnance generated noise from baseline activities associated with Boardman Range. This includes 20mm round strafing fire and Mk-76/80 series training rounds from aircraft towards the Main Bullseye on the ground.

Section 4.2.1 describes the firing and target locations for all ordnance operations. Section 4.2.2 explains the modeled events. Section 4.2.3 explains the resulting noise exposure due to baseline ordnance operations.

4.2.1 Firing and Target Areas

MK-76 and MK-80 series training rounds, i.e., non-guided free-fall bombs dropped from aircraft toward the Main Bullseye while aircraft are flying the bombing tracks, are depicted in Figure 4-2. During these bombing events the training rounds are dropped from the aircraft so the primary source of blast noise occurs as the training round strikes the ground in the vicinity of the target. The training rounds used at NWSTF Boardman include a small spotting charge, modeled as 0.5 kg of C-4, which detonates on impact (Burt 2011).

20 mm rounds are fired from aircraft, while conducting strafe training, to the strafe pit. Aircraft fly the strafe patterns depicted in Figure 4-3 with aircraft heading to the northeast while approaching the target. Aircraft begin a descent toward the strafe pit and fire at it. This generates noise at both the aircraft mounted gun and on the ground at the strafe pit. Aircraft strafe fire begins while the aircraft is approximately 2 nm away from the strafe pit while descending from 4,000 feet to 1,500 feet AGL. Strafe fire operations were modeled at a constant 2,000 feet AGL along this distance for input into the BNOISE software, which requires a uniform firing altitude.

Ground events typically consist of ordnance detonated at ground level, weapon fire such as mortar fire from a firing location toward a ground target, or small arms weapon fire discussed in Section 4.3. The weapon fire activities generate noise at both the firing locations and targets.

4.2.2 Ordnance Operations Modeling

The current conditions at NWSTF Boardman include an estimated 427 training rounds per year (Sodano 2011) tabulated in Table 4-5. The Mk-76 is the most common training round used and accounts for more than 90 percent of all events and modeled as Mk-76 inert rounds. The Mk-80 series training round noise data was not available so these were also modeled as Mk-76 inert rounds. The current 20 mm strafe fire consists of approximately 26,000 rounds fired per year. All ordnance events occur during the daytime period (0700-2200).

Table 4-5 Baseline Ordnance and Strafing Operations

Reported Ammunition Type	Description	Modeled As	Annual Daytime Firings (0700 - 1900)
MK-76	MK-76 Bomb training bomb	MK-76 (0.5kg C4)	392
MK-80 Series	MK-80 Series training Bomb	MK-76 (0.5kg C4)	15
LGTR	Laser Guided Training Round	not modeled	20
Subtotal			*427*
20 MM	20 MM Automatic Gun Strafing Fire	20 MM Gun	26,000

4.2.3 Baseline Ordnance Noise Exposure

Using the data described in Sections 4.2.1 through 4.2.2, BNOISE2 was used to calculate and plot the 62 and 70 dBC CDNL contours for the Baseline annual average daily ordnance operations. Figure 4-5 shows the resulting CDNL contours. The 70 dBC contour has a diameter of approximately 3,000 feet centered at the Main Bullseye. In addition there is an elliptical 70 dBC contour approximately 4,500 ft in length located over the strafe pit. The 62 dBC contour surrounds both the Main Bullseye with a diameter of approximately 5,600 ft and the strafe pit with a length of approximately 9,000 feet. None of the CDNL contours extend beyond the Boardman range boundary suggesting there are no incompatible land use areas outside of the Range.

To determine the potential for noise complaint risk from ordnance operations at Boardman Range, PK 15(met) contours were calculated and plotted in Figure 4-6. The area with a high and medium risk of noise complaints is confined within the Range boundary suggesting low complaint risk from areas outside of the Boardman Range.

For the purposes of analyzing the potential for structure damage due to overpressure the 140 dB PK 15(met) contour was calculated for baseline ordnance events and plotted in Figure 4-6. The 140 dB contour is centered at the Main Bullseye and is less than 5,000 feet in diameter. As it does not extend beyond the Boardman Range boundary, damage is not expected for structures outside of NWSTF property for the baseline condition.

The L_{pk} contours resulting from a single MK-76 training round is shown in Figure 4-7 and due to the relatively flat terrain produces generally circular contours. The principal cause of noise from the MK-76 training round takes place in less than a second and the resulting L_{pk} contours depicted represent a single pulse of noise, not a continuous level. The L_{pk} contours resulting from one strafe fire pass are roughly elliptical with the major axis oriented northeast as shown in Figure 4-8. Additionally, lobes extend beyond the ellipse at angles roughly 45 degrees to the left and to the right of the direction of travel. These offshoots extending to the west and to the south are caused by the bow shock[2] of the 20mm rounds. The un-weighted L_{pk} contours presented in Figures 4-7 and 4-8 are presented to support further analysis on impacts to animals and do not represent the actual level that would be perceived by the human ear, which may be significantly lower. Human hearing response more closely follows A-weighted sound levels as discussed further in Section 2.2.

[2] All projectiles, including the 20mm rounds, traveling faster than the speed of sound create a shock wave which emanates horizontally out from the line of fire in a similar way as waves in water extend out from the bow of a ship as it moves through the water.

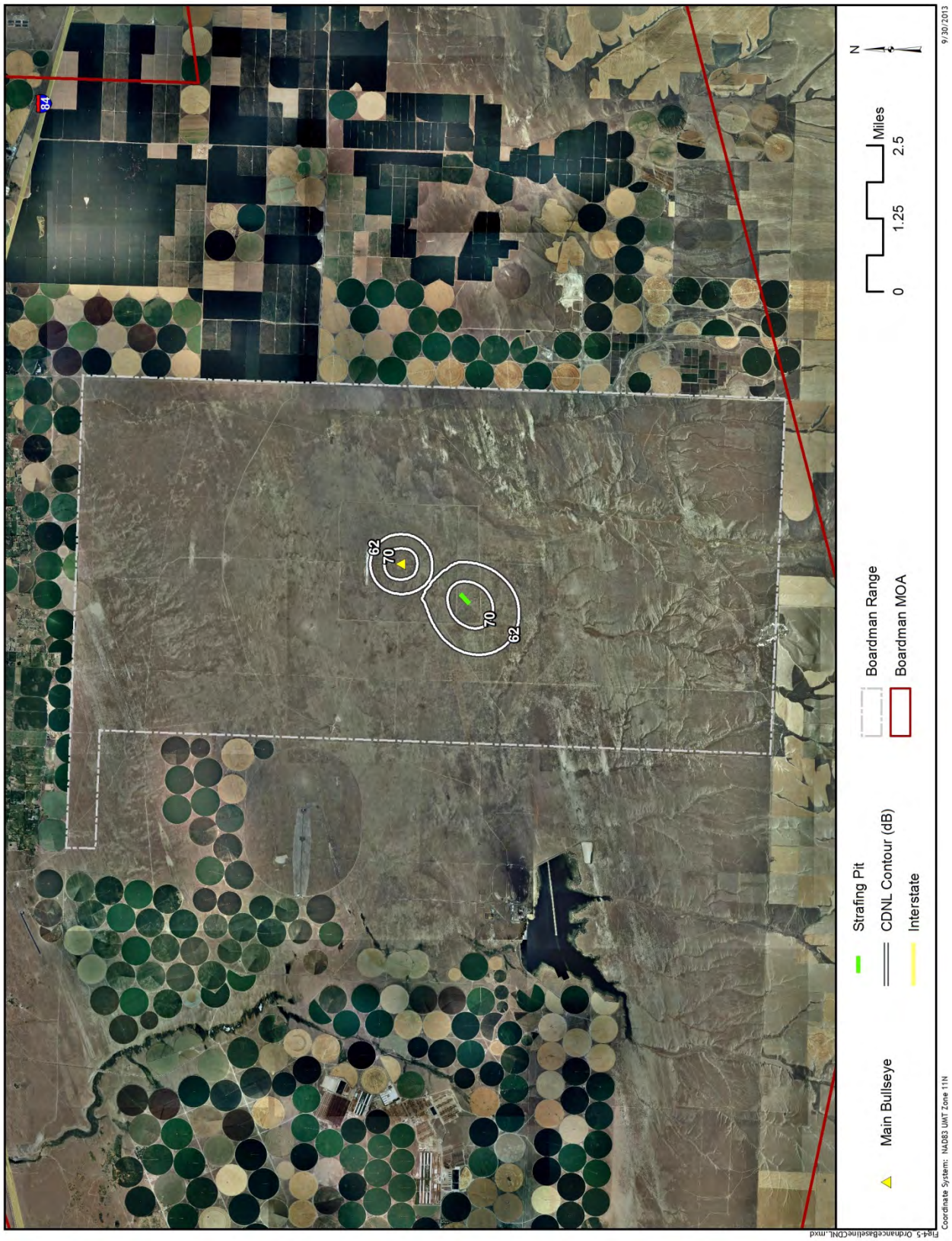

Figure 4-5 CDNL Contours for Baseline Average Daily Ordnance Activity

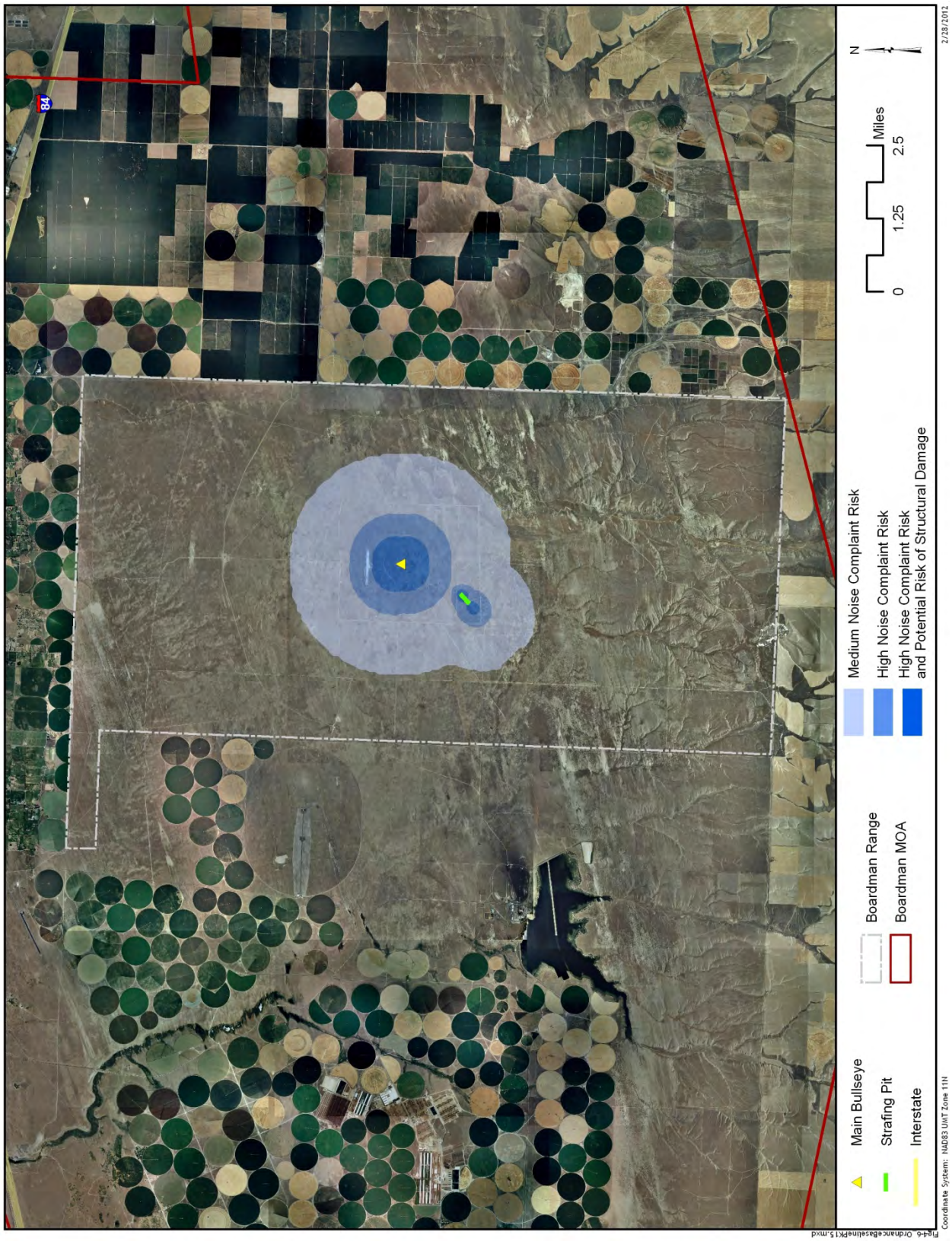

Figure 4-6 Areas of Risk of Noise Complaints and Potential for Structural Damage from Baseline Ordnance Activity

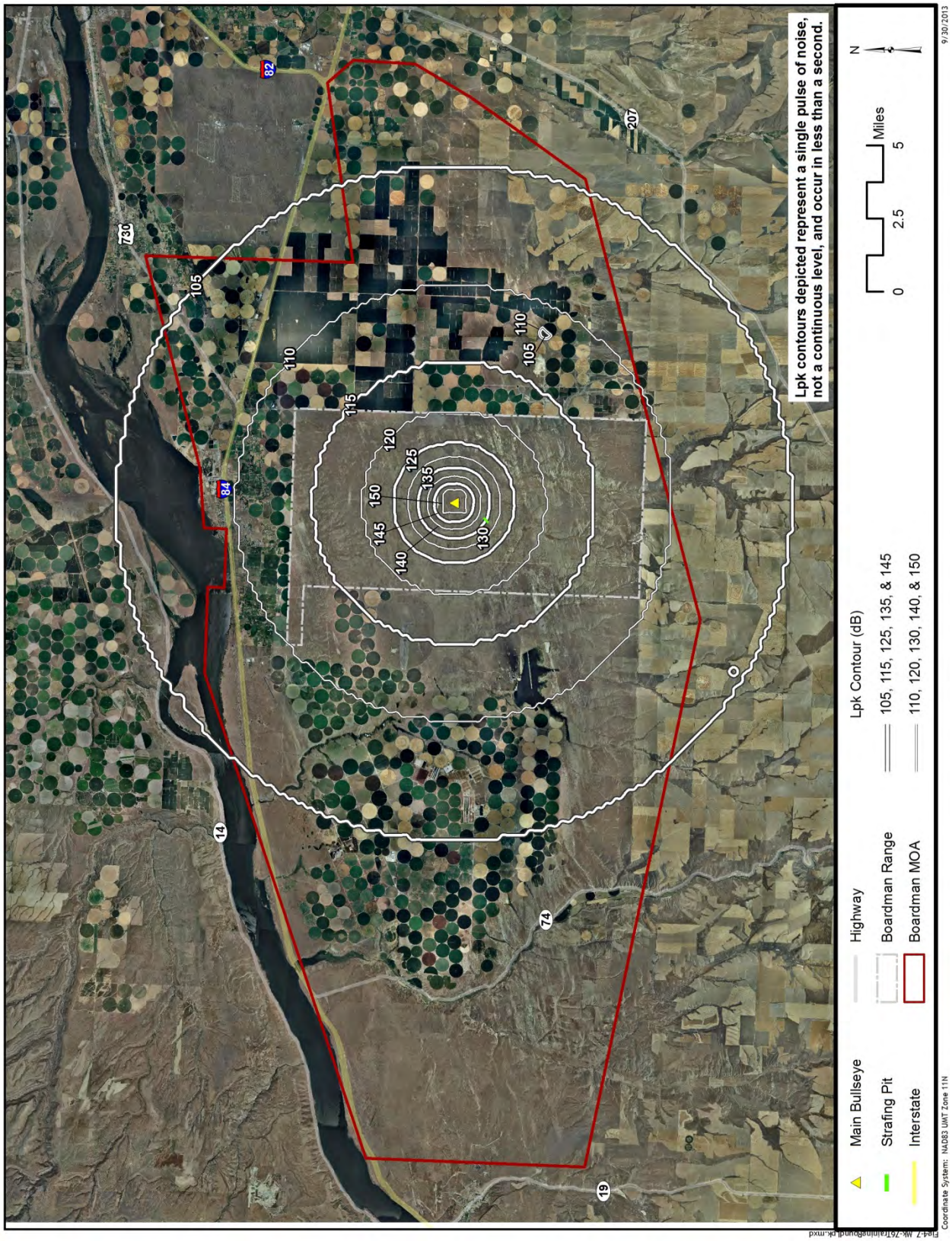

Figure 4-7 Peak Levels (L_{pk}) for MK-76 Training Round

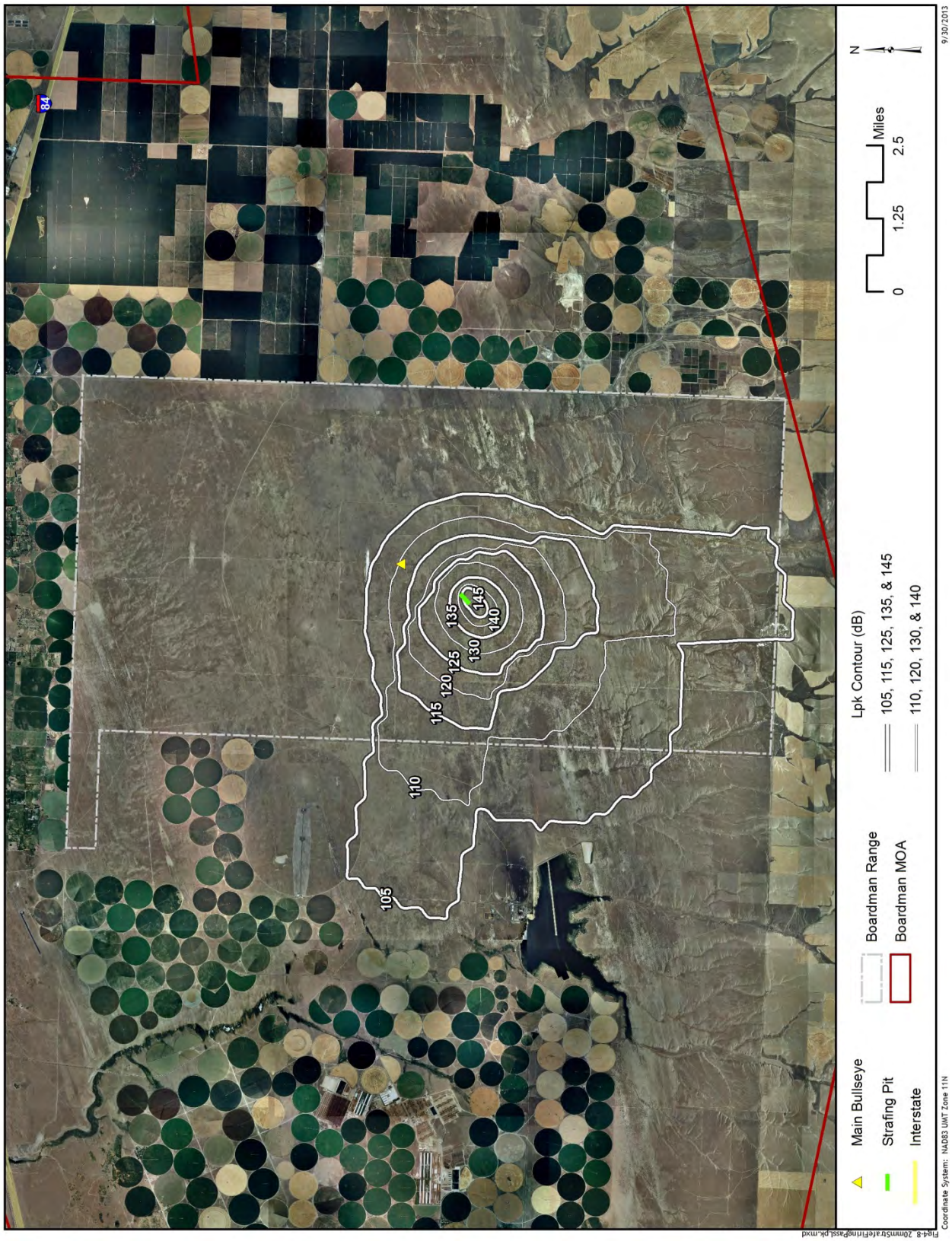

Figure 4-8 Peak Levels (L_{pk}) for Strafe Fire Pass

4.3 Small Arms Weapon Fire Noise

This section details the modeling and analysis of noise generated from baseline small arms weapon fire from activities associated with Boardman Range. This includes only weapons fired from designated ground firing locations towards ground targets.

Section 4.3.1 describes the firing and target locations for all small arms operations within NWSTF Boardman. Section 4.3.2 explains the modeled events and methodology. Section 4.3.3 explains the resulting noise exposure due to baseline small arms operations.

4.3.1 Firing and Target Areas

The small arms live fire events at NWSTF Boardman analyzed in this section include weapons from pistols up through 40 mm grenade launchers. The "live fire" event refers to the act of firing a projectile from a weapon. All projectiles used at NWSTF Boardman are inert which means no explosion upon impact. Exercises include Dismounted Maneuver Training which can involve various training scenarios including live fire or dry fire (no projectiles fired) exercises, use of role players, and can involve multiple military services. Typically, small units of military personnel move across the landscape undetected conducting reconnaissance missions, coordinating air strikes with real aircraft, or engaging pre-staged targets with live fire.

The live fire events occur at four designated firing ranges within the Boardman Range boundary as shown in Figure 4-9. At the Pistol, Rifle, and 50 CAL ranges, personnel fire from locations along the firing line towards the opposing targets. The Main Target Area range only has one firing point and a single target location. The firing direction and firing lane setup for each range is detailed in Table 4-6.

Table 4-6 Small Arms Weapon Range Firing Orientations

Range Details	Range Name			
	Pistol	Rifle	50 CAL	Main Target Area
Firing direction (clockwise from north)	322 deg	255 deg	200 deg	191 deg
Target distance from firing point (meters)	25 (82 ft)	300 (984 ft)	300 (984 ft)	1500 (4921 ft)
Number of firing lanes	15	25	5	1
Spacing between firing lanes (meters)	2 (7 ft)	3 (10 ft)	6 (20 ft)	N/A

4.3.2 Small Arms Event Modeling

The current conditions at NWSTF Boardman include 109,500 annual live fire rounds per year tabulated by range and ammunition type and presented in Table 4-7 (Burt 2012). Usage of each range is fairly equal with 33, 28, and 28 percent of rounds being fired at the Pistol, Rifle, and Main Target ranges. Most events occur during the daytime with approximately 27 percent occurring during the nighttime. For the purposes of modeling, fire rates of 30 rounds per minute are considered as rapid fire. Rapid fire events only occur at the Main Target Range and only constitute approximately eight percent of all events.

The 40mm inert grenade launcher events were not modeled because SARNAM is not capable of computing the launch noise. However, since the grenades are inert there is no explosion upon impact.

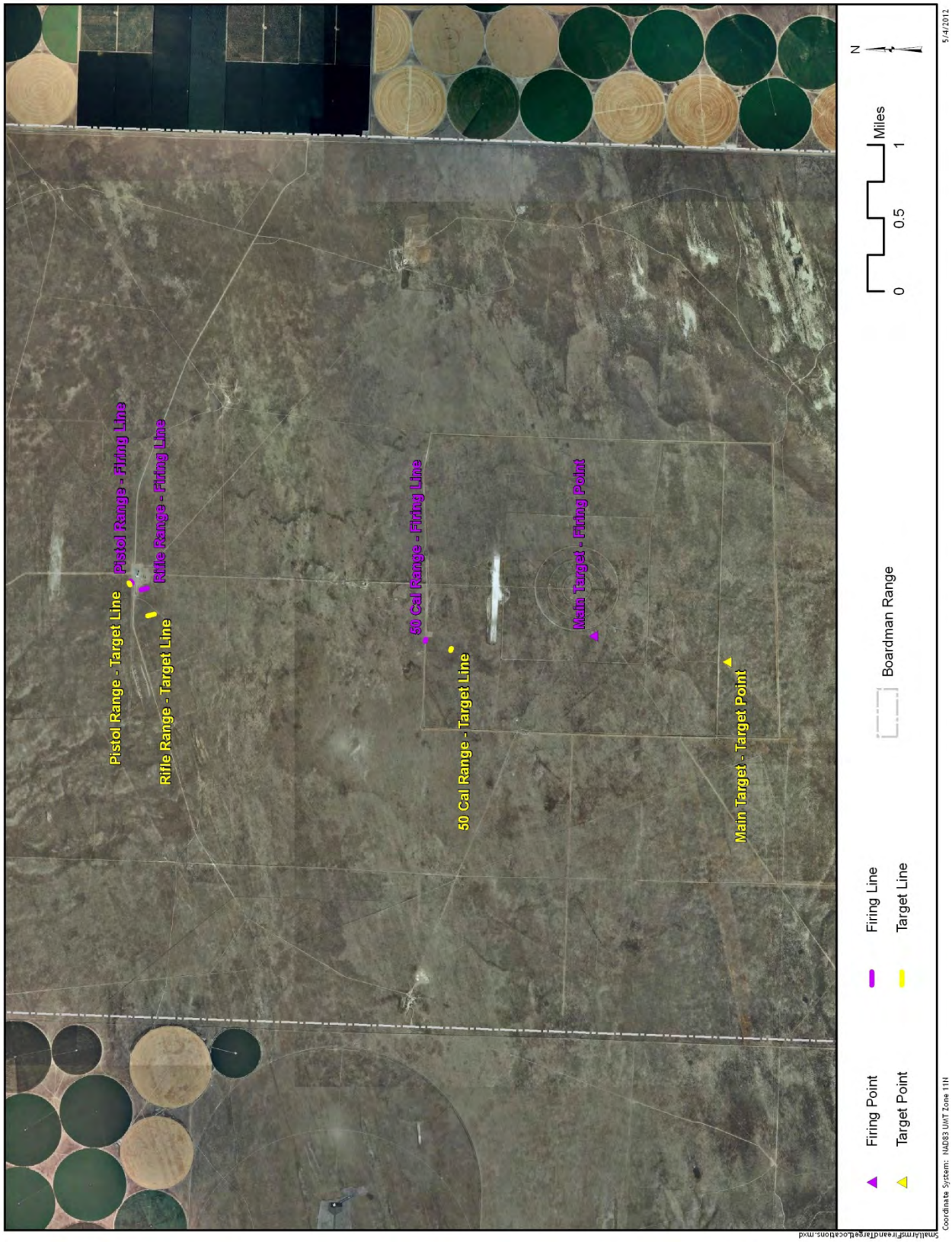

Figure 4-9 Small Arms Firing and Target Location Activity

The small arms weapon fire events logged at NWSTF Boardman were not spread evenly throughout the year but instead occurred during 18 training events each lasting two to three days (Burt 2012).

Table 4-7 Baseline Small Arms Weapon Fire Operations

Range	Ammunition Type	Weapon Types	Yearly Number of Rounds Fired	Percent during Daytime (0700 - 2200)	Percent during Nighttime (2200 - 0700)	Percent Rapid Fire
Pistol Range	5.56 mm	M16, M249	18,000	75%	25%	0%
	9 mm		18,000	83%	17%	0%
Rifle Range	5.56 mm	M16, M249	18,000	75%	25%	0%
	7.62 mm	MG M60, M14	12,000	75%	25%	0%
	40 mm grenade (inert)(1)	MK19, MK-203, MK-13	250	100%	0%	0%
50 CAL Range	.50 caliber		1,000	100%	0%	0%
	7.62 mm	MG M60, M14	12,000	75%	25%	0%
Main Target Area Range	5.56 mm	M16, M249	18,000	85%	15%	0%
	7.62 mm	MG M60, M14	12,000	25%	75%	25%
	40 mm grenade (inert)(1)	MK19, MK-203, MK-13	250	100%	0%	0%
Total			109,500	73%	27%	8%

Notes: (1) Not modeled

4.3.3 Baseline Small Arms Weapon Noise Exposure

Using the data described in Sections 4.2.1 through 4.2.2, SARNAM was used to calculate and plot the PK 15(met) contours of 87 dB and 104 dB in Figure 4-10. The area within the 87 dB contour is considered to have a medium risk of noise complaints which is approximately 6 miles in length. The offshoots extending beyond the circular areas are caused by the bow shock of the rounds while traveling through the air[3]. The 87 dB contours only extend beyond the Boardman Range boundary to the east by less than 2,000 ft but this area is undeveloped. The risk of noise complaints from the communities surrounding Boardman Range due to small arms operations is low.

The 104 dB PK 15(met) contours, representing area with a high risk of noise complaints, surround each firing range with the largest contour encompassing the 50 CAL range approximately 1 mile in diameter. This is primarily due to the .50 caliber events. The 104 dB contours do not extend beyond the Boardman Range boundary so no off range areas have a high risk of noise complaints.

[3] All projectiles traveling faster than the speed of sound create a shock wave which emanates roughly horizontal from the line of fire.

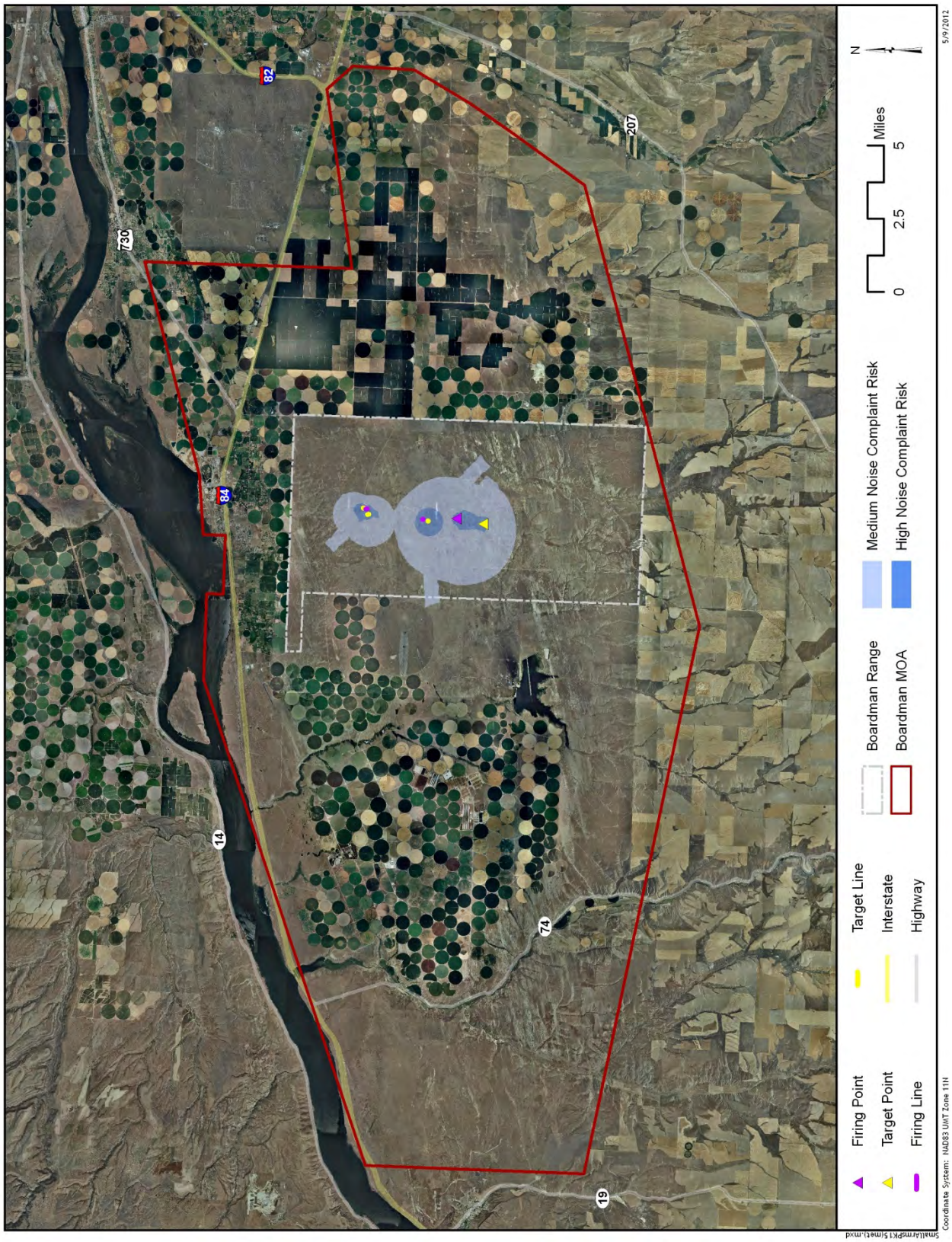

Figure 4-10 Areas of Risk of Noise Complaints from Baseline Small Arms Weapon Fire Activity

The 40mm inert grenade fire, not modeled, is classified as a large caliber round for noise assessment purposes. Table 4-8 contains the complaint risk criterion for the launch noise of the 40mm grenade launchers. The distances and levels listed represent a conservative approach and were calculated based upon hearing conservation criteria (U.S. Army 1999) and a known measurement (U.S. Army 1984). This data represents the best available scientific quantification for assessing the complaint risk for the launch noise of the 40mm grenade launcher.

The 40mm inert grenade fire events occur at the Rifle and Main Target Area ranges which are both located more than two miles from the Boardman Range boundary. Based on the firing location and distance to the surrounding community there is a low risk of noise complaints from these events.

Table 4-8 Complaint Risk of 40mm Grenade Launcher Inert Round Fire

Risk of Complaints	Perceptability	To the Side of Grenade Launcher		To the Rear of Grenade Launcher	
		Distance	Noise Level (L_{pk} dB)	Distance	Noise Level (L_{pk} dB)
Low	Audible	> 300 meters (984 ft) (1)	< 115 dB	> 110 meters (361 ft) (1)	< 115 dB
Moderate	Noticeable, Distinct	65 - 300 meters (213 - 984 ft) (1)	115 dB	25 - 110 meters (82 - 361 ft) (1)	115 dB
High	Very Loud, May Startle	< 65 meters (213 ft) (1)	>130 dB	< 25 meters (82 ft) (1)	>130 dB
Risk of hearing damage for unprotected ears	Painful	< 19 meters (62 ft) (2)	>140 dB	< 7 meters (23 ft)(2)	>140 dB

Notes: (1) Calculated value
(2) Known values, (U.S Army 1999)

SECTION 5

Proposed Scenarios 1 & 2

The Proposed Scenarios 1 and 2 consider an increased number of operations conducted at NWSTF Boardman and the addition of Explosive Ordnance Disposal (EOD) events anticipated to occur in CY2013. Scenarios 1 and 2 comprise identical aircraft and ordnance operations so this analysis combines these Scenarios in the following sections. These Scenarios differ from the Alternatives presented in the EIS.

Section 5.1 details the aircraft-generated noise modeling and resulting noise exposure, and Section 5.2 explains the ordnance noise modeling analysis and resulting noise exposure both for Scenarios 1 and 2 and Section 5.3 the small arms weapons.

5.1 Aircraft Noise

5.1.1 Aircraft Sorties

Relative to Baseline, the number of area-type sorties would nearly double to 3,249 under Proposed Scenarios 1 and 2 as tabulated in Table 5-1. This increase would be primarily due to the increase in SACT/LATT/ECM events by Navy aircraft as well as the additional UAS flights. The Navy transition/replacement of EA-6B for EA-18G would be complete with no EA-6B sorties in the Proposed Scenarios. The F-35 is expected to replace the AV-8B operations.

Table 5-1 Area-type Aircraft Sorties for Proposed Scenarios 1, 2 and 3

Mission Description	Aircraft	Baseline Sorties	Proposed Sorties	Change Re Baseline
Chaff (1)	n/a	-	12	+12
HARMEX (simulated)	EA-6B	55	-	-55
	EA-18G	10	10	0
Subtotal		65	10	-55
ECM	EA-6B	164	-	-164
	EA-18G	29	291	+262
	P3/EP3/P8	-	50	+50
Subtotal		193	341	+148
SACT/LATT/ECM low(2)	EA-6B	229	-	-229
	EA-18G	162	1,047	+885
Subtotal		391	1,047	+656
BFM (3)	F-15E	10	10	0
	F-16	5	5	0
	AV-8B	4	-	-4
	F-35	-	10	+10
Subtotal		19	25	+6
VIP/logistic runs (1)	Helos/Other	2	2	0
ORNG Helos (1)	Helos	70	91	+21
Paradrop (1)	various	-	12	+12
UAS (1)	n/a	896	1,709	+813
Grand Total		**1,636**	**3,249**	**+1613**

Notes: (1) Not modeled
(2) Surface to Air Counter Tactics (SACT)/Low Altitude Tactical Training (LATT)
(3) Basic Fighter Maneuvers (BFM)

Relative to Baseline, the route-type sorties would increase by approximately 25 percent under Proposed Scenarios 1 and 2 to a total of 253 as listed in Table 5-2. This increase would be due to more Navy Hornet strafe sorties. The Navy bombing sorties and the ORNG strafe sorties would not change for the Scenarios. All aircraft sorties would continue to occur during the daytime hours (0700-2200).

Table 5-2 Route-type Aircraft Sorties for Scenarios 1, 2 and 3

Mission Description	Weapon	Aircraft	Baseline		Scenarios 1, 2, 3		Change Re Baseline	
			Sorties	Target Passes	Sorties	Target Passes	Sorties	Target Passes
Bombing Target (2)	Mk-76	F/A-18C/D/E/F (1)	98	392	98	392	-	-
	Mk-80 series	F/A-18C/D/E/F (1)	15	15	15	15	-	-
	LGTR	F/A-18C/D/E/F (1)	20	20	20	20	-	-
Subtotal			*133*	*427*	*133*	*427*	-	-
Strafe	20 mm	F-15E (ORANG)	50	400	50	400	-	-
		F/A-18E/F	20	160	70	560	+50	+400
Subtotal			*70*	*560*	*120*	*960*	*+50*	*+400*
Grand Total			**203**	**987**	**253**	**1387**	**+50**	**+400**

Notes: (1) Modeled 15 and 85 percent of Hornet sorties as FA-18C/D and FA-18E/F, respectively
(2) Assuming 1 bomb equals 1 target pass except the Mk-76 with multiple passes per bomb; all bombs are inert

5.1.2 Modeled Airspace and Flight Performance Profiles

Proposed Scenarios 1 and 2 would utilize the current NWSTF Boardman airspace modeled for the baseline scenario. No changes would be made to the airspace or how aircraft utilize the airspace under these scenarios.

5.1.3 Aircraft Noise Exposure for Proposed Scenarios 1 and 2

Using the data described in Sections 5.1.1 through 5.1.3, MR_NMAP was used to calculate and plot the 60 dBA through 85 dBA L_{dnmr} contours, in 5 dBA increments, for the route- and area-type aircraft average daily operations for the busiest month for Proposed Scenarios 1 and 2. Figure 5-1 shows the resulting L_{dnmr} contours. Due to insufficient activity to generate 75 dBA L_{dnmr} (or greater), only 60, 65, and 70 L_{dnmr} contours are shown in Figure 5-1.

Similar to baseline, the 60 dBA L_{dnmr} contours would completely cover R-5701 due primarily to LATT by the EA-18G at altitudes as low as 200 ft AGL. However, the 65 dBA L_{dnmr} contour would not cover all of R-5701 but would instead closely follow the LATT corridor very similar to the 70 dBA in the Baseline scenario. Although LATT operations would continue to occur in all areas within the Boardman MOA, due to the higher floors in R-5706 and the areas to the southwest and southeast of R-5701, the 60 dBA L_{dnmr} contour would not extend into those areas except to the north approximately 6,000 ft.

The 70 dBA L_{dnmr} contour west of Boardman Range, approximately 800 ft wide, would extend approximately 4 miles west of Boardman Range along the run-in to the Main Bullseye. Low Pop patterns would be flown much less frequently than dive pattern but they would require flight at altitudes as low as 200 ft AGL a few miles before reaching the target. This allows the aircraft to 'pop' up to release the training round in an arc. The low altitude and the increased power setting prior to the 'pop' in the Low-Pop patterns would be the primary cause of this 70 dBA contour. This same activity occurs in the Baseline scenario but no distinct contour is visible because the surrounding area is exposed to 70 dBA L_{dnmr}. The second 70 dBA L_{dnmr} contour would occur in the vicinity of the strafe pit caused by the low altitude portion of strafe activity. In strafe, the aircraft dives down towards the target and then turns and climbs out to the east.

Although the 65 dBA L_{dnmr} contour would extend beyond the Boardman range boundary, the only civilian land use affected is agricultural surrounding the range. It is possible that people could reside at farms within the 65 dBA L_{dnmr} contour. As mentioned in Section 4, population counts were not within the scope of the noise study.

Using NMPlot's arithmetic grid subtraction function, a difference grid was generated for Proposed Scenarios 1 and 2 relative to Baseline, for a rectangular area approximating the boundary of the MOA and extending to sensitive population areas. The resulting contours (-5, -3, -1.5, 0 dBA L_{dnmr}) were plotted and depicted in Figure 5-2. No contours greater than 0 dBA L_{dnmr} would exist so no areas would experience an increase in L_{dnmr}. All areas in and around the Boardman range would experience a <u>decrease</u> in L_{dnmr} of 1 to 8 dBA. The low altitude LATT dominates the L_{dnmr} contours and the replacement of the EA-6B for the EA-18G is the cause for the decrease. Despite the approximate 3 fold increase in LATT sorties, the additional EA-18G sorties are approximately 11 dBA lesser in SEL than the EA-6B while conducting LATT operations at 200 ft AGL. The decrease in SEL trumps the increase in sorties. The reductions in L_{dnmr} are smaller (-1 to -5 dBA) along the Low Pop run-in line west of the range boundary and the strafe dive location near the target because (a) those operations contribute significantly to L_{dnmr} in those localized areas and (b) the Low Pop and Strafe operations would not change relative to Baseline.

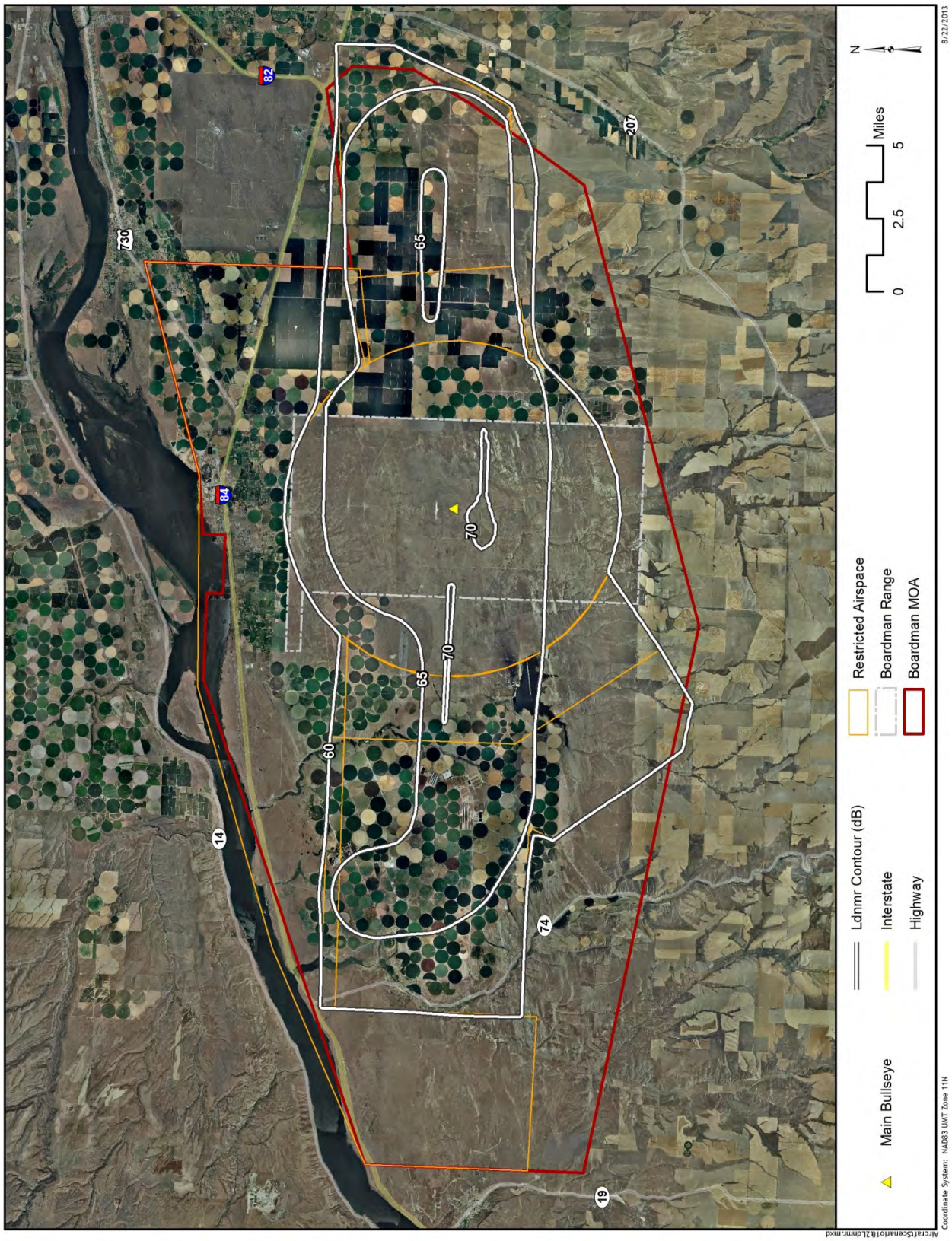

Figure 5-1 Aircraft L_{dnmr} Contours for Scenarios 1 &2 Average Daily Operations During Busiest Month

Figure 5-2 Difference in Aircraft L_{dnmr} between Scenarios 1 &2 and Baseline

5.2 Ordnance Noise

This section details the modeling for the analysis of ordnance generated noise from Proposed Scenarios 1 and 2 activities associated with NWSTF Boardman. This includes the baseline activity with the addition of EOD and mortar fire.

Section 5.2.1 describes the firing and target locations for all ordnance operations. Section 5.2.2 explains the modeled events. Section 5.2.3 explains the resulting noise exposure due to ordnance operations.

5.2.1 Firing and Target Areas

Under the Proposed Scenarios 1 and 2, the Air-to-Ground bombing and strafing activities would continue at the current locations with only an increase to annual 20 mm strafing rounds of approximately 240 percent.

The Proposed Scenarios 1 and 2 includes the addition of ground ordnance events. Mortars would be fired from three mortar pads towards the Main Bullseye as depicted in Figure 5-3. The mortar fire would generate noise from both the firing site and the landing location. The 60 mm mortar rounds are training rounds which do include a small charge that detonates upon impact. This charge is much smaller than the charge in live rounds and is primarily to help personnel identify the location of impact. The Proposed Scenarios 1 and 2 also include the addition of one EOD site for explosive ordnance disposal located just southwest of the Main Bullseye.

5.2.2 Ordnance Operations Modeling

The Air-to-Ground ordnance operations for the Proposed Scenarios 1 and 2 would not change for the bombing events. The annual 20 mm strafing rounds would increase to 88,800 rounds per year as shown in Table 5-3. All Air-to-Ground events would continue to typically occur during the daytime hours (0700-2200). This timeframe is not to be confused with 'daylight' as events can occur during darkness.

The Proposed Scenarios 1 and 2 also include 1,440 annual mortar fire events which would occur at any of the three proposed mortar pad sites. For this analysis, an equal distribution of 480 events at each location was assumed.

Table 5-3 Proposed Ordnance Events for Scenarios 1, 2 and 3

Ordnance Type	Reported Ammunition Type	Description	Modeled as	Daytime Events (0700-2200)	Night Events (2200-0700)
Air-to-Ground	Mk-76	MK-76 Bomb Dropped From Plane to Main Bull	Mk-76 (inert)	392	0
	Mk-80 Series	MK-80 Series Bomb Dropped From Plane to Main Bull	Mk-76 (inert)	15	0
	LGTR	Laser Guided Training Round	Not Modeled	20	0
Total Training Bombs				427	0
Air-to-Ground	20 MM	20 MM Automatic Gun Strafing Fire	20 MM Gun	88,000	0
Ground	EOD	100-200 lbs Explosive Ordance Detonation	26-220 lbs Composition C-4	50	0
	60 MM Mortar Fire	60 MM Mortars from Mortar Pads to the Main Bullseye	60 MM Mortar (inert)	1440	0

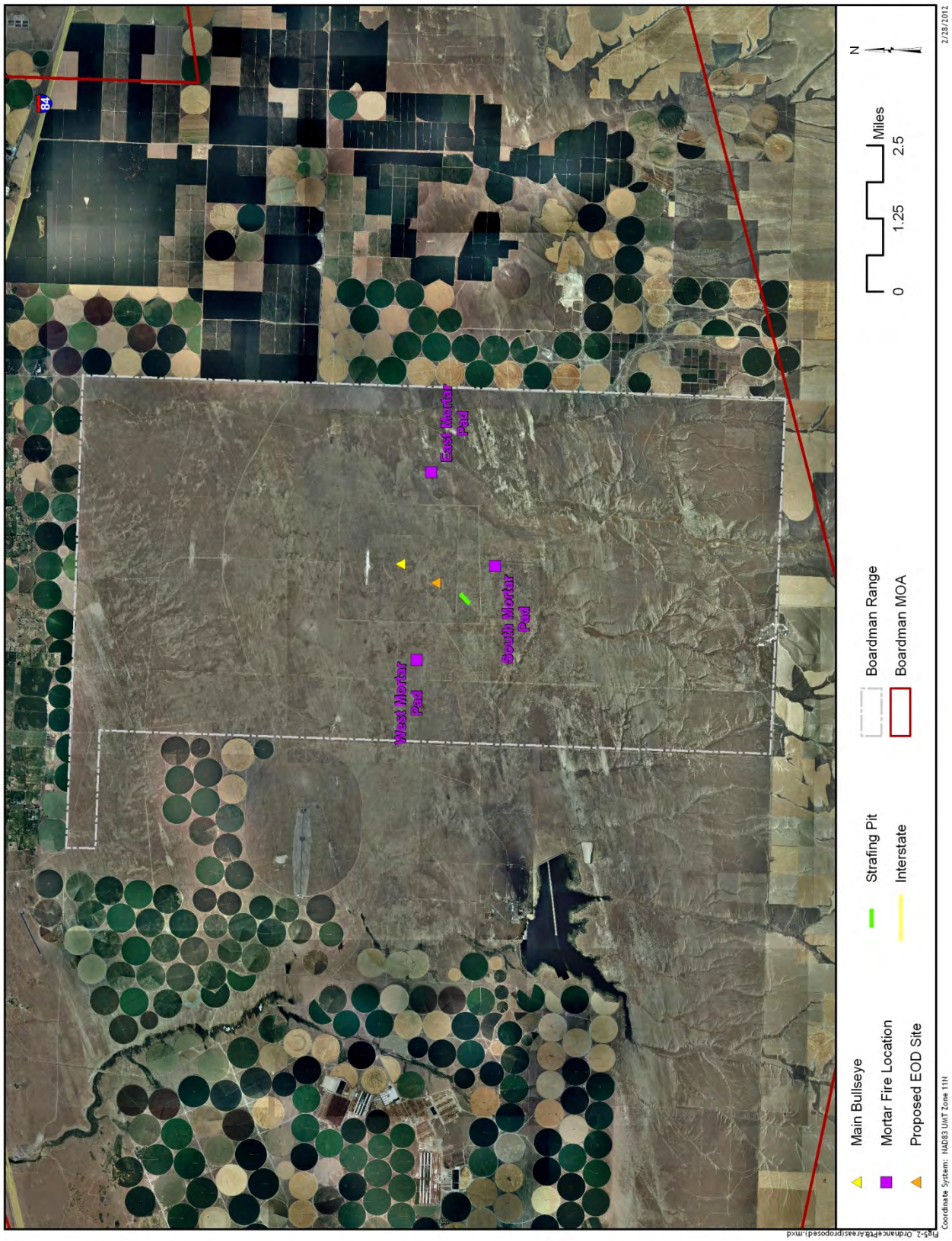

Figure 5-3 Modeled Ordnance Site Locations for Scenarios 1, 2 and 3

The proposed EOD events would consist of a charge, likely composition C-4 or similar, detonated on the ground. The size of the charge for a single event could vary from 25 to 200 lbs net explosive weight. The Navy estimates that most of the annual 50 EOD events would occur with lighter weights and only two events at the maximum 200 lbs net explosive weight. The breakdown of future EOD explosive weights was estimated by the Navy and tabulated in Table 5-4. BNOISE has specific charge weight options listed in kilograms and the exact charge weights reported by the Navy are not available in BNOISE so the best alternatives were chosen. The noise modeling is conservative because the reported 200 lb events were modeled as 220 lbs of C-4. All Ground events would occur during the daytime hours (0700-2200).

Table 5-4 Proposed EOD Events by Charge Weight for Proposed Scenarios 1, 2 and 3

Reported Charge Weight (lbs C-4)	Modeled Charge Weight (lbs C-4)	Annual EOD Events	
		Daytime (0700-2200)	Nighttime (2200-0700)
200	220	2	0
50-150	139	5	0
26-50	44	10	0
25	26	33	0
Total		50	0

5.2.3 Proposed Scenarios 1 and 2 Ordnance Noise Exposure

Using the data described in Sections 5.2.1 through 5.2.2, BNOISE2 was used to calculate and plot the 62 and 70 dBC CDNL contours for the Proposed Scenarios 1 and 2 ordnance as shown in Figure 5-4.

The 70 dBC CDNL contour centered at the EOD site would connect the strafe area and the Main Bullseye. The 62 dBC CDNL contour would surround the Main Bullseye, strafe pit, and the EOD Site. Additionally, a small 62 and 70 dBC contour would encircle the east mortar pad. None of the CDNL contours would extend beyond the Boardman range boundary suggesting there would be no incompatible land use outside of the Range.

To determine the potential for noise complaint risk from people in the surrounding area, PK 15(met) contours were calculated and plotted in Figure 5-5. The area with a high risk of noise complaints is confined within the Range boundary. Areas with a medium risk of noise complaints would exist beyond the Range boundary and would extend up to 5 miles off the Range boundary to the east and west and up to 3 miles to the north and south. Parts of the southern portion of the city of Boardman would be within the medium complaint risk area. As most of the land use adjacent to the Boardman Range boundary is primarily agricultural, it is estimated that few people reside within the medium noise complaint risk areas to the east, west or south.

The 140 dB contour would not extend beyond the range boundary and the EOD events are unlikely to affect structures outside of NWSTF property.

The L_{pk} contours resulting from a single mortar fire from each pad location are shown in Figure 5-6 and due to the relatively flat terrain produces generally circular contours. The L_{pk} contours resulting from varying EOD weights are depicted for 220, 176, 139, 88, 44 and 26 lbs in Figure 5-7 through Figure 5-12, respectively. The portions of the 105 dBC contour line which are straight vertical or horizontal lines reflect the edge of the analysis grid and not the extent of the contour; however this only occurs over undeveloped land. The un-weighted L_{pk} contours do not represent the actual level that would be perceived by the human ear, which may be significantly lower. Human hearing response more closely follows A-weighted sound levels as discussed further in Section 2.2.

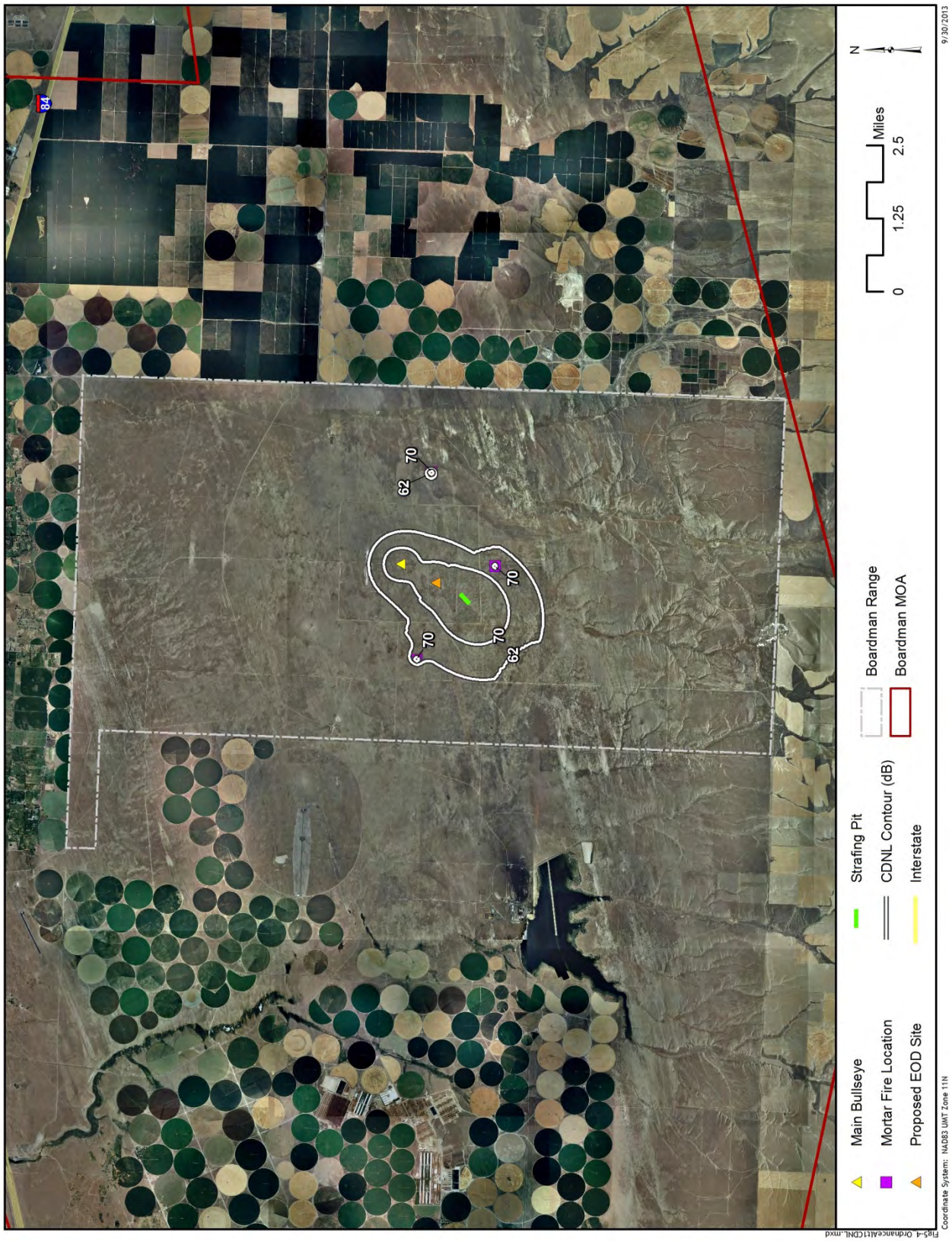

Figure 5-4 CDNL Contours for Scenarios 1, 2 and 3 Average Daily Ordnance Activity

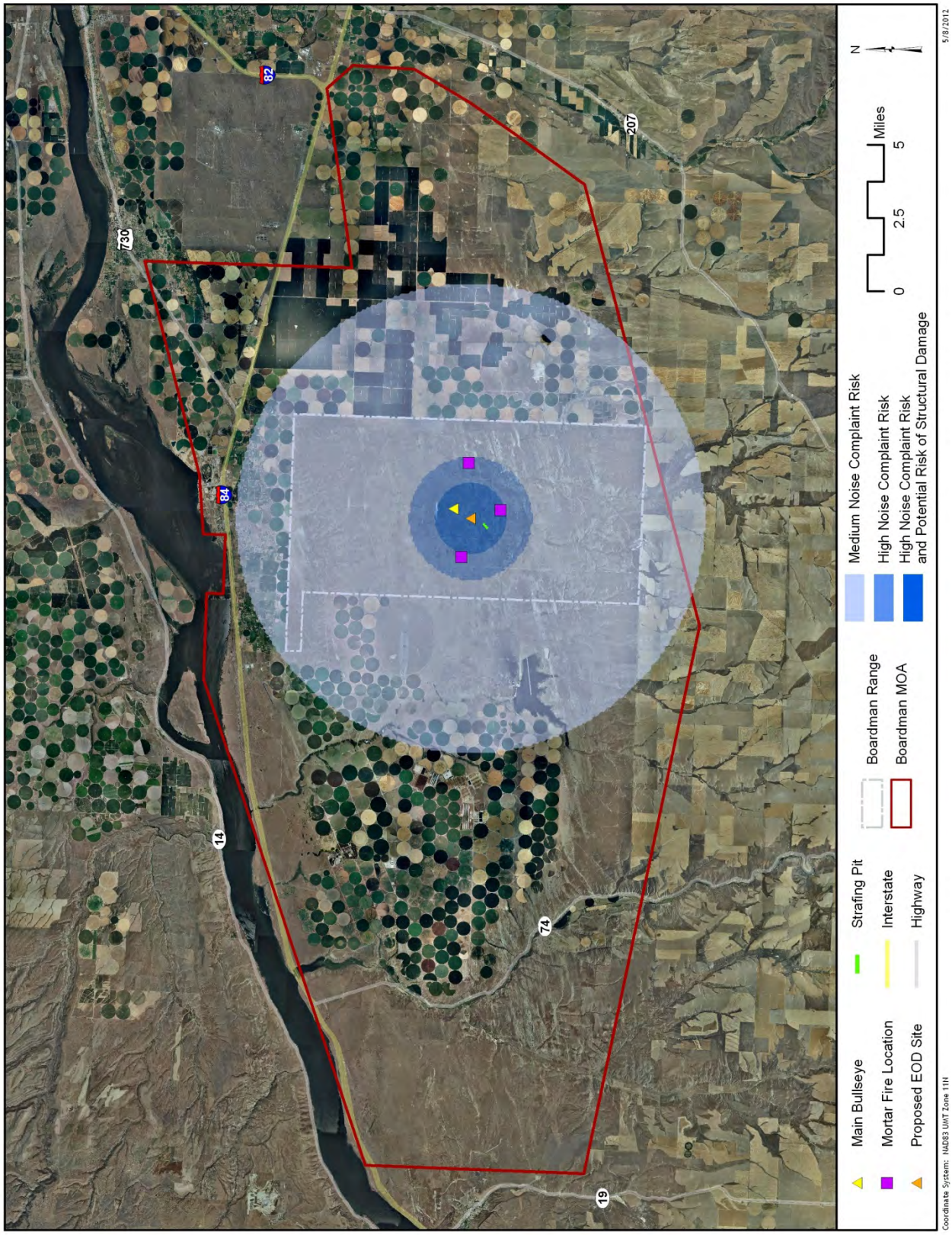

Figure 5-5 Areas of Risk of Noise Complaints and Potential for Structural Damage from Scenarios 1, 2, and 3 Ordnance Activity

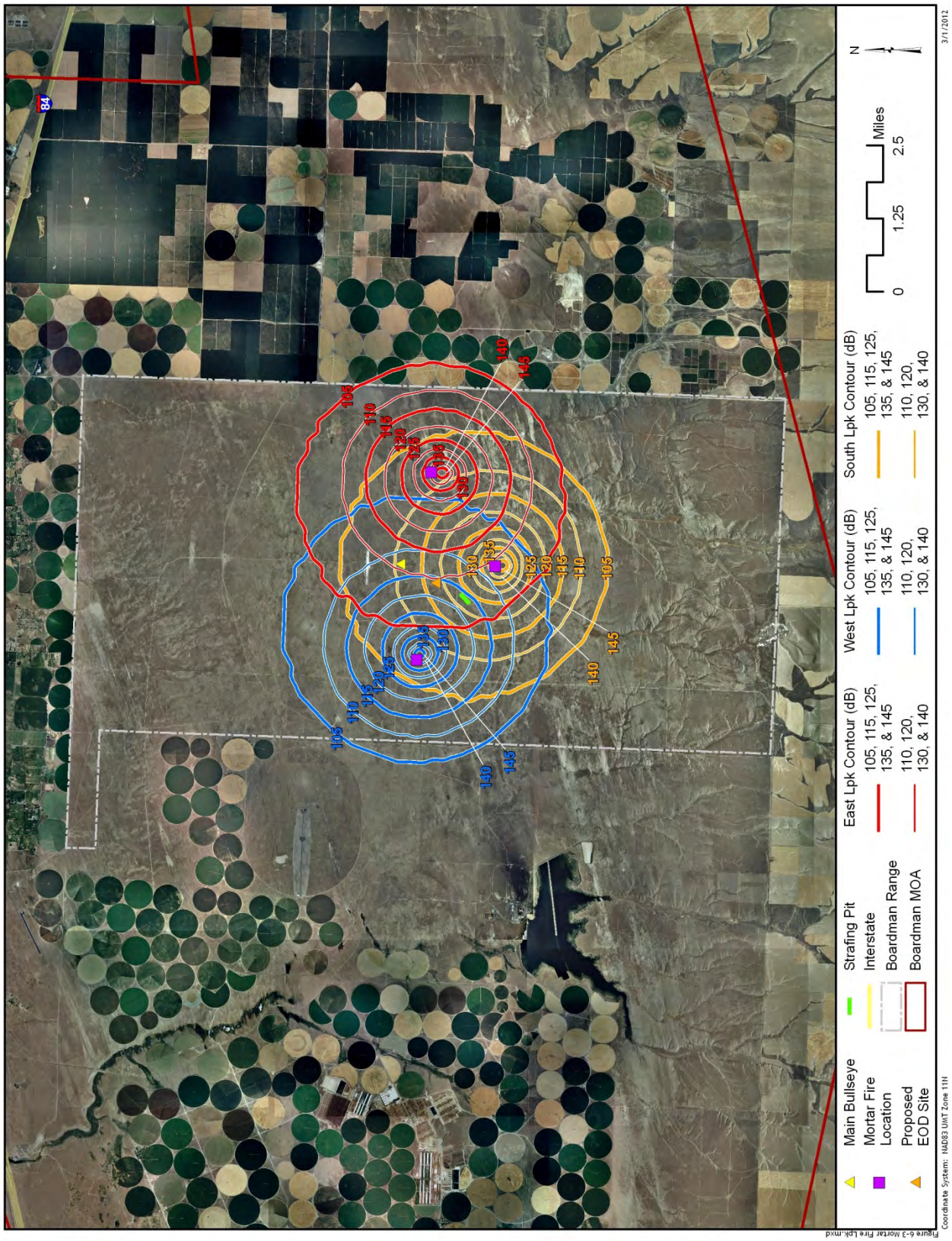

Figure 5-6 Peak Level (L_{pk}) Contours for Mortar Fire from Three Pad Locations

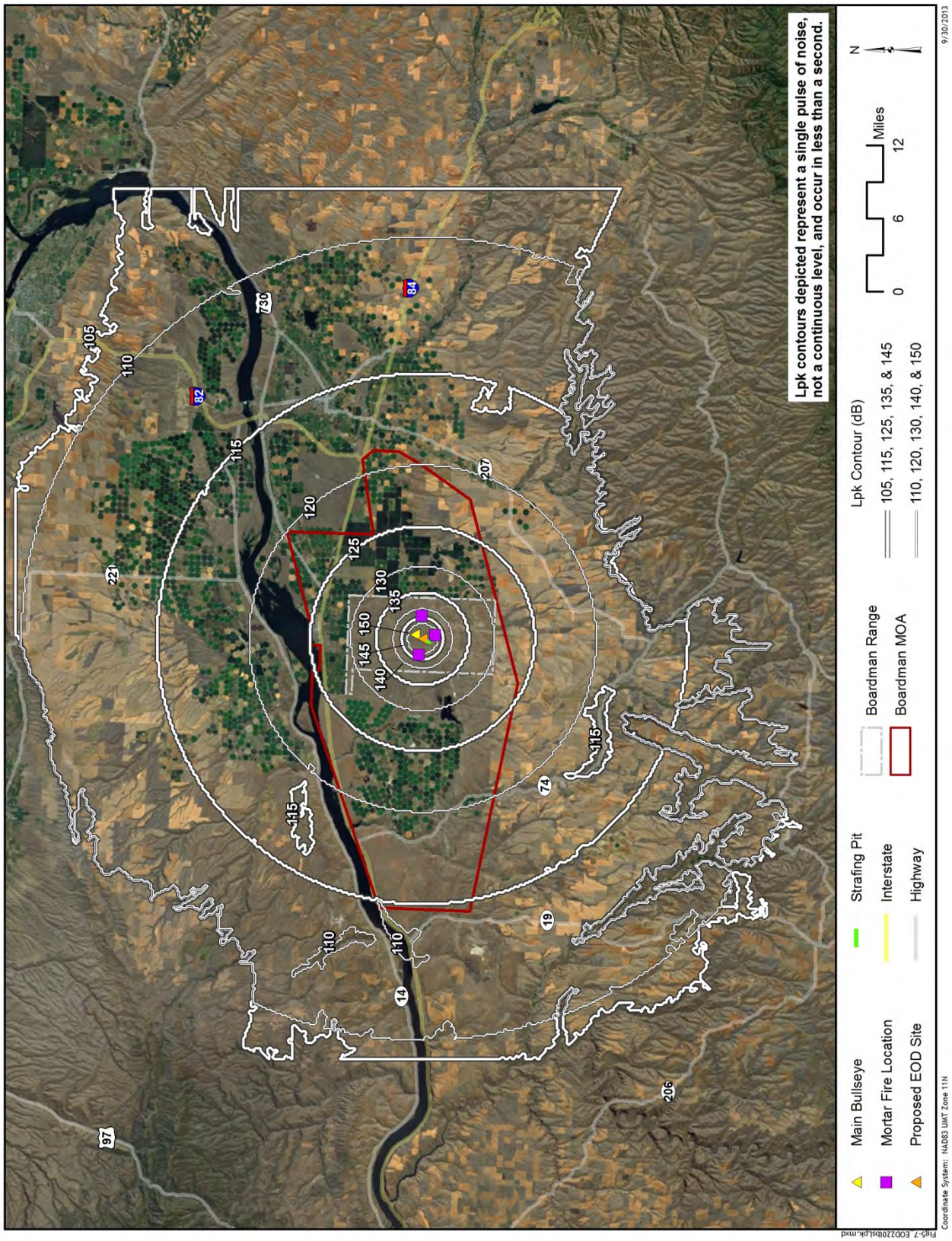

Figure 5-7 Peak Level (L_{pk}) Contours for EOD of 220lbs Net Explosive Weight

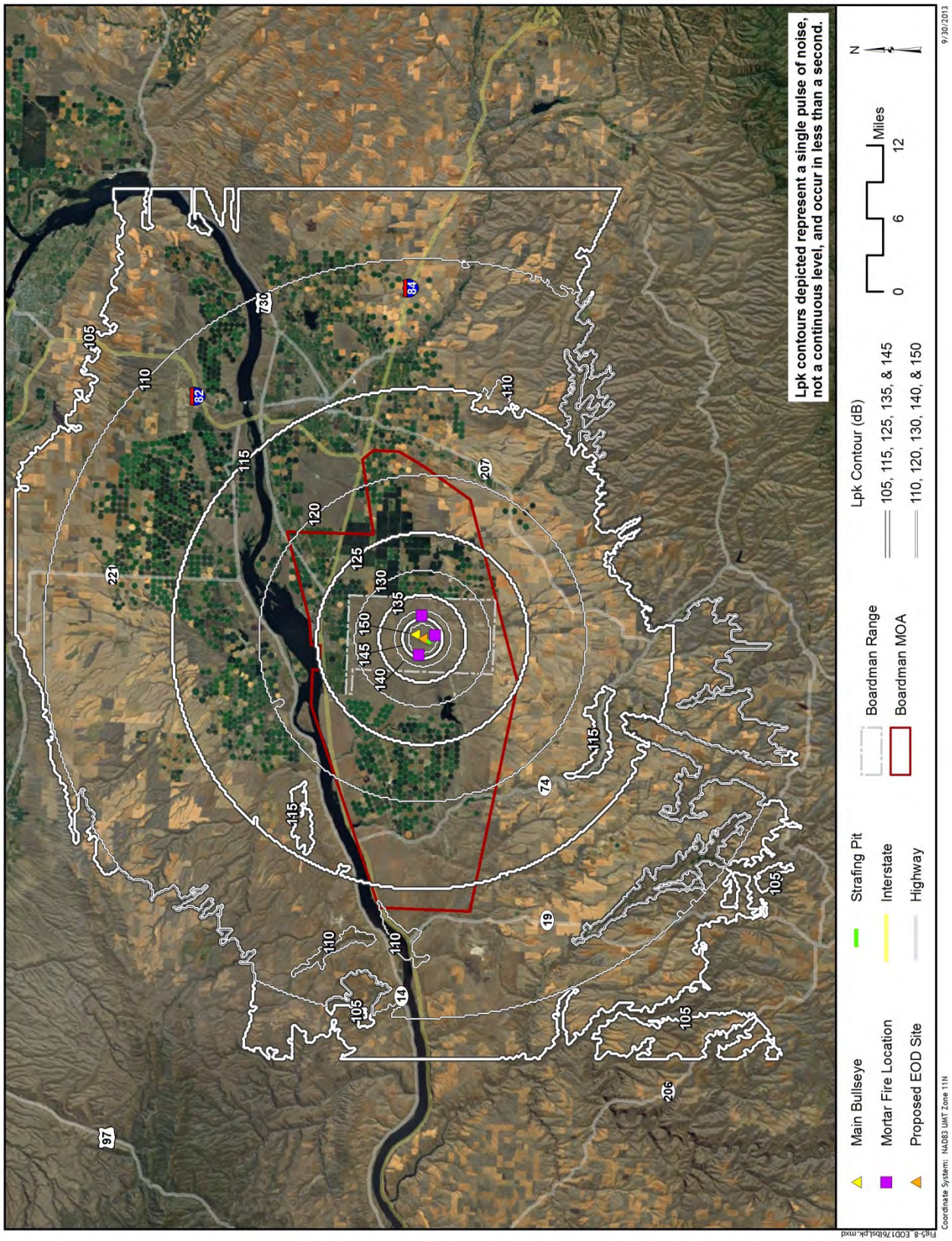

Figure 5-8 Peak Level (L_{pk}) Contours for EOD of 176lbs Net Explosive Weight

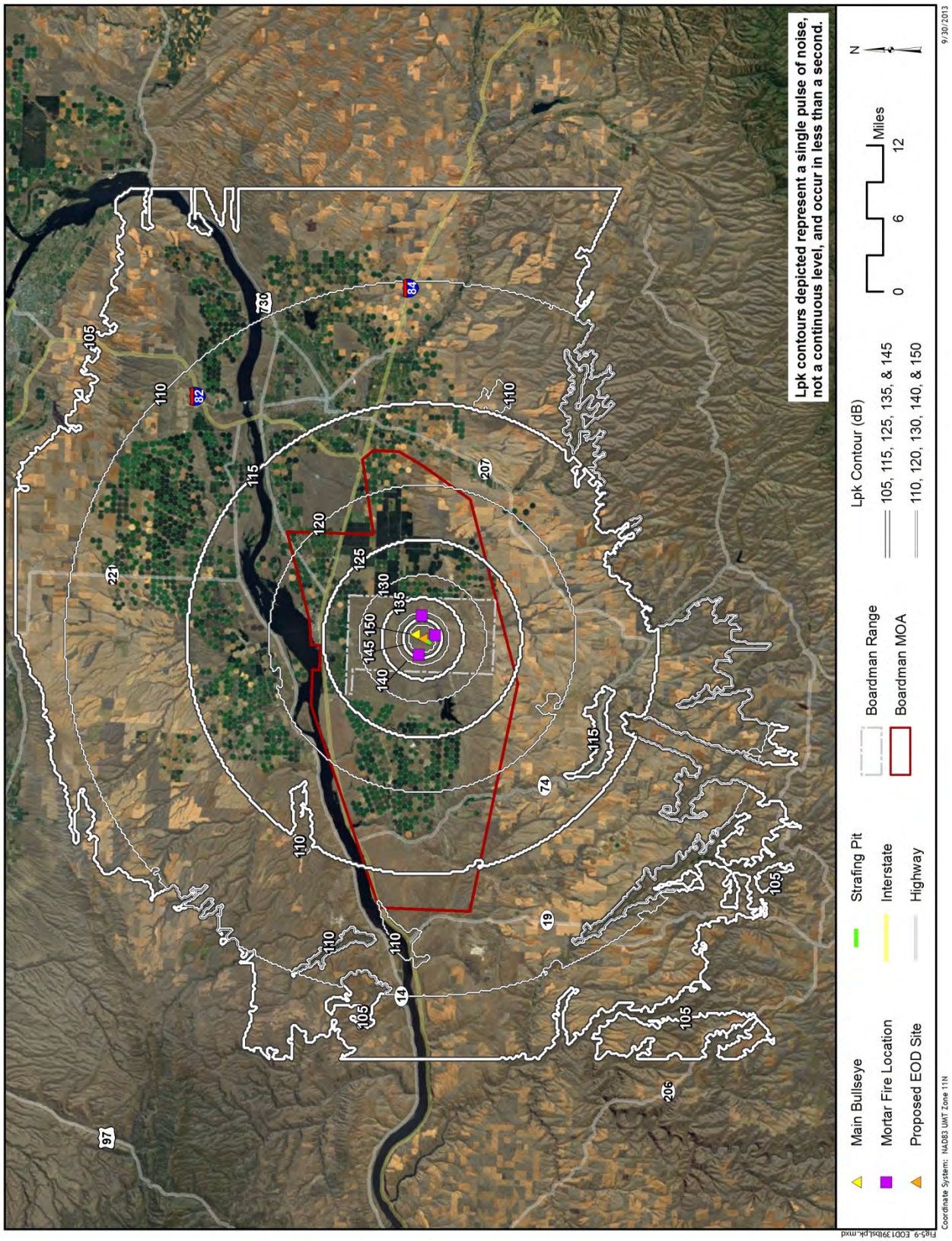

Figure 5-9 Peak Level (L_{pk}) Contours for EOD of 139lbs Net Explosive Weight

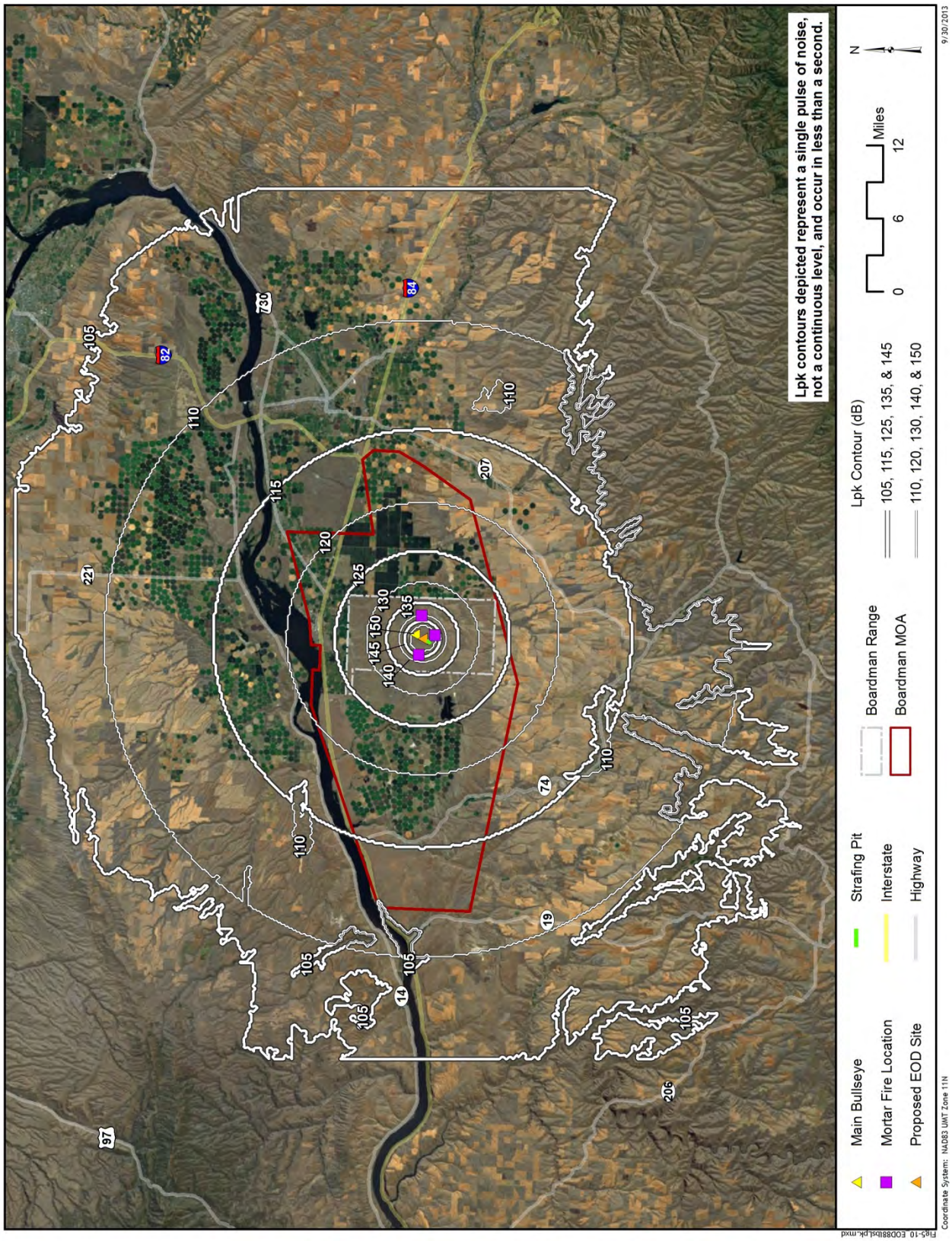

Figure 5-10 Peak Level (L_{pk}) Contours for EOD of 88lbs Net Explosive Weight

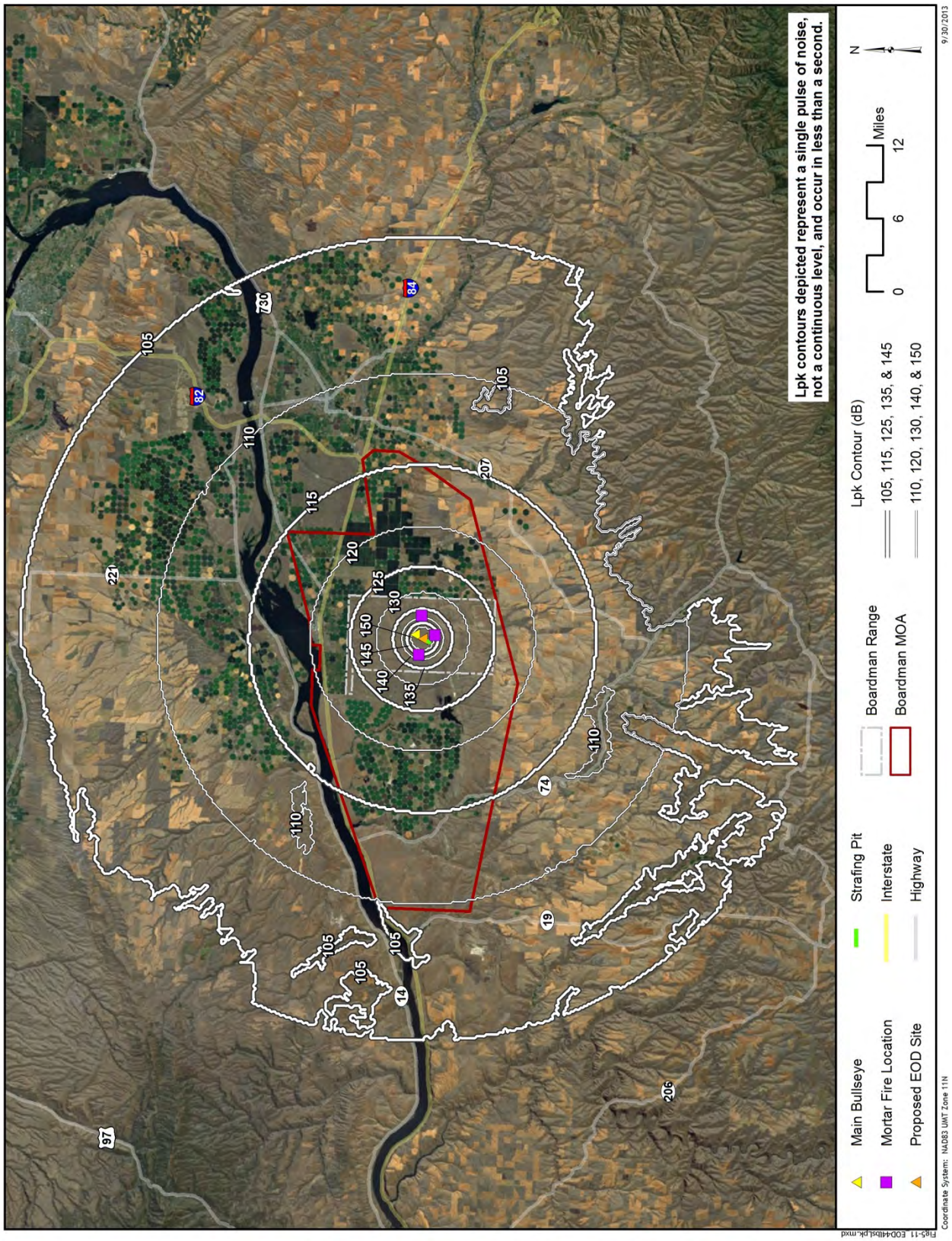

Figure 5-11 Peak Level (L_{pk}) Contours for EOD of 44lbs Net Explosive Weight

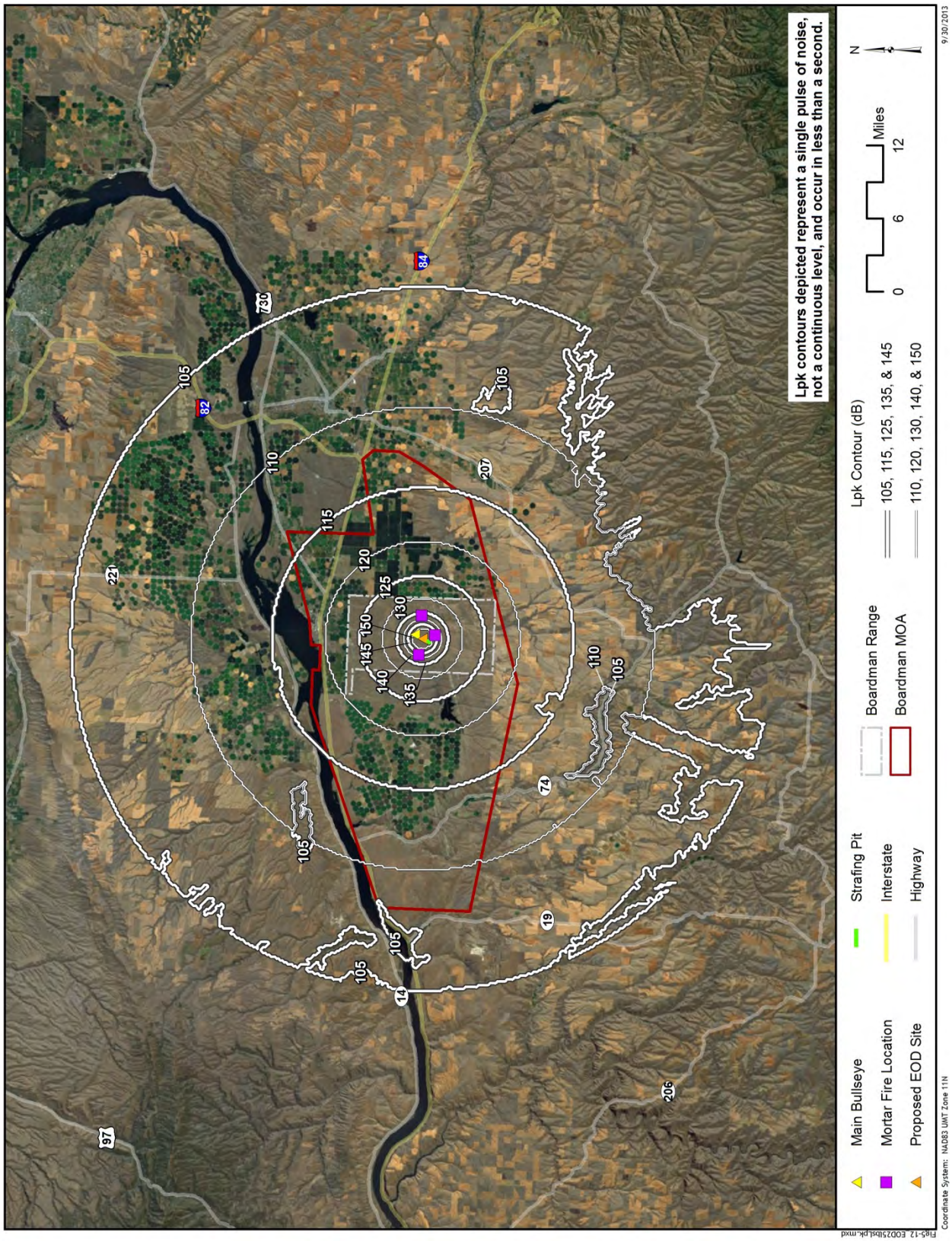

Figure 5-12 Peak Level (L_{pk}) Contours for EOD of 26lbs Net Explosive Weight

5.3 Small Arms Weapon Noise

For Proposed Scenarios 1 and 2 the small arm weapons fire would no longer occur at the four firing ranges analyzed in the Baseline scenario. The same weapons would be used on the new National Guard ranges the Multi-Purpose Training Range (MPTR), the Multi-Purpose Machine Gun Range (MPMG), and the Convoy Live Fire Ranges (CLFRs) which are not within the scope of this study.

SECTION 6 Proposed Scenario 3

6.1 Aircraft Noise

The Proposed Scenario 3 considers the same types and numbers of operations as Scenarios 1 and 2 but includes changes to the NWSTF Boardman airspace expected to occur in CY 2016.

Section 6.1 details the aircraft-generated noise modeling and resulting noise exposure, section 6.2 explains the ordnance noise, and Section 6.3 the small arms weapons.

6.1.1 Aircraft Sorties

The numbers and types of aircraft sorties under Scenario 3 is the same as Scenarios 1 and 2 presented in Section 5.

As presented in Section 5 and Table 5-1, the number of area-type sorties would nearly double relative to Baseline to 3,249 as tabulated in Table 5-1. This increase would be primarily due to the increase in SACT/LATT/ECM events by Navy aircraft as well as the additional UAS flights. The Navy transition/replacement of EA-6B for EA-18G would have completed. The F-35 is expected to replace the AV-8B operations.

As presented in Section 5 and Table 5-2, the route-type sorties would increase by approximately 25 percent relative to Baseline, under Scenario 3 to a total of 253 as listed in Table 5-2. This increase would be due to more Navy Hornet strafe sorties. The Navy bombing sorties and the ORNG strafe sorties would not change for this scenario. All route-type sorties occur during the daytime hours (0700-2200).

6.1.2 Modeled Airspace

Scenario 3 would add airspace to NWSTF Boardman at its northeast corner. The additional areas include Boardman NE MOA A with a floor of 500 ft and ceiling of 4,000 ft and Boardman NE MOA B which overlays the eastern portion of MOA A with a floor of 500 ft and ceiling to 18,000 ft as shown in Figure 6-1. This would allow LATT events to extend into the new airspace as shown by the proposed LATT corridor in Figure 6-1. The LATT corridor itself is not part of the proposed action because LATT events would continue to occur along relatively random paths throughout all available airspace. The depicted proposed LATT corridor was determined by the Navy as an area likely to contain the highest concentration of LATT events when extending into the additional airspace. Consistent with Baseline and Scenarios 1 and 2, 75 percent of LATT events time was modeled in the LATT corridors and the remaining 25 percent in the entire available airspace as a randomly distributed area.

6.1.3 Modeled Flight Performance Profiles

The baseline flight profiles would still be utilized under Scenario 3 but aircraft would maintain a minimum altitude of 500 ft in Boardman NE MOA.

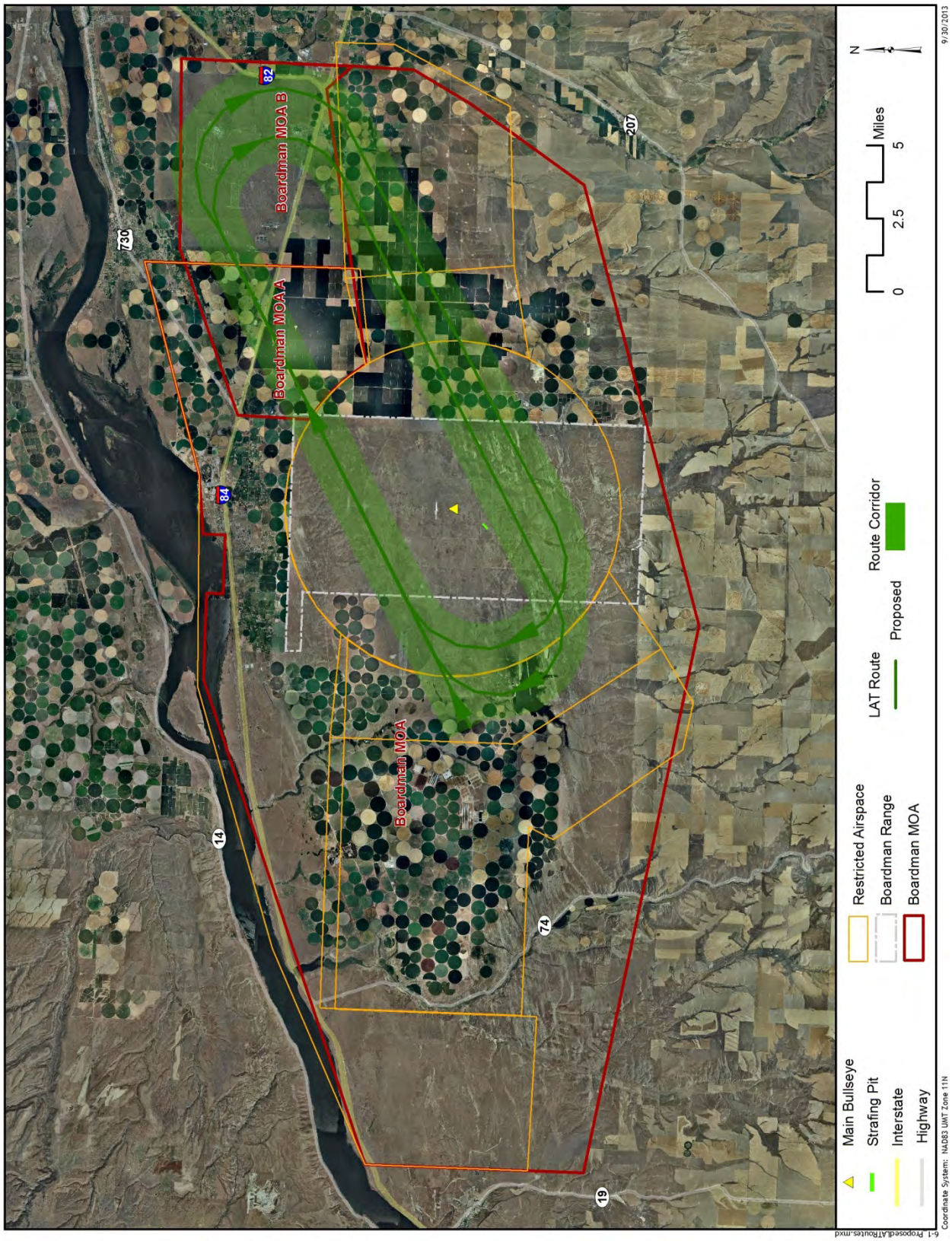

Figure 6-1 Modeled Average Daily LATT Flight Tracks and Corridors for Scenario 3

6.1.4 Aircraft Noise Exposure for Proposed Scenario 3

Using the data described in Sections 6.1.1 through 6.1.3, MR_NMAP was used to calculate and plot the 60 dBA through 85 dBA L_{dnmr} contours, in 5 dBA increments, for the route-and area-type aircraft average daily operations for the busiest month for Proposed Scenario 3. Figure 6-2 shows the resulting L_{dnmr} contours. Due to insufficient activity to generate 75 dBA L_{dnmr} (or greater), only 60, 65, and 70 dBA L_{dnmr} contours are shown in Figure 6-2.

Similar to Proposed Scenarios 1 and 2, the 60 dBA L_{dnmr} contours would completely cover R-5701 due primarily to LATT by the EA-18G at altitudes as low as 200 ft AGL but would now extend to the northeast to cover the proposed Boardman MOA B. The creation of MOA A and B, with a minimum allowed altitude of 500 AGL, would allow LATT to occur as low as the 500 ft floor in those areas causing the increase to the area of the 60 dBA L_{dnmr} contour.

The 65 dBA L_{dnmr} contour would be contained within R-5701 and would closely follow the LATT corridors very similar to Proposed Scenarios 1 and 2 but the shape would be different due to the additional northeast to southwest LATT corridor. Although LATT operations would continue to occur in all areas within the Boardman MOA, due to the higher floors in R-5706 and the areas to the southwest and southeast of R-5701, the 60 dBA L_{dnmr} contour would not extend into those areas.

The 70 dBA L_{dnmr} contour west of Boardman Range, approximately 800 ft wide, would extend approximately 4 miles west of Boardman Range along the run-in to the Main Bullseye. Low Pop patterns would be flown much less frequently than dive pattern but Low Pop patterns require flight at altitudes as low as 200 ft AGL a few miles before reaching the target. This allows the aircraft to 'pop' up to release the training round in an arc. The low altitude and the increased power setting prior to the 'pop' in the Low-Pop patterns is the primary cause of this 70 dBA contour. This same activity occurs in the Baseline scenario but no distinct contour is visible because the surrounding area is exposed to 70 dBA L_{dnmr}. The second 70 dBA L_{dnmr} contour would occur in the vicinity of the strafe pit caused by the low altitude portion of strafe activity which dives down towards the target.

Although the 65 dBA L_{dnmr} contour would extend beyond the Boardman range boundary, the only civilian land use exposed to 65 dB L_{dnmr} or greater would be agricultural surrounding the range. As mentioned in Section 4, population counts were not within the scope of the noise study.

Using NMPlot's arithmetic grid subtraction function, a difference grid was generated for Proposed Scenario 3 relative to Baseline, for the same rectangular area approximating the boundary of the MOA. The resulting contours (-5, -3, -1.5, 0, +1.5, +3, +5 dBA L_{dnmr}) were plotted and depicted in Figure 6-3. All areas in and around the Boardman range would experience a decrease in L_{dnmr} of 1 to 8 dBA except the new proposed MOA B. MOA B would experience increases of up to 28 dBA L_{dnmr}.

As with Proposed Scenarios 1 and 2, the low altitude LATT dominates the L_{dnmr} contours and the replacement of the EA-6B for the EA-18G would be the cause for the decreases. The EA-18G is approximately 11 dBA lesser in SEL than the EA-6B while conducting LATT operations at 200 ft AGL. The decrease in SEL trumps the increase in sorties. The reductions in L_{dnmr} are smaller (0 to -5 dBA) along the new northeast to southwest LATT corridor activity, the Low Pop run-in line west of the range boundary, and the strafe dive location near the target because (a) those operations contribute significantly to L_{dnmr} in those localized areas and (b) the Low Pop and Strafe operations would not change relative to Baseline.

All increases in L_{dnmr} would occur in MOA B while extending approximately 2 miles north and east. Although the increase is numerically large, the Baseline L_{dnmr} in these areas is less than 40 dBA L_{dnmr} due to no existing aircraft overflight activity. The proposed flight activity in MOA B, dominated by LAT, would increase the L_{dnmr} to greater than 60 dBA but less than 65 dBA.

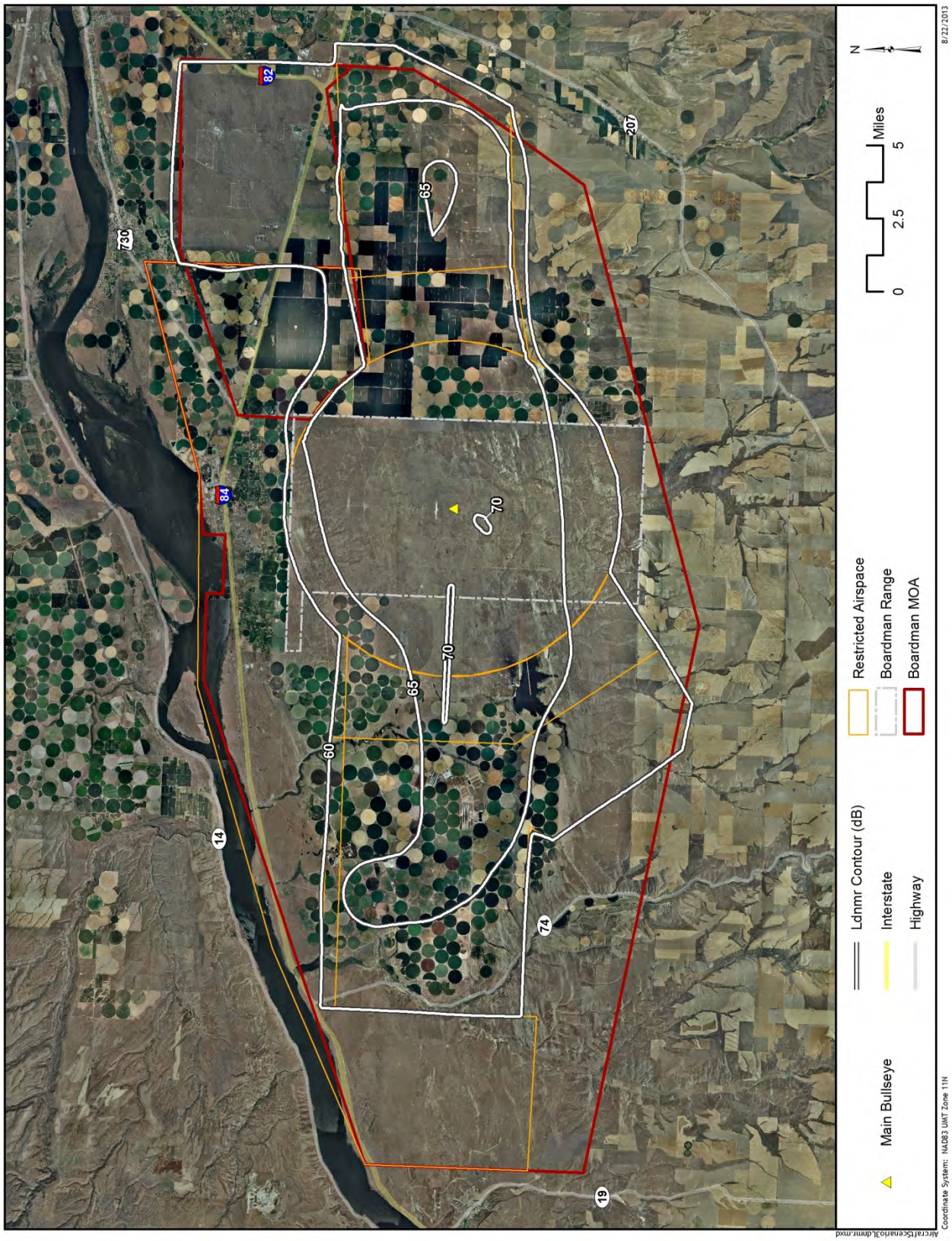

Figure 6-2 Aircraft L_{dnmr} Contours for Scenario 3 Average Daily Operations During Busiest Month

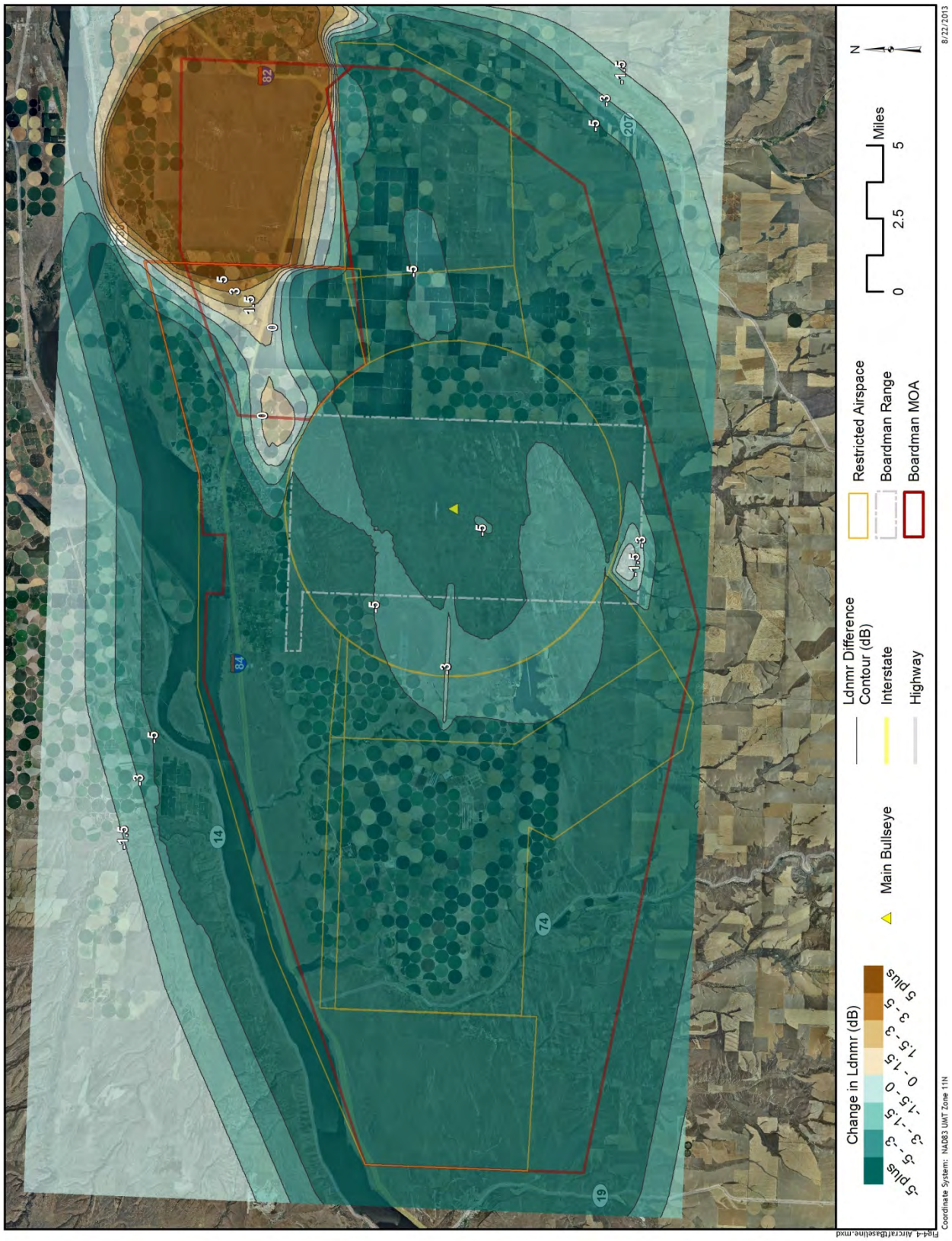

Figure 6-3 Differences in Aircraft L_{dnmr} between Scenario 3 and Baseline

6.2 Ordnance Noise

Ordnance operations under Scenario 3 would be identical to Scenarios 1 and 2 as described in Section 5.2. See Table 5-3 and Figures 5-1 through 5-3 for details describing the modeled conditions and the resulting noise exposure.

6.3 Small Arm Weapon Noise

For Scenario 3 the small arm weapons fire would no longer occur at the four firing ranges analyzed in the Baseline scenario. The same weapons would be used on the new National Guard ranges MPTR, MPMG, and CLFRs which are not addressed in this study.

SECTION 7

Biological Assessment

In support of the EIS biological assessment, this section focuses on providing un-weighted noise levels for the EIS's assessment of impacts to animals.

Section 7.1 presents L_{max} and NA L_{max}. Section 7.2 presents figures of NA L_{max}. Section 7.3 provides tables of SEL and L_{max} for each modeled aircraft flight profile with corresponding numbers of daily events. Section 7.4 compares SEL and L_{max} for all modeled NWSTF aircraft types for different altitudes.

7.1 Maximum Un-weighted Sound Levels (L_{max})

To determine the potential impacts to wildlife in the vicinity of NWSTF Boardman, plots of L_{max} for 120, 130, and 140 dB were computed. As MR_NMAP is not capable of computing un-weighted L_{max}, RNM was used to compare the A-weighted and un-weighted L_{max} values for a single flyover of the dominant LATT profiles, i.e., EA-6B and the EA-18G at altitudes between 200 and 500 ft AGL. In this particular case, there was less than a 1 dB difference between the two weightings. Due to a negligible difference between the weightings, MR_NMAP was used to compute the L_{max} grids

Figure 7-1 depicts the applicable L_{max} contours for the Baseline scenario. The aircraft do not generate 140 dB L_{max} (or greater), therefore only 120 and 130 dB L_{max} contours are shown in Figure 7-1. The 120 and 130 dB L_{max} contours, nearly coincident with only a few hundred feet between, extend approximately 1,000 ft beyond R-5701. The EA-6B LATT at 200 to 500 ft AGL is the dominant contributor. The two small lobes to the west which extend approximately 1 mile are due to the LATT entry path which was modeled to begin at the edge of R-5701. Due to their higher floors, other areas outside of R-5701 are not expected to experience L_{max} of 120 dB or greater.

The applicable L_{max} contour for Proposed Scenarios 1 and 2 is presented in Figure 7-2 and the L_{max} contour for Proposed Scenario 3 is presented in Figure 7-3. The 130 dB L_{max} contour would not exist in either of these scenarios because of the retirement of the EA-6B. The L_{max} of the EA-6B is up to 9 dB greater than the EA-18G. The 120 dB L_{max} contour would extend a few hundred feet beyond R-5701 and would be caused by the EA-18G LATT between 200 and 500 ft AGL. Although Proposed Scenario 3 includes LATT in MOA B, no events are expected to reach or exceed 120 dB L_{max} within MOA B due to the higher minimum altitude of 500 ft.

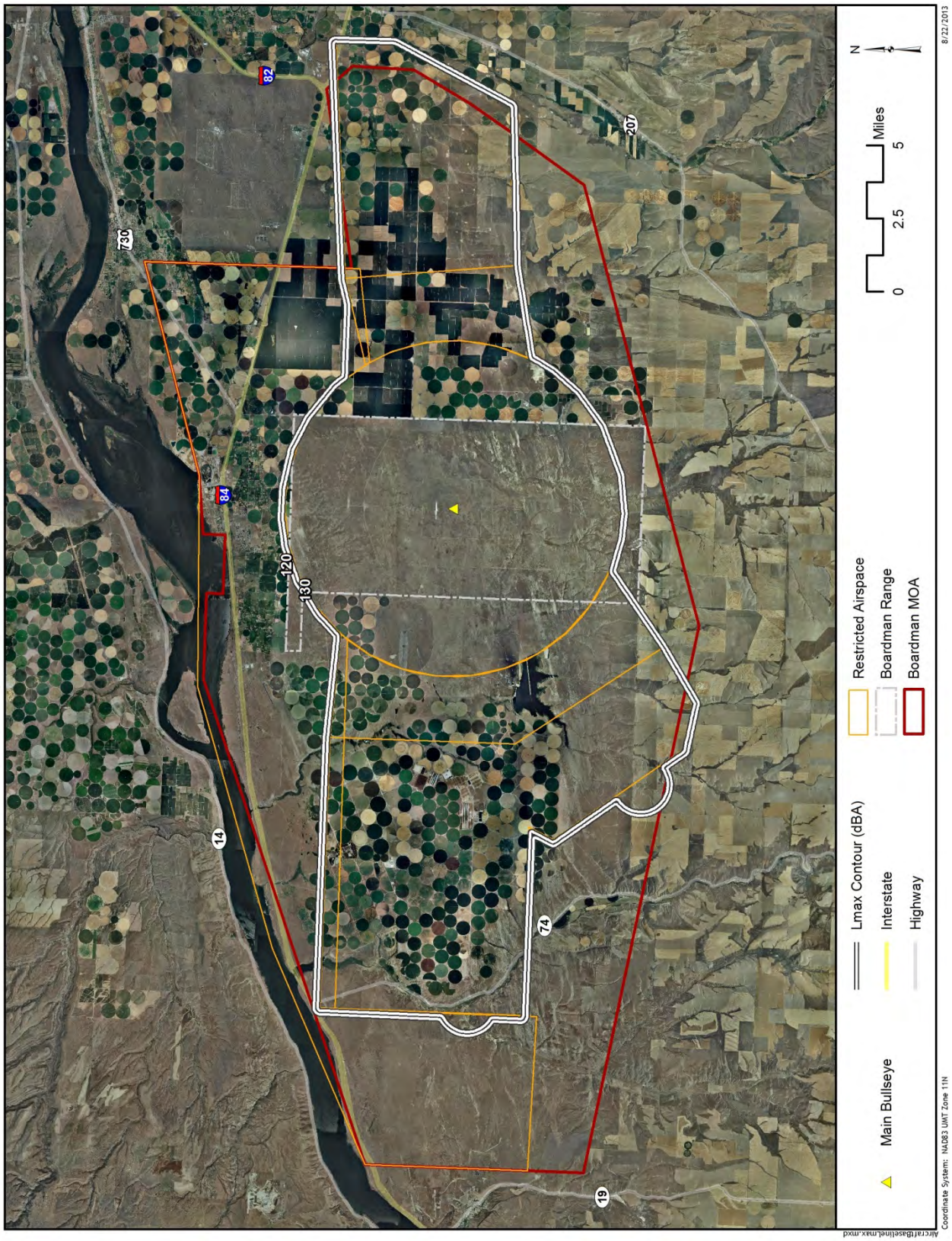

Figure 7-1 Aircraft Instantaneous Maximum Sound Levels for Baseline

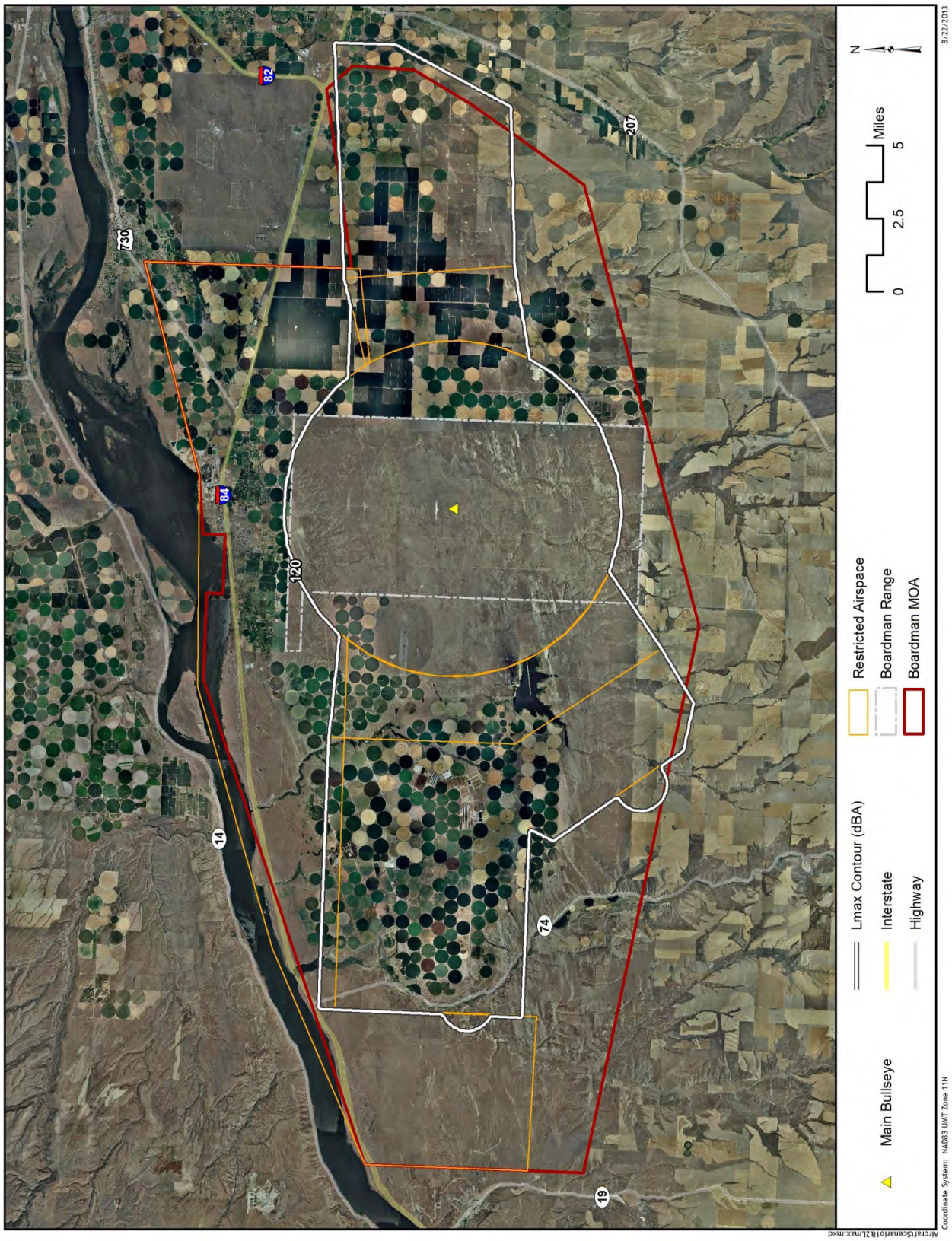

Figure 7-2 Aircraft Instantaneous Maximum Sound Levels for Proposed Scenarios 1 and 2

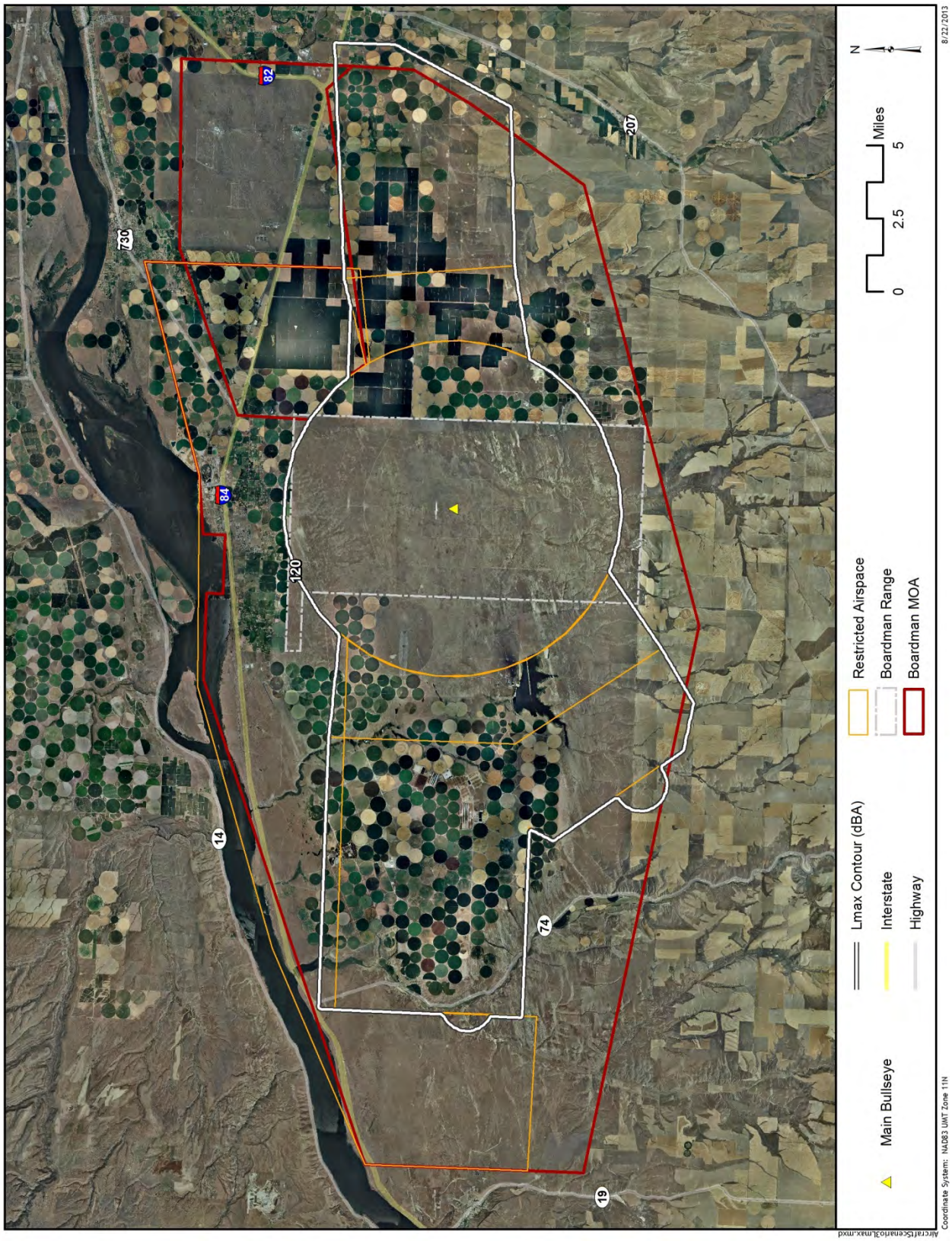

Figure 7-3 Aircraft Instantaneous Maximum Sound Levels for Proposed Scenario 3

7.2 Numbers-of-Events At or Above (NA) an L_{max} of 120 dB

In addition to computing the maximum sound levels which wildlife would be exposed to it is also important to determine the frequency that these events occur. The Number-of Events At or Above a Selected Noise Threshold (NA) metric, L_{max} 120 dB (NA120) in this case, serves this need.

Although MR_NMAP does allow computation of NA in tabular form it does not directly create a grid of NA. To accomplish the task of generating a grid of NA to display contours further steps were required. Grids of L_{max} for each of the individual flight profiles were generated, for both area-type and route-type profiles. Each of these flight profile grids which exceeded 120 dB L_{max} were identified and the 120 dB L_{max} contours lines were exported to be used in a graphical software program. Each of the areas were assigned numbers of annual average daily events based on the annual events divided by 365 days per year. The LATT was handled slightly differently because annual totals are presented as sorties but modeled along the corridors with six corridor passes per sortie. The LATT average daily corridor passes were used, and when combined with the other average daily events, results in areas with corresponding NA120 values.

Due to the randomness of flight activity the 26 events could be 4 aircraft sorties flying a total of 26 aircraft passes over a single location or 4 aircraft sorties flying over different areas never generating more than a maximum of a single event exceeding NA120 dB L_{max} at any location. This analysis also assumes a single aircraft per overflight event or sufficient time between each aircraft occurs so the events are not combined to result in a larger L_{max}.

Figure 7-4 depicts the daily NA120 for Baseline. LATT activity along the LATT corridors is the main contributor to daily events above 120 dB L_{max} due to the low altitude and high frequency of events. The highest concentration of NA120 daily events of 5 to 10 occurs mostly within Boardman Range extending approximately 2 miles east of the Range boundary. The LATT corridors overlap the most in this area. The areas of 3-5 and 2-3 events follow the western and eastern LATT corridors, respectively. As aircraft conducting LATT begin to climb to enter R-5706 to the north, the NA120 area ends because the L_{max} decreases to less than 120 dB. The 1-2 event areas are caused by the entry path to the LATT corridors. The remaining areas in R-5701 experiences less than 1 NA120 per average day. Additional aircraft activity other than LATT does cause NA120 events (i.e. low portions of ECM, Low-Pop, and Strafe) but when viewed as average daily events they are too infrequent to cause a change to areas described by the LATT.

Figure 7-5 depicts the daily NA120 for Proposed Scenario 1 and 2. Many of the areas are the same shape as Baseline but with higher numbers of daily events which would increase approximately proportional to the increase in LATT events. The highest concentration of NA120 daily events of 15-20 would occur mostly within Boardman Range extending approximately 2 miles east of the Range boundary. The LATT corridors overlap the most in this area. The regions of 10-15 and the 5-10 events would continue to follow the western and eastern LATT corridors, respectively. The area along the entry path to the LATT corridors would increase to 2-5 events. All of the remaining area within R-5701 would experience 1 to 2 NA120 per average day.

Figure 7-6 depicts the daily NA120 for Proposed Scenario 3. The areas and daily events are similar to Proposed Scenarios 1 and 2 but now include additional areas for the northeast to southwest LATT corridor area. The highest concentration of NA120 daily events of 15-20 would occur mostly within Boardman Range extending approximately 2 miles east of the Range boundary. The LATT corridors overlap the most in this area. The 10-15 would not extend as far to the west as in Scenario 1 or 2 and would be within five miles of the Range boundary. This shift would be due to the assumption that some of the LATT events currently occurring along the existing corridors would instead utilize the proposed LATT corridor.

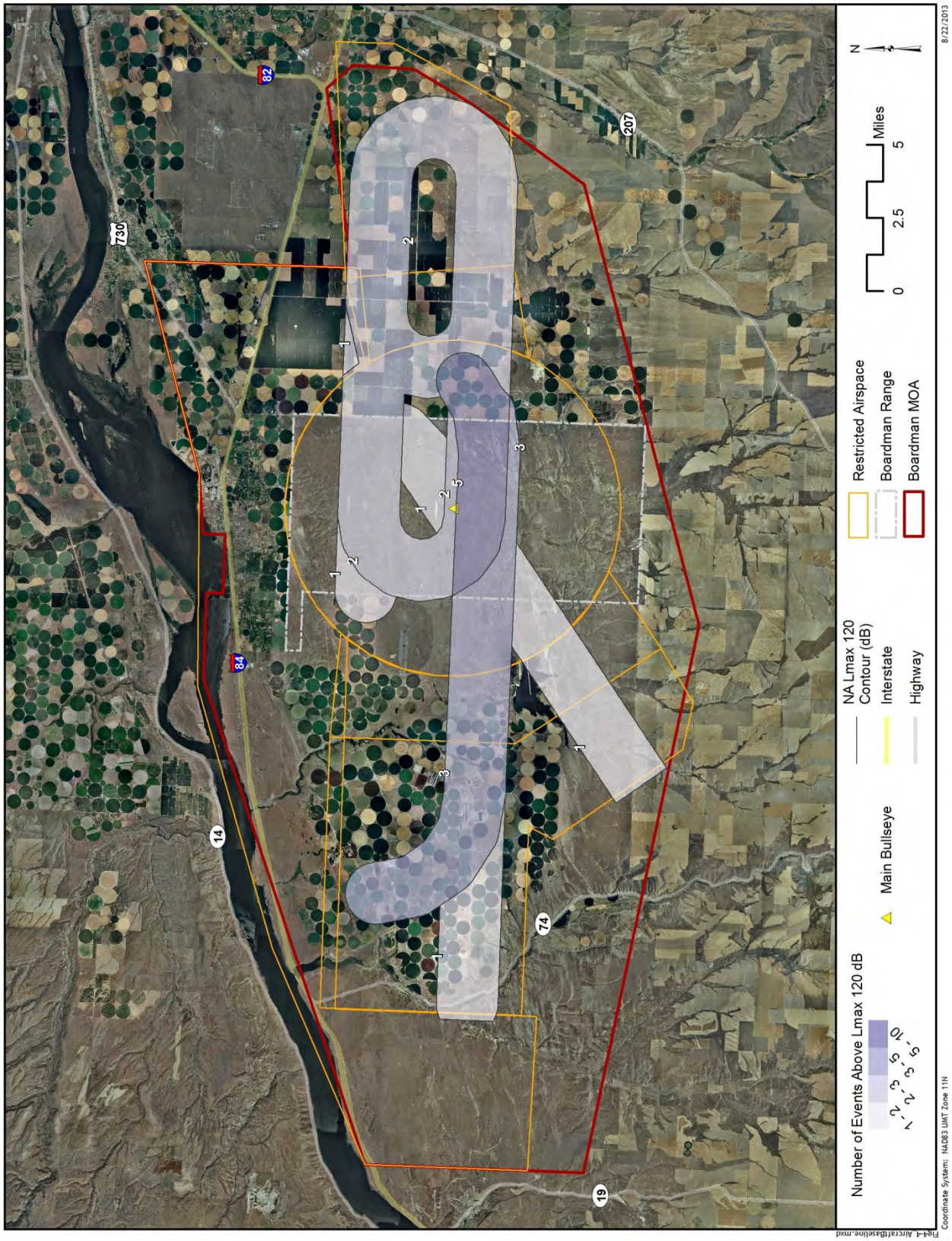

Figure 7-4 Average Daily NA 120 dB L_{max} for Baseline

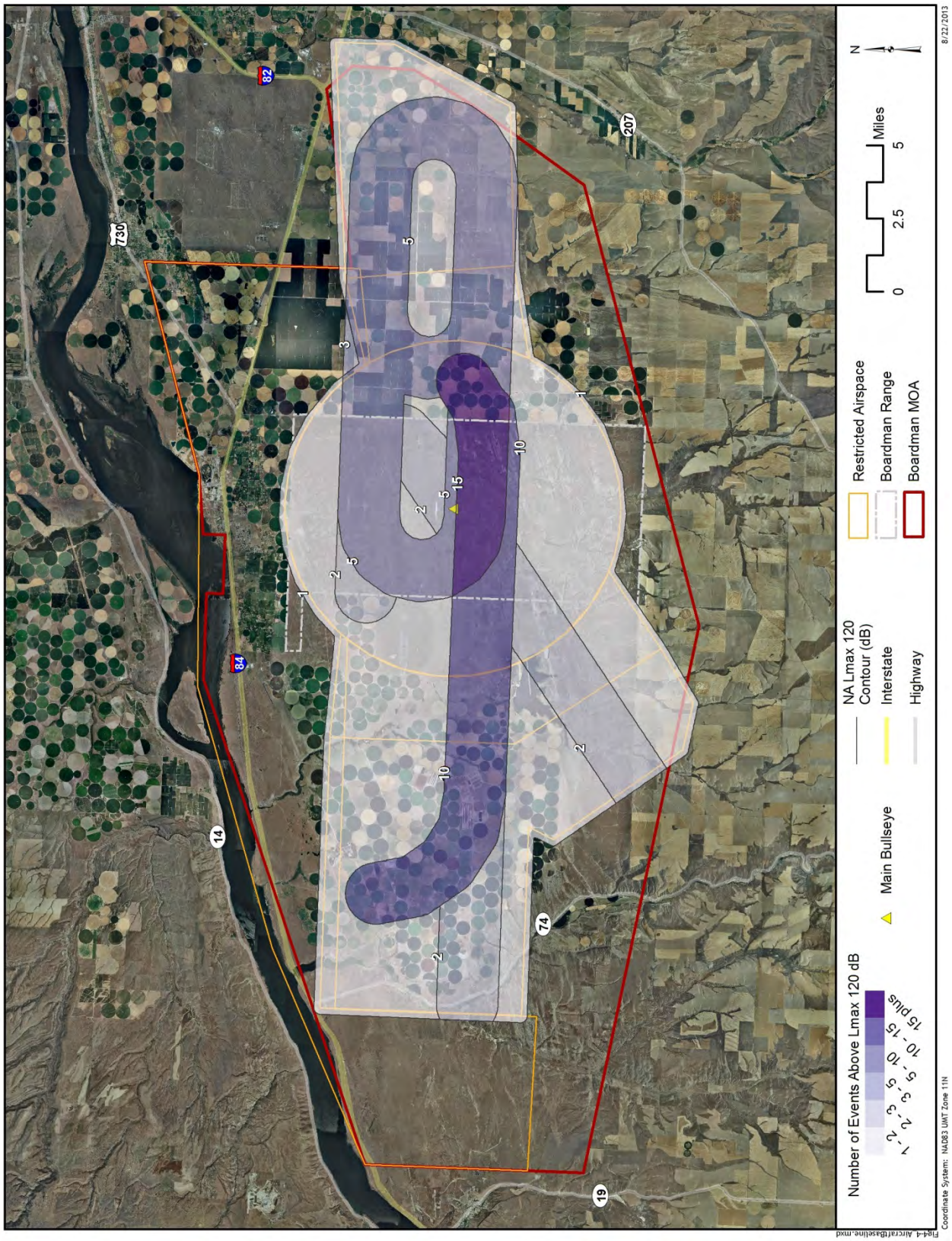

Figure 7-5 Average Daily NA 120 dB L_{max} for Proposed Scenarios 1 and 2

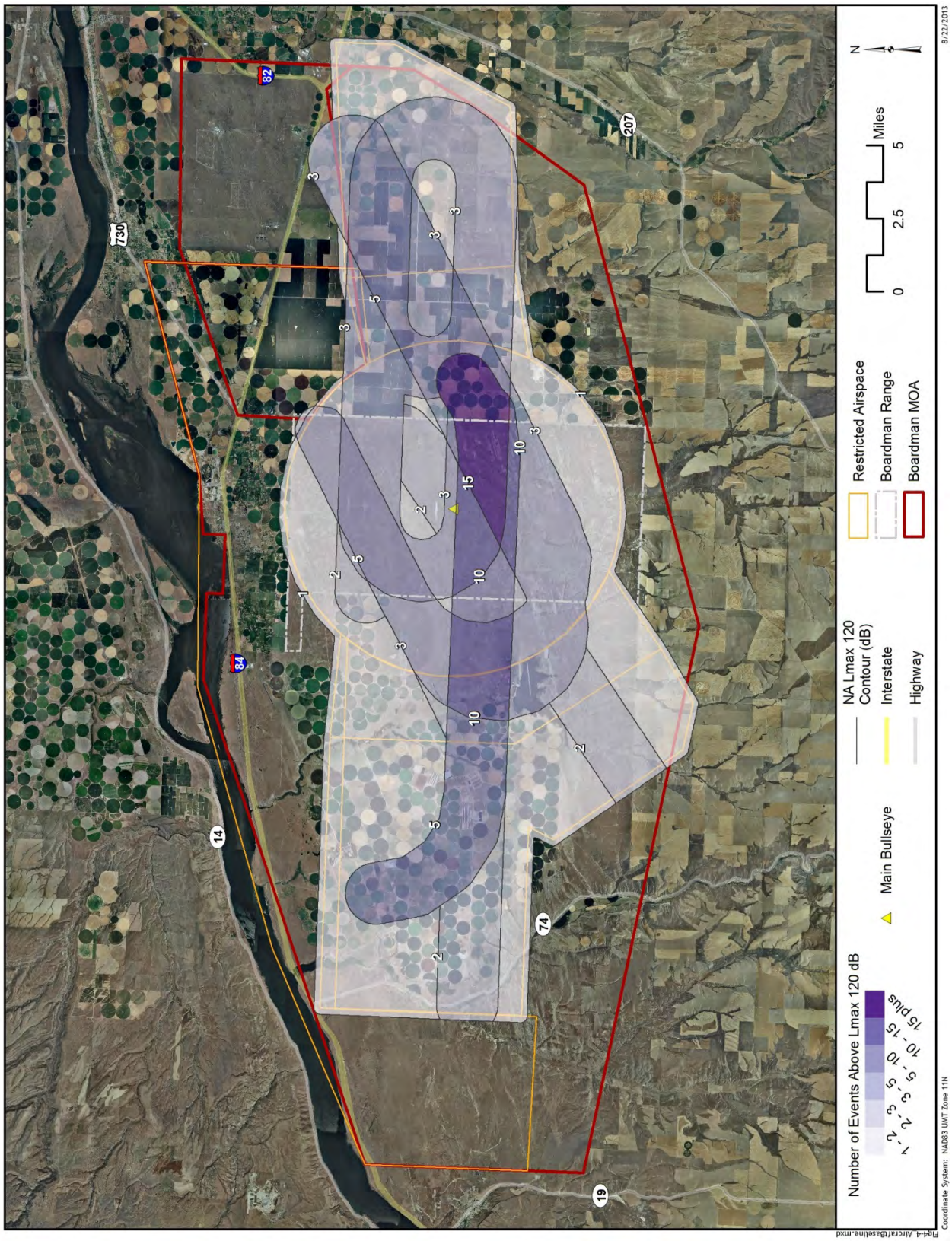

Figure 7-6 Average Daily NA 120 dB L_{max} for Proposed Scenario 3

7.3 SEL and L_{max} for Modeled Profiles

Much of the aircraft activity at NWSTF Boardman occurs in somewhat random locations within the modeled areas. To further aid assessment of potential impacts to wildlife it is beneficial to further look at single overflight events to determine the SEL and L_{max} for each training event as well as the frequency of each event.

RNM was specifically chosen for this task due to its unique ability to compute un-weighted SEL and L_{max} for fixed-wing aircraft. No other software approved by the DoD has the ability to compute un-weighted sound levels. RNM was used to model level flights at constant speed and altitude for each Area-Type profile as presented in Table 7-1. The EA-6B generates SEL and L_{max} greater than 130 dB at 200 ft AGL and 120 at 500 ft AGL while the EA-18G would only generate SEL and L_{max} greater than 120 dB at 200 ft AGL for LATT and ECM. Approximately 55 percent of each LATT sortie would occur below 500 ft AGL but only 5 percent of each ECM sortie.

Approximately 2 sorties and 11 Baseline events per day of the busiest month (so-called "busy day") exceed 120 dB L_{max} somewhere in NWSTF Boardman for Area-Type modeling. All proposed scenarios would cause approximately 4 sorties and 26 events per busy day to exceed 120 dB L_{max}. The term "event" when used in this context could mean several different situations. Due to the randomness of flight activity the 26 events could be 4 aircraft sorties flying a total of 26 aircraft passes over a single location or 4 aircraft sorties flying over different areas never generating more than a maximum of a single event exceeding NA120 dB L_{max} at any location. This analysis also assumes a single aircraft per overflight event or sufficient time between each aircraft occurs so the events are not combined to result in a larger L_{max}. The most likely situation is between the two extremes and similar to Figures 7-3 through 7-6. Therefore, these NA120 dB L_{max} are best utilized for comparison purposed between Baseline and the Proposed Scenarios as well as quantifying which flight activity contributes most to NA120 L_{max}.

Table 7-1 Un-Weighted Maximum Sound Levels (L_{max}) and Sound Exposure Levels (SEL) and Number of Events Above for Area-Type Sorties

Mission Desc	Aircraft type	Avg Speed (KIAS)	Avg Power Setting	Altitude (ft AGL)												Number of Events Above 120 dB L_{max}			
																Baseline		Proposed Scenarios 1, 2, 3	
				200		500		1,000		5,000		6,000		10,000		Sorties Per Busy Day	Events Per Busy Day (4)	Sorties Per Busy Day	Events Per Busy Day (4)
				SEL	Lmax	SEL	Lmax	SEL	Lmax	SEL	Lmax	SEL	Lmax	SEL	Lmax				
LATT	EA-6B	400	*90% NC*	133	134	126	122	119	113	108	95			101	86	0.7	4.2	-	-
	EA-18G(1)	400	*90% NC*	122	125	117	116	113	109	102	91			96	82	0.5	3.0	3.2	19.2
HARMEX (simulated)	EA-6B	400	*90% NC*											89	79	-	-	-	-
	EA-18G(1)	400	*90% NC*											96	82	-	-	-	-
ECM	EA-6B	400	*90% RPM*	133	134	126	122	119	113	108	95			101	86	0.5	3.0	0.9	5.4
	EA-18G(1)	400	*90% NC*	122	125	117	116	113	109	102	91			96	82	0.1	0.6	0.2	1.2
BFM (ORANG)	F-15E(2)	500	*90% NC*									105	95	101	88	-	-	-	-
	F-16C(3)	500	*90% NC*									99	89	95	81	-	-	-	-
	AV-8B	500	*90% RPM*									89	82	84	73	-	-	-	-

Notes: (1) EA-18G modeled as FA-18E/F
(2) F-15E modeled with F100-PW-229 engine
(3) F-16C modeled with F100-PW-220 engine
(4) A single sortie can generate multiple 120 dB exceedance events per day because multiple passes occur per sortie (estimated at 6 passes)

The same methodology was used to determine the SEL and L_{max} along with NA120 for the Route-Type flight profiles. Results are presented in Table 7-2. The FA-18C/D and E/F Hornets would exceed 120 dB for both SEL and L_{max} for the Low-Pop run-in. Both the F-15E and the FA-18E/F would exceed an SEL of 120 dB for the low portion of strafe patterns in the vicinity of the target. For Baseline, less than 1 sorties and approximately 2events per busy day exceed 120 dB L_{max} somewhere in NWSTF Boardman for Route-Type modeling. For Proposed scenarios, less than 1 sortie would occur per busy day and events would increase slightly to 3 per busy day. This increase in route-type events exceeding 120 dB would only occur in the vicinity of the strafe target.

Table 7-2 Un-Weighted Maximum Sound Levels (L_{max}) and Sound Exposure Levels (SEL) and Number of Events Above for Route-Type Sorties

Mission Description	Flight Track	Aircraft type	Modeled Average Speed (KIAS)	Modeled Average Power Setting	Altitude (ft AGL) Along Flight Corridor Points (1)													
					A, B (downwind, crosswind)								C (begin final)		D (prior to target)			
					3,500		5,000		9,000		12,000		200		3,000		4,000	
					SEL	Lmax	SEL	Lmax	SEL	Lmax	SEL	Lmax	SEL	Lmax	SEL	Lmax	SEL	Lmax
High Dive	HD	FA-18C/D	500	92% NC							91	78						
		FA-18E/F	500	90.5% NC							93	80						
Low Dive	LD	FA-18C/D	500	92% NC			100	89										
		FA-18E/F	500	90.5% NC			102	92										
Low Pop Left or Right	LPL	FA-18C/D	500	92% NC	102	94							120	122	103	95		
		FA-18E/F	500	90.5% NC	105	96							122	125	106	98		
Strafe	SL & SR	F-15E(1)	350	92% NC					110	97							116	106
		FA-18E/F	350	97% NC					111	97							117	106

Mission Description	Flight Track	Aircraft type	Modeled Average Speed (KIAS)	Modeled Average Power Setting	Altitude (ft AGL) Along Flight Corridor Points (1)								Frequency of Occurances Exceeding 120 dB Lmax			
					E (target)								Baseline		Proposed Scenarios 1, 2, 3	
					500		1,000		1,500		3,000		Sorties Per Busy Day	Events Per Busy Day (2)	Sorties Per Busy Day	Events Per Busy Day (2)
					SEL	Lmax	SEL	Lmax	SEL	Lmax	SEL	Lmax				
High Dive	HD	FA-18C/D	500	92% NC							103	95	-	-	-	-
		FA-18E/F	500	90.5% NC							106	98	-	-	-	-
Low Dive	LD	FA-18C/D	500	92% NC			110	107					-	-	-	-
		FA-18E/F	500	90.5% NC			113	110					-	-	-	-
Low Pop Left or Right	LPL	FA-18C/D	500	92% NC	114	114							< 0.1	< 0.1	< 0.1	< 0.1
		FA-18E/F	500	90.5% NC	117	116							< 0.1	< 0.1	< 0.1	< 0.1
Strafe	SL & SR	F-15E(1)	350	92% NC					122	116			0.2	1.6	0.2	1.6
		FA-18E/F	350	97% NC					123	116			0.1	0.8	0.2	1.6
												Total	**0.3**	**2.4**	**0.4**	**3.2**

Notes: (1) F-15E modeled with F100-PW-229 engine

(2) Strafe sorties include 8 target passes

Yellow highlighted cells identify SEL and Lmax levels greater than 120 dB un-weighted

7.4 SEL and L_{max} Comparison for All Aircraft

In addition to the modeled aircraft, a few additional types do or will utilize NWSTF. These additional aircraft types were not modeled because it was determined they would have a negligible contribution to the noise environment because of the low numbers of events, less noisy aircraft types, operate at much higher altitudes, or were not part of the proposed action for the EIS.

The speeds were selected to be the same for similar types of aircraft with all fighters modeled at 400 knots, other fixed-wing aircraft at 300 knots, and helicopters at 120 knots. Power settings of 90 percent are used or the equivalent considered intermediate power.

Table 7-3 provides the details which show that the EA-6B, F-15E, and F-35 would exceed 120 dB for SEL and L_{max} at both 200 and 500 ft AGL. Although neither the other non-fighter fixed-wing aircraft are unlikely to operate as low as 200 ft AGL nor the helicopter above 1,000 ft both groups were included for comparison purposes.

Table 7-3 Un-Weighted Maximum Sound Levels (L_{max}) and Sound Exposure Levels (SEL) for Applicable Aircraft Types

Aircraft type	Modeld As (if different)	Modeled Average Speed (KIAS)	Modeled Average Power Setting	SEL Altitude (ft AGL)					L_{max} Altitude (ft AGL)				
				200	500	1,000	5,000	10,000	200	500	1,000	5,000	10,000
EA-6B		400	*90% NC*	133	126	119	108	101	134	122	113	95	86
EA-18G	FA-18E/F	400	*90% NC*	122	117	113	102	96	125	116	109	91	82
F-15E	engine F100-PW-229	400	*90% NC*	127	121	118	107	101	129	120	114	96	88
F-16C	engine F100-PW-220	400	*90% NC*	120	115	111	101	96	122	113	107	91	83
AV-8B(1)		400	*90% RPM*	113	107	103	92	84	114	106	101	80	71
F-35	F-35A	400	*90% ETR*	127	122	118	108	102	130	121	114	97	89
P-3C / EP-3(1)		300	*3500 ESHP*	103	96	93	82	78	102	93	85	73	68
P-8(1)	B737-700	300	*20,000 lbs*	104	99	97	91	87	103	96	92	82	76
MC-130E/H	C-130H&N&P	300	*16,000 in-lbs*	100	95	91	81	76	100	92	85	68	61
C-17		300	*1.25 EPR*	112	104	100	90	86	113	101	93	77	70
C-23(1)		300	*90% RPM*	88	82	79	70	67	88	80	75	61	57
CH-47		120	*N/A*	111	107	104	94	89	109	102	96	81	74
UH-60	SH-60B	120	*N/A*	101	97	93	80	75	97	89	83	68	62

Notes:

(1) Estimated from NOISEMAP OPX A-weighted values adjusted to un-weighted by using ratios of the two weightings for similar aircraft types

Yellow highlighted cells identify SEL and Lmax levels greater than 120 dB un-weighted

Weather: 59 deg F, 70% relative humidity

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Appendix A

SUPPORTIVE TABULAR AND GRAPHIC DATA

Appendix A-1: **Aircraft MR_NMAP Modeled Profiles**

Appendix A-2: **Ordnance Modeling**

Appendix A-3: **Small Arms Modeling**

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Appendix A-1: Aircraft MR_NMAP Modeled Profiles

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Table A-1 NWSTF Boardman Modeled Aircraft Profiles for Baseline

AIRSPACE ID	MISSION ID	AIRCRAFT ID	SPEED (KIAS)	POWER DESCRIPTION	POWER	POWER UNIT	BUSY MONTH SORTIES[1]	ANNUAL SORTIES[1]	TIME PER SORTIE (MINS)	TIME (% OR MINS WITHIN ALTITUDE BAND (FT AGL))[(1)]						
										MIN: 0	200	499	500	5K	6K	10K
										MAX:1	499	500	5K	10K	10K	15K
R5701	EA6B_LAT	EA6B	350	NOISEMAP	90	% RPM	2.89	31.5	45		10	45	20	2	0	20
R5706	EA6B_LAT	EA6B	350	NOISEMAP	90	% RPM	1.42	15.5	45		10	45	20	2	0	20
MOA-SW	EA6B_LAT	EA6B	350	NOISEMAP	90	% RPM	0.42	4.6	45		10	45	20	2	0	20
MOA-SE	EA6B_LAT	EA6B	350	NOISEMAP	90	% RPM	0.42	4.6	45		10	45	20	2	0	20
subtotal							*5.15*	*56.2*								
R5701	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	2.06	22.5	45		10	45	20	2	0	20
R5706	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	1.01	11.0	45		10	45	20	2	0	20
MOA-SW	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.3	3.3	45		10	45	20	2	0	20
MOA-SE	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.3	3.3	45		10	45	20	2	0	20
subtotal							*3.67*	*40.1*								
R5701	EA6B_HAR	TAKEOFF PO	350	NOISEMAP	90	% RPM	2.8	30.5	90							100
R5706	EA6B_HAR	TAKEOFF PO	350	NOISEMAP	90	% RPM	1.37	14.9	90							100
MOA-SW	EA6B_HAR	TAKEOFF PO	350	NOISEMAP	90	% RPM	0.41	4.5	90							100
MOA-SE	EA6B_HAR	TAKEOFF PO	350	NOISEMAP	90	% RPM	0.41	4.5	90							100
subtotal							*4.99*	*54.4*								
R5701	EA18G_HAR	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.5	5.5	90							100
R5706	EA18G_HAR	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.25	2.7	90							100
MOA-SW	EA18G_HAR	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.07	0.8	90							100
MOA-SE	EA18G_HAR	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.07	0.8	90							100
subtotal							*0.89*	*9.8*								
R5701	EA6B_ECM	TAKEOFF PO	350	NOISEMAP	90	% RPM	8.25	90.0	90	0	5	5	50	20	0	20
R5706	EA6B_ECM	TAKEOFF PO	350	NOISEMAP	90	% RPM	4.05	44.2	90	0	5	5	50	20	0	20
MOA-SW	EA6B_ECM	TAKEOFF PO	350	NOISEMAP	90	% RPM	1.2	13.1	90	0	5	5	50	20	0	20
MOA-SE	EA6B_ECM	TAKEOFF PO	350	NOISEMAP	90	% RPM	1.2	13.1	90	0	5	5	50	20	0	20
subtotal							*14.7*	*160.4*								
R5701	EA18G_ECM	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	1.47	16.0	90	0	5	5	50	20	0	20
R5706	EA18G_ECM	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.72	7.9	90	0	5	5	50	20	0	20
MOA-SW	EA18G_ECM	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.21	2.3	90	0	5	5	50	20	0	20
MOA-SE	EA18G_ECM	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.21	2.3	90	0	5	5	50	20	0	20
subtotal							*2.61*	*28.5*								
R5701	F15E_FIGHT	F-15A	570	HIGH SPD TRAININ	88	% NC	0.5	5.5	25	0	0	0	0	0	67	0
R5706	F15E_FIGHT	F-15A	570	HIGH SPD TRAININ	88	% NC	0.25	2.7	25	0	0	0	0	0	67	0
MOA-SE	F15E_FIGHT	F-15A	570	HIGH SPD TRAININ	88	% NC	0.07	0.8	25	0	0	0	0	0	67	0
MOA-SW	F15E_FIGHT	F-15A	570	HIGH SPD TRAININ	88	% NC	0.07	0.8	25	0	0	0	0	0	67	0
subtotal							*0.89*	*9.8*								
R5701	F16_FIGHT	F-16(G100)	500	MID SPD TRAINING	95.4	% NC	0.25	2.7	25	0	0	0	0	0	67	0
R5706	F16_FIGHT	F-16(G100)	500	MID SPD TRAINING	95.4	% NC	0.12	1.3	25	0	0	0	0	0	67	0
MOA-SE	F16_FIGHT	F-16(G100)	500	MID SPD TRAINING	95.4	% NC	0.04	0.4	25	0	0	0	0	0	67	0
MOA-SW	F16_FIGHT	F-16(G100)	500	MID SPD TRAINING	95.4	% NC	0.04	0.4	25	0	0	0	0	0	67	0
subtotal							*0.45*	*4.8*								
MOA-SW	AV8B_FIGHT	AV-8B	350	TAKEOFF POWER	95	% RPM	0.03	0.3	25	0	0	0	0	0	67	0
MOA-SE	AV8B_FIGHT	AV-8B	350	TAKEOFF POWER	95	% RPM	0.03	0.3	25	0	0	0	0	0	67	0
R5706	AV8B_FIGHT	AV-8B	350	TAKEOFF POWER	95	% RPM	0.1	1.1	25	0	0	0	0	0	67	0
R5701	AV8B_FIGHT	AV-8B	350	TAKEOFF POWER	95	% RPM	0.2	2.2	25	0	0	0	0	0	67	0
subtotal							*0.36*	*3.9*								

Note: (1) Lowest Altitude Band Modeled at or above airspace floor (i.e. activity in R-5706 modeled at 3500 ft or above)
(2) all daytime (0700-2200); totals for routes profiles are Events, not Sorties (route profiles have no time duration)

Table A-1 NWSTF Boardman Modeled Aircraft Profiles for Baseline (continued)

AIRSPACE ID	MISSION ID	AIRCRAFT ID	SPEED (KIAS)	POWER DESCRIPTION	POWER	POWER UNIT	BUSY MONTH SORTIES[1]	ANNUAL SORTIES[1]	TIME PER SORTIE (MINS)	TIME (% OR MINS WITHIN ALTITUDE BAND (FT AGL))[(1)]							
										MIN: 0	200	499	500	5K	6K	10K	10K
										MAX:1	499	500	5K	10K	10K	15K	20K
LAT1IN	EA6B_LAT	TAKEOFF PO	350	NOISEMAP	90	% RPM	5.51	60.1		0	10	45	20	2	0	20	0
LAT2IN	EA6B_LAT	TAKEOFF PO	350	NOISEMAP	90	% RPM	5.51	60.1		0	10	45	20	2	0	20	0
LAT3IN	EA6B_LAT	TAKEOFF PO	350	NOISEMAP	90	% RPM	4.72	51.5		0	10	45	20	2	0	20	0
subtotal							*15.74*	*171.7*									
LAT1IN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	3.91	42.7		0	10	45	20	2	0	20	0
LAT2IN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	3.91	42.7		0	10	45	20	2	0	20	0
LAT3IN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	3.35	36.5		0	10	45	20	2	0	20	0
subtotal							*11.17*	*121.9*									
LAT1	EA6B_LAT	TAKEOFF PO	350	NOISEMAP	90	% RPM	33.08	360.9		0	10	45	20	2	0	20	0
LAT2	EA6B_LAT	TAKEOFF PO	350	NOISEMAP	90	% RPM	33.08	360.9		0	10	45	20	2	0	20	0
LAT3	EA6B_LAT	TAKEOFF PO	350	NOISEMAP	90	% RPM	28.35	309.3		0	10	45	20	2	0	20	0
subtotal							*94.51*	*1031.1*									
LAT1	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	23.45	255.8		0	10	45	20	2	0	20	0
LAT2	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	23.45	255.8		0	10	45	20	2	0	20	0
LAT3	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	20.1	219.3		0	10	45	20	2	0	20	0
subtotal							*67*	*730.9*									
STRFL20	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	8.25	90		100	0	0	0	0	0	0	0
STRFR20	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	0.92	10		100	0	0	0	0	0	0	0
STRFL30	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	8.25	90		100	0	0	0	0	0	0	0
STRFR30	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	0.92	10		100	0	0	0	0	0	0	0
subtotal							*18.34*	*200*									
STRFL20	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	3.3	36		100	0	0	0	0	0	0	0
STRFR20	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	0.37	4		100	0	0	0	0	0	0	0
STRFL30	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	3.3	36		100	0	0	0	0	0	0	0
STRFR30	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	0.37	4		100	0	0	0	0	0	0	0
subtotal							*7.34*	*80*									
HD	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	18.33	200		100	0	0	0	0	0	0	0
LD	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	11.67	127.3		100	0	0	0	0	0	0	0
LOWPOPL	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	1.67	18.2		100	0	0	0	0	0	0	0
LOWPOPR	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	1.67	18.2		100	0	0	0	0	0	0	0
subtotal							*33.34*	*363.7*									
HD	F18E_BOMB	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	3.21	35		100	0	0	0	0	0	0	0
LD	F18E_BOMB	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	2.04	22.3		100	0	0	0	0	0	0	0
LOWPOPL	F18E_BOMB	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.29	3.2		100	0	0	0	0	0	0	0
LOWPOPR	F18E_BOMB	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.29	3.2		100	0	0	0	0	0	0	0
subtotal							*5.83*	*63.7*									

Note: (1) Lowest Altitude Band Modeled at or above airspace floor (i.e. activity in R-5706 modeled at 3500 ft or above)
(2) all daytime (0700-2200); totals for routes profiles are Events, not Sorties (route profiles have no time duration)

Table A-2 NWSTF Boardman Modeled Aircraft Profiles for Scenario 1 and 2

AIRSPACE ID	MISSION ID	AIRCRAFT ID	SPEED (KIAS)	POWER DESCRIPTION	POWER	POWER UNIT	BUSY MONTH SORTIES 1	ANNUAL SORTIES 1	TIME PER SORTIE (MINS)	TIME (% OR MINS WITHIN ALTITUDE BAND (FT AGL))(1)							
										MIN: 0	200	499	500	5K	6K	10K	10K
										MAX:1	499	500	5K	10K	10K	15K	20K
R5706	EA18G_ECM	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	7.2	78.5	45		10	45	20	2		20	
R5701	EA18G_ECM	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	14.67	160.0	45		10	45	20	2		20	
MOA-SW	EA18G_ECM	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	2.13	23.2	45		10	45	20	2		20	
MOA-SE	EA18G_ECM	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	2.13	23.2	45		10	45	20	2		20	
							26.1	*284.9*									
R5706	EA18G_HAR	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.25	2.7	90							100	
R5701	EA18G_HAR	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.5	5.5	90							100	
MOA-SW	EA18G_HAR	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.07	0.8	90							100	
MOA-SE	EA18G_HAR	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	0.07	0.8	90							100	
							0.9	*9.8*									
R5706	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	6.48	70.7	90		5	5	50	20		20	
R5701	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	13.2	144.0	90		5	5	50	20		20	
MOA-SW	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	1.92	20.9	90		5	5	50	20		20	
MOA-SE	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	1.92	20.9	90		5	5	50	20		20	
							23.5	*256.5*									
R5706	F15E_FIGHT	F-15A	570	HIGH SPD TRAININ	88	% NC	0.25	2.7	25						67		33
R5701	F15E_FIGHT	F-15A	570	HIGH SPD TRAININ	88	% NC	0.5	5.5	25						67		33
MOA-SW	F15E_FIGHT	F-15A	570	HIGH SPD TRAININ	88	% NC	0.07	0.8	25						67		33
MOA-SE	F15E_FIGHT	F-15A	570	HIGH SPD TRAININ	88	% NC	0.07	0.8	25						67		33
							0.9	*9.8*									
R5706	F16_FIGHT	F-16(G100)	500	MID SPD TRAININ	95.4	% NC	0.12	1.3	25						67		33
R5701	F16_FIGHT	F-16(G100)	500	MID SPD TRAININ	95.4	% NC	0.25	2.7	25						67		33
MOA-SW	F16_FIGHT	F-16(G100)	500	MID SPD TRAININ	95.4	% NC	0.04	0.4	25						67		33
MOA-SE	F16_FIGHT	F-16(G100)	500	MID SPD TRAININ	95.4	% NC	0.04	0.4	25						67		33
							0.5	*4.8*									
R5706	F-35_FIGHT	F-35A	350	TAKEOFF POWER	100	% ETR	0.25	2.7	25						67		33
R5701	F-35_FIGHT	F-35A	350	TAKEOFF POWER	100	% ETR	0.5	5.5	25						67		33
MOA-SW	F-35_FIGHT	F-35A	350	TAKEOFF POWER	100	% ETR	0.07	0.8	25						67		33
MOA-SE	F-35_FIGHT	F-35A	350	TAKEOFF POWER	100	% ETR	0.07	0.8	25						67		33
subtotal							*0.9*	*9.8*									
LAT1IN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	25.17	274.6			10	45	20	2		20	
LAT2IN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	25.17	274.6			10	45	20	2		20	
LAT3IN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	21.57	235.3			10	45	20	2		20	
							71.91	*784.5*									
LAT1	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	151.02	1647.5			10	45	20	2		20	
LAT2	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	151.02	1647.5			10	45	20	2		20	
LAT3	EA18G_LAT	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	129.45	1412.2			10	45	20	2		20	
subtotal							*431.49*	*4707.2*									
STRFL20	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	8.25	90		100							
STRFR20	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	0.92	10		100							
STRFL30	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	8.25	90		100							
STRFR30	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	0.92	10		100							
subtotal							*18.34*	*200*									
STRFL20	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	11.55	126		100							
STRFR20	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	1.28	14		100							
STRFL30	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	11.55	126		100							
STRFR30	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	1.28	14		100							
subtotal							*25.66*	*280*									
HD	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	3.21	35		100							
LD	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	2.04	22.3		100							
LOWPOPL	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	0.29	3.2		100							
LOWPOPR	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	0.29	3.2		100							
subtotal							*5.83*	*63.7*									
HD	F18E_BOMB	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	18.33	200		100							
LD	F18E_BOMB	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	11.67	127.3		100							
LOWPOPL	F18E_BOMB	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	1.67	18.2		100							
LOWPOPR	F18E_BOMB	F-18E&F	500	HIGH SPD TRAININ	90.5	% N2	1.67	18.2		100							
subtotal							*33.34*	*363.7*									

Note: (1) Lowest Altitude Band Modeled at or above airspace floor (i.e. activity in R-5706 modeled at 3500 ft or above)
(2) all daytime (0700-2200); totals for routes profiles are Events, not Sorties (route profiles have no time duration

Table A-3 NWSTF Boardman Modeled Aircraft Profiles for Scenario 3

AIRSPACE ID	MISSION ID	AIRCRAFT ID	SPEED (KIAS)	POWER DESCRIPTION	POWER	POWER UNIT	BUSY MONTH SORTIES[1]	ANNUAL SORTIES[1]	TIME PER SORTIE (MINS)	TIME (% OR MINS WITHIN ALTITUDE BAND (FT AGL))							
										MIN: 0 MAX:1	200 499	499 500	500 5K	5K 10K	6K 10K	10K 15K	10K 20K
R5706	EA18G_ECM	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	6.67	201.6	45		10	45	20	2		20	
R5701	EA18G_ECM	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	13.6	18.3	45		10	45	20	2		20	
MOA-SW	EA18G_ECM	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	1.87	20.9	45		10	45	20	2		20	
MOA-SE	EA18G_ECM	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	1.87	20.9	45		10	45	20	2		20	
MOA-A	EA18G_ECM	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	1.87	15.7	45		10	45	20	2		20	
subtotal							*25.88*	*277.4*									
R5706	EA18G_HAR	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	0.23	7.7	90							100	
R5701	EA18G_HAR	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	0.47	0.7	90							100	
MOA-SW	EA18G_HAR	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	0.06	0.8	90							100	
MOA-SE	EA18G_HAR	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	0.06	0.8	90							100	
MOA-A	EA18G_HAR	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	0.06	0.5	90							100	
subtotal							*0.88*	*10.5*									
R5706	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	6	224	90		5	5	50	20		20	
R5701	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	12.24	20.4	90		5	5	50	20		20	
MOA-SW	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	1.68	23.2	90		5	5	50	20		20	
MOA-SE	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	1.68	23.2	90		5	5	50	20		20	
MOA-A	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	1.68	17.5	90		5	5	50	20		20	
subtotal							*23.28*	*308.3*									
R5706	F15E_FIGHT	F-15A	570	HIGH SPD TRAINING RT	88	% NC	0.23	7.7	25						67		33
R5701	F15E_FIGHT	F-15A	570	HIGH SPD TRAINING RT	88	% NC	0.47	0.7	25						67		33
MOA-SW	F15E_FIGHT	F-15A	570	HIGH SPD TRAINING RT	88	% NC	0.06	0.8	25						67		33
MOA-SE	F15E_FIGHT	F-15A	570	HIGH SPD TRAINING RT	88	% NC	0.06	0.8	25						67		33
MOA-A	F15E_FIGHT	F-15A	570	HIGH SPD TRAINING RT	88	% NC	0.06	0.5	25						67		33
subtotal							*0.88*	*10.5*									
R5706	F16_FIGHT	F-16(G100)	500	MID SPD TRAINING RT	95.4	% NC	0.11	3.8	25						67		33
R5701	F16_FIGHT	F-16(G100)	500	MID SPD TRAINING RT	95.4	% NC	0.23	0.3	25						67		33
MOA-SW	F16_FIGHT	F-16(G100)	500	MID SPD TRAINING RT	95.4	% NC	0.03	0.4	25						67		33
MOA-SE	F16_FIGHT	F-16(G100)	500	MID SPD TRAINING RT	95.4	% NC	0.03	0.4	25						67		33
MOA-A	F16_FIGHT	F-16(G100)	500	MID SPD TRAINING RT	95.4	% NC	0.03	0.3	25						67		33
subtotal							*0.43*	*5.2*									
R5706	F-35_FIGHT	F-35A	350	TAKEOFF POWER	100	% ETR	0.23	7.7	25						67		33
R5701	F-35_FIGHT	F-35A	350	TAKEOFF POWER	100	% ETR	0.47	0.7	25						67		33
MOA-SW	F-35_FIGHT	F-35A	350	TAKEOFF POWER	100	% ETR	0.06	0.8	25						67		33
MOA-SE	F-35_FIGHT	F-35A	350	TAKEOFF POWER	100	% ETR	0.06	0.8	25						67		33
MOA-A	F-35_FIGHT	F-35A	350	TAKEOFF POWER	100	% ETR	0.06	0.5	25						67		33
subtotal							*0.88*	*10.5*									
LAT1IN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	17.98	196.1			10	45	20	2		20	
LAT2IN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	17.98	196.1			10	45	20	2		20	
LAT3IN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	21.57	235.3			10	45	20	2		20	
PROPIN	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	14.38	156.9			10	45	20	2		20	
subtotal							*71.91*	*784.4*									
LAT1	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	107.88	1176.9			10	45	20	2		20	
LAT2	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	107.88	1176.9			10	45	20	2		20	
LAT3	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	129.45	1412.2			10	45	20	2		20	
PROPLAT	EA18G_LAT	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	86.3	941.5			10	45	20	2		20	
subtotal							*431.51*	*4707.5*									
STRFL20	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	8.25	90		100							
STRFR20	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	0.92	10		100							
STRFL30	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	8.25	90		100							
STRFR30	F15_STRAFE	F-16A	350	TAKEOFF POWER	92	% NC	0.92	10		100							
subtotal							*18.34*	*200*									
STRFL20	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	11.55	126		100							
STRFR20	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	1.28	14		100							
STRFL30	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	11.55	126		100							
STRFR30	F18_STRAFE	F-18E/F	350	TAKEOFF POWER	97	% N2	1.28	14		100							
subtotal							*25.66*	*280*									
HD	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	3.21	35		100							
LD	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	2.04	22.3		100							
LOWPOPL	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	0.29	3.2		100							
LOWPOPR	F18C_BOMB	F-18	500	TRAINING ROUTE	92	% NC	0.29	3.2		100							
subtotal							*5.83*	*63.7*									
HD	F18E_BOMB	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	18.33	200		100							
LD	F18E_BOMB	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	11.67	127.3		100							
LOWPOPL	F18E_BOMB	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	1.67	18.2		100							
LOWPOPR	F18E_BOMB	F-18E&F	500	HIGH SPD TRAINING RT	90.5	% N2	1.67	18.2		100							
subtotal							*33.34*	*363.7*									

Note: (1) Lowest Altitude Band Modeled at or above airspace floor (i.e. activity in R-5706 modeled at 3500 ft or above)
(2) all daytime (0700-2200); totals for routes profiles are Events, not Sorties (route profiles have no time duration

Appendix A-2: Ordnance Modeling

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Table A-4 Ordnance Modeling Parameters for Ground Events

Ground				
Reported Ammunition Type	Description	Modeled As	Annual Daytime Firings (0700 - 1900)[1]	
			Baseline	Proposed
EOD	Explosive Ordnance Detonation	220 lbs C-4	0	2
		139 lbs C-4	0	5
		44 lbs C-4	0	10
		26 lbs C-4	0	33
		Total	**0**	**50**
60 MM Mortar Fire	60 MM Mortars From Mortar Pads to Main Bullseye	60 MM Mortar (practice)	0	1440
		Total	**0**	**1540**

Target Area Name	Target Distribution	UTM Zone	Easting Coordinate (m)	Northing Coordinate (m)	Length (ft)	Width (ft)	Azimuth (CW from N)	Height (ft AGL)	Notes
Main Bull	Normal Area (square)	11	290724	5066839	2087	2087	-	0	Square target area is encircled by largest ring of Main Bull in aerial image

Firing Area Name	Firing Distribution	UTM Zone	Easting Coordinate (m)	Northing Coordinate (m)	Length (ft)	Width (ft)	Azimuth (CW from N)	Height (ft AGL)
EOD Site 01	Point	11	290510	5066187	-	-	-	0
West Mortar Pad	Point	11	288397	5066703	-	-	-	3
South Mortar Pad	Point	11	290973	5064538	-	-	-	3
East Mortar Pad	Point	11	293560	5066298	-	-	-	3

Table A-5 Ordnance Modeling Parameters for Air-to-Ground Events

Air-to-Ground				
Reported Ammunition	Description	Modeled As	Annual Daytime	
			Baseline	Proposed
20 MM	20 MM Automatic Gun Strafing Fire	20 MM Gun	26000	88800
MK-76	MK-76 Bomb Dropped From Plane to Main Bull	MK-76 (0.5kg C4)	392	392
MK-80 Series	MK-80 Series Bomb Dropped From Plane to Main Bull	MK-76 (0.5kg C4)	15	15
* No night ops.		**Total**	**26407**	**89207**

Target Area Name	Target Distribution	UTM Zone	Easting Coordinate	Northing Coordinate	Length (ft)	Width (ft)	Azimuth	Notes
Main Bull	Normal Area (square)	11	290724	5066839	2087	2087	n/a	Square target area is encircled by largest ring of Main Bull in aerial image
Strafing Pit	Uniform Line	11	289683	5065028	2431	n/a	45°	NE endpoint of Strafing Pit lies below SW endpoint of Strafing Firing Line

Firing Area Name	Firing Distribution	UTM Zone	Easting Coordinate	Northing Coordinate	Length (ft)	Height AGL (ft)	Azimuth	Notes
Plane Bomb Operation	No Firing Area	n/a	n/a	n/a	n/a	n/a	n/a	
Strafing Firing Line	Uniform Line	11	290213	5065513	12152	2000	45°	

Appendix A-3: Small Arms Modeling

Table A-6 Small Arms Weapon Fire Modeling Parameters

Range Parameters				
Range Name	Main Target Area	50 CAL Range	Rifle Range	Pistol Range
UTM Zone	11	11	11	11
Easting Coordinate of Firing Point #1(meters)	290520	290481	291046	291098
Northing Coordinate of Firing Point #1(meters)	5066978	5068823	5071891	5072057
Firing Direction (clockwise from North)	191 Degrees	200 Degrees	255 Degrees	322 Degrees
Firing Point and Target Elevation (meters)	2 m	3m	2m	2m
Distance from Firing Point to Target (meters)	1500 m	300m	300m	25m
Number of Lanes	1	5	25	15
Spacing Between Firing Points (meters)	N/A	6m	3m	2m
Firing Lane Cover	None	None	None	None
Target Backstop - Type	None	None	None	None

Weapon Type	Main Target Area			50 CAL Range			Rifle Range			Pistol Range			Totals
	Day (0700-2001)	Night (2200-0700)	Total	Day (0700-2001)	Night (2200-0700)	Total	Day (0700-2001)	Night (2200-0700)	Total	Day (0700-2001)	Night (2200-0700)	Total	
5.56 mm	18,000	-	18,000	-		-	13,500	4,500	18,000	13,500	4,500	18,000	54,000
7.62 mm	9,000	3,000	12,000	8,000	4,000	12,000	9,000	3,000	12,000	-		-	36,000
40 mm grenade (inert)	250	-	250	-		-	250		250	-		-	500
.50 caliber	-		-	1,000		1,000	-		-	-		-	1,000
9 mm	-		-	-		-	-		-	15,000		15,000	15,000
Totals	27,250	3,000	30,250	9,000	4,000	13,000	22,750	7,500	30,250	28,500	4,500	33,000	106,500

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OREGON ARMY NATIONAL GUARD STATEWIDE OPERATIONAL NOISE MANAGEMENT PLAN

SEPTEMBER 2010

Prepared By:

Operational Noise Program
Directorate of Environmental Health Engineering
U.S. Army Public Health Command (Provisional)

STATEWIDE OPERATIONAL NOISE MANAGEMENT PLAN

Oregon Army National Guard

September 2010

Operational Noise Management Program
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EXECUTIVE SUMMARY

OVERVIEW

The Statewide Operational Noise Management Plan (SONMP) provides a strategy for noise management at Oregon Army National Guard (ORARNG) facilities including Camp Rilea Armed Forces Training Center, Camp Adair, Biak Training Center (BTC), Naval Weapons Systems Training Facility Boardman (future) (NWSTF Boardman), Umatilla Chemical Depot (UCD) and the Army Aviation Support Facilities (AASF) at McNary Field Airport and Eastern Oregon Regional Airport. Elements of the SONMP include education about noise and Army noise metrics, complaint management, and when necessary, noise abatement procedures.

The SONMP provides a methodology for analyzing exposure to noise associated with military operations and provides land use guidelines for achieving compatibility between the Army and the surrounding communities. The Army has an obligation to U.S. citizens to recommend uses of land around its installations which will: (a) protect citizens from noise and other hazards; and (b) protect the public's investment in these training facilities.

The noise impact on the communities surrounding the ORARNG facilities is translated into noise zones. The program defines four noise zones. Noise Zone I (NZ I) is compatible with most noise-sensitive land uses. Noise Zone II (NZ II) is normally not recommended with noise-sensitive land uses. Noise Zone III (NZ III) is not recommended with noise-sensitive land uses. The Land Use Planning Zone (LUPZ) provides the installation with a better means to predict possible complaints and meet the public demand for a better description of what will exist during a period of increased operations. These zones exist as noise zone maps within the SONMP.

CONCLUSIONS

The principle source of operational noise on ORARNG training sites is small arms training at Camp Rilea Armed Forces Training Center, Camp Adair, Biak Training Center, and the Umatilla Chemical Depot. In addition, explosive detonatons and claymore mines at Camp Rilea Armed Forces Training Center contribute to levels of operational noise. Noise contours for these training sites are found in Chapters 4-8.

Camp Rilea Armed Forces Training Center

Small Arms

The Zone III noise contour is contained within the Camp Rilea boundary.

The Zone II noise contour extends beyond the south, east, and west boundaries of Camp Rilea. The Zone II contour extends 475 meters beyond the eastern boundary and 200 meters beyond the

southern boundary into rural residential areas. These areas contain scattered residential homes which are considered noise sensitive land uses.

To the west, Camp Rilea has three miles of beach property along the Pacific Ocean. When the ranges are in use, beach guards are posted to dissuade the public from using the beach. If beach goers still inhabit the beach area, then firing is ceased until the Safety Danger Zone (SDZ) is cleared.

On post, there are several noise sensitive areas (Bachelor Officer Quarters (BOQ), barracks, training conference) within the cantonment at Camp Rilea. These buildings are located within the small arms Zone II and Zone III noise contours. Though the amount of developable land outside of the Noise Zones is often limited on military installations, planning of new ranges and/or noisesensitive buildings should consider noise compatibility when siting to avoid additional noise impacts whenever possible. For existing noise sensitive areas within Zone III, the ORARNG should determine if there are noise mitigation measure that could be implemented without disrupting the needs of the mission.

Large Caliber Weapons / Demolitions

The Zone III noise contour is contained within the Camp Rilea boundary except for a beach area due west. The beach area consists of three miles of beach property along the Pacific Ocean. When the ranges are in use, beach guards are posted to dissuade the public from using the beach. If beachgoers still inhabit the beach area, then firing is ceased until the SDZ is cleared.

The Zone II noise contour extends beyond the south, east, and west boundaries of Camp Rilea. The Zone II contour extends 65 meters beyond the east boundary. These areas consist of scattered residential homes which are considered noise sensitive land uses. The remainder of the Zone II offpost consists of agricultural and recreational areas which are not noise sensitive.

The Land Use Planning Zone (LUPZ) noise contour extends a maximum of 625 meters beyond the east boundary of Camp Adair and 550 meters to the south. There are scattered residential homes contained within the LUPZ contour to the east and south. The remainder of the LUPZ off post consists of agricultural, forest, and park and recreational areas.

Risk of Complaints (Demolition Exercises)

Under unfavorable conditions, levels correlated with a high risk of complaints could be reached in the rural residential areas that border Camp Rilea due south and east based on the 2.5 lb demo activity.

Under unfavorable conditions, levels correlated with a moderate risk of complaints could be reached 1850 meters east and 1750 meters south in the rural residential areas residing near Camp Rilea border based on 2.5 lb demo activity.

Aircraft at Camp Rilea

The annual number of rotary wing operations at Camp Rilea is too low to generate Noise Zone III or Noise Zone II levels. The noise from aircraft operations is also considered minimal due to the low number of operations arriving and departing Camp Rilea.

Though noise zones from aircraft operations do not exist at the Camp Rilea helipad, individual overhead flights may cause annoyance. Pilots are recommended to continue to participate in noise abatement/fly-neighborly programs. It is also suggested (mission pending) that all aircraft approach and depart Camp Rilea from the west, passing over the Pacific coast, thus avoiding the residential development which surrounds Camp Rilea.

Camp Adair

Small Arms Noise

The Zone III noise contour is contained within the Camp Adair boundary except for a small area which extends 90 meters south into an agricultural area. There are no non-recommended land uses off post within the Zone III noise contour.

The Zone II noise contour extends 600 to 1100 meters beyond Camp Adair in all directions. The Zone II contour extends 1000 meters south into rural residential areas due south. These areas consist of scattered residential homes which are considered a noise sensitive land use. There are also several scattered residential homes located north, northeast and southeast of the camp within Zone II but located outside the "rural residential land use" boundary. These homes are also considered noise sensitive. The remainder of the Zone II off camp encompasses forest and agricultural land uses which are not considered noise sensitive land uses.

On post, the cantonment area is located within the small arms Zone III noise contour. This area could be considered "noise sensitive" depending on the mission of the camp. Though the amount of developable land outside of the Noise Zones is often limited on military installations, planning of new ranges and/or noise sensitive building should consider noise compatibility when siting to avoid additional noise impacts whenever possible. For existing noisesensitive areas within the Zone III, the ORARNG should determine if there are noise mitigation measure that could be implemented without disrupting the needs of the mission.

Aircraft at Camp Adair

The annual number of rotary wing operations at Camp Adair is too low to generate Noise Zone III or Noise Zone II levels. The noise from aircraft operations is also considered minimal due to the low number of operations arriving and departing Camp Adair.

Though noise zones do not exist, individual overhead flights may cause annoyance. Pilots are recommended to continue to participate in noise abatement/fly-neighborly programs.

Biak Training Center

Small Arms Noise

The Zone III noise contour extends 150 meters beyond the BTC boundary into an agricultural area. There are no non-recommended land uses within the Zone III noise contour.

The Zone II noise contour extends 800 meters beyond BTC into the Redmond Airport area. This area is defined as a "Redmond Urban Growth Boundary". There are currently no non-recommended land uses within the Zone II contour. If the land uses change due to pending urban growth, the area could be noise sensitive in the near future.

Naval Weapons Systems Training Facility Boardman (future)

Small Arms Noise (future)

The future Zone III noise contour does not extend beyond the NWSTF Boardman. The are no non-recommended land uses within the Zone III contour.

The future Zone II noise contour extends 4500 meters east and 2700 meters west beyond the NWSTF Boardman boundary line. The primary land use is agricultural and livestock farming within the immediate vicinity of the NWSTF Boardman boundary. There are no non-recommended land uses within the Zone II contour.

Large Arms Noise (future)

The future large arms training may consist of 120mm tank rounds (inert), 25 mm gun (inert), 40mm practice rounds and hand grenade simulators at the MPTR. The MPMGR may also consist of 40mm practice rounds. Due to the low numbers of proposed future rounds utilized at the MPTR and MPMGR, land use planning noise zones were not generated.

Risk of Complaints (future)

The moderate complaint risk contour exists only in the agricultural and farming areas offpost. The risk would be negligible in these uninhabited areas.

Umatilla Chemical Depot

Small Arms Noise

The Zone III noise contour is contained within the UCD boundary. There are no non-recommended land uses within the Zone III noise contour.

The Zone II noise contour extends 900 meters beyond the UCD boundary due west into an agricultural area. There are no non-recommended land uses within the Zone II noise contour.

The UCD firing ranges are located 4000 meters from the bordering rural residential town of Irrigon to the north west. Typically, small arms firing ranges greater than 1000 meters in distance from noise sensitive areas are compatible.

Army Aviation Support Facilities

Noise generated by aircraft activity at each AASF is compatible with federal guidelines for noise. Sufficient measures to mitigate the effects of aircraft noise are currently in place at each Army Aviation Support Facility, including departure and arrival procedures and the establishment of no-fly areas. However, there is always the possibility that an individual overflight could lead to a complaint. Therefore, ORARNG officials depend upon the goodwill and cooperation of the civilian sector to promote public support for and understanding of the ORARNG mission requirements.

Noise Complaints

In the last five years, there have been two noise complaints recorded at Camp Rilea. The other ORARNG facilities have indicated no noise complaints.

RECOMMENDATIONS

Since ORARNG receives few noise complaints annually, the recommendations at this time are limited to the following:

ORARNG should continue to build its noise management program to:

(1) Reduce potential incompatible land uses around training facilities,
(2) Prevent detrimental effects on the mission, and
(3) Carry on the good-neighbor relationship with surrounding communities.

The ORARNG will continue to use the program to reduce the potential for noise complaints, caused by day-to-day operations through a responsive noise complaint procedure, and taking actions that are appropriate to guide future development of those properties adjacent to its boundaries.

TABLE OF CONTENTS

SECTION **PAGE**

1.0 INTRODUCTION
- 1.1 General 1
  - 1.1.1 History of Noise Management in the Army 1
  - 1.1.2 The Encroachment Threat 2
  - 1.1.3 Contending with the Threat 4
- 1.2 The Army's Operational Noise Management Plans 4
- 1.3 Content 5

2.0 NOISE MANAGEMENT
- 2.1 Introduction 7
- 2.2 Encroachment and Noise Complaints 7
  - 2.2.1 The Nature of Annoyance and Complaints 8
  - 2.2.2 Keys to Successful Noise Complaint Management 9
- 2.3 Noise and Noise Assessment 10
  - 2.3.1 The Science of Sound 11
    - 2.3.1.1 Sound Propagation 11
  - 2.3.2 Noise Metrics 13
  - 2.3.3 Noise Zones 14
    - 2.3.3.1 Noise Zones as They Relate to Land Use 15
    - 2.3.3.2 The Army Compatible Use Buffer (ACUB) Program 16
  - 2.3.4 The Specifics of Military Noise 17
    - 2.3.4.1 Small Arms 17
    - 2.3.4.2 Large Arms, Demolitions, and Other Impulsive Sounds 18
    - 2.3.4.3 Aircraft 19
    - 2.3.4.4 Maneuver Training and Other Transportation 20
    - 2.3.4.5 Miscellaneous 21
- 2.4 Operational Noise Management and Mitigation 21
  - 2.4.1 Physical Noise Mitigation 21
  - 2.4.2 Procedural Noise Mitigation 22
- 2.5 Summary 22

3.0 OREGON ARMY NATIONAL GUARD
- 3.1 General 23
- 3.2 ORARNG Economic Impact 26
- 3.3 Oregon State Land Use Policy and Control 26
- 3.4 ORARNG Noise Complaint Procedure 27
- 3.5 Summary 30

TABLE OF CONTENTS - *continued*

SECTION **PAGE**

4.0 CAMP RILEA ARMED FORCES TRAINING CENTER
- 4.1 Location 31
- 4.2 History 31
- 4.3 Mission and Training 33
- 4.4 Local Community 34
- 4.5 Current Noise Environment 34
  - 4.5.1 Small Arms Noise 35
  - 4.5.2 Large Arms and Demo Noise 40
    - 4.5.2.1 Noise Complaint Risk 43
  - 4.5.3 Aircraft Noise 45
- 4.6 Discussion and Recommendations 48
- 4.7 Summary 49

5.0 CAMP ADAIR
- 5.1 Location 51
- 5.2 History 51
- 5.3 Mission and Training 51
- 5.4 Local Community 53
- 5.5 Current Noise Environment 53
  - 5.5.1 Small Arms Noise 53
  - 5.5.2 Aircraft Noise 56
- 5.6 Discussion and Recommendations 56
- 5.7 Summary 57

6.0 BIAK TRAINING CENTER
- 6.1 Location 59
- 6.2 History 59
- 6.3 Mission and Training 59
- 6.4 Local Community 60
- 6.5 Current Noise Environment 62
  - 6.5.1 Small Arms Noise 62
- 6.6 Discussion and Recommendations 65
- 6.7 Summary 65

7.0 NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN (future)
- 7.1 Location 67
- 7.2 History 67
- 7.3 Mission and Training 69
- 7.4 Local Community 69
- 7.5 Future Noise Environment 69
  - 7.5.1 Future Small Arms Noise 70
  - 7.5.2 Large Arms and Demo Noise 72

TABLE OF CONTENTS - *continued*

SECTION **PAGE**

7.5.2.1 Noise Complaint Risk 72
7.6 Discussion and Recommendations 74
7.7 Summary 74

8.0 UMATILLA CHEMICAL DEPOT
8.1 Location 75
8.2 History 75
8.3 Mission and Training 77
8.4 Local Community 77
8.5 Current Noise Environment 77
8.5.1 Small Arms Noise 77
8.6 Discussion and Recommendations 80
8.7 Summary 80

9.0 OREGON ARMY NATIONAL GUARD AVIATION FACILITIES
9.1 Location 81
9.2 AASF #1 – McNary Field Airport 84
9.2.1 Location 84
9.2.2 History 84
9.2.3 Mission and Training 84
9.2.4 Local Community 85
9.2.5 Current Noise Environment 85
9.3 AASF #2 – Eastern Oregon Regional Airport 88
9.3.1 Location 88
9.3.2 History 88
9.3.3 Mission and Training 88
9.3.4 Local Community 90
9.3.5 Current Noise Environment 90
9.4 Discussion and Recommendations 90
9.5 Summary 91

10.0 NOISE-RELATED LAND USE POLICY AND CONTROL
10.1 General 93
10.2 Land Use Planning and the Army 93
10.3 Achieving Land Use Compatibility 93
10.3.1 The Joint Land Use Study (JLUS) 94
10.3.2 Land Use Planning Options 95
10.3.3 Environmental Justice 95
10.4 Conclusion 96

TABLE OF CONTENTS - *continued*

APPENDICES **PAGE**

A DESCRIPTION OF NOISE, NOISE EVALUATION, AND CONTOURING
A.1 Introduction 97
A.2 What is Noise? 97
A.3 The Fundamentals of Sound and Acoustics 97
A.3.1 The Characteristics of Sound 98
A.3.1.1 Sound Content and Human Hearing 99
A.3.1.1.1 Spectrum and Frequency 99
A.3.1.1.2 Loudness and Decibels 99
A.3.1.1.3 Vibration 101
A.3.1.1.4 Time Patterns 101
A.4 Noise Evaluation and Metrics 102
A.4.1 Weighting 102
A.4.2 Noise Metrics 103
A.4.2.1 Equivalent-continuous Sound Level (L_{eq}) 104
A.4.2.2 Day-Night Level (DNL) 104
A.4.2.3 Sound Exposure Level (SEL) 105
A.4.2.4 PK15(met) 105
A.4.2.5 Unweighted Peak 105
A.4.3 A Brief History of Noise Evaluation in the U.S. Government 105
A.5 Noise Contouring 106
A.5.1 Computer Programs 107
A.5.2 What Effects Contour Shapes? 109
A.6 Conclusion 110

B DATA USED TO GENERATE NOISE CONTOURS
B.1 Small Arms Range Utilization Chart 111
B.1.1 Camp Rilea 111
B.1.2 Camp Adair 111
B.1.3 Biak Training Center 112
B.1.4 Boardmand Bombing Range (Future) 112
B.1.5 Umatilla Chemical Depot 112
B.2 Large Arms Range Utilization Chart 113
B.2.1 NWSTF Boardman (Future) 113

C GUIDELINES FOR DISCUSSING NOISE CONTOUR MAPS WITH THE PUBLIC
C.1 Introduction 115
C.2 Preparation 115
C.3 Meaning of the Contours 115
C.3.1 What Noise Contours *Can* Tell Us 116
C.3.2 What Noise Contours *Cannot* Tell Us (with Certainty) 116
C.4 The Basics of Sound and Annoyance 117
C.5 Computer Models and GIS 117

TABLE OF CONTENTS - *continued*

APPENDICES **PAGE**

C.6 Audience 118
C.7 Conclusion 118

D LAND USE PLANNING AND CONTROL TECHNIQUES

D.1 General 121
D.2 Zoning 121
D.3 Overlay Districts 122
D.4 Easements 123
D.5 Transfer of Development Rights (TDR) 124
D.6 Land Purchase 125
D.7 Building Codes 125
D.8 Subdivision Regulation 125
D.9 Health Codes 126
D.10 Disclosure of Noise Levels 126
D.11 Land Banking 127
D.12 Special Tax Treatment 127
D.13 Capital Improvements Program 127
D.14 Development Loan Restrictions 128
D.15 Public/Private Leaseback 128
D.16 Sales Agreement 129
D.17 Deed Restrictions/Covenants 129
D.18 Purchase of Development Rights 130
D.19 Eminent Domain 130
D.20 Purchase Option 131

E FICUN GUIDELINES FOR CONSIDERING NOISE IN LAND USE PLANNING 133

F AR 200-1, OPERATIONAL NOISE SECTION; DODI
F.1 Army Regulation 200-1 Noise Section (2007) 137
F.2 Department of Defense Instruction (DODI) on Noise Programs 141

G SAMPLE DOCUMENTS
G.1 Sample Noise Disclosure and Waiver 147
G.2 Sample Noise Easement 148

H GLOSSARY OF TERMS, ACRONYMS, AND ABBREVIATIONS
H.1 Glossary of Terms 149
H.2 Glossary of Acronyms and Abbreviations 151

I REFERENCES AND SOURCES 155

TABLE OF CONTENTS – *continued*

FIGURES **PAGE**

3-1 General Location of ORARNG Training Sites 25
3-2 ORARNG Noise Complaint Form 28
4-1 Camp Rilea General Location 32
4-2 Modified Record Fire Range at Camp Rilea 33
4-3 Camp Rilea Small Arms Noise Contour 37
4-4 Camp Rilea Small Arms Noise Contour (Detailed East Area) 38
4-5 Camp Rilea Small Arms Noise Contour (Detailed Contonment Area) 39
4-6 Camp Rilea Large Arms Noise Contour 41
4-7 Camp Rilea Large Arms Noise Contour (Detailed Area) 42
4-8 Camp Rilea Complaint Risk (2.5 lb Demo) 44
4-9 Camp Rilea Flight Route 47
5-1 Camp Adair General Location 52
5-2 Camp Adair Small Arms Noise Contour 55
6-1 Biak Training Center General Location 61
6-2 Training Center Small Arms Noise Contour 64
7-1 NWSTF Boardman General Location 68
7-2 NWSTF Boardman Small Arms Noise Contour (Future) 71
7-3 NWSTF Boardman Complaint Risk Contour (Future) 73
8-1 Umatilla Chemical Depot General Location 76
8-2 Umatilla Chemcial Depot Small Arms Noise Contour 79
9-1 Example of a UH-60 Black Hawk Helicopter 82
9-2 Example of a CH-47D Chinook Helicopter 82
9-3 Example of an OH-58 Kiowa Warrior Helicopter 83
9-4 Example of a C-12 Huron 83
9-5 Example of a C-23 Sherpa 84
9-6 General Location of AASF#1 McNary Field Airport 87
9-7 General Location of AASF#2 Eastern Oregon Regional Airport 89

A-1 Acoustics of a Pure Tone 98
A-2 Relationship between Sound Pressure and Decibels 100
A-3 A-and C- Weighting Scales 103
A-4 Equivalent-continuous Noise Level (L_{eq}) 104
A-5 Example of a Map Showing Peak Contours 107

TABLES **PAGE**

2-1 University of Utah Criteria for “Good” and “Bad” Firing Conditions 13
2-2 Noise Zone Decibel Levels (AR 200-1) 16
2-3 Predicted Unweighted Peak Decibels (dBP) for an M-16 (5.56 mm) Rifle 17
2-4 Complaint Risk Guidelines 18
2-5 Predicted Peak Sound Levels for 120 mm Tank Gun Firing 19
2-6 Predicted Peak Sound Levels for 155 mm Howitzer Firing 19

TABLE OF CONTENTS – *continued*

TABLES **PAGE**

2-7 Maximum A-Weighted Sound Levels of Common Military Aircraft 20
2-8 Percentage of the Population Likely to be Highly Annoyed by Particular Levels of Aircraft Noise..... 20
4-1 Camp Rilea Population Statistics..... 34
4-2 Camp Rilea Small Arms Range Ammunition Utilization (FY 2009)..... 36
4-3 Camp Rilea Large Arms and Demo Range Ammunition Utilization (FY 2009) 40
4-4 Maximum A-Weighted Sound Levels of Common Military Aircraft 46
4-5 Percentage of the Population Likely to be Highly Annoyed by Aircraft Noise 46
5-1 Camp Adair Population Statistics 53
5-2 Camp Adair Small Arms Range Ammunition Utilization (FY 2009) 54
6-1 Biak Training Center Population Statistics 60
6-2 Biak Training Center Small Arms Range Ammunition Utilization (FY 2009)..... 63
7-1 Boardmand Bombing Range Population Statistics 69
7-2 Boardman Boming Range Small Arms Range Ammunition Utilization (Future)..... 70
8-1 Umatilla Chemical Depot Population Statistics 77
8-2 Umatilla Chemical Depot Small Arms Range Ammunition Utilization 78
9-1 Maximum A-Weighted Sound Levels of Common Military Aircraft 86
9-2 Percentage of the Population Likely to be Highly Annoyed by Aircraft Noise 86

A-1 Shortcuts to Decibel Addition..... 101
A-2 Noise Models and Their Uses..... 108
E-1 FICUN Guidelines for Considering Noise in Land Use Planning..... 133

1.0 INTRODUCTION

1.1 GENERAL

One of the goals of the Department of the Army (DA) is to establish effectual programs designed to minimize the Army's adverse impacts upon the quality of the human environment without impairing continued success in the Army's mission. In keeping with this goal, the Army established an Operational Noise Management Program (ONMP) as the framework for the management of noise produced by Army activities since noise has been determined by the United States Congress, as recorded in the Noise Control Act of 1972, to "present a danger to the health of this Nation's population" (PL 92-574, 1972). The primary tools for noise management are the Installation and Statewide Operational Noise Management Plans.

Note: The Operational Noise Management Plan(s) and Program were referred to as the **Environmental** Noise Management Plan (ENMP) and Program until the name was changed in 2004 in order to better describe the nature of the plan. Older plans, documents, or directives may still feature the word "environmental."

1.1.1 THE HISTORY OF NOISE MANAGEMENT IN THE ARMY

The advent of jet aircraft in the 1950's resulted in significantly greater noise levels around commercial airports that led to an intense outcry from the public. This backlash caused congress to revise the Federal Aid to Airports Act to make Federal aid contingent upon implementation of programs to resolve noise problems with surrounding neighborhoods. Subsequently, Congress passed the Noise Control Act of 1972 and the Quiet Communities Act of 1978. Under these laws, airports and local communities carried out noise control measures such as revising zoning laws, altering real estate transaction requirements, purchasing buffer lands, and changing approach, departure, and run-up protocols. As a consequence, the Federal Aviation Administration (FAA) currently has specific requirements for community involvement in all airport planning.

The Noise Control Act and the Quiet Communities Act contain language outlining the responsibilities of Federal Agencies in protecting the public from unreasonable noise impacts. Specifically, these laws state that:

> *"Federal agencies shall, to the fullest extent consistent with their authority under federal laws administered by them, carry out the programs within their control in such a manner as to … promote an environment for all Americans free from noise that jeopardizes their health and welfare.*

To comply with the intent of Congress, the Department of Defense (DoD) provided guidance to the military departments regarding the compatible use of public and private lands in the vicinity of military airfields. The DoD guidance (DODI, 1977):

- Defined restrictions on the uses and heights of natural and man-made objects in the vicinity of air installations.

- Defined restrictions on land use in the vicinity of air installations to assure compatibility with the existing characteristics, including noise from military operations.

- Provided policy as to the extent of the U.S. Government's interest in retaining or acquiring real property to protect the operational capability of active military airfields.

As a matter of general policy, the military departments were instructed to work toward achieving compatibility between air installations and the neighboring civilian communities through a compatible land use planning and control process conducted by the local civilian community.

Based upon DoD guidance, the DA then developed its ONMP that addresses noise from all military activities, not just airfields. The Army's program is designed to (U.S. Army, 2007):

- control environmental noise to protect the health and welfare of military personnel and their dependents, Army civilian employees, and members of the public on lands adjacent to Army, Army Reserve, and Army National Guard installations; and

- reduce community annoyance from environmental noise, to the extent feasible, consistent with Army, Army Reserve, and Army National Guard training and materiel testing activities.

1.1.2 THE ENCROACHMENT THREAT

Military installations almost always tend to attract activity from the civilian sector because with government activity comes economic benefits. When people arrive to work at these installations, they soon need housing, grocery stores, restaurants, and other support facilities, and businesses crop up to meet that demand. At this point, the relationship between the adjacent town and the installation is in harmony (because one could not exist without the other), and each tend to over-look the other's inconvenient characteristics.

What ultimately can happen is that the town that springs up next to the installation matures and acquires an economic momentum that is independent of the installation. As the town becomes less reliant on the installation as its economic lifeblood, those inconvenient characteristics (such as noise) that were over-looked in the past become less tolerable. New people moving into the area that gain their economic livelihood from areas other than the installation have difficulty understanding that the current location of the town near the installation grew from past ties that have long since been weakened or severed. This, coupled with the fact that increasing populations may also increase the outward sprawl of the town that at its inception originally may

have been a comfortable distance away from the installation, ultimately leads to what is known as *encroachment*.

Encroachment is the process by which civilian issues impinge upon once-remote military installations. The simplest example of this is the physical development (particularly residential) of land directly adjacent to the installation whereby new residents become irritated by installation activities (primarily noise, but things like dust may also turn into contentious issues).

And, while noise is the focus of this plan, encroachment can take many forms. Examples include government entities passing endangered species legislation limiting where training may be conducted; air pollution regulations and limitations; or a form of political encroachment that endangers the training mission when relations between countries shift and installations outside of the U.S. are altered or closed.

The end result is that these processes can put severe limitations upon the ability of a military installation to support training and for assigned units to maintain an adequate level of readiness. And herein lies the threat as it relates specifically to this plan: as military noise impacts upon the civilian communities increase, so increase both litigation and/or political pressures which could result in degradation of the installation's mission. More specifically, not only does the number of complaints to installation commanders increase dramatically, but so do the number of complaints to elected officials.

One of the best examples of degradation of mission performance due to encroachment occurred at the Naval Air Station (NAS) in Los Alamitos, CA. As is typical of these types of situations, when originally established during WWII, this NAS was in a rural area. But, the post-war expansion of Southern California eventually surrounded it with homes to the point where the Navy could no longer routinely fly its jet aircraft into the property. Today, the Navy has left and the property now serves the California Army National Guard (CAARNG) and the U.S. Army Reserve which, compared to the Navy, operate relatively few noisy flights. In another highly politicized example, citizen outrage in 1999 over the noise and pollution of gunfire on Vieques Island (Puerto Rico) ultimately lead to the Navy's complete withdrawal from the island.

These situations are not limited to the Navy. In the Army's case, encroachment so severely limited the size of the explosives used at Fort Belvoir's (Virginia) Combat Engineer field training that it became necessary to move a portion of the training to a less urbanized area at Fort A.P. Hill, VA; but that too was only temporary. In the end, encroachment forced the Army to permanently move the engineer training school to Fort Leonard Wood, MO. In another case, encroachment saddled Fort Dix, NJ with limitations on both the types of weapons that could be fired and the times of day.

To further emphasize this point, a study published by the Army Environmental Policy Institute found that noise was the second most important threat (behind endangered species) to current Army Range Operations (AEPI, 1999).

1.1.3 CONTENDING WITH THE THREAT

In all of the above cases, limitations upon operational activities degraded the installation's capability to support essential training, so the training missions on these installations were then moved to other installations. For obvious reasons, this pattern can not continue indefinitely.

The consequences of ignoring the conflicts between the noise generated on military installations and the desires of the civilian community regarding the use of the land surrounding these installations can be grave. If the military fails to respond to the concerns of the civilian community, the ill will produced by such an approach is quite likely to result in estrangement and a general unwillingness within the civilian community to work with the military to formulate creative land use ideas that allow communities and installations to exist in harmony. Worse yet, fomenting ill will can also result in the types of political pressure and lawsuits that force unilateral concessions on the part of the military without any reciprocal concessions from the community.

In order to prevent the conflicts between military operations and civilian land use from reaching significant proportions, the military (as a whole and individual installations) must take reasonable steps to protect the community from training noise, and it must work with the local governments and land owners to make sure that adjoining lands are developed in ways that are compatible with the noise environment.

1.2 THE ARMY'S OPERATIONAL NOISE MANAGEMENT PLAN

The primary strategies for working with communities to solve issues of noise incompatibility are the creation and maintenance of community-supported long-range planning strategies for adjacent lands, and installation efforts to simply be a good neighbor. This is where the Army's Operational Noise Management Plans are valuable.

The plans come in two formats—statewide (SONMP) and installation-specific (IONMP)—and provide the installation(s) and land use planners with the following things:

- Accurate information needed to solve encroachment problems including such things as computer-generated noise contour maps, planning strategies, examples of successes and failures at other installations, and basic economic information conveying the value of the installation to the community.

- Strategies for use on the installation to limit, where feasible, the training noise that leaves the installation boundaries including altering training locations, maximizing the noise reduction at existing training locations, and implementing "good neighbor" programs that tailor training times to community needs.

- Guidance on proper complaint management procedures (logging, investigation, follow-up, etc.).

- Guidance on proper public relations procedures to minimize the overall chances of receiving a noise complaint.

Note: These noise plans, while not intended for wholesale dissemination to the public, should be distributed to all applicable regional officials and be made available to interested individuals.

1.3 CONTENT

This report is divided into sections detailing the nature of noise, noise metrics and noise management; the overall noise environment for the installation; descriptions of the noise generating activities at various locations within the installation; strategies for addressing current and potential incompatibilities at adjacent lands; and various appendices providing more detailed information on methodologies, definitions, and other similar information.

More detailed information and publications on noise-related topics such as noise-level reduction in home construction, noise sciences, and computer modeling are available directly from the United States Army Public Health Commands (USAPHC- Provisional) Operational Noise Program. Please consult our website with questions or for more information:

http://chppm-www.apgea.army.mil/dehe/morenoise/

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2.0
NOISE MANAGEMENT

2.1 INTRODUCTION

Army installations are finding with increasing frequency that the land use around their boundaries is becoming incompatible with the noise generated by their training. A combination of factors has contributed to this trend, but it is primarily due to three elements.

First, when initially constructed, nearly all of the Army's installations were built in rural areas (unless its purpose was to defend a specific city or place) because it was where the land was cheap, there were few people to disturb, and secrecy could be maintained if needed. But, with world population increases over the last 50 years it is undeniable that all of these additional people must live somewhere, so populations have been spreading into what were formerly sparsely inhabited areas.

Secondly, advances in technology have created ever more powerful weaponry with ever longer effective ranges. Together with that increasing power and range comes increasing noise and the need for larger and larger areas in which to test and train with them. In the past, when a new weapon was louder than its predecessor, few were around outside of the installation to notice a difference. Today, that is changing with encroachment becoming a greater concern.

Lastly, both the military and local planners were late in recognizing the friction that the above two trends would cause. Thus, few plans to ensure compatible land use were made before the problems of encroachment arose.

The consequence is that, at an increasing number of installations, noise complaints are now a regular occurrence and must be managed so as to not jeopardize the training that makes the United States military the best prepared force in the world.

2.2 ENCROACHMENT AND NOISE COMPLAINTS

Noise from U.S. military operations is rarely loud enough to cause physiological and/or physical damage to the hearing or homes of populations adjacent to installation boundaries. Nevertheless, while there is no physical danger from these sounds, many find them irritating to the point where they are moved to complain about them. The complaints can be directed any number of places (friends, local media, government representatives, etc.), but the ideal situation is that the complaint comes to the source (the installation) so that it can be resolved in the best manner possible.

The most reliable way to ensure that this happens is for all installations to maintain the Noise Complaint Management Program required by Army Regulation 200-1 (AR 200-1), a copy of which is located at Appendix F.

2.2.1 THE NATURE OF ANNOYANCE AND COMPLAINTS

Annoyance has its roots in both physical and psychological distress. Since military noise is rarely loud enough to cause physical distress, it follows that the vast majority of noise complaints that installations receive are due to some sort of psychological objection. Put another way, some people just do not like the "cracks" and "booms" and are sometimes irritated enough to complain about them.

The usual complaint pattern is as follows: First, economic activity unrelated to the installation stimulates increased population and development in the vicinity. Next, segments of the new population who are not economically dependent on the installation (or take issue with other aspects of the government presence) find noise to be a specific and undeniable object about which to complain. Finally, the people reporting the complaints become more articulate and eventually address their grievances to higher levels of government, politicizing the issue and endangering the mission.

The amount of annoyance that a particular sound elicits in an individual depends on a combination of many factors. At issue may be the characteristics of the noise itself such as the intensity and spectral qualities; duration; repetitions; abruptness of onset or cessation; and the *ambient noise* climate (or background noise) against which a particular event occurs.

Social surveys show that the following are also factors related to annoyance that have nothing to do with the characteristics of the noise itself:

- The degree to which the noise interferes with an activity.
- The previous experience of the community with the particular noise.
- The time of day during which the noise occurs.
- Fear of personal danger associated with the activities of the noise sources.
- Socioeconomic status and educational level of the community.
- The extent to which people believe that the noise output could be controlled.
- Beliefs about the importance of the noise source.
- General noise sensitivity.
- The amount and effectiveness of noise level reduction (NLR) features in the home.

Some of these factors the installation can do nothing about. But, others can be molded with carefully focused public relations efforts, and it is these upon which the installation's Public Affairs Office (PAO) should focus.

2.2.2 KEYS TO SUCCESSFUL NOISE COMPLAINT MANAGEMENT

A Noise Complaint Management Program is the system by which installations plan to deal with issues caused by noise. These issues range from the simple addressing of complaints, to advising local planning commissions to and plans of action to limit the future threat of encroachment. These programs may be administered by a single person at smaller or more remote training areas, an actual noise committee at larger installations or those with significant encroachment concerns. The size and scope of the programs are generally up to the individual installations, but noise should always be given enough consideration so that, due to lack of attention, what are small problems today do not grow into large problems tomorrow.

As stated, Noise Complaint Management Programs can vary from installation to installation based on the characteristics of the noise itself, the size of the installation, and the surrounding population. But, all effective programs share certain elements.

Foremost, all successful Noise Complaint Management Programs are built on the cornerstones of **integrity** and **sensitivity**.

It cannot be emphasized enough that people who lodge complaints must immediately be assured the installation cares about their concerns. This sensitivity to the feelings of complainants immediately helps to get to the root cause of the problem. For instance, many times complainants are less irritated by the noise itself than they are about the fact that it startled them or it interrupted them in some way. In these situations, simply listening in earnest to the complainant and explaining (to the degree possible given mission security) why the noise was necessary is enough to alleviate the irritation.

Integrity is related to sensitivity in that few people will believe the sincerity of the installation if they feel they are being misled. Consequently, when an installation makes a policy with the public (for instance, that there will be no firing before 0900 on Sundays), the installation must strictly adhere to this policy in order to maintain credibility and the appearance that the installation is meeting the community half-way. This is not to say that the installation can never change procedures; but if it is necessary, it should be explained to the public why before the change takes place.

It is these small behaviors that cultivate goodwill and cooperation. Empathizing with the public's concerns creates an environment where information is exchanged more freely, ideas come forth more fluidly, and parties are more likely to make concessions in order to solve problems.

Within the framework of an integrity- and sensitivity-based management philosophy are other proactive tools that can be used to attack the problems of complaints:

Listening

The installation must listen to the community to find out exactly what is annoying them. It is not enough to simply assume that it is the noise. The installation needs to find out what it is about that noise—the timing, frequency, a particular vibration, etc.—that is annoying the complainant. When this information is brought to light, the complaint may sometimes be resolved with simple actions.

Informing

Information is the key to combating those factors leading to annoyance listed in the previous section. The more information the installation can provide to the public (without jeopardizing the mission), the more involved they will feel and the less likely they will be to complain. Providing the local news media with press releases (including a telephone number or website) when unusual operations are scheduled, or even when normal operations are to resume after a period of inactivity, can go a long way toward limiting complaints. And for their part, the news media must be monitored to ensure that the information is being released to the community in a timely manner. Also, designating a representative to attend community meetings is also an excellent way to keep the public informed and for them to associate a human face with the installation.

Responding

Of course, proactive efforts to establish a reputation for integrity and sensitivity mean little if the complaints the installation receives are ultimately ignored. Accordingly, it is important to address complaints in a timely and polite fashion to lower the intensity of the situation. When the public is aware that each complaint is responded to quickly and courteously, the potential of the complainants organizing into citizen action groups (that complain to higher levels of command and government) is reduced considerably.

Still, to really understand issues of noise complaints and encroachment, one must first understand the basics of noise itself.

2.3 NOISE AND NOISE ASSESSMENT

Noise is simply unwanted sound.

The “unwanted” part of that definition is of course subjective to the receiver and dependent upon many variables that were touched upon in Section 2.2.1. Properties of sound have been studied for hundreds of years in a branch of physics called “acoustics.”

Note: This section is a highly simplified discussion. A more detailed discussion of sound is located in Appendix A, and as stated previously, the Army Regulations on operational noise are spelled out in AR 200-1, the noise portion of which is located at Appendix F.

2.3.1 THE SCIENCE OF SOUND

For the purposes of this plan, *sound* is the vibration of air pressure about a mean atmospheric pressure that is usually defined as 100,000 Pascals or 14.7 pounds per square inch (the standard atmospheric pressure at sea level). While all animals have different hearing ranges, these changes in the atmospheric pressure as they relate to human hearing vary from approximately 0.0006 Pascals for a whisper at two meters, to 1,000 Pascals for an M16 rifle at the shooter's ear. It has two basic parts: the energy (i.e., is it loud or soft?) and the frequency (is the pitch high or low?).

Because of this large effective range of sound pressure and the fact that the human ear responds more closely to a logarithmic scale (rather than a linear), the *decibel* system (dB) was developed to quantify sound energy (loudness) into a meaningful and manageable scale. On this scale, the range of average human hearing runs from approximately zero (the *threshold* of hearing) to 140 for a healthy human hear, though zero is by no means the absence of sound (some people may hear sounds as low as -10 dB). The non-linear characteristics of human hearing mean that in the decibel scale, a 3 dB increase is roughly a doubling of sound energy; however, it takes a 10 dB increase for a sound to be perceived as twice as loud.

The human ear is not equally sensitive to all sounds in the entire frequency spectrum—it works most efficiently in the medium frequencies where speech is found. Thus, to make a sound measurement more meaningful, scientists have developed processes called *frequency weighting* whereby certain ranges where the ear is more sensitive are factored in more heavily than others where the ear is less sensitive. Consequently, when looking at decibel numbers it is important to recognize whether the measurements are weighted or *peak* (i.e., unweighted).

Frequency weighting is in effect a type of filtering and, in the context of this plan, the two important filters are *A-weighting* (dBA) and *C-weighting* (dBC). A-weighting is used most often and particularly for higher frequency sounds such as transportation "hum." C-weighting is used for low-frequency events such as large arms and demolition explosions, or things that make a "boom." This weighting becomes important when creating the noise zones discussed later in this section.

There are other characteristics of sound that are important when determining how a sound becomes a noise. This is where the importance of the means of sound measurement comes to the forefront.

2.3.1.1 SOUND PROPAGATION

When thinking about mitigation strategies, it should also be kept in mind there are many factors affecting sound *propagation*, or the how and where of sound travel.

As stated, sound travels through air. Anything that affects the density or composition of the air, or that interrupts the path between the source and the receiver will have an effect on what sounds that receiver ultimately hears. This is a good news/bad news situation.

The good news is the creation of physical barriers can do a great deal to reduce the travel of certain kinds of noise. These barriers can be as large as a berm or a wall near the source, or as tiny as a change in the insulation in the home of the receiver, and they can be quite effective at reducing complaints from the public. Due to their smaller wavelengths, physical barriers are most effective against high frequency sounds such as small arms fire and transportation sounds. Low frequency sounds from large arms and explosions have such large waves they travel over almost anything smaller than a mountain.

The bad news is that one of the greatest influencers of sound propagation is the one over which humans have the least amount of control: the weather. Certain weather conditions can make sound travel for great distances, and others barely at all. Temperature and wind velocity are the prime variables in this phenomena, and the swing at one place between the most favorable and least favorable weather conditions can be as much as 40-50 dB (equating to a 16-32x increase in loudness).

Since sound travels through air, a receiver downwind of the source will be subjected to higher sound levels than a receiver upwind; the breeze is actually helping move the sound to the downwind receiver, but upwind the sound must “swim against the current.”

Combine wind direction with temperature variation (as a rule, sound travels further in cold temperatures) and one may observe the phenomena of *atmospheric refraction*. This is the process by which atmospheric conditions actually bend and/or focus sound waves toward some areas and away from others.

This makes predicting sound travel difficult, but the Explosives Research Group (ERG) and the University of Utah developed guidelines to help determine what would be “good” or “bad” firing times. These guidelines are summarized in Table 2-1.

"Good" Firing Conditions	"Bad" Firing Conditions
Clear skies with billowy cloud formations, especially during warm periods of the year. A rising barometer immediately following a storm.	Days of steady winds (5-10 mph) with gusts of greater velocities (above 20 mph) in the direction of nearby residences. Clear days on which "layering" of smoke or fog are observed. Cold, hazy, or foggy mornings. Days following a day when large extremes of temperature (about 36°F) between day and night are observed. Generally high barometer readings with low temperatures.

Table 2-1 University of Utah Criteria for "Good" and "Bad" Firing Conditions

2.3.2 NOISE METRICS

There are several metrics that may be used to measure sound to make it relevant to a situation. Certainly few people would complain if a plane flew over their house at 15,000 feet once a year at 2:00 pm in the afternoon. Yet, if that plane flew over a house at 500 feet once a day at 2:00 am in the morning, it would be a different story entirely.

Questions such as "what time?" and "how often?" are just as important as "how loud?" when it comes to making sound measurements meaningful for the purposes of complaint management. The following are the primary metrics that USAPHC and the Construction Engineering Research Laboratory (CERL) use for measuring military noise (please see Appendix A for more in-depth definitions):

- Equivalent-continuous Sound Level (L_{eq}) – Sound exposure "averaged" over a prescribed time period (usually 24 hours).

- Day-Night Average Sound Level (DNL) – An average like the L_{eq} but with a 10dB "penalty" inflicted on sounds occurring between the hours of 2200 and 0700 (a particularly intrusive time when people are usually sleeping). As discussed above, the DNL may be A-weighted (ADNL) or C-weighted (CDNL) depending on the noise being measured. This average is calculated over a "year," or typically 250 (for active military) and 104 (National Guard/Reserve) training days.

Note: Since they are based on averages, DNL noise contours (see next Section) grow larger the more shots are fired.

- Sound Exposure Level (SEL) – the total energy of a sound event normalized to a specific amount of time (e.g., one second) so that sounds of different durations may be compared directly.

- PK15(met) – the peak sound level, factoring in the statistical variations caused by weather, that is likely to be exceeded only 15% of the time (i.e., 85% certainty that sound will be within this range). This exists only in modeling—one cannot take a PK15(met) reading on the ground—and it is used for land use planning with small arms and as additional information for large arms and other impulsive sounds.

  Note: If there are multiple weapon types fired from a particular location (or multiple firing locations), the single event level used to create a noise contour (see next Section) is the loudest level that occurs at each receiver location. As such, PK15(met) contours are the same size no matter how many shots are fired.

- Unweighted Peak – the peak, single event sound level without weighting, on the ground. This measurement takes into account everything from berms, to weather, to the length of the grass—but it is only good for that moment in time under those exact conditions. Consequently, there is no particular confidence built in that the number is reliable in other situations, such as with the 85% certainty built into the PK15 (met) above.

There is no single perfect way to measure noise because different entities have different preferences for what is important. Still, combinations of the above metrics give the clearest picture of a noise environment currently available, and in them most people will find the information they need.

2.3.3 NOISE ZONES

When it comes to land use planning, there needs to be a way to represent the above-mentioned metrics visually on a map. This will allow the user to readily see what areas are impacted and to what degree. This is accomplished by employing computer modeling programs to create noise zones that, using Geographic Information Systems (GIS), may be overlaid onto maps showing installations, airports, neighborhoods, and the like. Once this is done, it becomes readily apparent which areas in and around an installation are or could be (if improperly developed) exposed to unacceptable levels of noise.

2.3.3.1 NOISE ZONES AS THEY RELATE TO LAND USE

The Army uses a system whereby noise is partitioned into three noise zones, each labeled by Roman numerals and each representing an area of increasing noise. As particular uses such as schools, residences, and churches are more sensitive to noise than other more industrial uses, the zones help to create a picture of where things should be located. Please see Appendix E for more details regarding which uses should be permitted in each noise zone.

Noise Zone I (NZ I)

Noise Zone I includes all areas in which the PK15(met) decibels are less than 87 dB (for small arms), the ADNL is less than 65 (for aircraft), and the CDNL is less than 62 (for large arms and demolitions)—it's usually the furthest zone from the noise source, and it is basically all areas not in either of the next two zones. As a rule, this area is suitable for all types of land use. However, it does not mean that we will not be heard, nor does it mean that there will never be complaints from these areas.

Noise Zone II (NZII)

This is the next furthest area away from the noise source where the PK15(met) decibels are between 87 and 104, the ADNL is between 65 and 75, or the CDNL is between 62 and 70. Land in this zone should generally be limited to activities such as manufacturing, warehousing, transportation, and resource protection. Noise sensitive land uses in Noise Zone II are normally not recommended.

Noise Zone III (NZ III)

Noise Zone III is the area closest to the source of the noise where the PK15(met) decibels are greater than 104, the ADNL is greater than 75, or the CDNL is greater than 70. The noise level in this area is considered severe enough that no noise-sensitive land uses are recommended.

One final zone is the more informal *Land Use Planning Zone* (LUPZ). This zone is at the upper end of the Noise Zone I and is defined by a CDNL of 57-62 or an ADNL of 60-65. It accounts for the fact that some installations have seasonal variability in their operations (or several unusually busy days during certain times of the year) and that averaging those busier days over the course of a year (as with the DNL) effectively dilutes their impact. Showing this extra zone creates one more added buffer layer to encroachment and it signals to planners that encroachment into this area is the beginning of where complaints may become an issue, and that extra care should be taken when approving plans. Table 2-2 shows all of the noise zones by the respective noise levels.

Noise Zone	Aviation (ADNL)	Small Arms (PK15(met))	Large Arms, Demolitions, Etc. (CDNL)
Land Use Planning Zone (LUPZ)	60-65	N/A	57 – 62
Zone I	<65	<87	<62
Zone II	65-75	87 – 104	62 – 70
Zone III	>75	>104	>70
Legend: > = greater than, < = less than, N/A = not applicable			

Table 2-2 Noise Zone Decibel Levels (AR 200-1)

Again, Army Regulation 200-1 contains the specific regulations governing operational noise. As stated, the noise section of AR 200-1 may be found in Appendix F, and it is a must for any personnel responsible for the creation or mitigation of operational noise to familiarize themselves with this document.

2.3.3.2 THE ARMY COMPATIBLE USE BUFFER (ACUB) PROGRAM

Along with the aforementioned noise zones, the Army has a specific program designed to limit the effects of encroachment. The ACUB program was borne out of a 2002 expansion of the Private Lands Initiative (10 USC §2684a) and it allows military departments to partner with private organizations to establish buffer areas around active installations. These partnerships benefit the citizens of the United States in a number of ways:

- Military readiness is maintained when training days are not lost to encroachment issues.
- Open spaces are protected from development and many times may be used by the public for recreational purposes.
- The military need not buy and maintain more land in order to meet its training needs.
- Critical habitat for threatened and endangered species (TES) is preserved or created.

An example of the success that the ACUB program is capable of garnering can be found at Fort Carson, Colorado. Through good will and cooperation between Fort Carson, the Nature Conservancy and private land owners, Fort Carson was able to put into motion mechanisms to protect its entire southern boundary and a large portion of its eastern boundary from incompatible development, thus protect the training at its southern ranges.

More information on the ACUB program and other issues of range sustainability can be found at:

http://www.sustainability.army.mil/

2.3.4 THE SPECIFICS OF MILITARY NOISE

The previous section briefly touched on military noise when it introduced the idea of A- and C-weighting for different types of sounds. Military operations produce several different kinds of sounds that could be construed as noise under the right conditions, and understanding where the noise is coming from is critically important to mitigation efforts by both the installation and the community.

2.3.4.1 SMALL ARMS

The firing of small arms (that is, weapons less than 20 mm) is one of the most common sources of military noise. Given that small arms ranges take up relatively little space, and all members of the military must qualify at least annually with their weapons, it is little surprise that nearly every installation has at least one small arms range.

The computer model used to create the noise contours for small arms ranges is the Small Arms Range Noise Assessment Model (SARNAM), using the peak noise level to create noise zones. SARNAM incorporates the latest available information on weapons noise source models, directivity, sound propagation, and the effects of noise mitigation and safety structures such as berms, wall, and ricochet barriers.

For reference, Table 2-3 shows the *unweighted* peak levels (i.e., no filters, and not taking into account any mitigation or safety structures) for an M-16 rifle so that the reader may get a feel for the directivity and distance decay of small arms noise. Note: the 180° azimuth is directly behind the weapon.

Distance (meters)	**Predicted Level, dBP Azimuth**		
	0°	**90°**	**180°**
50	135-150	112-127	102-117
100	113-128	106-121	95-110
200	106-121	99-114	89-104
400	93-108	86-101	78-93
800	85-100	77-92	69-84
1600	75-90	67-82	59-74

Table 2-3 Predicted Peak for an M-16 (5.56 mm) Rifle (Live round)

This table is useful in conveying two pieces of information: First, when dealing with small arms ranges, the direction of fire has a large impact on noise levels. Second, the impact of a small arms range is relatively localized and thus, under most weather conditions, once a receiver is 1,000 meters from the range (behind the firing line), levels should not be high enough to annoy most people.

2.3.4.2 LARGE ARMS, DEMOLITIONS, AND OTHER IMPULSIVE SOUNDS

The sounds from large arms, demolitions, and other impulsive sounds create the largest complaint issues because the sound can travel so far, is so difficult to stop, and can be accompanied by vibration that may increase the public's annoyance.

This type of noise is modeled using the BNOISE2 computer modeling program and contours are shown on maps in both the average (C-weighted DNL) and PK15(met) iterations. Army Regulation 200-1 states that the CDNL should be used for the purposes of land use planning (Table 2-2). However, members of the public often view "averages" incredulously, so the PK15(met) contours are shown to give an idea with 85% certainty of how loud at any particular location single events are likely to get.

The unweighted peak threshold of physiological hearing damage to the human ear is approximately 140 dBP, but the threshold for annoyance varies greatly among individuals. Based on the experiences of the Naval Surface Warfare Center (Dalhgren, VA), the Operational Noise Program uses the set of guidelines shown in Table 2-4.

Predicted Sound Level dBP	**Risk of Noise Complaints**
<115	**Low** risk of complaints
115-130	**Moderate** risk of complaints
>130	**High** risk of complaints.
Note: For rapid fire test programs and/or programs that involve many repetitions of impulse noise, reduce allowed sound levels by 15 dBP.	

Table 2-4 Complaint Risk Guidelines

Pairing these guidelines with the following tables (Tables 2-5 and 2-6) give an example of what noise levels to expect at specific distances, and whether or not those levels have a risk of generating complaints. Again, an azimuth of 180° means that the listener is behind the gun.

Distance (meters)	**Predicted Level (dBP) Azimuth**		
	0°	90°	180°
500	138-148	137-147	133-143
1,000	127-137	126-136	122-132
2,000	115-127	114-126	110-122
3,000	108-121	107-121	103-116
4,000	103-117	103-116	98-112
5,000	100-114	99-113	94-109

Table 2-5 Predicted Peak Sound Levels for 120 mm Tank Gun Firing

Distance (meters)	**Predicted Level (dBP) Azimuth**		
	0°	90°	180°
500	136-146	131-141	122-132
1,000	125-135	120-130	111-121
2,000	113-125	108-120	99-111
3,000	106-119	101-114	92-105
4,000	101-115	96-110	87-101
5,000	97-112	92-107	83-98

Table 2-6 Predicted Peak Sound Levels for 155 mm Howitzer Firing

Regarding vibration, studies (Siskind, 1989) have shown that homeowners become concerned about the structural rattling and potential damage when the peak decibels exceed 120 dBP, but actual damage isn't likely to occur at decibels lower than 150 dBP.

2.3.4.3 AIRCRAFT

Aircraft noise is also very common at military installations now that the use of helicopters has become so important in modern warfare, and given the fact that even the smallest installations can employ them (since they do not need space for a runway). Between classic propeller, jet, and rotary aircraft, the possibilities for aircraft noise complaints are growing.

Several computer models are used to visualize aircraft noise but the most common is NOISEMAP/BASEOPS. Table 2-2 spells out the AR 200-1 ADNL aircraft noise zones used for land use planning.

As stated before, the ADNL is just an average; maximum levels are often a good predictor of complaint potential. In the absence of noise contours, Scandinavian Studies (Rylander 1974 and Rylander 1988) have found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the 3 loudest events. These maximum levels can then be compared to the percentages of those individuals who would consider themselves highly

annoyed (Table 2-8). While annoyance levels may be lower at airfields with fewer than 50 operations per day, it remains an effective tool in providing some indication for annoyance risk due to aircraft overflight.

The tables below give the expected maximum levels for the most common types of military aircraft (Table 2-7), and the percentage of the population that is likely to be annoyed by particular maximum levels based on 50 to 200 daily operations (Table 2-8). Using these two tables can give an approximation of whether there will likely be high annoyance associated with given specific training parameters.

Altitude Above Ground Level (Feet)	**Maximum Sound Level by Aircraft Type (dBA)**						
	C-130H	C-17	AH-64	CH-47D	OH-58D	UH-60A	F-16
200	100	108	92	98	89	91	119
500	92	98	84	89	81	83	110
1,000	85	89	77	83	74	76	102
2,000	77	80	70	77	67	69	95
5,000	66	66	60	67	56	58	83
10,000	57	57	50	59	47	48	73

Table 2-7 Maximum A-Weighted Sound Levels of Common Military Aircraft

Maximum Level (dBA)	**Percentage Highly Annoyed**
70	5%
75	13%
80	20%
85	28%
90	35%

Table 2-8 Percentage of the Population Likely to be Highly Annoyed by Aircraft Noise
(Rylander 1974)

2.3.4.4 MANEUVER TRAINING AND OTHER TRANSPORTATION

At most installations, noise from maneuver training isn't a problem because the noise from vehicles doesn't travel beyond the distance away from the public that is needed to maintain security. Occasionally convoys or special circumstances can be disruptive, but usually not to the point where it would cause a complaint about noise.

Maneuver training rarely creates enough noise to create a noise zone contour that can be shown on a map so nearly any adjacent land use is technically compatible (though not always desirable).

2.3.4.5 MISCELLANEOUS

Other sources of military noise include generators, production facilities, research and development facilities, and repair operations. For the most part, complaints from these types of sources are rare and are often resolved at an installation-level.

As with maneuver training, these types of noise producers also rarely create enough noise to create a noise zone contour.

2.4 OPERATIONAL NOISE MANAGEMENT AND MITIGATION

The fact that military training makes noise will not change for the foreseeable future. However, it is possible for both the military and civilian communities to work together for mutual benefit to change how noise is handled.

As stated previously, noise management on the community's side of the fence is best accomplished through an intelligent, common-sense approach to land use planning next to the installation, entailing a willingness to be creative with how to use the land to accommodate the community's growth needs.

On the military side of the fence, successful operational noise management is generally tackled on two fronts: physical mitigation measures and procedural changes.

2.4.1 PHYSICAL NOISE MITIGATION

Physical mitigation is the idea of putting something in between the source and the receiver, or otherwise orienting the source so that noise is directed away from the receiver to the greatest extent possible. Physical mitigation is best planned for before construction, but it may also be employed after construction in some situations. Examples of physical mitigation are:

- Locating/re-locating ranges relative to natural impediments such as in valleys or behind large stands of trees.
- Constructing artificial berms or enclosing a small arms range within walls and baffles.
- Orienting noise sources toward the interior of the installation property.

As alluded to in the section on propagation (Section 2.3.1.1), the physical mitigation of noise is generally feasible only on the higher frequency sounds such as small arms fire. The low frequency component of impulsive noise has wave characteristics that make ineffective all but the largest obstacles as barriers.

2.4.2 PROCEDURAL NOISE MITIGATION

Physical mitigation of noise (where feasible) should also be coupled with procedural changes that lessen either the noise itself, or the likelihood that the noise will impact the community.

Procedural mitigation includes such steps as:

- Implementing fly-neighborly programs that adjust aircraft training times and routes to lower the impact on the community to the greatest extent possible given mission requirements.

- Adjusting the timing, where feasible, of particularly disruptive activities to avoid conflicts with local events such as church services or holidays.

- Keeping the community informed (when feasible), making public any unusual increases in the intensity of training or if training is to be resumed after a period of inactivity.

- Proper review of Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to ensure that the noise impacts of the proposed actions are addressed and are consistent with the current ONMP.

- Physical monitoring of the noise environment (as opposed to computer modeling) when the noise environment is controversial, when an NZ III exists in a noise-sensitive area, and when a noise is unique and cannot be modeled.

- Incorporating noise contours as a layer on the facilities GIS so that the contours may be combined with other layers (such as land use) and referenced when siting new facilities.

2.5 SUMMARY

This section provided the scientific basics of sound itself, the reasons that a sound may become noise, the sources of operational noise, the basics of mitigation, and how all of these individual factors relate to encroachment and complaints.

Operational noise and development pressures will continue to create the possibility of friction for the foreseeable future. However, sensible planning and the appropriate, timely management of problems can prevent localized pockets of discontent from destroying a mutually beneficial relationship between an installation and its surrounding community.

The following sections will provide the correct noise complaint management procedures and address in detail the specific noise environments at relevant areas.

3.0
Oregon Army National Guard

3.1 GENERAL

The Army National Guard (ARNG) exists in all 50 states, three territories and the District of Columbia. The state, territory or district leadership are the Commanders in Chief for each Guard. Their Adjutants General are answerable to them for the training and readiness of the units. At the state level, the governors reserve the ability, under the Constitution of the United States, to call up members of the National Guard in time of domestic emergencies or need. During national emergencies, however, the President reserves the right to mobilize the National Guard, putting them in federal duty status. While federalized, the units answer to the Combatant Commander of the theatre in which they are operating and, ultimately, to the President. Even when not federalized, the Army National Guard has a federal obligation (or mission.). That mission is to maintain properly trained and equipped units, available for prompt mobilization for war, national emergency, or as otherwise needed.

Typically, National Guard members are required to attend one drill weekend each month and one annual training period (usually 2 weeks in the summer) each year, although a significant number serve in a full-time capacity, in a role called Active Guard and Reserve, or AGR. Weekend drills usually consist of one Saturday and Sunday each month, but occasionally include reporting for duty on Friday night. Training time is precious to Army National Guard soldiers. The Army National Guard uses many unique training methods, from "real-life" training exercises, like rotations at the National Training Center in Fort Irwin, California, to high-tech simulation training and distributed learning.

The Army National Guard continues to structure its forces to provide for a compatible and inter-operable force that is fully capable of accomplishing state, national, and international missions in war and peace. To meet these requirements, the ARNG maintains a balanced mix of combat, combat support (CS), and combat service support (CSS) units. These units are structured to integrate seamlessly with active component units as needed. The ARNG structure is as follows:

- 15 Enhanced Separate Brigades
- Eight Divisions
- Three Strategic Brigades (31st SAB, 92nd SIB, and the 207th Scout Group).
- Two Special Forces groups (19th and 20th).

The force composition of the ARNG is 52 percent combat, 17 percent CS, 22 percent CSS, and 9 percent table of distribution and allowances units, typically state headquarters units.

The Oregon Army National Guard (ORARNG) is the Army National Guard component of the Oregon National Guard. The ORARNG is a Federally mandated and equipped military organization under the civilian direction of the Oregon Military Department (OMD), with the

Governor of Oregon as its Commander in Chief. It responds to state and national emergencies, military conflicts and natural disasters, and conducts search and rescue operations. While the history of the militia dates back to the establishment of the first Oregon militia in 1843 the present Guard wasn't established until after 1903. The modern Guard includes citizen soldiers, and its motto is "When we are needed, we are there." [1]

The ORARNG mission, function and scope are not unlike any of those functions described above. ORARNG personnel train for domestic and national emergencies as well as wartime military operations. The ORARNG maintains training facilities, Army Aviation Support Facilities (AASF), and 41 armories in 33 communities state-wide. The major units of the Oregon Army National Guard are the following: [2]

- 1st Battalion, 186th Armor (part of 116th Cavalry Brigade, Idaho Army National Guard)
- 41st Brigade Combat Team
- 82 Troop Command Brigade

The major ORARNG training facilities and Army Aviation Support Facilities (AASF) which have the ability to generate noise are as follows:

- Camp Rilea Armed Forces Training Center
- Camp Adair
- Biak Training Center
- Naval Weapons Systems Training Facility Boardman (future)
- Umatilla Chemical Depot
- Army Aviation Facility #1 at McNary Field Airport
- Army Aviation Facility #2 at Eastern Oregon Regional Airport

Figure 3-1 shows the general location of the facilities listed above within the State and their proximity to one another.

[1] http://en.wikipedia.org/wiki/Oregon_Army_National_Guard
[2] http://en.wikipedia.org/wiki/Oregon_Army_National_Guard

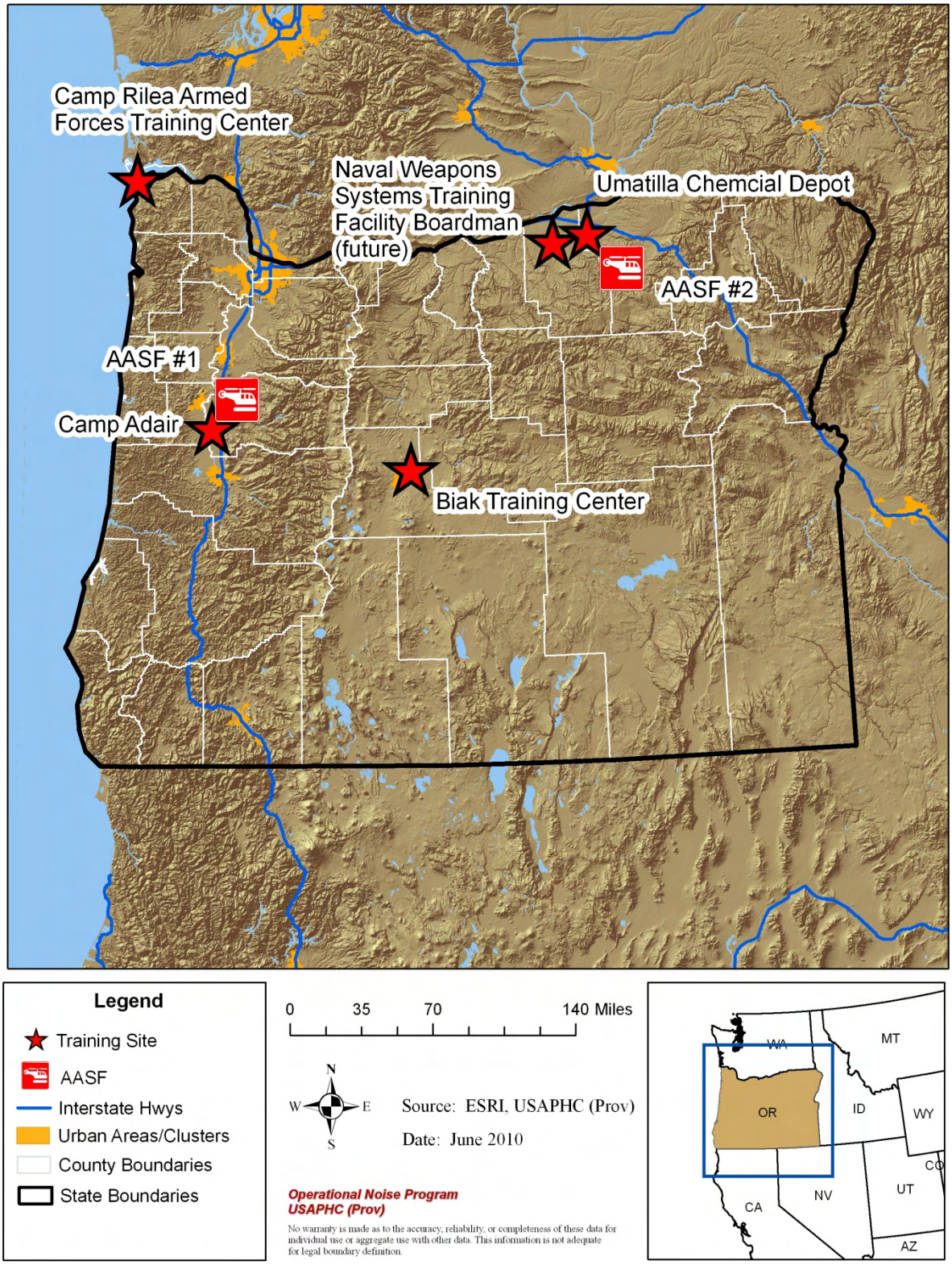

Figure 3-1 General Location of ORARNG Training Sites

3.2 ORARNG ECONOMIC IMPACT

The Oregon National Guard is an organization of over 11,000 people who are citizen soldiers and airmen, and civilian (federal and state) employees. There are 2,600 soldiers, airmen, and civilians working full-time for the Guard and the OMD. [3]

The ORARNG has both state and federal missions. The state mission is to provide the citizens of the State of Oregon and the United States with a ready force of citizen soldiers and airmen, equipped and trained to respond to any contingency, natural or man-made. The federal mission is to maintain properly trained and equipped units available for prompt mobilization for defense, national emergency, or as otherwise needed.

Federal funds expended by the ORARNG in fiscal year (FY) 2009 resulted in an approximate $293.5 million dollar economic benefit to the citizens and State of Oregon.

3.3 OREGON STATE LAND USE POLICY AND CONTROL[4]

Since 1973, the State of Oregon has maintained a strong statewide program for land use planning. The statewide land use planning laws contain many provisions to accommodate the significant geographical, economic, environmental, cultural and political differences across the state. The most fundamental way that planning laws recognize and account for regional differences is by *requiring* that comprehensive plans, zoning and land-division ordinances be developed, adopted and implemented by each of Oregon's 240 cities and 36 counties and not by the state. The foundation of this program is a set of 19 Statewide Planning Goals. The goals express the state's policies on land use, development, housing, transportation, and conservation of natural resources and on other related topics, such as citizen involvement. Although each plan must comply with the 19 Statewide Planning Goals, no two plans are alike. Each local plan incorporates the Goals in a unique fashion that allows the plan to truly reflect local conditions.

Under the program, all cities and counties in the State have adopted comprehensive plans that meet the mandatory Oregon State standards. As previously mentioned, the local comprehensive plans must be consistent with the Statewide Planning Goals and are reviewed for such consistency by the state's Land Conservation and Development Commission (LCDC). When the LCDC officially approves a local government's plan, the plan is said to be "acknowledged". It then becomes the *controlling document for land use* in the area covered by that plan.

Oregon's planning laws apply not only to local governments but also to special districts and state agencies. The laws strongly emphasize coordination - keeping plans and programs consistent with each other, with the State goals, and with acknowledged local plans. The OMD, as required by law, has developed and maintains a State Agency Coordination Program. The OMD continually identifies issues of mutual interest and incorporates into its policies and operating procedures the requirements to continue government to government relationships with other state agencies, as well as with the nine federally recognized Native American tribes of Oregon.

[3] http://www.oregon.gov/OMD/docs/2008_APPR.pdf
[4] http://www.lcd.state.or.us/LCD/goals.shtml

3.4 ORARNG NOISE COMPLAINT PROCEDURE

A noise complaint procedure is required by Army Regulation (AR) 200-1 (U.S. Army 2007) to log and investigate all complaints. An effective procedure enables the ORARNG to maintain a good relationship with the surrounding communities. The ORARNG has maintained a noise complaint resolution process since 1991 per ORARNG PAM 200-1, superseded by current regulation date 1 Oct 2001. In accordance with AR 200-1 and the ORARNG Pamplet (PAM) 2001 Chapter 15, the ORARNG has established the following noise complaint Standard Operating Procedure (SOP): (next page)

1. *Complaints are routed to the activity responsible for the complaint.*
2. *Complaints are investigated and the complainant is contacted without delay.*
3. *A Noise Complaint Questionnaire (AGO Form 200-1-11) is completed for all noise complaints received.*
4. *The complainant is made aware of the unit mission and informed that every effort will be made to correct the problem, mission permitting.*
5. *A copy of the completed Complaint Questionnaire and the noise-generating activity's response is provided to PAO and AGI-ENV. If necessary, the complaint or attendant concerns will be forwarded to the FEMB for review.*

Figure 3-2 illustrates the noise complaint form to be used by the ORARNG: (next 2 pages)

1 October 2001 ORARNG Pam 200-1

NOISE COMPLAINT QUESTIONNAIRE

INSTRUCTIONS: Complete this questionnaire when someone contacts your unit or facility to complain about a noise issue. Inform the complainant that the ORARNG has a series of questions designed to identify the cause of the complaint. If the complainant is unwilling to answer the questions, terminate the interview and file the form. File a completed copy of this form at Annex T. Notify higher headquarters ASAP. Notify and fax a copy of the report to PAO (503-584-3917) and AGI-ENV (503-584-3851/3164) on the first business day following the incident.

PERSON TAKING COMPLAINT: _____
(Rank) (Name) (Phone No.)

DATE COMPLAINT TAKEN: _____ TIME OF COMPLAINT: _____

a. Complainant: Name _____
Address _____
Phone No. _____

b. Direction you are located from the disturbing noise? _____

c. When did the disturbing noise occur? Date _____ Time _____

d. Describe the source of the noise: Aircraft, Truck, Tracked Vehicle, Explosion, Bus Other _____. (circle best answer)

e. How did the noise affect you? [(circle answer(s)]

___ Startled me
___ Woke me
___ Frightened the pet
___ Disturbed livestock
___ Rattled the house
___ Interfered with conversation
___ Interfered with TV/radio
___ Other _____

f. How many times did the disturbance occur? _____

g. How long did the disturbance last? _____

h. Any other information about the incident: _____

i. THANK THE COMPLAINANT FOR CALLING, TELL THEM YOU WILL FOLLOW UP AND SEE WHAT CAN BE DONE, AND TERMINATE THE INTERVIEW.

- -

1. Describe unit actions that may have caused the Complaint (additional space on back):

2. Describe the weather during the complaint period (can affect transmission of noise):

Wind Speed: _____ Wind Direction: _____

AGO FORM 200-1-11

Figure 3-2 ORARNG Noise Complaint Form[5]

[5] ORARNG Pam 2001 Chapter 15

ORARNG Pam 200-1 1 October 2001

COMMENT 1:

COMMENT 2:

COMMENT 3:

COMMENT 4:

COMMENT 5:

OTHER INFORMATION:

AGO FORM 200-1-11

Figure 3-2 ORARNG Noise Complaint Form (cont) [6]

[6] ORARNG Pam 2001 Chapter 15

3.5 SUMMARY

This section covered general information pertaining to the ORARNG structure, economic impact, State land use control and the ORARNG Noise Complaint Procedure. The following sections will discuss specific ORARNG facilities including an assessment of the noise generated by operations at these facilities and their impacts on the surrounding environments.

7.0
Naval Weapons Systems Training Facility Boardman (future)

7.1 LOCATION

The Naval Weapons Systems Training Facility Boardman (NWSTF Boardman) consists of 46,722 acres of land, located 5.5 miles southwest of the Town of Boardman in Morrow County (Figure 7-1). The range is a 6-mile by 12-mile rectangle of high desert lowlying vegetation. A publicly owned airfield is located 1.5 miles northwest of the site.

7.2 HISTORY [24]

In 1941, a directive was issued to acquire lands for the precision bombing range, Boardman Air Force Range, initially known as Arlington Bombing Range. From 1941 to 1943, the War Department acquired 58,662.90 acres of fee; 37,320.31 acres of Public Domain Lands (PDL); and an easement for 2.30 acres, which totaled 95,985.51 acres. From 1941 to 1945, the U.S. Army Air Corps used the range for precision bombing and Walla Walla Army Air Base used the site for air-to-ground gunnery practice. After World War II, the U.S. Army categorized the site as surplus land. In 1948, the Air Force withdrew the lands from surplus and continued using the site as a precision bombing range until 1960. Eventually the Air Force declared the entire site as excess lands. On 22 November 1960, the Air Force transferred 58,372.90 acres to the Department of the Navy, 37,320.31 acres to the Department of Interior, and 290 acres to the U.S. Army Corps of Engineers (COE). The initial transfer divided the range into a checkerboard pattern that was not conducive for use as a modern bombing range. After several years of negotiating with the State of Oregon, a decision was reached to split the former range into two halves. The Navy consolidated its operation onto the eastern half of 46,722 acres which is utilized as a high speed aerial bombing range. The western half of the site ultimately ended up being jointly owned by the State of Oregon, Portland General Electric, and Morrow County.

Currently, the NWSTF Boardman remains available and is used by both the Navy and Air Force to conduct active bombing, however, this activity is generally conducted on a limited basis. The ORARNG is continuing to pursue the development of a range complex that will accommodate weapons systems from machine guns to tanks at NWSTF Boardman. The Navy and the ORARNG have begun preparing an Environmental Impact Statement (EIS) and a Record of Decision is anticipated in February 2013. [25]

[24] http://www.globalsecurity.org/military/facility/boardman.htm
[25] ORARNG Range Complex Master Plan, 2010

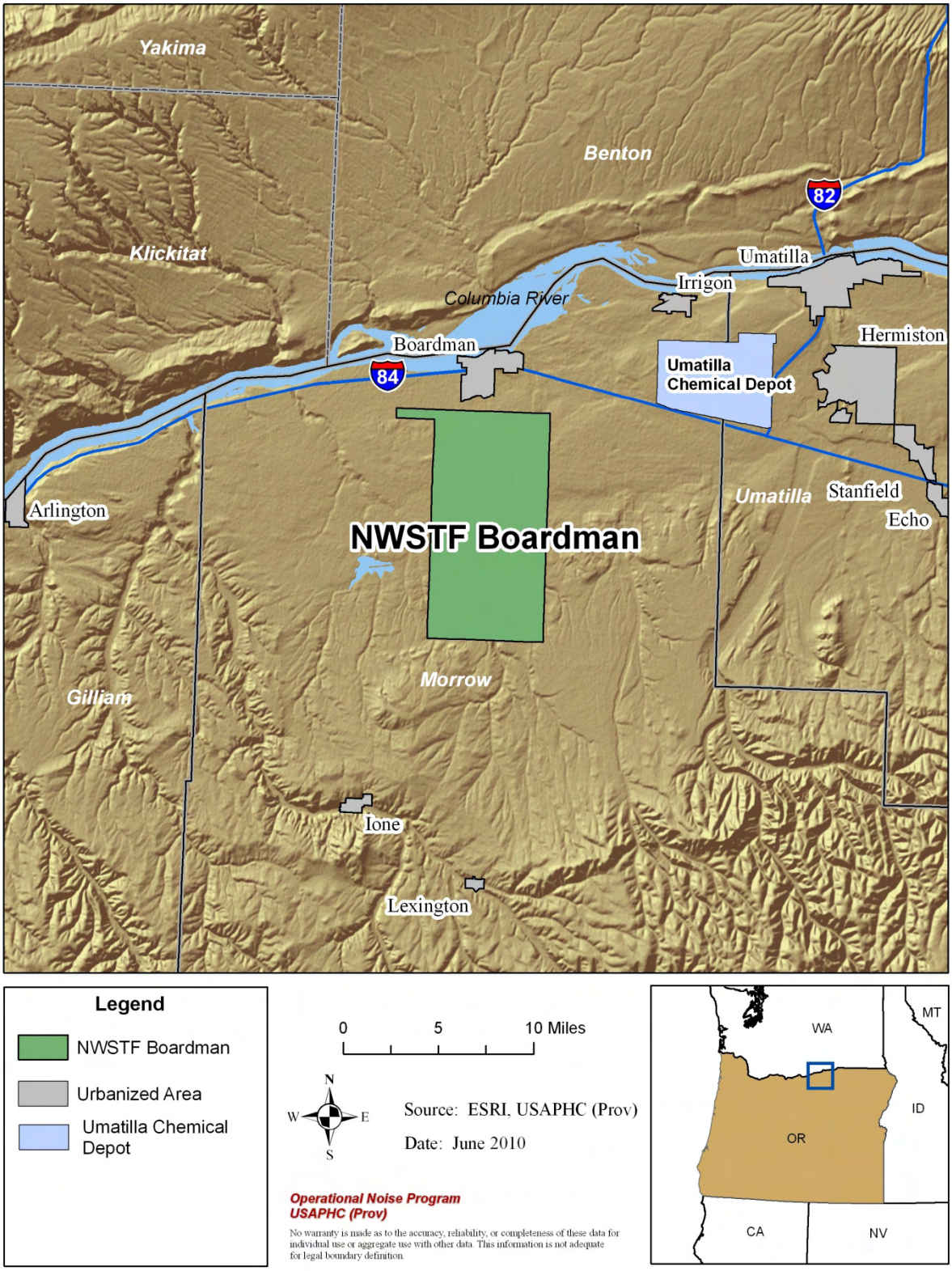

Figure 7-1 NWSTF Boardman (future) General Location

7.3 MISSION AND TRAINING

At present, all artillery, heavy cavalry and crew-served weapon system live fire qualification exercises for ORARNG units are conducted at the Yakima Training Center, in Washington, or the Orchard Training Area, in Idaho. The out-of-state coordination, funding and travel hinder the ORARNG's ability to conduct training during in-active duty training periods.

The NWSTF Boardman training area can provide a Multi-Purpose Training Range (MPTR) capable of accommodating the new "Table 8" gunnery of mixed weapon platforms simultaneously and an Multi-Purpose Machine Gun Range (MPMGR) for training and sniper field exercises. In the future, these training areas will provide ranges that are not otherwise available for the state's current force structure for heavy cavalry live-fire exercises, and small arms qualification that meet Army standards. The land appears to be adequate to allow for both the development of ORARNG ranges, while not impacting the Navy's ability to conduct bombing activities. Thus, the NWSTF Boardman complex has the potential to conduct joint live fire exercises to include infantry, armor, and aviation bombing activities.[26]

7.4 LOCAL COMMUNITY

As indicated in Table 7-1, Morrow County had a growth rate lower than the state and national average from 2000 to 2009. Locally, the population in the incorporated City of Boardman gained moderately at 6.7%. The primary land use surrounding NWSTF Boardman is farm land. The Three-Mile Canyon Farms and Portland General Electric own large areas of land outside NWSTF Boardman. There are several livestock ranches in the immediate vicinity of the NWSTF Boardman boundary as well.

	2000	2009	% Change
Boardman City	2,855	3,045	6.7%
Morrow County	10,995	11,533	4.9%
Oregon	3,421,399	3,825,657	11.8%
US	281,421,906	307,006,550	9.1%

Table 7-1 Population Statistics (U.S. Census Bureau)

7.5 FUTURE NOISE ENVIRONMENT

The following discussion deals with future conditions around the NWSTF Boardman, pertaining to recommended and non-recommended land uses. The Federal guidelines pertaining to recommended and non-recommended land use around military installations have been addressed briefly in other parts of the plan. By determining the locations of the noise zones and applying the Federal guidelines to these zones, present and future land use can be evaluated as to acceptability for various types of activities.

[26] OMD, 2002, Real Estate Action Plan/Boardman Range Complex

7.5.1 FUTURE SMALL ARMS NOISE

The NWSTF Boardman is a proposed location for a MPMGR and a MPTR. The MPMGR is to be constructed at NWSTF Boardman in fiscal year (FY) 2015 and the MPTR is still unprogrammed for the location. The addition of these ranges in ORARNG inventory will correct most of the range shortfalls within Oregon, without requiring the outright acquisition of land.[27] Table 7-2 indicates the expected range ammunition utilization.

	Pistol, 9mm	Pistol, .45 Cal	Shotgun, 12 Gauge	Rifle, 5.56mm	Rifle, 7.62mm	Machine Gun, 5.56mm (SAW)	Machine Gun, 7.62mm	Machine Gun, 50 Cal
MPMG				x	x	x	x	x
MPTR	x	x	x	x	x	x	x	x

Table 7-2 Boardman Boming Range Small Arms Range Ammunition Utilization (Future)

The combined future noise contours for small arms firing activity are illustrated in Figure 7-2. The contours represent a maximum small arms training scenario with all ranges actively firing.

The future Zone III noise contour does not extend off the NWSTF Boardman. The are no non-recommended land uses withing the Zone III contour.

The future Zone II noise contour extends 4500 meters east and 2700 meters west beyond the NWSTF Boardman boundary line. The primary land use is agricultural and livestock farming within the immediate vicinity of the NWSTF Boardman boundary. There are no non-recommended land uses within the Zone II contour.

[27] ORARNG Range Complex Master Plan, 2010

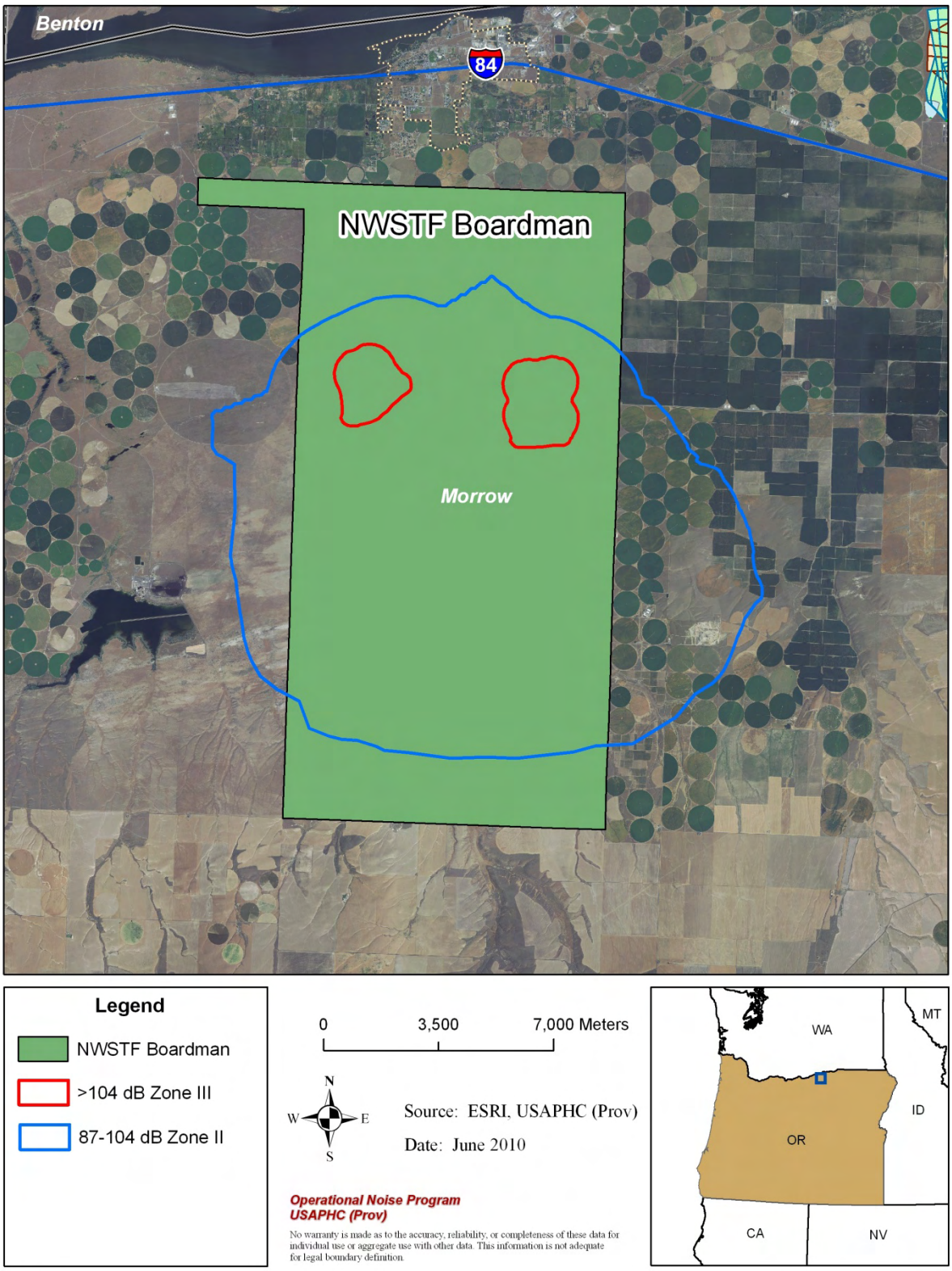

Figure 7-2 NWSTF Boardman Small Arms Noise Contours (Future)

7.5.2 FUTURE LARGE ARMS NOISE

The future large arms training may consist of 120mm tank rounds (inert), 25 mm gun (inert), 40mm practice rounds and hand grenade simulators at the MPTR. The MPMGR may also consist of 40mm practice rounds. Due to the low numbers of proposed future rounds utilized at the MPTR and MPMGR, land use planning noise zones were not generated.

7.5.3 FUTURE NOISE COMPLAINT RISK

As previously mentioned, modeling the training operations using a supplemental PK15(met) metric provides a better means to assess the *risk* of noise complaints, and conveys to the general public those areas outside of the C-Weighted Day-Night Average Sound Level (CDNL) contours (or non-existant CDNL in the case of NWSTF Boardman) that may receive occasional high noise levels, due to training operations. The unweighted peak threshold of physiological hearing damage to the human ear is approximately 140 dBP, but the threshold for annoyance is lower and varies greatly among individuals. Based on the experiences of the Naval Surface Warfare Center (Dalhgren, VA), the United States Army Public Health Command (USAPHC) uses the set of guidelines in Table 2-4 to assess complaint risk. Meteorological scenarios were run for "unfavorable" weather scenarios. Specifically, "unfavorable weather" indicates sound levels that would be realized only 15% of the time i.e. the contours encompass 85% of all propagation conditions.

Figure 7-3 indicates the moderate risk of complaint (115 - 130 dB PK15[met]) area extends into an agricultural area east of the boundary. The risk of complaints would be negligible in these uninhabited areas.

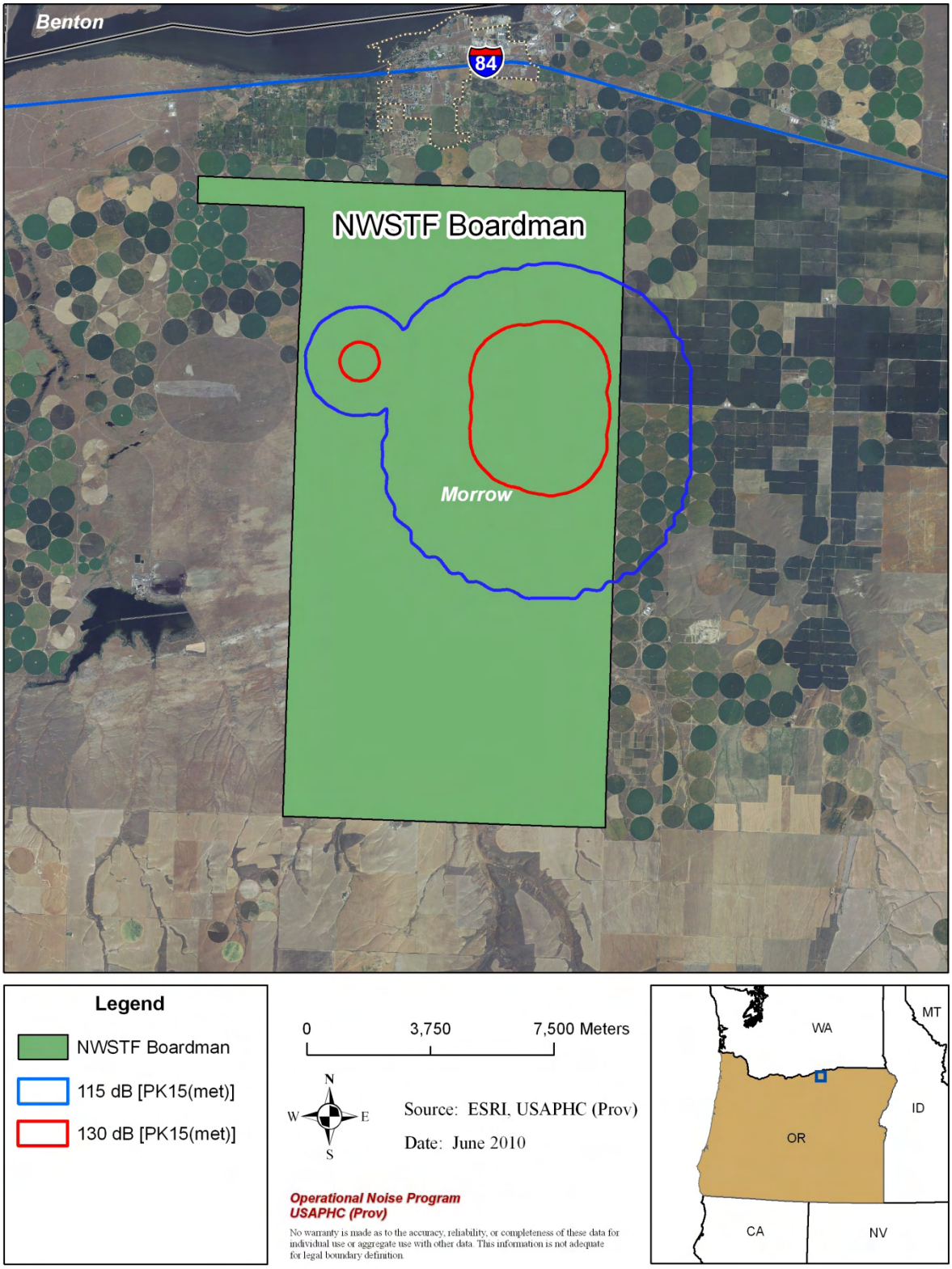

Figure 7-3 Complaint Risk Contours (Future)

7.6 DISCUSSIONS AND RECOMMENDATIONS

Small Arms Noise (Future)

The future Zone III noise contour would not extend off of NWSTF Boardman. The are no non-recommended land uses within the Zone III contour.

The future Zone II noise contour extends 4500 meters east and 2700 meters west beyond the NWSTF Boardman boundary line. The primary land use is agricultural and livestock farming within the immediate vicinity of the NWSTF Boardman boundary. There are no non-recommended land uses within the Zone II contour.

Large Arms Noise (Future)

The future large arms training may consist of 120mm tank rounds (inert), 25 mm gun (inert), 40mm practice rounds and hand grenade simulators at the MPTR. The MPMGR may also consist of 40mm practice rounds. Due to the low numbers of proposed future rounds utilized at the MPTR and MPMGR, land use planning noise zones were not generated.

Risk of Complaints (Future)

The moderate complaint risk contour area extends beyond the eastern boundary into an agricultural area. The risk of complaints would be negligible in these uninhabited areas.

7.7 SUMMARY

This chapter provided a discussion of the NWSTF Boardman, its proposed future noise generating activities and an assessment of the existing land uses around its borders which may be impacted by noise.

USAPHC
U.S. ARMY PUBLIC HEALTH COMMAND (Provisional)
5158 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010-5403

OPERATIONAL NOISE CONSULTATION
NO. 52-EN-0ER3-11
OPERATIONAL NOISE ASSESSMENT
PROPOSED RANGE DEVELOPMENT
NAVAL WEAPONS SYSTEM TRAINING FACILITY
BOARDMAN RANGE, OR
19 MAY 2011

Distribution authorized to U.S. Government agencies only; protection of privileged information evaluating another command; June 2011. Other requests for this document shall be referred to Installations Division – Environmental Branch, (AGI-ENV/Mr. Kris Mitchell), Oregon Military Department, 1776 Militia Way SE, Salem, OR 97309-5047

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MCHB-IP-EON

EXECUTIVE SUMMARY
OPERATIONAL NOISE CONSULTATION
NO. 52-EN-0ER3-11
OPERATIONAL NOISE ASSESSMENT
PROPOSED RANGE DEVELOPMENT
NAVAL WEAPONS SYSTEM TRAINING FACILITY
BOARDMAN RANGE, OR
19 MAY 2011

1. PURPOSE. To provide individual and updated noise contours for the proposed Convoy Live Fire (CLF) Ranges, Multi-purpose Training Range (MPTR) and the Multi-purpose Machine Gun (MPMG) Range at Naval Weapons System Training Facility (NWSTF) Boardman Range.

2. CONCLUSIONS AND RECOMMENDATIONS.

a. The projected ammunition expenditure increase at the MPTR would generate Land Use Planning Zone and Zone II noise contours that extend beyond the eastern boundary. The noise levels from proposed training increase would be compatible with the surrounding environment as the land use within these areas is agricultural.

b. As complaint risk contours are based on single event levels, the complaint risk contours did not change. Though the Moderate Complaint Risk area extends beyond the eastern boundary, the risk of complaints from the MPTR activity would be minimal as the area is agricultural and undeveloped.

c. The small caliber operations at the MPTR and MPMG generate a Zone II [87 dB PK15(met)] contour that extends beyond the boundary. Though the contours indicate noise from the proposed small caliber ranges may affect the surrounding area, the land is utilized for agricultural purposes and is not a noise-sensitive land use. The proposed CLF activity would generate Zone II levels that are either contained within the NWSTF Boardman boundary or within the proposed MPTR and MPMG noise contours.

d. Include this consultation as an appendix in the 2010 Oregon Army National Guard Statewide Operational Noise Management Plan.

e. Include the information from this consultation in the appropriate National Environmental Policy Act documentation.

TABLE OF CONTENTS

Paragraph Page

1. REFERENCES 1

2. AUTHORITY 1

3. PURPOSE 1

4. UPDATED NOISE ASSESSMENT 1

5. NOISE CONTOURING PROCEDURES 2

6. LARGE CALIBER NOISE EVALUATION 2

7. SMALL CALIBER WEAPON NOISE EVALUATION 6

8. CONCLUSIONS AND RECOMMENDATIONS 13

Appendices

A – References A-1
B – Glossary of Terms, Acronyms, and Abbreviations B-1
C – Regulatory Requirements C-1

List of Figures

Figure 1 – Projected Utilization Large Caliber Noise Contours 4
Figure 2 – Projected Large Caliber Complaint Risk Areas 5
Figure 3 – Projected MPTR Small Caliber Noise Contours 7
Figure 4 – Projected MPMG Small Caliber Noise Contours 8
Figure 5 – Proposed CLF Range Locations 11

List of Tables

Table 1 – Projected MPTR Annual Expenditure 2
Table 2 – Complaint Risk Guidelines 3
Table 3 – Complaint Risk to the Side of the 40mm Grenade Launcher, Inert Round 9
Table 4 – Complaint Risk to the Rear of the 40mm Grenade Launcher, Inert Round 9
Table 5 – Predicted Peak for 5.56mm Live Round 12
Table 6 – Predicted Peak for 7.62mm Live Round 12
Table 7 – Predicted Peak for .50 caliber Live Round 12
Table C – Noise Zone Decibel Levels C-2

OPERATIONAL NOISE CONSULTATION
NO. 52-EN-0ER3-11
OPERATIONAL NOISE ASSESSMENT
PROPOSED RANGE DEVELOPMENT
NAVAL WEAPONS SYSTEM TRAINING FACILITY
BOARDMAN RANGE, OR
19 MAY 2011

1. REFERENCES. A list of the references used in this consultation is in Appendix A. A glossary of terms and abbreviations used within this report is in Appendix B. Appendix C contains the Noise Zone Descriptions and Land Use Guidelines.

2. AUTHORITY. The Army National Guard (ARNG) Headquarters funded this consultation under Military Interdepartmental Purchase Request (MIPR) number MIPR1BCHPILE07 to support Operational Noise Programs at multiple ARNG sites.

3. PURPOSE. To provide individual and updated noise contours for the proposed Convoy Live Fire Ranges, Multi-purpose Training Range (MPTR) and Multi-purpose Machine Gun (MPMG) Range at Naval Weapons System Training Facility (NWSTF) Boardman Range.

4. UPDATED NOISE ASSESSMENT.

a. The proposed MPTR and MPMG facilities were addressed in the 2010 Oregon Army National Guard (ORARNG) Statewide Operational Noise Management Plan (SONMP) (U.S. Army 2010).

b. In the plan, the small caliber noise contours for the proposed MPTR and MPMG Range were presented cumulatively. This assessment addresses the individual impacts of each range for National Environmental Policy Act (NEPA) documentation.

c. The low projected number of tanks rounds modeled on the MPTR for the ONMP did not generate land use planning contours. Additionally, though the single event levels would be noticeable beyond the eastern boundary of NWSTF Boardman, the area is utilized for agricultural purposes resulting in a low risk of complaints.

d. In April 2011, the ORARNG requested further analysis based on an increased number of rounds (Table 1) (Email 2011). The expenditure is based on Standards in Training Commission information and presumes a 15 percent expenditure of “nighttime” rounds.

TABLE 1. PROJECTED MPTR ANNUAL EXPENDITURE.

Weapon	**Number of Rounds**	
	Daytime (0700 – 2200)	**Nighttime (2200 – 0700)**
25mm Gun, Inert	17,000	3,000
120mm Tank, Inert	2,550	450

Note: *Inert is defined as any round that does not explode upon impact (i.e. smoke, TP-T).*

5. NOISE CONTOURING PROCEDURES.

a. Demolition and Large Caliber Weapons. The noise simulation program used to assess demolition and large caliber weapons (20mm and greater) noise is the Blast Noise Impact Assessment (BNOISE2) program (U.S. Army 2009). The BNOISE2 program requires operations data concerning the types of weapons fired from each range or firing point (including demolitions), the number and types of ammunition fired from each weapon, the location of targets for each range or firing point and the amount of propellant used to reach the target. For proposed activity, projected range utilization along with reasonable assumptions are used for BNOISE2 inputs.

b. Small Caliber Weapons. The noise simulation program used to assess small caliber weapons (.50 caliber and below) noise is the Small Arms Range Noise Assessment Model (SARNAM) (U.S. Army 2003). The SARNAM program requires operations data concerning types of weapons and range layout. The SARNAM calculation algorithms assume weather conditions or wind direction that favors sound propagation. Small caliber weapon noise is addressed utilizing peak levels and therefore has no assessment period.

6. LARGE CALIBER NOISE EVALUATION.

a. Land Use Planning.

(1) The C-weighted Day-Night average sound Level (CDNL) noise metric is used for demolition and large caliber weapons to capture the low-frequency energy produced from such activities. The CDNL is an annual average noise level and is intended for long-term land use planning. The assessment period used to create the CDNL contours was 104 days. Table 1 contains the operations data used to model the MPTR large caliber noise contours.

(2) The projected annual average demolition and large caliber weapons noise contours are shown in Figure 1. The Land Use Planning Zone (LUPZ) (57 CDNL) and Zone II (62 CDNL) extend beyond the eastern boundary. The Noise Zone III (70 CDNL) remains within the NWSTF Boardman Range boundary. Based on available aerial imagery, the land within the LUPZ and Zone II is agricultural.

b. Complaint Risk Areas.

(1) For long-term planning, annual average noise levels are the primary metric considered. However, noise complaints typically are attributable to a specific event rather than annual average noise levels. Peak levels are appropriate for estimating the risk of receiving a noise complaint risk as they correlate with the receiver's perception of noise levels (Table 2). The Peak contours generated by BNOISE2 are based on the loudest event at the range.

TABLE 2. COMPLAINT RISK GUIDELINES.

Perceptibility	dB Peak	Risk of Receiving Noise Complaints
Audible	< 115	Low
Noticeable, Distinct	115 - 130	Moderate
Loud, May Startle	> 130	High

(2) Peak levels vary significantly for the same activity dependant on weather/propagation conditions. The PK15(met) is the peak sound level, factoring in the statistical variations caused by weather, that is likely to be exceeded only 15 percent of the time (i.e., 85 percent certainty that sound will be within this range). This "85 percent solution" gives the installation and the community a means to consider the areas that at times may be impacted by training noise. The PK15(met) levels would occur under unfavorable weather conditions that enhance sound propagation.

(3) The complaint risk areas [PK 15(met) contours] for the MPTR large caliber weapon activity are shown in Figure 2. Since complaint risk contours are based on a single event, the complaint risk contours did not change. Under unfavorable propagation conditions, the High Complaint Risk area (130 dB PK15(met)) remains within the NWSTF Boardman Range boundary. The Moderate Complaint Risk area (115 dB PK15(met)) extends beyond the eastern boundary into an agricultural area.

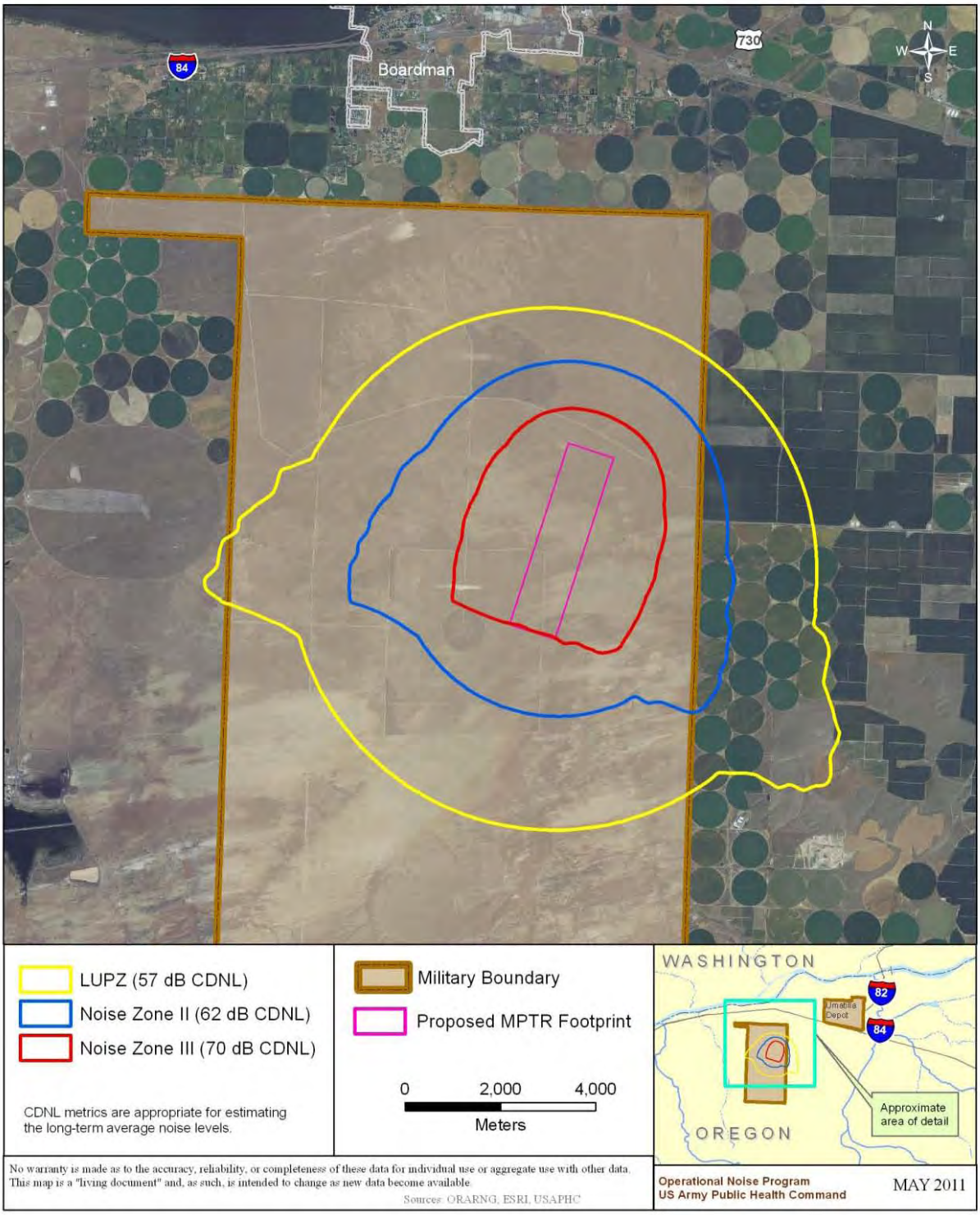

FIGURE 1. PROJECTED UTILIZATION LARGE CALIBER NOISE CONTOURS.

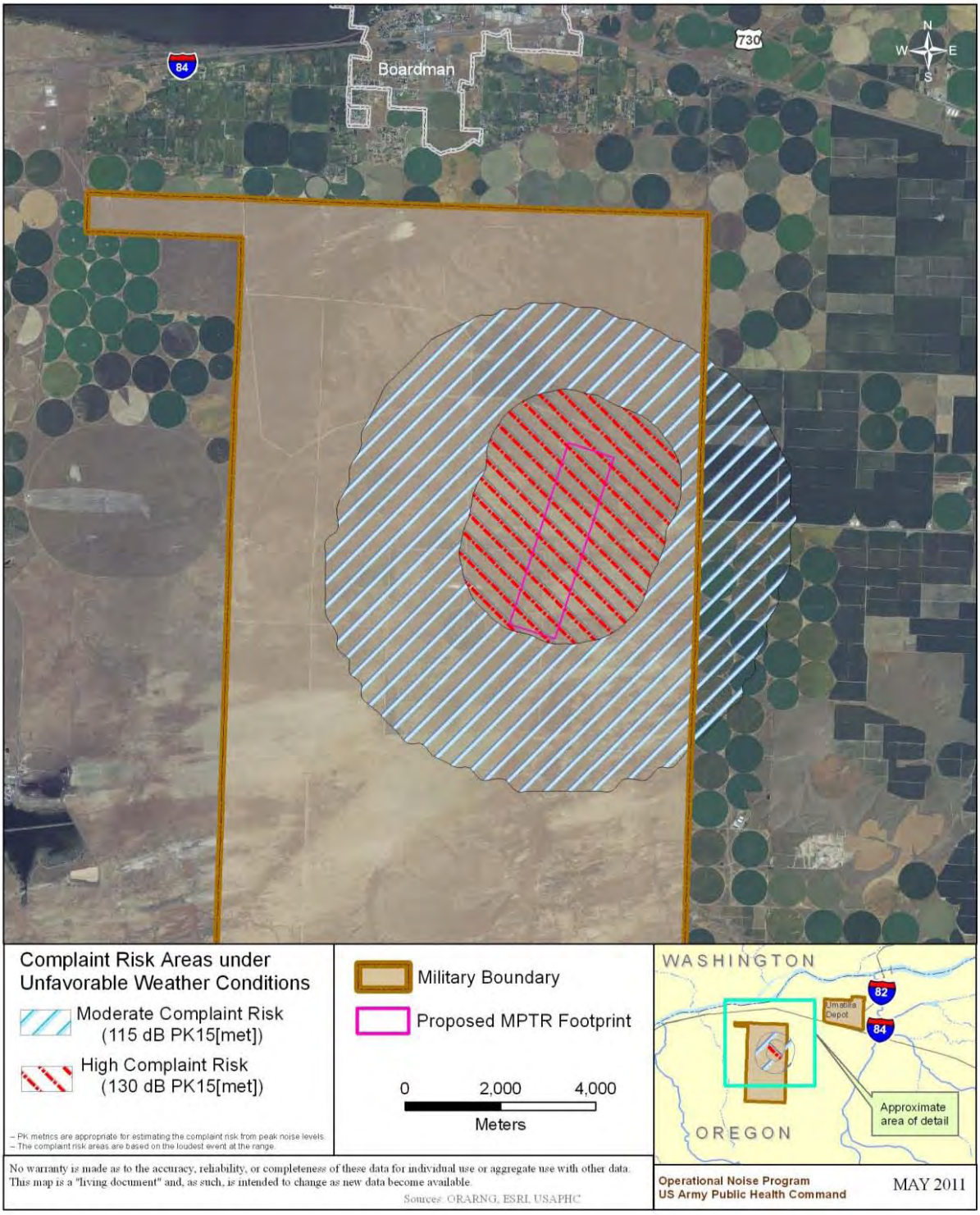

FIGURE 2. PROJECTED LARGE CALIBER COMPLAINT RISK AREAS.

7. SMALL CALIBER WEAPON NOISE EVALUATION.

a. General. Per Army Regulation (AR) 200-1 (U.S. Army 2007), small arms operations were analyzed using PK15(met). The analysis depicts the predicted peak levels for individual rounds (metric term is PK15(met)). Since the contours are based on peak levels rather than a cumulative or average level, the size of the contours will not change if the number of rounds fired increases or decreases.

b. Multi-Purpose Training Range.

(1) This consultation addresses the standard small caliber ammunition requirements for the proposed MPTR. All ammunition is assumed live unless stated otherwise:

- Rifle 5.56mm (M16)
- Machine Gun 7.62mm (M60, M240)
- Machine Gun .50 caliber (M2)

(2) Figure 3 contains the small caliber weapons Noise Zones for the proposed MPTR small caliber activity. The Zone II [87 dB PK15(met)] extends beyond the eastern boundary. The Noise Zone III [104 dB PK15(met)] does not extend beyond the boundary.

c. Multi-purpose Machine Gun Range.

(1) This consultation addresses the standard small caliber ammunition requirements for the proposed MPMG range. All ammunition is assumed live unless stated otherwise:

- Rifle 5.56mm (M16)
- Machine Gun 7.62mm (M60, M240)
- Machine Gun .50 caliber (M2)

(2) Figure 4 contains the small caliber weapons Noise Zones for the proposed MPMG small caliber activity. The Zone II [87 dB PK15(met)] extends beyond the western boundary. The Noise Zone III [104 dB PK15(met)] does not extend beyond the boundary.

d. Based on available aerial imagery, the land within Zone II is agricultural.

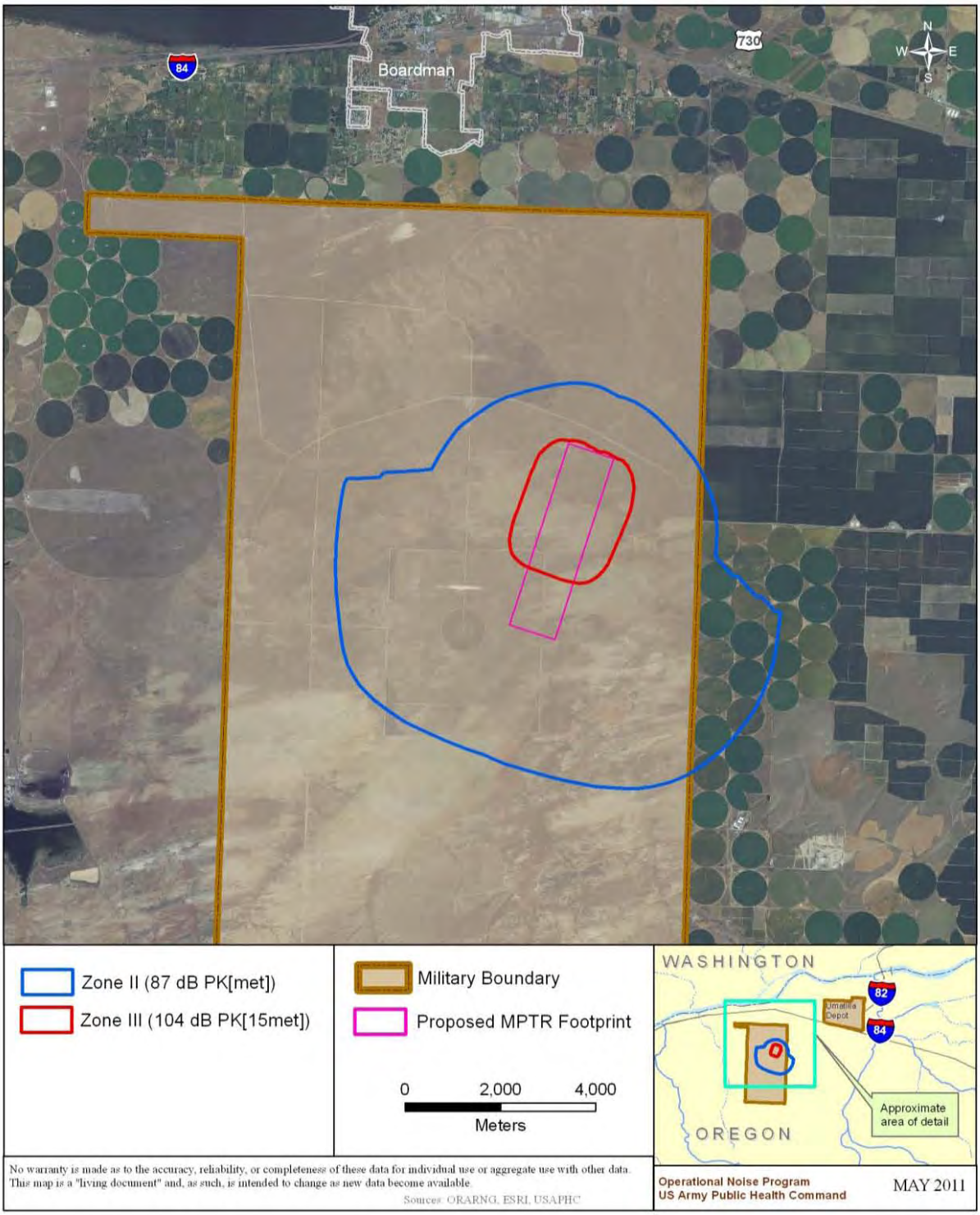

FIGURE 3. PROJECTED MPTR SMALL CALIBER NOISE CONTOURS.

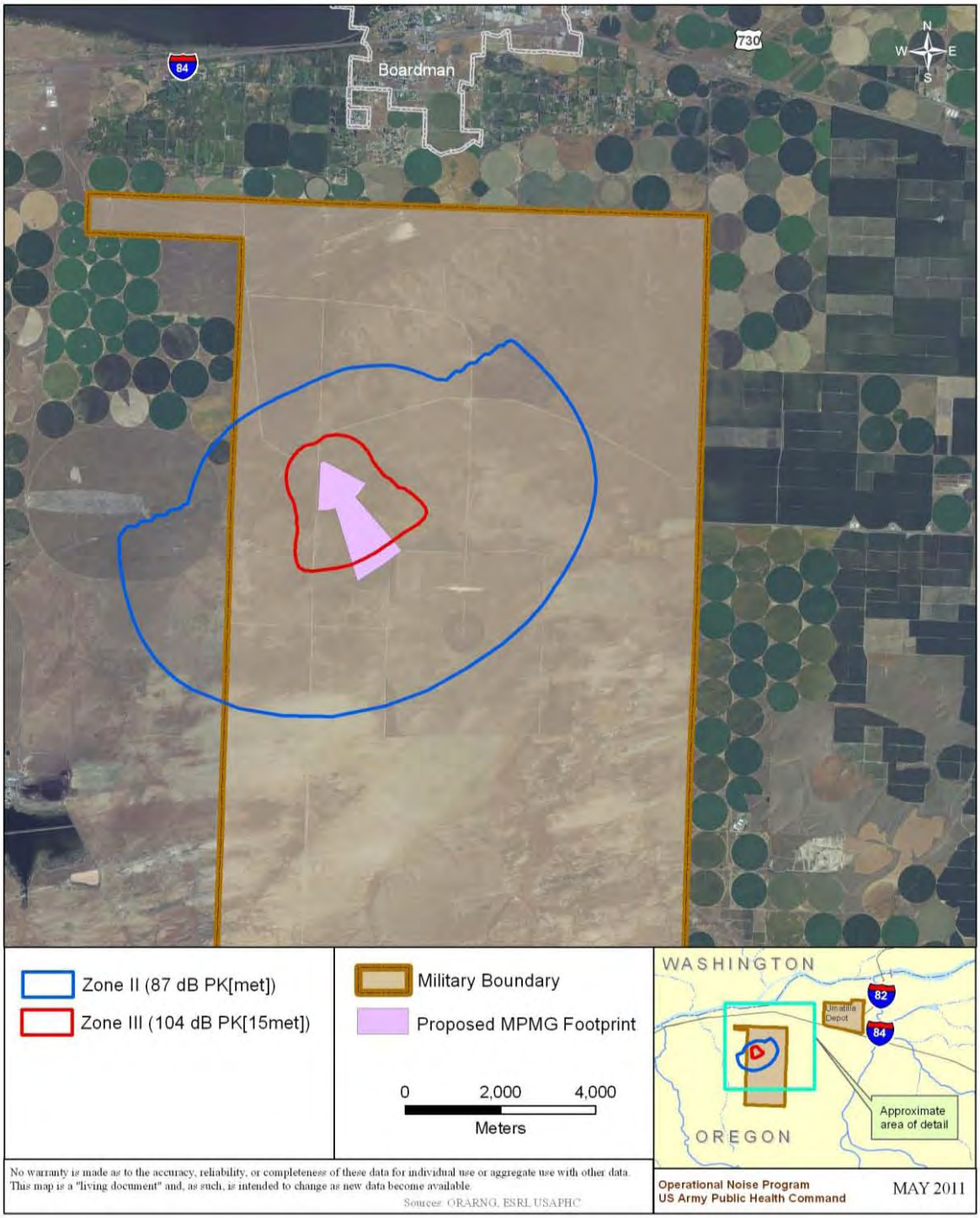

FIGURE 4. PROJECTED MPMG SMALL CALIBER NOISE CONTOURS.

e. In addition to the small caliber weapons, the MPTR and MPMG range activity could include the 40mm MK19 (Training Practice) Grenade Launcher.

(1) Tables 3 and 4 contain the complaint risk criterion for the launch noise of the 40mm grenade launcher. The distances and levels listed represent a conservative approach and were calculated based upon hearing conservation criteria (U.S. Army 1999) and field measurements (U.S. Army 1984). This data represents the best available scientific quantification for assessing the complaint risk for the launch noise of the 40mm grenade launcher until further detailed noise measurements are made.

TABLE 3. COMPLAINT RISK TO THE SIDE OF THE 40MM GRENADE LAUNCHER, INERT ROUND.

Risk of Complaints	**Distance from Grenade Launcher**	**Noise Level Peak**
Low	> 300 meters^	< 115 dB
Moderate	65 - 300 meters^	115 dB
High	< 65 meters^	>130 dB
Risk of hearing damage for unprotected ears	< 19 meters+	>140 dB

** -- Inert is defined as any round that does not make noise upon impact, such as smoke, illum, TPT*
^ – Calculated value
+ – Known value, hearing conservation criteria.

TABLE 4. COMPLAINT RISK TO THE REAR OF THE 40MM GRENADE LAUNCHER, INERT ROUND.

Risk of Complaints	**Distance from Grenade Launcher**	**Noise Level Peak**
Low	> 110 meters^	< 115 dB
Moderate	25 - 110 meters^	115 dB
High	< 25 meters^	>130 dB
Risk of hearing damage for unprotected ears	< 7 meters+	>140 dB

** -- Inert is defined as any round that does not make noise upon impact, such as smoke, illum, TPT*
^– Calculated value
+– Known value, hearing conservation criteria.

(2) As the proposed ranges are located approximately 2,000 meters from the boundary, the risk of complaints from the firing of a grenade launcher is low.

f. Convoy Live Fire Ranges.

(1) To generate contours using SARNAM, specific firing point and target point locations must be entered into the computer. At a Convoy Live Fire (CLF) range, there are no set firing points or target point locations and firing can occur at multiple locations and in multiple directions. By looking at the predicted peak levels for the ammunition to be utilized, we can see at what distances noise levels would approach Zone II limits [PK15(met) 87 decibels (dB)].

(2) There are two proposed CLF ranges, one located on the east side near the proposed MPTR and one located on the west side (Figure 5). The targets are projected to be portable and placed within 100 meters of the roads. Targets would be engaged only on the side of the CLF that allows firing toward the Boardman Center Bull.

(a) Firing on the West range would start south of the dogleg and generally be oriented southeast towards the northern end and east at the southern end. The most probable firing positions for the West CLF range vary from 1,000 to 2,000 meters from the boundary.

(b) On the East range, firing would generally occur in the vicinity of the main intersection of trails and southern loop and would be oriented to the southwest. The most probable firing positions for the East CLF range vary from 800 to 2,100 meters from the boundary.

(3) The ammunition expenditure includes live fire of the 5.56mm, 7.62mm, and .50 Caliber; and 40mm TP rounds.

(4) Based upon the predicted levels in Tables 5 – 7, noise approaching Zone II levels would extend out approximately 800 meters for the 5.56mm and 7.62mm live rounds, and 1,600 meters for the .50 cal activity. Zone II levels for the CLF activity would not extend beyond the boundary further than the existing contours. Based upon the predicted levels in Tables 3 and 4, 40mm grenade launcher activity would have a low risk of complaints.

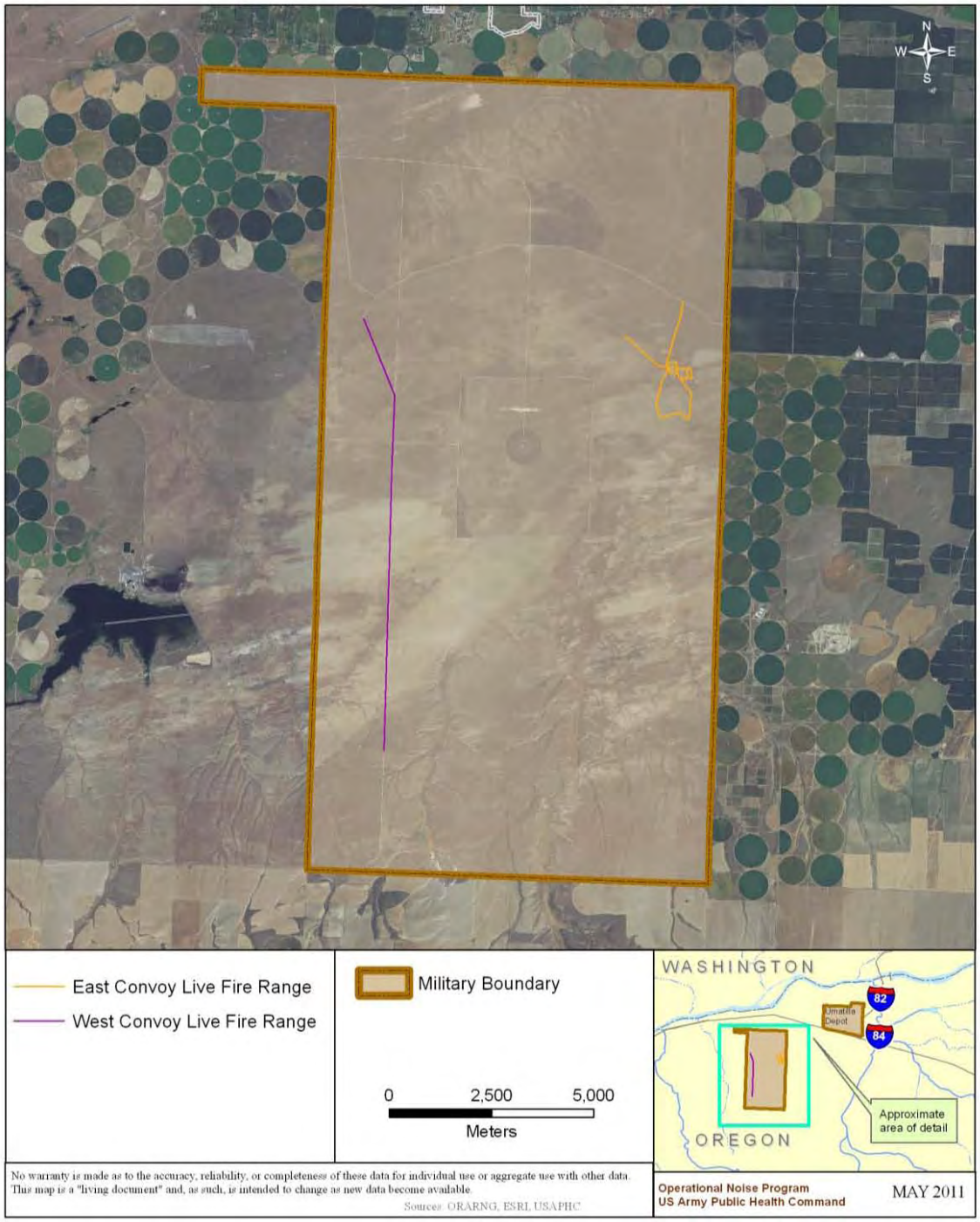

FIGURE 5. PROPOSED CONVOY LIVE FIRE RANGE LOCATIONS.

TABLE 5. PREDICTED PEAK FOR 5.56MM LIVE ROUND. (Target 100 meters)

	Predicted Level, dBP Azimuth		
Distance, meters	**0°**	**90°**	**180°**
50	--	117-127	107-117
100	139-149	111-121	101-111
200	111-121	104-114	94-104
400	98-108	91-101	83-93
800	90-100	82-92	74-84
1600	80-90	72-82	64-74

TABLE 6. PREDICTED PEAK FOR 7.62MM LIVE ROUND. (Target 100 meters)

	Predicted Level, dBP Azimuth		
Distance, meters	**0°**	**90°**	**180°**
50	--	113-123	106-116
100	109-119	106-116	101-111
200	103-113	100-110	94-104
400	92-102	89-99	85-95
800	84-94	81-91	77-87
1600	75-85	72-82	69-79

TABLE 7. PREDICTED PEAK FOR .50 cal LIVE ROUND. (Target 100 meters)

	Predicted Level, dBP Azimuth		
Distance, meters	**0°**	**90°**	**180°**
50	---	126-136	120-130
100	132-142	120-130	115-125
200	119-129	113-123	108-118
400	108-118	102-112	94-104
800	100-110	93-103	86-96
1600	92-102	84-94	78-88

8. CONCLUSIONS AND RECOMMENDATIONS.

a. The projected MPTR large caliber ammunition increase would generate a LUPZ (57 CDNL) and Zone II (62 CDNL) that extend beyond the boundary. The Noise Zone III (70 CDNL) remains within the NWSTF Boardman Range boundary. Based on available aerial imagery, the land use within the LUPZ and Zone II is agricultural.

b. The proposed MPTR large caliber activity has a moderate risk of generating complaints beyond the eastern boundary of NWSTF Boardman. However, the actual risk of complaints would be negligible as the area is agricultural and uninhabited.

c. The proposed MPTR and MPMG small caliber activity would generate a Zone II (87 dB PK15[met]) that extends beyond the boundary. The Zone III (104 db PK15[met]) remains within the NWSTF Boardman Range boundary. Based on available aerial imagery, the land use within Zone II is agricultural. The proposed CLF activity would generate Zone II levels that are either contained with NWSTF Boardman boundary or within the proposed MPTR and MPMG noise contours.

d. The ORARNG should continue to build its noise management program to:

- Prevent detrimental effects on the mission.
- Carry on the good-neighbor relationship with surrounding communities.
- Monitor the noise environment and any proposed land use changes surrounding the installation.

e. Include the information from this consultation as an appendix in the 2010 ORARNG SONMP.

APPENDIX A

REFERENCES

1. U.S. Army 1984, USAEHA Environmental Noise Assessment No. 52-34-0442-84, Noise Measurement Study, Camp Bullis, Texas, 27 February – 2 March 1984.

2. U.S. Army, 1999, Center for Health Promotion and Preventive Medicine, Health Hazard Assessment Report on the 40mm XM1001 Canister Cartridge for the MK-19 Mod 3 Grenade Machine Gun, No. 69-37-2735-00, November 1999.

3. U.S. Army, 2007, Army Regulation 200-1, Environmental Protection and Enhancement, Chapter 14 Operational Noise.

4. U.S. Army, 2009, U.S. Army Construction Engineering Research Laboratories, BNOISE2 Computer Model, Version 1.3.2009-11-30.

5. U.S. Army, 2010, Army Public Heath Command, Oregon Army National Guard Statewide Operational Noise Management Plan, September 2010.

6. E-mail, 2011, Oregon ARNG NEPA Office, Kris Mitchell, 11 April 2011, SUBJECT: 2010 ORARNG Noise Plan.

APPENDIX B

GLOSSARY OF TERMS, ACRONYMS & ABBREVIATIONS

B-1. GLOSSARY OF TERMS.

Average Sound Level – the mean-squared sound exposure level of all events occurring in a stated time interval, plus ten times the common logarithm of the quotient formed by the number of events in the time interval, divided by the duration of the time interval in seconds.

C-weighted Sound Level – a quantity, in decibels, read from a standard sound level meter with C-weighting circuitry. The C-scale incorporates slight de-emphasis of the low and high portion of the audible frequency spectrum.

Day-Night Average Sound Level (DNL) – the 24-hour average frequency-weighted sound level, in decibels, from midnight to midnight, obtained after addition of 10 decibels to sound levels in the night from midnight up to 7 a.m. and from 10 p.m. to midnight (0000 up to 0700 and 2200 up to 2400 hours).

Decibels (dB) – a logarithmic sound pressure unit of measure.

Noise – any sound without value.

PK15(met) – the maximum value of the instantaneous sound pressure for each unique sound source, and applying the 15 percentile rule accounting for meteorological variation.

B-2. GLOSSARY OF ACRONYMS AND ABBREVIATIONS.

CDNL	C-weighted average Day Night Level
CLF	Convoy Live Fire
dB	Decibels
LUPZ	Land Use Planning Zone
MPMG	Multi-purpose Machine Gun
MPTR	Multi-purpose Training Range
NWSTF	Naval Weapons System Training Facility
ORARNG	Oregon Army National Guard
SONMP	Statewide Operational Noise Management Plan

APPENDIX C

REGULATORY REQUIREMENTS

1. REFERENCE. U.S. Army, 2007, Army Regulation 200-1, Environmental Protection and Enhancement, Chapter 14 Operational Noise.

2. The Army Regulation (AR) 200-1 partitions noise into zones, each representing an area of increasing decibel level. The AR lists housing, schools, and medical facilities as examples of noise-sensitive land uses (U.S. Army 2007). The program defines four Noise Zones:

- Noise-sensitive land uses are not recommended in *Zone III*.
- Although local conditions such as availability of developable land or cost may require noise-sensitive land uses in Zone II, this type of land use is strongly discouraged on the installation and in surrounding communities. All viable alternatives should be considered to limit development in Zone II to non-sensitive activities such as industry, manufacturing, transportation and agriculture.
- Noise-sensitive land uses are generally acceptable within the *Zone I*. However, though an area may only receive *Zone I* levels, military operations may be loud enough to be heard- or even judged loud on occasion. *Zone I* is not one of the contours shown on the map; rather it is the entire area outside of the Zone II contour.
- The *Land Use Planning Zone (LUPZ)* is a subdivision of Zone I. The *LUPZ* is 5 dB lower than the Zone II. Within this area, noise-sensitive land uses are generally acceptable. However, communities and individuals often have different views regarding what level of noise is acceptable or desirable. To address this, some local governments have implemented land use planning measures out beyond the Zone II limits. Additionally, implementing planning controls within the *LUPZ* can develop a buffer to avert the possibility of future noise conflicts.

3. The following table summarizes each zone and its appropriate weighting by type of operation.

TABLE C. NOISE ZONE DECIBEL LEVELS. (AR 200-1, 2007)

Noise Zone	**Aviation (ADNL)**	**Small Arms (PK15(met))**	**Large Arms, Demolitions, Etc. (CDNL)**
Land Use Planning Zone (LUPZ)	60-65	N/A	57 – 62
Zone I	<65	<87	<62
Zone II	65-75	87 – 104	62 – 70
Zone III	>75	>104	>70

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Appendix F

Additional Biological Information

Table of Contents

PLANT SPECIES KNOWN TO EXIST AT NWSTF BOARDMAN

WILDLIFE SPECIES THAT PRESENTLY OCCUR, POTENTIALLY OCCUR, OR HAVE OCCURRED IN THE PAST AT NWSTF BOARDMAN

DRAFT - REVEGETATION PLAN FOR AREAS DISTURBED BY CONSTRUCTION AND OPERATION OF WEAPONS TRAINING RANGES AND OTHER FACILITIES ON NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN

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Plant species known to occur at NWSTF Boardman. [1]

Common Name	Scientific Name
Vascular Plants	
Family Asteraceae (Aster)	
Annual agoseris	*Agoseris heterophylla*
Annual bursage	*Ambrosia acanthicarpa*
Diffuse knapweed	*Centaurea diffusa*
Big sagebrush	*Artemesia tridentata*
Bull thistle	*Cirsium vulgare*
Canadian thistle	*Cirsium arvense*
Carey's balsamroot	*Balsamorhiza careyana*
Chicory	*Chichorium intybus*
Cluster tarweed	*Madia glomerata*
Common cocklebur	*Xanthium strumarium*
Common dandelion	*Taraxacum officinale*
Common rabbitleaf	*Lagophylla ramosissima*
Common spikeweed	*Hemizonia pungens* var. *septentrionalis*
Columbia cut-leaf	*Hymenopappus filifolius* var. *filifolius*
Columbia coreopsis	*Coreopsis atkinsoniana*
False-yarrow	*Chaenactis douglasii* var. *achilleaefolia*
Gold stars	*Crocidium multicaule*
Gray rabbitbrush	*Chrysothamnus nauseosus*
Green rabbitbrush	*Chrysothamnus viscidiflorus*
Hairy golden-aster	*Chrysopsis villosa*
Hawkweed	*Hieracium* sp.
Hoary aster	*Machaeranthera canascens*
Horseweed	*Conyza canadensis*
Hounds-tongue	*Hieracium cynoglossoides*
Long-leaf hawksbeard	*Crepis acuminata*
Long-leaved aster	*Aster chilensis*
Low pussy-toes	*Antennaria dimorpha*
Nodding beggar-ticks	*Bidens cernua*
Northern wyethia	*Wyethia amplexicaulis*
Northwest balsamroot	*Balsamorhiza deltoidea*
Pineapple weed	*Matricaria matricarioides*
Prickly lettuce	*Lactuca serriola*
Scotch thistle	*Onopordum acanthium*
Shaggy daisy	*Erigeron pumilis*
Skeleton weed	*Stephanomeria paniculata*
Slender hawksbeard	*Crepis atrabarba*
Snakeweed	*Gutierrezia sarothrae*
Tall pussy-toes	*Antennaria anaphaloides*
Thread-leaf fleabane	*Erigeron filifolius*
White tidy tips	*Layia glandulosa*
Yarrow	*Achillea millefolium*
Yellow desert daisy	*Erigeron linearis*
Yellow salsify	*Tragopogon dubius*
Family Boraginaceae (Borage)	
Common cryptantha	*Cryptantha intermedia*
Slender popcorn flower	*Plagiobothrys tenellus*
Fiddleneck tarweed	*Amsinckia lycopsoides*
Family Brassicaceae (Mustard)	
Clasping peppergrass	*Lepidium perfoliatum*
Flixweed	*Descurainia sophia*
Jim-hill mustard	*Sysimbrium altissimum*

Plant species known to occur at NWSTF Boardman. [1]

Common Name	Scientific Name
Prairie rocket	*Erysimum asperum*
Shepard's purse	*Capsella bursa-pastoris*
Whitlow-grass	*Draba verna*
Tall peppergrass	*Lepidium virginicum*
Tansy mustard	*Descurainia pinnata*
Tumble mustard	*Sisymbrium altissimum*
Family Cactaceae (Cactus)	
Prickly pear cactus	*Opuntia polyacantha*
Family Capparidaceae (Caper)	
Yellow bee plant	*Cleome lutea*
Family Carophyllaceae (Pink)	
Jagged chickweed	*Holosteum umbellatum*
Bouncing bett	*Saponaria officinalis*
Family Chenopodiaceae (Goosefoot)	
Black greasewood	*Sarcobatus vermiculatus*
Russian thistle	*Salsola kali*
Family Cupressaceae (Cypress)	
Western juniper	*Juniperus occidentalis*
Family Dipsacaceae (Teasel)	
Teasel	*Dipsacus sylvestris*
Family Euphorbiaceae (Spurge)	
Rattlesnake weed	*Euphorbia serpyllifolia*
Family Fabaceae (Pea)	
Alfalfa	*Medicago sativa*
Black locust	*Robinia pseudo-acacia*
Columbia milk-vetch	*Astragalus succembens*
Stalked-pod milk-vetch	*Astragalus sclerocarpus*
Hairy vetch	*Vicia villosa*
Lance-leaf scurf-pea	*Psoralea lanceolata*
Laurance's milk-vetch	*Astragalus collinus* var. *laurentii*
Licorice	*Glycyrrhiza leipdota*
Long-leaf locoweed	*Astragalus reventus* var. *reventus*
Lupine	*Lupinus* spp.
Pauper milk-vetch	*Astragalus misellus*
Shoestring psoralea	*Psoralea lanceolata*
Speckle-pod milk-vetch	*Astragalus lentiginosus*
Thread-stalk milk-vetch	*Astragalus filipes*
Tweedy's milk-vetch	*Astragulus tweedyi*
White clover	*Trifolium repens*
White sweet-clover	*Melilotus alba*
Pursh's milk-vetch	*Astragalus purshii*
Wyeth's lupine	*Lupinus wyethii*
Yellow deer-vetch	*Lotus corniculatus*
Yellow sweet-clover	*Melilotus officinalis*
Family Gentianaceae (Gentian)	
White-stemmed swertia	*Swertia albicaulis*
Family Geraniaceae (Geranium)	
Redstem filaree/storksbill	*Erodium circutarium*
Family Hydrophyllaceae (Waterleaf)	
Silver-leafed phacelia	*Phacelia hastata*
Thread-leaf phacelia	*Phacelia linearis*
Family Lamiaceae (Mint)	
Horehound	*Marrubium vulgare*
Family Liliaceae (Lily)	

Appendix F **Plant species known to occur at NWSTF Boardman.** [1]

Common Name	Scientific Name
Douglas' brodiaea	*Brodiaea douglasii*
Sagebrush mariposa	*Calochortus macrocarpus*
Panicled death-camas	*Zigadenus venenosus*
Yellow bells	*Fritillaria pudica*
Family Linaceae (Flax)	
Wild flax	*Linum perenne*
Family Malvaceae (Mallow)	
Orange globe mallow	*Sphaeralcea munroana*
Family Nyctaginaceae (Four-o'clock)	
White-sand verbena	*Abronia mellifera*
Family Onagraceae (Evening Primrose)	
Common evening primrose	*Oenethera strigosa*
Pale evening primrose	*Oenothera pallida*
Parched fireweed	*Epilobium paniculatum*
Family Plantaginaceae (Plantain)	
English plantain	*Plantago lanceolata*
Hairy plantain	*Plantago patagonica*
Family Poaceae (Grass)	
Barren fescue	*Festuca bromoides*
Bluebunch wheatgrass	*Agropyron spicatum*
Bottlebrush squirrel tail	*Sitanion hystrix*
Bulbous bluegrass	*Poa bulbosa*
Crested wheatgrass	*Agropyron cristatum*
Cheatgrass	*Bromus tectorum*
Thickspike wheatgrass	*Agropyron dasytachyum*
Dune wild rye	*Elymus mollis*
Foxtail barley	*Hordeum murimum*
Giant wild rye	*Elymus flavescens*
Idaho fescue	*Festuca idahoensis*
Indian ricegrass	*Oryzopsis hymenoides*
Junegrass	*Koeleria cristata*
Nevada bluegrass	*Poa nevadensis*
Nuttall's fescue	*Festuca microstachys*
Orchard grass	*Dactylis glomerata*
Saltgrass	*Distichlis stricta*
Sandberg's bluegrass	*Poa sandbergii*
Six-weeks fescue	*Festuca octoflora*
Thurber needle grass	*Stipa thurberiana*
Western needle-and-thread grass	*Stipa comata*
Wheat	*Triticum aestivum*
Yellow wild rye	*Elymus cinereus*
Family Polemoniaceae (Phlox)	
Desert phlox	*Phlox austromontana*
Long-leaf phlox	*Phlox longifolia*
Microsteris	*Microsteris gracilis*
Small-flowered gilia	*Gilia minutiflora*
Family Polygonaceae (Buckwheat)	
Broom buckwheat	*Eriogonum vimineum*
Desert buckwheat	*Eriogonum compositum*
Snow buckwheat	*Eriogonum niveum*
Veiny dock	*Rumex venosus*
Wyeth eriogonum	*Eriogonum heracleoides*
Family Portulacaceae (Purslane)	
Common purslane	*Portulaca oleracea*

Appendix F Plant species known to occur at NWSTF Boardman. [1]

Common Name	Scientific Name
Family Ranunculaceae (Buttercup)	
Hornseed buttercup	*Ranunculus testiculatus*
Upland larkspur	*Delphinium nuttallianum*
Water buttercup	*Ranunculus aquatilis*
Family Rosaceae (Rose)	
Antelope bitterbrush	*Purshia tridentata*
Family Santalaceae (Sandalwood)	
Bastard toad-flax	*Comandra umbelleta*
Family Saxifragaceae (Saxifrage)	
Bulbet prairie star	*Lithophragma bulbifera*
Family Scrophulariaceae (Figwort)	
Common mullein	*Verbascum thapsus*
Sand dune penstemon	*Penstemon acuminatus*
Family Solanaceae (Potato or Nightshade)	
Cut-leaf nightshade	*Solanum triflorum*
Potato	*Solanum tuberosum*
Family Umbelliferae (Parsley)	
Bicolor biscuit root	*Lomatium leptocarpum*
Cous biscuit root	*Lomatium cous*
Biscuit root	*Lomatium macrocarpum*
Turpentine cymopterus	*Cymopterus terebinthinus*
Nine-leaved desert-parsley	*Lomatium triternatum*
Family Verbenaceae (Verbena)	
Bracted verbena	*Verbena bracteata*
Non-vascular Plants	
(no common names)	
Mosses	
	Aloina pilifera
	Bryum sp.
	Ceratodon purpureus
	Didymodon australasii
	Didymodon brachyphyllus
	Encalypta cf. rhaptocarpa
	Funaria hygrometrica
	Grimmia montana
	Phascum cuspidatum
	Pseudocrossidium revolutum
	Pterygoneurum ovatum
	Tortula brevipes
	Tortula princeps
	Tortula ruralis
Lichens	
	Acarospora schleicheri
	Cladonia coniocraea
	Cladonia fimbriata
	Cladonia pyxidata
	Collema tenax
	Dermatocarpon hepaticum
	Diploschistes scruposus
	Lecanora muralis
	Leptogium californicum
	Leptogium lichenoides
	Nostoc

Plant species known to occur at NWSTF Boardman. [1]

	Common Name	Scientific Name
		Polychidium albociliatum
		Psora luridella
Liverworts		
		Cephaloziella divaricata

[1] Sources: McClelland and Bedell (1987), Quade (1994).

Wildlife species mentioned in text, that presently occur, potentially occur, or have occurred in the past at NWSTF Boardman.

Species	Scientific Name
Amphibians	
Great Basin spadefoot toad	*Scaphiopus intermontanus*
Reptiles	
Common garter snake [1]	*Thamnophis sirtalis*
Gopher snake	*Pituophis melanoleucus*
Night snake [1]	*Hypsiglena torquata*
Northern sagebrush lizard	*Scleroporus graciosus*
Racer	*Coluber constrictor*
Rubber boa [1]	*Charina bottae*
Short-horned lizard	*Phrynosoma douglassi*
Side-blotched lizard	*Uta stansburiana*
Striped whipsnake [1]	*Masticophis taeniatus*
Western fence lizard	*Scleroporus occidentalis*
Western rattlesnake	*Crotalus viridis*
Western skink [1]	*Eumeces skiltonianus*
Western terrestrial garter snake [1]	*Thamnophis elegans*
Birds	
American crow	*Corvus brachyrhynchos*
American goldfinch	*Carduelis tristis*
American kestrel	*Falco sparverius*
American robin	*Turdus migratorius*
Bald eagle [1]	*Haliaeetus leucocephalus*
Barn owl	*Tyto alba*
Barn swallow	*Hirundo rustica*
Black-billed magpie	*Pica pica*
Black-crowned night heron	*Nycticorax nycticorax*
Black-throated sparrow	*Amphispiza bilineata*
Blue-winged teal	*Anas discors*
Brown-headed cowbird	*Molothrus ater*
Brewer's blackbird	*Euphagus cyanocephalus*
Brewer's sparrow	*Spizella breweri*
Bullock's oriole	*Icterus bullockii*
Burrowing owl	*Athene cunicularia*
California gull	*Larus californicus*
California quail	*Callipepla californica*
Caspian tern	*Sterna caspia*
Chipping sparrow	*Spizella passerina*
Chukar	*Alectoris chukar*
Cliff swallow	*Hirundo pyrrhonota*
Common nighthawk	*Chordeiles minor*
Common poorwill	*Phalaenoptilus nuttallii*
Common raven	*Corvus corax*
Cooper's hawk	*Accipiter cooperii*
Dark-eyed junco	*Junco hyemalis*
Eastern kingbird	*Tyrannus tyrannus*
European starling	*Sturnus vulgaris*
Ferruginous hawk	*Buteo regalis*
Fox sparrow	*Passerella iliaca*
Golden-crowned kinglet	*Regulus satrapa*
Golden eagle	*Aquila chrysaetos*

Wildlife species mentioned in text, that presently occur, potentially occur, or have occurred in the past at NWSTF Boardman.

Species	Scientific Name
Grasshopper sparrow	*Ammodramus savannarum*
Gray flycatcher	*Empidonax wrightii*
Gray partridge	*Perdix perdix*
Horned lark	*Eremophila alpestris*
House sparrow	*Passer domesticus*
Killdeer	*Charadrius vociferus*
Lark sparrow	*Chondestes grammacus*
Lewis's woodpecker	*Melanerpes lewis*
Loggerhead shrike	*Lanius ludovicianus*
Long-billed curlew	*Numenius americanus*
Long-eared owl	*Asio otus*
Macgillivray's warbler	*Oporornis tolmiei*
Mallard	*Anas platyrhynchos*
Merlin	*Falco columbarius*
Mountain bluebird	*Sialia currucoides*
Mourning dove	*Zenaida macroura*
Northern flicker	*Colaptes auratus*
Northern harrier	*Circus cyaneus*
Northern pintail	*Anas acuta*
Northern rough-legged hawk	*Buteo lagopus*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Orange-crowned warbler	*Vermivora celata*
Peregrine falcon [1]	*Falco peregrinus*
Prairie falcon	*Falco mexicanus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ring-billed gull	*Larus delawarensis*
Ring-necked pheasant	*Phasianus colchicus*
Rock wren	*Salpinctes obsoletus*
Sage grouse [2]	*Centrocercus urophasianus*
Sage sparrow	*Amphispiza belli*
Sage thrasher	*Oreoscoptes montanus*
Savannah sparrow	*Passerculus sandwichensis*
Say's phoebe	*Sayornis saya*
Sharp-shinned hawk	*Accipiter striatus*
Sharp-tailed grouse [2]	*Tympanuchus phasianellus columbianus*
Short-eared owl	*Asio flammeus*
Snowy owl	*Nyctea scandiaca*
Spotted sandpiper	*Actitis macularia*
Spotted towhee	*Pipilo maculatus*
Swainson's hawk	*Buteo swainsoni*
Townsend's solitaire	*Myadestes townsendi*
Turkey vulture	*Cathartes aura*
Upland sandpiper	*Bartramia longicauda*
Vesper sparrow	*Pooecetes gramineus*
Violet-green swallow	*Tachycineta thalassina*
Western kingbird	*Tyrannus verticalis*
Western meadowlark	*Sturnella neglecta*
Western sandpiper	*Calidris mauri*
Western tanager	*Piranga rubra*

Wildlife species mentioned in text, that presently occur, potentially occur, or have occurred in the past at NWSTF Boardman.

Species	Scientific Name
White-crowned sparrow	*Zonotrichia leucophrys*
Wilson's warbler	*Wilsonia pusilla*
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*
Mammals	
Badger	*Taxidea taxus*
Belding's ground squirrel [1]	*Spermophilus beldingi*
Big brown bat [1]	*Eptesicus fuscus*
Bison [2]	*Bison bison*
Black-tailed jackrabbit	*Lepus californicus*
Bobcat [1]	*Lynx rufus*
Bushy-tailed wood rat [1]	*Neotoma cinerea*
Columbian ground squirrel [1]	*Spermophilus columbianus*
Coyote	*Canis latrans*
Deer mouse	*Peromyscus maniculatus*
Elk	*Cervus elaphus*
Golden-mantled ground squirrel [1]	*Spermophilus lateralis*
Great Basin pocket mouse	*Perognathus parvus*
House mouse	*Mus musculus*
Little brown myotis [1]	*Myotis lucifugus*
Long-tailed weasel	*Mustela frenata*
Merriam's shrew [1]	*Sorex merriami*
Montane vole	*Microtus montanus*
Mountain lion [1]	*Felis concolor*
Mule deer	*Odocoileus hemionus*
Northern grasshopper mouse	*Onychomys leucogaster*
Northern pocket gopher	*Thomomys talpoides*
Norway rat [1]	*Rattus norvegicus*
Nuttall's cottontail	*Sylvilagus nuttallii*
Ord's kangaroo rat	*Dipodomys ordii*
Little pocket mouse [1]	*Perognathus longimembris*
Porcupine	*Erethizon dorsatum*
Pronghorn [2]	*Antilocarpa americana*
Pygmy rabbit [1]	*Brachylagus idahoensis*
Raccoon [1]	*Procyon lotor*
Red fox	*Vulpes vulpes*
Sagebrush vole	*Lemmiscus curtatus*
Silver-haired bat [1]	*Lasionycteris noctivagrans*
Townsend's ground squirrel [1]	*Spermophilus townsendii*
Vagrant shrew	*Sorex vagrans*
Washington ground squirrel	*Spermophilus washingtoni*
Western harvest mouse	*Reithrodontomys megalotis*
White-tailed jackrabbit	*Lepus townsendii*
Wolf [2]	*Canis lupus*

[1] Species that hypothetically could occur at NWSTF Boardman, but it unlikely in most cases.
[2] Species with historical ranges overlapping NWSTF Boardman.

DRAFT - Revegetation Plan for Areas Disturbed by Construction and Operation of Weapons Training Ranges and Other Facilities on Naval Weapons Systems Training Facility Boardman

Prepared by Jeff Mach, Oregon Military Department
August 2011

Species. Revegetation of disturbed areas on NWSTF Boardman would consist of three actions:

1. Cryptogammic crust (aka biological soil crust) would be collected from facility sites prior to construction and stored. Collected crust material would be screened to produce a homogenous material that would be applied to disturbed areas after completion of construction, either dry or in slurry, to innoculate the soil.

2. A mixture of the following grass would be broadcast onto disturbed sites, at a rate of 12.71 pounds pure live seed per acre:

Species	Native? (y/n)	Noxious? (y/n)	Wildlife value (cover/forage)	Mature height (cm)	Life cycle	# Pure Live Seeds per square meter (PLS/m^2)	Seeding rate in grams/hectare (g/ha)	Seeding rate in pounds PLS per acre (lbs/ac)
bluebunch wheatgrass, *Pseudoroegneria spicatum* (= *Agropyron spicatum*)	Y	N	C/F	30-60	Perennial	100	4,097	3.61
Sandberg bluegrass, *Poa secunda* (= *Poa Sandbergii*)	Y	N	C/F	30-60	Perennial	100	715	0.63
Festuca idahoensis (Idaho fescue)	Y	N	C/F	60+	Perennial	125	1,703	1.50
needle and thread grass, *Hesperostipa comata* (= *Stipa comate*)	Y	N	C	60+	Perennial	25	1,668	1.47
bottlebrush squirrel-tail grass, *Elymus elymoides* (= *Sitanion hystrix*)	Y	N	C/F	30-60	Perennial	50	1,589	1.40
Indian ricegrass, *Achnatherum hymenoides* (= *Oryzopsis hymenoides*)	Y	N	C/F	30-60	Perennial	100	4,654	4.10
TOTALS						500 PLS/m^2 coverage	14,426 g PLS/ha	12.71 lbs PLS /ac

3. Basin big sagebrush (*Artemesia tridentata* ssp *tridentata*) seed would be broadcast on selected focus areas, typically upwind and outside of weapons training range areas which have a higher potential to burn, at a rate of 1.6 pound per acre (lb/ac).

Site Preparation and Application: Preparation of areas for cryptogam inoculation and grass seeding will consist of finish soil grading. No site preparation is planned for basin big sagebrush seeding focus areas. Cyptogam innoculation would be accomplished by direct application of cryptogam material either in a dry form or in a slurry. Grass seed would be applied using a hydroseeder. The grass seed would be applied with SOIL-GUARD™ or cellulose mulch with tackifier. Fertilizer would not be used with this seed mixture. Basin big sagebrush seed would be hand broadcast onto firm, but not compacted, ground and pressed, rolled or dragged to improve seed-to-soil contact, with the goal of leaving the seed at a depth of about 1/16 inch. Fertilizer would not be applied to basin big sagebrush seeding areas.

Schedule: Cryptogam inoculation and grass seeding would be conducted between October 1 and January 31. Cryptogam inoculation would be conducted before grass seeding. Sagebrush seeding would be conducted between November 1 and December 31.

Revegetation Success Criteria: Cryptogam inoculation will be considered successful upon completion of the action. Grass revegetation would be considered successful if seeding results in a stand of grass providing a uniform coverage of at least 80% density of a representative bunchgrass stand area within two to three years of seeding. If an acceptable stand of grass is not achieved, then the area would be re-seeded between October 1 and January 31. Sagebrush revegetation would be considered successful if one seedling per square meter is established over a 10 square meter area in each seeding focus area after one year. Seeding will be repeated if needed to meet the success criteria.

Appendix G

Public Participation

TABLE OF CONTENTS

APPENDIX G PUBLIC PARTICIPATION G-1

G.1 PROJECT WEBSITE G-1
G.2 GENERAL SUMMARY OF THE SCOPING PERIOD G-1
G.2.1 PUBLIC SCOPING NOTIFICATION G-1
G.2.1.1 Federal Register Notice G-1
G.2.1.2 Tribal Letters G-1
G.2.1.3 Notification Letters G-2
G.2.1.4 Advertisements G-2
G.2.1.5 Press Releases G-2
G.2.1.6 Public Service Announcement G-3
G.2.1.7 Postcard Mailer G-3
G.2.1.8 Flier G-3
G.2.1.9 Expanded Scoping G-3
G.2.2 SCOPING MEETINGS G-3
G.2.2.1 Attendance G-4
G.2.2.2 Public Scoping Comments G-4
G.2.3 REVISED PUBLIC SCOPING NOTIFICATION G-6
G.2.3.1 Federal Register Notice G-6
G.2.3.2 Tribal Letters G-6
G.2.3.3 Advertisements G-6
G.2.3.4 Second Public Scoping Period Comments G-7
G.3 DRAFT ENVIRONMENTAL IMPACT STATEMENT PUBLIC COMMENTS AND RESPONSES G-8
G.3.1 FEDERAL REGISTER NOTICE G-8
G.3.2 TRIBAL LETTERS G-8
G.3.3 NOTIFICATION LETTERS G-8
G.3.4 ADVERTISEMENTS G-8
G.3.5 PRESS RELEASES G-9
G.3.6 PUBLIC SERVICE ANNOUNCEMENT G-9
G.3.7 POSTCARD MAILER G-9
G.3.8 FLIER G-9
G.3.9 PUBLIC MEETINGS G-9
G.3.10 ATTENDANCE G-10
G.3.11 DRAFT ENVIRONMENTAL IMPACT STATEMENT PUBLIC COMMENTS G-10
G.4 COMMENT RESPONSES G-11
G.5 TRANSCRIPTS OF PUBLIC MEETINGS G-129

LIST OF TABLES

TABLE G.2-1: SCOPING MEETING LOCATIONS G-3
TABLE G.2-2: NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN SCOPING COMMENTS G-5
TABLE G.2-3: NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN SECOND PUBLIC SCOPING COMMENTS G-7
TABLE G.3-1: PUBLIC MEETING LOCATIONS G-10
TABLE G.3-2: NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN DRAFT EIS COMMENTS G-11

TABLE G.4-1: RESPONSES TO COMMENTS FROM AGENCIES G-13
TABLE G.4-2: RESPONSES TO COMMENTS FROM AMERICAN INDIAN TRIBES G-68
TABLE G.4-3: RESPONSES TO COMMENTS FROM ORGANIZATIONS G-77
TABLE G.4-4: RESPONSES TO COMMENTS FROM PRIVATE INDIVIDUALS G-106

LIST OF FIGURES

There are no figures in this section.

APPENDIX G PUBLIC PARTICIPATION

This appendix includes information about the public's participation in the development of the Naval Weapons Systems Training Facility (NWSTF) Boardman Environmental Impact Statement (EIS). This appendix summarizes the public scoping process that began with the publication of the Notice of Intent (NOI) in the *Federal Register* (FR) in October 2010. The scoping period allowed a variety of opportunities for the public to comment on the scope of the EIS, and included two public scoping meetings. This appendix also summarizes the public participation in the National Environmental Policy Act (NEPA) process through the publication of the Final EIS.

G.1 PROJECT WEBSITE

A public website was established specifically for this project (http://www.nwstfboardmaneis.com/) and went active on October 4, 2010. This website address was published in the initial NOI and has subsequently been re-printed in all newspaper advertisements, agency letters, and public postcards for both the NOI to Prepare an EIS and Notice of Availability of the Draft EIS. Scoping meeting fact sheets, posters, brochures, and various other materials have been available on the project website throughout the course of the project.

G.2 GENERAL SUMMARY OF THE SCOPING PERIOD

The scoping period for the NWSTF Boardman EIS began with the publication of a NOI in the FR on October 5, 2010. The scoping period began on this date and concluded on November 15, 2010. The United States (U.S.) Department of the Navy (Navy), in cooperation with the National Guard Bureau (NGB) and Oregon National Guard (ORNG), held two scoping meetings in Oregon from October 27 to October 28, 2010, for the NWSTF Boardman EIS. The purpose of the meetings was to actively involve the public and other agencies in identifying the environmental issues to be addressed in the Draft EIS as well as other potential alternatives to accomplish the purpose and need. Efforts to notify the public, media, federally recognized tribes, government agencies and elected officials about the scoping meetings were conducted in accordance with the Navy and National Guard's *Public Involvement Plan* for the NWSTF Boardman EIS.

G.2.1 PUBLIC SCOPING NOTIFICATION

The Navy made significant efforts at notifying the public to ensure maximum public participation during the scoping process. A summary of these efforts follows.

G.2.1.1 Federal Register Notice

On October 5, 2010, the Navy, in cooperation with the NGB and ORNG, published a NOI/Notice of Public Scoping Meetings in the Federal Register, which announced the intent to prepare a Draft EIS to evaluate potential environmental effects associated with current and proposed military training and testing activities at NWSTF Boardman, the proposed action and alternatives, and the dates, locations, and times of the scoping meetings.

G.2.1.2 Tribal Letters

A personalized tribal notification letter was mailed to four federally recognized tribes, including the Confederated Tribes and Bands of the Yakama Indian Nation, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of Warm Springs and Nez Perce Tribe on October 5, 2010. This letter served to formally invite the Tribes into Government to-Government consultation and provided detailed

information about the proposed action. Follow-up phone calls were made to ensure the letters were received and were sent to the correct personnel within each tribe.

G.2.1.3 Notification Letters

A personalized agency notification letter was mailed to 164 federal, state, and local elected officials and government agencies on October 6, 2010. This letter provided detailed information about the proposed action, the scoping process and the dates, locations, and times of the scoping meetings. Information for submitting comments was also provided.

G.2.1.4 Advertisements

Three series of display advertisements were placed in the following six newspapers: *Hermiston Herald, East Oregonian, The Oregonian, Tri-City Herald, North Morrow Times,* and *Heppner-Gazette Times*. As listed below, the first series of newspaper advertisements occurred after the NOI was published in the Federal Register and ran for three consecutive days in each of the newspapers, with the exception of *The Oregonian*, which ran for 2 consecutive days, and the non-daily newspapers. The second series of advertisements were published 5–10 days prior to the scoping meetings. The third series of newspaper advertisements were published 3 consecutive days prior to the scoping meetings, including the day of the scoping meeting, with the exception of the weekly and monthly newspapers.

Hermiston Herald
Saturday, October 9, 2010
Wednesday, October 13, 2010
Saturday, October 16, 2010
Wednesday, October 20, 2010
Saturday, October 23, 2010
Wednesday, October 27, 2010

East Oregonian
Thursday, October 7, 2010
Friday, October 8, 2010
Saturday, October 9, 2010
Tuesday, October 19, 2010
Tuesday, October 26, 2010
Wednesday, October 27, 2010
Thursday, October 28, 2010

Heppner-Gazette Times
Wednesday, October 13, 2010
Wednesday, October 20, 2010
Wednesday, October 27, 2010

The Oregonian
Thursday, October 7, 2010
Friday, October 8, 2010
Monday, October 18, 2010
Tuesday, October 26, 2010
Wednesday, October 27, 2010
Thursday, October 28, 2010

Tri-Cities Herald
Thursday, October 7, 2010
Friday, October 8, 2010
Saturday, October 9, 2010
Monday, October 18, 2010
Tuesday, October 26, 2010
Wednesday, October 27, 2010
Thursday, October 28, 2010

North Morrow Times
Friday, 1 October 1, 2010

G.2.1.5 Press Releases

A press release was distributed by the Commander, Navy Region Northwest Public Affairs Officer to media outlets, elected officials and other potentially interested parties. The NOI press release was distributed on October 5, 2010 and announced the intent to prepare an EIS. The Notice of Scoping Meetings press release was distributed on October 20 and emphasized the scoping process. The NOI and Notice of Scoping Meetings press releases included details on the proposed action, scoping meeting dates, locations, times, and comment information.

G.2.1.6 Public Service Announcement

A public service announcement was distributed by the Commander, Navy Region Northwest Public Affairs Officer to media outlets, elected officials, and other potentially interested parties. The public service announcement announced the scoping meeting dates, locations, and times.

G.2.1.7 Postcard Mailer

A postcard mailer announcing the preparation of an EIS, proposed action, comment information, project website and the scoping meeting dates, locations, and times, was sent out to 391 individuals on the project mailing list on October 12, 2010.

G.2.1.8 Flier

A flier providing the dates, locations, and times of the scoping meeting, along with the project website was provided to four distribution locations in both Boardman and Hermiston, Oregon, and included libraries, post offices, chambers of commerce, and local markets. The fliers were distributed on October 13, 2010.

G.2.1.9 Expanded Scoping

Expanded scoping activities included early and proactive notification and an offer for briefings to key stakeholders. Navy representatives met with officials from Morrow County, the city of Boardman, and the Port of Morrow prior to the public scoping meeting in Boardman to discuss specific issues of concern associated with the NWSTF Boardman EIS.

G.2.2 SCOPING MEETINGS

Scoping meetings were conducted in an open house style information session at the dates, locations, and times listed in Table G.2-1.

Table G.2-1: Scoping Meeting Locations

MEETING LOCATION	VENUE	DATE	TIME
Boardman	Port of Morrow Conference Center	October 27, 2010	5–8 p.m.
Hermiston	Hermiston Conference Center	October 28, 2010	5–8 p.m.

A media availability session was offered via press releases to allow the media to ask questions of Navy and National Guard representatives prior to the arrival of members of the public. Media representatives could also arrive at any time during the scoping meetings.

For each scoping meeting, staffers at the welcome station greeted guests and encouraged meeting attendees to sign in if they wanted to receive project information and notifications in the future. A packet of information describing the poster stations and containing five project fact sheets, a brochure, a NEPA handout, and a comment form was distributed to all attendees, along with verbal directions on the organization and flow of the poster stations around the meeting room. Guests were directed to first watch the NWSTF Boardman informational video, which provided an overview of the training and testing activities conducted at NWSTF Boardman, and natural and cultural resource protection programs. Chairs were provided for guests to watch the video.

Poster stations were set up around the room offering visual displays, fact sheets, a brochure, maps, and comment forms. Navy and National Guard representatives staffed each poster station to engage in one-on-one discussions with the public and answer any questions.

A comment station with tables, chairs, pens, comment forms, and a digital voice recorder for accepting oral comments was also provided to facilitate the public completing and submitting written or oral comments at the scoping meetings. Members of the public were encouraged to fill out public comment forms to ensure their comments would be included in the public record and considered in the development of the Draft EIS. Public comment forms were also available at each poster station. Individuals could submit completed forms at the meeting or mail them to the address provided on the form. Meeting attendees were also advised that they could submit comments online via the project website, http://www.nwstfboardmaneis.com/.

G.2.2.1 Attendance

Guests were encouraged to sign in at the welcome table. The information below reflects the number of guests who chose to sign in at the welcome table. Media attendance reflects the number of persons who identified themselves as media. In total, 30 people signed in at the welcome table.

- Seventeen (17) people signed the attendance sheet at the Boardman scoping meeting; media included a reporter from the *East Oregonian*; elected official representation included a staff member from Senator Merkley's office, the mayor of Boardman, and other officials from Morrow County and the city of Boardman; other representation included local utilities.
- Thirteen (13) people signed the attendance sheet at the Hermiston scoping meeting; media included a photographer from the *East Oregonian*; elected official representation included a staff member from Representative Walden's office, as well as two officials from Morrow County and an Umatilla County Commissioner; other representation included representatives from Bonneville Power, Umatilla Chemical Depot, Hermiston Fire, and the commercial energy industry.

G.2.2.2 Public Scoping Comments

During the NWSTF Boardman scoping period, public and agency comments were submitted via mail, website, and e-mail. No comments were submitted at the scoping meetings. A total of 60 comments were received during the public comment period from October 5, 2010 to November 15, 2010. Comments addressed various resource areas from fire management to biological species to airspace (Table G.2-2).

G.2.2.2.1 Economic Impacts, Airspace, Wind/Renewable Energy Projects and Land Use

Economic impacts, airspace, wind/renewable energy projects and land use were the top four resource areas commented on. The majority of comments expressed concern about how both air and ground training activities at NWSTF Boardman could impact wind and other renewable energy projects. Commenters expressed concern that changes in airspace would prohibit current wind and renewable energy projects from moving forward, particularly on the south side of NWSTF Boardman. Commenters expressed concern that changes to restricted airspace or requirements for wind turbine free flight corridors outside NWSTF Boardman would ultimately restrict the construction of wind projects on the property of landowners. Commenters stated preventing wind/renewable energy projects on private and public property would eliminate the potential for tax revenue, and also severely impede economic

prosperity through the creation of jobs. Other comments addressed the economic impacts on farming and ranching operations that would result from additional restrictions on airspace.

Table G.2-2: Naval Weapons Systems Training Facility Boardman Scoping Comments

Resource Issues	Comments	Percentage
Purpose and Need	5	1.74%
Economic Impacts	49	17.07%
Fire Management	7	2.44%
Public Outreach/Involvement	10	3.48%
Energy/Transmission Lines	6	2.09%
Alternative Development	5	1.74%
Biological Resources	9	3.14%
Policy/National Environmental Policy Act	4	1.39%
Wind/Renewable Energy Projects	42	14.63%
Cultural Resources	2	0.70%
Cumulative Impacts	8	2.79%
Public Health and Safety	5	1.74%
Threatened, Endangered and Critical Species	9	3.14%
Mitigation	7	2.44%
Airborne Sound	6	2.09%
Hazardous Waste/Materials	4	1.39%
Air Quality	4	1.39%
Environmental Justice	2	0.70%
Water Quality	4	1.39%
Transportation	2	0.70%
Airspace	45	15.68%
Miscellaneous	3	1.05%
Land Use	49	17.07%
ISSUE TOTALS	**287**	**100.00%**

Notes: The number of comments for each resource area will not add to the total number of comments received. Many letters had several comments or one comment could span across several issues. This table only includes a tally of written comments that were received via mail, website and e-mail throughout the scoping process.

G.2.2.2.2 Biological Resources and Threatened, Endangered and Critical Species

Commenters questioned how increases in training activities would impact biological resources, including wildlife, their habitat, and other plant species, and threatened, endangered, and critical species. Commenters believed increases in fire, the introduction of weeds, noise pollution, water pollution, air pollution, and habitat degradation would have a significant and irreversible impact on wildlife and plant species, especially the Washington ground squirrel, on and surrounding NWSTF Boardman. Some commenters stated that, given the magnitude of the potential impacts, the U.S. Fish and Wildlife Service decision to place the Washington ground squirrel as a candidate for federal listing under the Endangered Species Act would need to be reviewed and considered for listing, which might impact the Navy's use of NWSTF at Boardman.

G.2.2.2.3 Public Outreach/Involvement

Other commenters recommended continued coordination with local and state agencies and nongovernmental organizations to protect the natural resources at NWSTF Boardman. Commenters believed that building working relationships with these agencies and nongovernmental organizations would help the Navy and ORNG make informed decisions. Other comments expressed concern that project materials were not translated into Spanish, which ultimately excluded the Hispanic populations of Umatilla and Morrow counties, and that the format of the meeting was ineffective in communicating project information. Additional comments encouraged the Navy and ORNG to participate in local community events and other activities that would bring NWSTF Boardman personnel and community members together to learn about NWSTF Boardman and the training activities conducted at the range.

G.2.3 REVISED PUBLIC SCOPING NOTIFICATION

A separate and additional scoping effort was conducted by the Navy and the ORNG to address the potential addition of a Military Operations Area (MOA) to join the current airspace to the northeast of existing NWSTF Boardman Airspace.

G.2.3.1 Federal Register Notice

On December 27, 2011, the Navy, in cooperation with the National Guard Bureau and Oregon National Guard, published a NOI/Notice of Public Scoping Meetings in the Federal Register, which announced the intent to prepare a Draft EIS to evaluate potential environmental effects associated with current and proposed military training and testing activities at NWSTF Boardman, the proposed action and alternatives, and the dates, locations, and times of the scoping meetings. On February 2, 2012, the Navy, in cooperation with the National Guard Bureau and Oregon National Guard, published a Notice of Extension of Public Scoping Period in the FR, which announced a 32-day extension of the public commenting period.

G.2.3.2 Tribal Letters

A personalized tribal notification letter was mailed to four federally recognized tribes, including the Confederated Tribes and Bands of the Yakama Indian Nation, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of Warm Springs and Nez Perce Tribe on January 3, 2012.

G.2.3.3 Advertisements

Display advertisements were placed in the following five newspapers announcing the potential addition of a MOA: *Hermiston Herald, East Oregonian, Tri-City Herald, North Morrow Times, and Heppner-Gazette Times*. As listed below, the newspaper advertisements occurred after the NOI was published in the Federal Register.

Hermiston Herald
Saturday, December 24, 2011
Wednesday, December 28, 2011
Saturday, December 31, 2011

East Oregonian
Thursday, December 22, 2011
Friday, December 23, 2011
Saturday, December 24, 2011

The Oregonian
Thursday, December 22, 2011
Friday, December 23, 2011
Saturday, December 24, 2011

Heppner-Gazette Times
Wednesday, December 28, 2011

Tri-Cities Herald
Thursday, December 22, 2011

Friday, December 23, 2011
Saturday, December 24, 2011

North Morrow Times
Friday, January 6, 2012

Display advertisements were placed in the following five newspapers announcing the 32-day extension: *Hermiston Herald, East Oregonian, Tri-City Herald, North Morrow Times, and Heppner-Gazette Times*. As listed below, the newspaper advertisements occurred after the NOI was published in the Federal Register.

Hermiston Herald
Wednesday, February 1, 2012

East Oregonian
Saturday, January 28, 2012

Heppner-Gazette Times
Wednesday, February 1, 2012

Tri-Cities Herald
Saturday, January 28, 2012

North Morrow Times
Friday, February 3, 2013

G.2.3.4 Second Public Scoping Period Comments

During the second NWSTF Boardman scoping period, public and agency comments were submitted via mail, website, and e-mail. A total of 20 comments were received during the public comment period from December 27, 2011 to February 27, 2012. Comments addressed various resource areas from airspace to water quality (Table G.2-3).

Table G.2-3: Naval Weapons Systems Training Facility Boardman Second Public Scoping Comments

Resource Issues	Comments	Percentage
Airspace	7	31.8%
Comment Period Extension	3	13.6%
Wind/Renewable Energy Projects	2	9.1%
Economic Impacts	2	9.1%
Cultural Resources	2	9.1%
Energy/transmission Lines	1	4.5%
Alternatives Development	1	4.5%
Public Health and Safety	1	4.5%
Threatened, Endangered, and Critical Species	1	4.5%
Water Quality	1	4.5%
Miscellaneous	1	4.5%
ISSUE TOTALS	**22**	**100.00%**

Notes: The number of comments for each resource area will not add to the total number of comments received. Many letters had several comments or one comment could span across several issues. This table only includes a tally of written comments that were received via mail, website and e-mail throughout the scoping process.

Airspace, length of the comment period, economic impacts, wind/renewable energy projects, and cultural resources were the top five resource areas commented on. The majority of comments regarding airspace expressed concern about how air training activities at NWSTF Boardman could impact local aviation and economy by restricting airspace use. Additionally, the comments inquired about the necessity of new special use airspace. Other comments addressed the economic impacts on farming and ranching operations that would result from not allowing the public to utilize portions of NWSTF Boardman for irrigative farming. Commenters stated preventing farming projects on military land would eliminate the potential for tax revenue, and also severely impede economic prosperity through the creation of jobs. Numerous commenters inquired (at the beginning of the comment period) about the length of the comment period. As a result of these comments (as described in Section G.2.3.1, Federal Register Notice), the comment period was extended by 32 days to allow the public additional time for review and comment of the revised NOI.

G.3 Draft Environmental Impact Statement Public Comments and Responses

The public comment period on the Draft EIS began with the issuance of the Notice of Availability and a Notice of Public Meetings in the FR on September 7, 2012 (see Appendix A, Federal Register Notices). The public comment period began on September 7, 2012, and concluded on December 6, 2012, following an extension of the public comment period, which originally ended on November 7, 2012. The Navy made every effort to notify the public to ensure maximum public participation during the public comment period, including using postcards, press releases, and newspaper display advertisements.

G.3.1 Federal Register Notice

On Friday, September 7, 2012, the Navy, in cooperation with the NGB and ORNG, published a Notice of Public Meetings for the Draft Environmental Impact Statement for Naval Weapons Systems Training Facility Boardman, in the Federal Register, which announced the availability of the Draft EIS for public review and comment, and the dates, locations, and times of the public meetings.

G.3.2 Tribal Letters

A personalized tribal notification letter was mailed to four federally recognized tribes, including the Confederated Tribes and Bands of the Yakama Indian Nation, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of Warm Springs and Nez Perce Tribe, on August 24, 2012. This letter served to formally notify the Tribes of the preparation and availability of the Draft EIS for review. Follow-up phone calls were made to ensure the letters were received and were sent to the correct personnel within each tribe.

G.3.3 Notification Letters

A personalized agency notification letter was mailed to 192 federal, state, and local elected officials and government agencies on August 24, 2012. This letter provided detailed information about the Proposed Action, the public review and comment process, and the dates, locations, and times of the public meetings. Information for submitting comments was also provided.

G.3.4 Advertisements

Display advertisements were placed in the following six newspapers: *Hermiston Herald, East Oregonian, The Oregonian, Tri-City Herald, North Morrow Times,* and *Heppner-Gazette Times*. As listed below, the newspaper advertisements occurred after the Notice of Availability/Notice of Public Meetings was published in the Federal Register.

Hermiston Herald
Saturday, September 8, 2012
Wednesday, September 12, 2012
Wednesday, September 19, 2012
Saturday, September 22, 2012

East Oregonian
Friday, September 7, 2012
Saturday, September 8, 2012
Wednesday, September 12, 2012
Tuesday, September 18, 2012
Wednesday, September 19, 2012

Heppner-Gazette Times
Tuesday, September 12, 2012
Wednesday, September 26, 2012

The Oregonian
Friday, September 7, 2012
Saturday, September 8, 2012
Wednesday, September 19, 2012
Tuesday, September 25, 2012
Wednesday, September 26, 2012

Tri-Cities Herald
Friday, September 7, 2012
Saturday, September 8, 2012
Tuesday, September 25, 2012
Wednesday, September 26, 2012

North Morrow Times
Friday, September 7, 2012

G.3.5 Press Releases

A press release was distributed by the Commander, Navy Region Northwest Public Affairs Officer to media outlets, elected officials, and other potentially interested parties. The Notice of Public Meeting press release was distributed on September 19, 2012 and announced the availability of the Draft EIS for review and comment. The press release included details on the Proposed Action, meeting dates, and locations, times, and comment information.

G.3.6 Public Service Announcement

A public service announcement was distributed by the Commander, Navy Region Northwest Public Affairs Officer to media outlets, elected officials, and other potentially interested parties. The public service announcement announced the public meeting dates, locations, and times.

G.3.7 Postcard Mailer

A postcard mailer announcing the preparation of an EIS, proposed action, comment information, project website, and the public meeting dates, locations, and times, was sent out to individuals on the project mailing list on September 7, 2012.

G.3.8 Flier

A flier providing the dates, locations, and times of the public meeting, along with the project website, was provided to four distribution locations in both Boardman and Hermiston, Oregon, and included libraries, post offices, chambers of commerce, and local markets. The fliers were distributed on September 19, 2012.

G.3.9 Public Meetings

Public meetings were conducted in an open house style information session at the dates, locations, and times listed in Table G.2-1.

Table G.3-1: Public Meeting Locations

MEETING LOCATION	VENUE	DATE	TIME
Hermiston	Hermiston Conference Center	September 25, 2012	5–8 p.m.
Boardman	Port of Morrow Conference Center	September 26, 2012	5–8 p.m.

A media availability session was offered via press releases to allow the media to ask questions of Navy and National Guard representatives prior to the arrival of members of the public. Media representatives could also arrive at any time during the public meetings. Poster stations were set up around the room offering visual displays, fact sheets, a brochure, maps, and comment forms. Navy and National Guard representatives staffed each poster station to engage in one-on-one discussions with the public and answer any questions.

A comment station with tables, chairs, pens, comment forms, and a court reporter for accepting oral comments was also provided to facilitate the public completing and submitting written or oral comments at the scoping meetings. Members of the public were encouraged to fill out public comment forms to ensure their comments would be included in the public record and considered in the development of the Final EIS. Public comment forms were also available at each poster station. Individuals could submit completed forms at the meeting or mail them to the address provided on the form. Meeting attendees were also advised that they could submit comments online via the project website, http://www.nwstfboardmaneis.com/.

G.3.10 Attendance

Guests were encouraged to sign in at the welcome table. The information below reflects the number of guests who chose to sign in at the welcome table. Media attendance reflects the number of persons who identified themselves as media. In total, 30 people signed in at the welcome table.

- Twenty-four (24) people signed the attendance sheet at the Boardman scoping meeting; elected official representation included a staff member from Representative Walden's office, and officials from Morrow County and the city of Boardman. Other representation included local utilities.
- Ten (10) people signed the attendance sheet at the Hermiston scoping meeting; media included a staff member from the *East Oregonian*; elected official representation included three officials from Morrow County and an Umatilla County Commissioner. Other representation included representatives from Idaho Power, Umatilla Chemical Depot, Oregon Military Department, Hermiston Fire, and the commercial energy industry.

G.3.11 Draft Environmental Impact Statement Public Comments

During the NWSTF Boardman scoping period, public and agency comments were submitted via mail, website, and e-mail. During the public comment period, comments were received from 4 federal agencies, 7 state/local/regional agencies, 1 American Indian Tribe, 9 non-governmental organizations, and approximately 14 private individuals. Commenters provided their input on the Draft EIS in letters submitted through mail, written or oral comments received at the public meetings, and via the project web site. Transcripts of the Public Meetings can be found within Section G.5 (Transcripts and Public Meetings).

Comments addressed various resource areas, from Washington Ground Squirrel to biological species to airspace and aircraft operations (Table G.2-2).

Table G.3-2: Naval Weapons Systems Training Facility Boardman Draft EIS Comments

Resource Issues	Comments	Percentage
Washington Ground Squirrel	32	15.6%
Biological Resources	19	9.3%
Mitigation	19	9.3%
Drone Use	18	8.8%
Cultural Resources	17	8.3%
Noise	13	6.3%
Alternative Development	9	4.4%
Cumulative	9	4.4%
Land Use	9	4.4%
Transportation	7	4.4%
Airspace	6	2.9%
Fire Management	5	2.4%
Water Quality	4	2.0%
Hazardous Waste/Materials	4	2.0%
Environmental Justice	3	1.5%
Policy/National Environmental Policy Act	3	1.5%
Public Outreach/Involvement	3	1.5%
Public Health and Safety	3	1.5%
References	3	1.5%
Threatened, Endangered and Critical Species	3	1.5%
Comment Period	2	1.0%
Economic Impacts	2	1.0%
Soils	2	1.0%
Aircraft Operation	1	0.5%
Miscellaneous	9	3.4%
ISSUE TOTALS	**205**	**100.00%**

Notes: The number of comments for each resource area will not add to the total number of comments received. Many letters had several comments or one comment could span across several issues. This table only includes a tally of written comments that were received via mail, website, and e-mail throughout the scoping process.

G.4 COMMENT RESPONSES

Table G.4-1, Table G.4-2, Table G.4-3, and Table G.4-4 provide a listing of all comments received on the Draft EIS and the Navy's response. Each row in these tables presents the identification of the commenter, the comment, and the Navy's response to the comment. Because many comments touched on more than one topic, some comments were separated into a number of individual comments. If a comment was separated into more than one comment, a number follows the identification name of each comment. Also, the name of the commenter may have been abbreviated in the subsequent comments. The comments were received either electronically (on the www.NWSTFBoardmaneis.com web site), written (by mail or provided during a public meeting), or orally (during public testimony at a public meeting). For example, the first of the agency comments is by the U.S. Environmental Protection

Agency, Region X. Since their comments cover several topics, these are separated into subsequent comments named U.S. Environmental Protection Agency, Region X (USEPA-X)-1, USEPA-X-2, etc.

Responses to all comments were prepared and reviewed for scientific and technical accuracy and completeness. Comments appear as they were submitted and have not been altered with the exception that expletives, addresses, and phone numbers were removed, as necessary.

Table G.4-1 contains comments from federal, state, and local agencies received during the public comment period and the Navy's response.

Table G.4-1: Responses to Comments from Agencies

Commenter	Comment	Navy Response
U.S. Environmental Protection Agency, Region X, Environmental Review and Sediment Management Unit (USEPA-X-1)	Under our policies and procedures, we evaluate the environmental impact of the proposed action and the adequacy of the impact statement. We have assigned an Environmental Concerns Insufficient Information (EC-2) rating to the DEIS. A copy of the EPA rating system is enclosed. Our "EC - Environmental Concerns" rating means that we have identified an environmental impact that should be avoided in order to provide full protection of the environment, namely, local declines in Washington ground squirrel populations from increased training activities. Our concern for local declines in Washington ground squirrel populations is based on an overall recognition of the relationship between protecting rare species and the protection of ecological values such as biodiversity. Our concern is also based on the EIS's summary finding that NWSTF Boardman - along with the adjacent Boardman Conservation Area - provides "extremely important habitat" and likely supports the majority of Oregon's remaining populations (Considerations into Environmental Impact Analysis Under the National Environmental Policy Act DEIS. p. 3.6-13)	The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with the U.S. Fish and Wildlife Service (USFWS) on April 12, 2012, for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes management practices (MPs) to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including the Oregon Department of Fish and Wildlife (ODFW) and The Nature Conservancy, provided input to the conferencing process.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USEPA-X-2	The DEIS's wildlife related Proposed Best Management Practices; Monitoring; and, Mitigation Measures show the Navy's substantial efforts to address wildlife concerns. We particularly support the Navy's work with stakeholders to - for example - update the NWSTF Boardman Integrated Natural Resources Management Plan. To ensure that the Integrated Natural Resources Management Plan's updates fully address our concerns about effects to wildlife and biodiversity - such as local declines in Washington Ground Squirrel populations - we recommend that the Final EIS describe proposed decision points and metrics to support adaptive management.	Decision points and metrics used to support adaptive management are included in the USFWS Conference Opinion provided in Appendix B (Regulatory Compliance Correspondence) of the FEIS.
USEPA-X-3	Aircraft Noise We agree that the contribution of existing and proposed sound from aircraft activities to overall hourly community noise levels would be extremely low. We remain concerned, however, about effects to sensitive receptors (especially elementary age children) and cultural resources (especially Traditional Cultural Properties) from discrete intrusive sound events which may cause temporary distraction or annoyance. To address this concern, we recommend that the FEIS include additional information on the effects of discrete sound events.	The noise analysis performed for the DEIS has been modified to more accurately reflect flight profiles, especially those along the northern portion of NWSTF Boardman. The FEIS presents this updated analysis along with graphics. Also included in this update is additional information on discrete sound events. Traditional cultural properties have been identified by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) within the NWSTF Boardman property boundary within the indirect APE. The Navy, in consultation with the CTUIR, determined that noise and visual intrusions associated with aircraft overflights and noise associated with weapons firing on the proposed ranges would have a potential adverse effect on traditional cultural properties under Alternatives 1 and 2. The Navy, Oregon State Historic Preservation Office, CTUIR, and Advisory Council on Historic Preservation prepared a Memorandum of Agreement (Appendix C), which includes stipulations to resolve potential adverse effects on traditional cultural properties and establishes protocols for protection and management of these resources in accordance with Section 106 of the National Historic Preservation Act. The Memorandum of Agreement was signed in October 2015.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USEPA-X-4	Expended Materials and Metals The DEIS's descriptions of the Range Sustainability Environmental Program Assessment (DEIS. p. 3.1-4) and Operational Range Clearances (DEIS. p. 3.1-5) are generally responsive to our scoping comments on hazardous waste but we remain concerned about long-term effects from ongoing and increased accumulation of materials and metals on the range. In order to confirm the EIS's conclusions and ensure that significant impacts to soils and groundwater do not occur, we recommend that the final EIS include a commitment to provide proposed range assessment sampling plans to the EPA and Oregon Department of Environmental Quality for review and comment.	The Navy's Operational Range Clearance (ORC) program was specifically developed to address and mitigate potential long-term personnel safety and environmental impacts from the accumulation of operational range-related materials. The ORC program requires regular and systematic removal of range residue to ensure the safe and sustainable use of all operational range areas on NWSTF Boardman. To align with the ORC program, the Navy's Range Sustainability Environmental Program Assessment (RSEPA) requires regularly scheduled analysis of overall operational range environmental compliance, to specifically include assessing the potential for range-related constituents to leave the range. RSEPA policy requires engagement of federal and state regulatory agencies if it is determined that there is the potential for an off-range release, posing a risk to human health or the environment. The ORC and RSEPA programs are scheduled to continue into the future and will be tailored to specifically address potential impacts associated with the range functions of the alternative that is selected in the EIS process. Once the MPMGR, DMPTR, and eastern CLFR are operational, ORNG would conduct assessments in accordance with the Army's Operational Range Assessment Program to fulfill requirements identified in DoD Directive 4715.11 *Environmental and Explosives Safety Management on Operational Ranges Within the United States* and DoD Instruction 4715.14 *Operational Range Assessments*.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
		These assessments would first determine qualitatively if munitions constituents were leaving the operational range footprint and whether pathways existed for human or ecological receptors. A quantitative assessment would be conducted if the qualitative assessment were inconclusive. The assessments would be conducted on a 5-year review cycle, even if the initial qualitative assessment identified no issues.
USEPA-X-5	The final EIS should also include a discussion of how proposed range assessments could include the following sampling activities: • sample surface soils in the open detonation area for metals (EPA Method 6010), TNT, RDX, HMX and other explosive constituents and gun propellants (EPA Method 8330B), and perchlorate (EPA Method 6860); • sample surface soils in launch areas for munitions using propellants (to the rear of the launch location) for DNT, nitroglycerin, and perchlorate; • sample inside major craters or visibly disturbed areas within the target zone for various munitions - for metals and explosives, • sample firing berms for small arms munitions for metals; and, • continue sampling of all perimeter and on site wells for metals, RDX and perchlorate.	Operational ranges invariably contain range residues and munitions constituents resulting from the normal and intended use of these areas. The ORC program is intended to periodically remove excess materials from these areas, so that long-term accumulations do not occur that could constitute a hazard to those utilizing the range or contribute to off-site migration of materials. It is not; however, the intent of the ORC program to remove all constituents and residues from these operational ranges, as they are in constant use. Similarly, the intent of the RSEPA is to ensure environmental compliance and to assess the potential for munitions constituents to leave the range property. To this end, RSEPA analyses typically focus on the potential for constituents to migrate off the range (perimeter sampling) and not on the target zones and impact areas. RSEPA protocols include the sampling methods recommended in this comment for those range areas determined to require sampling as part of the assessment process.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
Federal Aviation Administration, Office of the Air Traffic Organization, Western Service Area	Thank you for the opportunity to comment on the Military Readiness Activities at Naval Weapons Systems Training Facility Boardman Draft Environmental Impact Statement (EIS). Please note our ability to perform a detailed analysis of the EIS is limited by the absence of an accompanying Draft Aeronautical Proposal for Modification of Special Use Airspace (SUA). Development and submittal of a Draft Aeronautical Proposal initiates an aeronautical study by the FAA to evaluate impacts to the National Airspace System (NAS), which can influence the ultimate configuration of the proposed airspace. SUA proposals are subject to both environmental and aeronautical processing requirements. Although they are distinct and separate actions, they require closely coordinated efforts. The aeronautical study can significantly impact the environmental study, leading to unnecessary costs and delay. Similarly, the environmental study can significantly impact the aeronautical study. We highly encourage your team to continue development of a Draft Aeronautical Proposal in coordination Seattle Air Route Traffic Control Center.	The Navy submitted the airspace proposal package for the proposed MOA to FAA on January 2, 2013. It is currently under review by FAA Western Area Service Center.
FAA-2	Exec Summary ES-6 Page 1.7 Line 28 & 31: You state it could include the MOA. This seems misleading. While you don't have to implement all of Alternative 1 if that is chosen to be the preferred alternative in the final ROD Alternative 1 does include the changes listed so is should read "would" with the possibility of caveating that all or none of the proposed actions could be implemented. However, analysis of Alt 1 & 2 are based on implementing all of actions.	Thank you for your comment. The use of would/could has been corrected throughout the Executive Summary of the FEIS, as well as in the description of the proposed action in Chapters 1 (Purpose and Need For the Proposed Action) and 2 (Description of Proposed Action and Alternatives).

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
FAA-3	Page ES-7 Paragraph 1.8 Line Number 4: Same comment as above for the use of could.	Thank you for your comment. The use of would/could has been corrected throughout the Executive Summary of the FEIS, as well as in the description of the proposed action in Chapters 1 (Purpose and Need For the Proposed Action) and 2 (Description of Proposed Action and Alternatives)..
FAA-4	Page ES-7 Paragraph Table ES·1: Suggest using terminology from FAAO 1050.1 for Water Resources and Acoustic Environment; Water Quality & Noise respectively	The FEIS has updated the terms as requested, and in the locations where they have not been updated, there are now statements that define how the Navy NEPA category equates to FAA resource categorization.
FAA-5	General note: Suggest changing throughout document the terms water resources and acoustic environment to water quality & noise. A change all search would probably be the easiest	The FEIS has updated the terms as requested, and in the locations where they have not been updated, there are now statements that define how the Navy NEPA category equates to FAA resource categorization.
FAA-6	Page 2-17 Figure 2-5: We had discussed at the public meeting closing the gap between MOA and the restricted area to make them match up. If this is going to be done the maps throughout the document will need to be modified to reflect the change. Additionally, you will need to ensure that your environmental analysis covers this area.	The proposed MOA has been corrected, and now overlays the gap in the airspace. All figures throughout the FEIS that present the proposed MOA now reflect that change. Additionally, the analysis has been reviewed to ensure that this area is covered in the FEIS.
FAA-7	Page 2-44 Line Number 20: 7400.2 is on version J. I am leery to add versions of regulations as they are ever changing and version J may be version K prior to final publication.	The version number has been removed from references to 7400.2 in accordance with your comment.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
FAA-8	Chap 3 Page 3-1 Paragraph 3.0. : In your discussion on impact categories you list the categories that you are discussing, but not the categories that are required by 1050.1 (appendix A) to be discussed even if not carried forward. Examples of this are coastal resources, flood plains, light emissions. In order for the FAA to adopt the EIS all categories must be addressed in the EIS and the reason for no further analysis necessary needs to be stated. Also a table format that shows your impact categories and how they match up with FAA categories can be helpful. I have various examples of how this has been done in the past. From what I can tell the following categories were not mentioned: Coastal Resources, Fish (part of Fish, Wildlife and Plants category), floodplains, Hazardous material, pollution prevention and solid waste (hazardous material is somewhat contained in your public safety section as well as soils and RCRA is discussed as well but I don't see anything on Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or anything on pollution), light emissions and visual impacts, natural resources and energy supply, wetlands and wild and scenic rivers.	Thank you for the information regarding FAA impact categories. A new table has been added to Section 3.0 (Affected Environment and Environmental Consequences) of the FEIS that presents all of the FAA's impact categories and then equates those categories to resource categories where they are discussed. If they are not discussed/presented in the EIS, an additional field in the table has been populated with the reasoning for not including in the FEIS.
FAA-9	Section 3.4 3.4-5 3.4.1.6: last bullet should read FAA Order 1050.1E "Environmental Impacts: Policies and Procedures" Appendix A, Section 14 Noise	The FAA Order citation has been revised from 150 to 1050.1 in the FEIS.
FAA-10	Could you somehow tie together FAA's definition of compatibility from 14 CFR part 150, Airport Noise Planning (Table 1)?	The FAA definition for compatible land use has been added to the FEIS in Section 3.4.1.6.1 (Time-Averaged Sound Levels).

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
FAA-11	Noise general: Section 3.4 3.4-6 Table 3.4.2 What Navy calls Zone II, at 65 dBA to 75 dBA is NOT compatible with schools. Define the changes from the baseline year to the forecast/alternative in terms of changes in acres within the given dnl lines and include the increased number of noise sensitive areas. The above should be used in discussion of determination of significance.	The description of zones presented in Table 3.4-2 indicates that Zone II is not compatible for sensitive receptors. As listed in the footnote of the table, and the subsequent text, the land use categories defined as not being compatible with these sound levels include residences, mobile home parks, transient lodging, schools, hospitals, and churches (14 Code of Federal Regulations [C.F.R.] Part 150, Table 1). As part of the noise reanalysis, difference (or "delta" maps) have been created to highlight the differences between the alternatives and have been included in Section 3.4.3.2.3 (Training Noise) under the discussion of Alternative 1 and 2 which show a decrease in the DNL under Alternative 1 and 2 as compared to the No Action Alternative for areas with a DNL over 65 dBA. This would not be interpreted as a significant change according to FAA guidelines.
FAA-12	Section 3.4 Figure 3.4-3: This seems to be almost like Figure 3.4-7 which is better since it shows existing noise conditions relative to the Noise Sensitive areas.	Figure 3.4-3 and 3.4-7 are similar; however, the placement of the images is purposeful. Figure 3.4-3 presents the location of sensitive receptors in the absence of any noise environment, as this section in the EIS is a description of sensitive receptors, which is in the Affected Environment section. The presentation of the noise contours in Figure 3.4-7 is under the Environmental Consequences section.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
FAA-13	Not sure why there are multiple 60 DNL contours with two inside the larger one. Identify the Section 3.4 Figure 3.4-12 Forecast years this represents for the alternatives. While it appears that there are not any issues with the compatible uses associated with the alternatives. A magnified view of the 60 DNL over Boardman and of the Hermiston area would help us determine if we think the impact would be defined as slight/moderate versus the document's assertion that it is not significant.	As part of the noise reanalysis, difference (or "delta" maps) have been created to highlight the differences between the alternatives and have been included in Section 3.4.3.2.3 (Training Noise) under the discussion of Alternative 1 and 2 which show a decrease in the DNL under Alternative 1 and 2 as compared to the No Action Alternative for areas with a DNL over 65 dBA. This would not be interpreted as a significant change according to FAA guidelines. Additionally, zoomed in maps have been inserted for all the Action Alternatives.
FAA-14	Section 3.7 Page 3.7-4 Paragraph 3.7.2.4 Line 30: Unmanned Aerial Systems are not considered dangerous or hazardous operations. Restricted areas or airspace of any type cannot be created for UAS operations. Statement is misleading; recommend deleting UAS from sentence.	The Land Use section, as well as Chapter 1 (Purpose and Need for the Proposed Action), has revised this sentence to not include UAS activities in the description of dangerous or hazardous activities.
FAA-15	Page 3.7-11 Paragraph 3.7.2.7.1. Lines 10&11: recommend replacing IFR traffic to non-participating aircraft. What about VFR aircraft?	This language has been replaced with the description of SUA and MOA from Chapter 1 (Purpose and Need for the Proposed Action), and also includes direct references to JO 7400.9 and 14 C.F.R. 1.1. The FEIS now also includes a description of VFR traffic.
FAA-16	Page 3.7-14 Line 12: change "civilian" activity to nonparticipating aircraft activities Page 3.7-19 Line 41: same comment at above	"Civilian" activities has been revised in the FEIS to read "non-participating aircraft activities" in both cases.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
Department of the Interior, Bureau of Indian Affairs	I am the DOI-BIA, Northwest Regional Office, Environmental Program manager. BIA is interested to know how your consultation with Warm Springs Tribe, Umatilla Tribe, and Yakama Tribes went? Any issues? Were rabbits (cultural and trust resource) a topic of discussion? Thanks. Dr. BJ Howerton, MBA Environmental Service Mgr. DOI-BIA, NWRO Portland, OR (503) 231-6749	The new Section 3.11 (American Indian Traditional Resources) of the FEIS includes a summary of consultations with American Indian tribes, which were completed following publication of the DEIS, and did not include discussion of rabbits. A formal government-to-government meeting between the CTUIR Board of Trustees and the Commanding Officer of Naval Air Station Whidbey Island was held on July 11, 2013. The Navy, Oregon SHPO, CTUIR, and ACHP prepared a Memorandum of Agreement (Appendix C), which was signed in October 2015, to resolve adverse effects on traditional cultural properties and establish protocols for protection and management of these resources in accordance with Section 106 of the NHPA.
U.S. Department of the Interior, Office of Environmental Policy and Compliance	The Department is particularly concerned regarding the potential impacts of the proposed activities on the Washington ground squirrel (WGS) (Urocitellus washingtoni), a candidate for Federal listing under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). Federal Candidate species are those for which the U.S. Fish and Wildlife Service (Service), a component bureau of the Department, has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a listing regulation is precluded by other higher priority listing activities.	Thank you for participating in the NEPA process and for providing this information regarding Endangered Species Act listing process for the Washington ground squirrel. The Navy and ORNG entered into conferencing with the USFWS for the Proposed Action and the Washington ground squirrel on April 12, 2012. The USFWS issued a Conference Opinion on December 2, 2013 as a result of this conferencing relationship.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-2	General Comments There are specific project plans that will need to be provided before a thorough and appropriate analysis of the project can be accomplished. This would include a detailed monitoring and mitigation plan to address affected species, including the Washington ground squirrel. The Department recommends continued coordination with the ODFW, TNC, the Service, and others to develop a WGS monitoring protocol for NWSTF that can reasonably be accomplished and has enough accuracy and precision to be meaningful and comparable across years, as discussed at the October 25, 2012, meeting in Boardman.	The Navy and ORNG continued the conferencing process with USFWS following publication of the DEIS. This process included submittal of a conferencing package to USFWS, which included a detailed approach for monitoring and adaptive management. The USFWS issued their Conference Opinion on December 2, 2013. The FEIS has been updated to reflect outcomes of the conferencing process and the Conference Opinion has been included in Appendix B (Regulatory Compliance Correspondence). The initial meeting of the survey protocol development group was held at the USFWS Portland Office in September 2013.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-3	Monitoring and Mitigation The Department understands that the mitigation and monitoring portions of the DEIS are still in development and look forward to continuing to work with the Navy and other stakeholders on developing these sections for the EIS. A detailed mitigation/monitoring plan will provide additional information for developing an appropriate adaptive management plan, with well defined trigger points and actions to be taken once the trigger points are reached. The Department recommends including the following guiding principles for monitoring and mitigation in the FEIS: 1. Actions proposed as mitigation should achieve targeted biological conditions in a timeframe commensurate with both the life of the project and the life of the associated biological impacts. 2. Mitigation frameworks usually require the existence of regulatory, legal, and funding mechanisms that assure that target biological conditions will be attained and maintained as necessary. These requirements generally preclude consideration of actions that are voluntary, subject to changeable land use/management regimes, or not accompanied by secured finances. 3. Although the southern portion of the NWSTF has been identified as targeted area for mitigation, there would need to be ecological uplift identified for mitigation actions occurring in this area and a defined timeline and mechanism for protection of this area. Protection alone is not considered mitigation.	A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes management practices (MPs) to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including the ODFW and The Nature Conservancy, provided input to the conferencing process. The Conference Opinion includes development of site-specific Washington ground squirrel survey protocols. These protocols are being developed in coordination with USFWS, ODFW, and TNC. The initial meeting of the survey protocol development group was held at the USFWS Portland Office in September 2013.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
	4. We recommend surveying for WGS per ODFW recommendations for micro-siting to align with ODFW mitigation policy as much as possible. 5. We recommend baseline information is collected now for the WGS and other focus species. This will help set up controls, monitoring of potential mitigation sites, and areas that could be impacted by ground disturbing operational impacts versus non-ground disturbing operational impacts. 6. We recommend determining areas that have colonies (small, medium, or large) persisting over time so these areas can be avoided as much as possible in project siting. 7. The mitigation plan should address all unavoidable impacts to resources and compensation identified for the entire Project footprint. 8. (From Service comments on the NOI): Adequate information and specificity should be included in the compensatory mitigation plan, including effects being compensated, agreed-upon mitigation ratios for each resource impacted (mitigation ratios should be developed via a Habitat Equivalency Analysis model or other habitat equivalency calculation that is collaboratively developed with stakeholders such as ODFW and the Service), specific habitat functions being returned via mitigation activities, locations and specific descriptions of compensatory mitigation, funding mechanisms to accomplish all mitigation activities (including long-term monitoring, remediation, maintenance, and management), commitments as to timing of projects/purchases, and agreements from federal or private project managers to site these projects and/or undertake these actions at specific locations and under specific timeframes. The compensatory mitigation plan should be clearly defined in the final EIS document. The Service's Mitigation Policy (Federal Register 46 (15):7644 – 7663) is a good resource for mitigation needs planning, as is the ODFW Habitat Mitigation Policy.	

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-4	Washington ground squirrel Analysis/Conference A more detailed analysis of both direct and indirect effects, to both individuals and the population, will be necessary to include in a biological assessment submitted for conferencing. Although the DEIS provides information on anticipated footprint effects from construction for each alternative, additional analysis should be completed on implementation effects, including activities that do not involve ground disturbance (i.e., noise effects) and those that would involve ground disturbance (i.e., bomb drops, bullet impacts at firing ranges, etc.). The Department looks forward to continued coordination with both the Navy and OMD on assessing impacts to WGS and the conferencing process.	A conferencing package, which included a more detailed analysis of potential impacts on the Washington ground squirrel, was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence).
USDOI-OEPC-5	Specific Comments Executive Summary Table ES-2, page ES-13: Under the impact conclusion the DEIS only mentions mitigation for Washington ground squirrel. Although mitigation for WGS may benefit other species, it is difficult to determine at this point whether that will provide all of the necessary mitigation for those species, based on the current information provided in the DEIS. The Department recommends that the FEIS include mitigation for other potentially impacted species.	The DEIS concluded that the Proposed Action would have a potentially significant impact on the Washington ground squirrel. Although other wildlife species would be affected, the impacts were determined not to be significant. Accordingly, the mitigations contained in the FEIS focus on the Washington ground squirrel. However, the Navy and ORNG have taken a landscape scale approach to mitigation through restoration and enhancement of shrub-steppe and grassland habitats. This approach is expected to provide ecological uplift and ecosystem stability at NWSTF Boardman that will benefit multiple species. In addition, the FEIS includes several BMPs or conservation measures designed to avoid and minimize impacts to other species.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-6	Table ES-2, page ES-12 states that for all alternatives there will be "Minor and localized effects from physical strikes. Low probability of incidental mortality. No observable population effects." However, section 3.6.3.1.3, page 3.6-40, lines 28-30 describes physical strikes as direct strikes by non-explosive practice munitions, fixed-wing aircraft, helicopters, UASs, and ground vehicles. Line 31 says if they were to occur the assumed response is mortality. The Department recommends that Table ES-2 clearly state the difference between the likelihood of a strike occurring versus the likelihood of mortality resulting from a physical strike in the FEIS. It was clear in Section 3.6.3.1.3, but less clear in this table.	The information stating the differences between the strike probability and mortality probability stated in Section 3.6.3.1.3 (Physical Strikes) has been brought forward into the Executive Summary.
USDOI-OEPC-7	Purpose and Need Section 1.4.3, page 1-23, lines 27-32 says the Oregon Endangered Species Act protections do not apply because the property is under federal legislative jurisdiction. The Department recommends the Navy and OMD follow ODFW policy to survey areas and avoid known colonies, or at the very least the more persistent and/or larger ones, as much as possible.	While the Navy's property is under federal legislative jurisdiction, the Navy and the ORNG (acting as the National Guard Bureau's agent) have included the ODFW in discussions with the USFWS concerning potential effects to the squirrel, BMPs, and mitigation measures. The Navy and ORNG continued the conferencing process with USFWS following publication of the DEIS. This process included submittal of a conferencing package to USFWS. The USFWS issued their Conference Opinion on December 2, 2013. The FEIS has been updated to reflect outcomes of the conferencing process and the Conference Opinion is included in Appendix B (Regulatory Compliance Correspondence). The Conference Opinion includes conducting Washington ground squirrel surveys prior to construction, as well as BMPs to avoid impacts on Washington ground squirrels and persistent colonies to the maximum extent practicable.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-8	Affected Environment Page 3-4: Please clarify in the FEIS whether all the UXO removal falls under the "explosives demo training category."	UXO removal is not part of the proposed action as part of explosives training. An Operational Range Clearance Plan (U.S. Department of the Navy 2014) is implemented at NWSTF Boardman in compliance with Department of Defense Directive 4715.11, Environmental and Explosives Safety Management. The Operational Range Clearance Plan includes provisions for safe management and removal of unexploded ordnance, and recycling of training munitions, munitions debris, and range scrap that has been rendered safe.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-9	Soils The DEIS states that spent small- and medium-caliber rounds would not be removed at regular intervals, and would accumulate in soils over time, altering soil composition through the presences of solid particles. These small- and medium-caliber rounds primarily consist of steel or a lead core with a copper jacket. The DEIS further states that a potential concern is the fate and transport of metals from bullets and bullet fragments accumulating in soil, primarily lead because of its toxicity and its ability to persist in the environment. According to the DEIS, for all alternatives considered, lead would be expected to have limited mobility based on neutral to alkaline soil pH, limited precipitation, and flat terrain at NWSTF Boardman. Therefore, elevated concentrations would likely be limited to surface soils in the immediate area of projectile impact. Although the effects would be localized to the range areas, these effects would be long-term, and more widespread in Alternative 1 and 2 compared to the No Action Alternative. The DEIS evaluates the concern for lead with regard to its offsite movement into water supplies and concludes that elevated concentrations of lead in soils should not represent a substantial threat of a release to an off-range area. However, on-site effects of lead within surface soils are not evaluated for potential effects to wildlife. Lead remaining in the surface soils could be available to wildlife for the long term. Uptake of lead through soil associated with firing ranges could affect a variety of species (Labare et al. 2004) including small mammals (Stansley and Roscoe 1996, Lewis et al. 2001), and birds (Lewis et al. 2001, Fisher et al. 2006). The Department recommends that a thorough ecological risk assessment of this pathway be conducted.	Ecological risk assessment of munitions constituents at operational Navy ranges such as NWSTF Boardman fall under the purview of the Navy's Range Sustainability Environmental Program Assessment (RSEPA) program, which is described in Section 3.1 (Soils) of the FEIS and in the *U.S. Navy Range Sustainability Environmental Program Assessment Policy Implementation Manual* (2006). Lead has not been identified as a munitions constituent of concern at NWSTF Boardman under RSEPA. The Navy will consider your recommendation for an ecological risk assessment during the next Range Condition Assessment 5-year review.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-10	The DEIS states that, metals were analyzed in soils collected in June 2004 during a preliminary assessment/site investigation administered by the U.S. Environmental Protection Agency for the Boardman Air Force Range Formerly Used Defense Site and that no metals were reported that significantly exceeded background concentrations. The Department recommends that the results of this analysis be included in an appendix, or at a minimum, the inclusion of a parenthetical list of the metals inserted in the text.	Section 3.1 (Soils) of the FEIS has been updated to include a parenthetical list of the metals analyzed and a citation for the source document. Please note that the Boardman AFR FUDS is an inactive former bombing range located west of the existing NWSTF Boardman range and is not part of NWSTF Boardman. Of the original 95,986 acres used as a bombing range, the eastern half of the site is currently a designated bombing range owned and operated by the Department of Navy in conjunction with Naval Air Station Whidbey Island. The western half of the site is the inactive bombing range (FUDS portion) consisting of 58,665 acres (FUDS property number F10OR0160).
USDOI-OEPC-11	Acoustic Environment Section 3.4.3.1.2, page 3.4-17, table 3.4-6 shows the sound level exposure of single aircraft overflights at various distances. Three of the fixed-wing craft (and two of these make up 35% of current sorties) reach dBAs of >120 (i.e., the threshold for pain for humans in table 3.4-1, page 3.4-4) when occurring within 400 feet from the source. The Department recommends that the following questions be addressed in the FEIS: • How often these events (>120 dBA) occur within 400 feet of the ground • Whether the table separates out the exposure of each flight event - where every flight occurs at 100 feet from the ground • Whether the impact analysis captures the frequency and duration of WGS exposure to sound >120 dBA or another threshold	Under the No Action Alternative, the EA-6B and EA-18G account for approximately 35 percent of all aircraft sorties (649 of 1,815 total sorties, Table 2-4), averaging just over two sorties per day. Further, as presented in Table A-1 of the noise study (Appendix E), less than 10 percent of all activities would occur at elevations less than 500 feet AGL. None of the aircraft are flown at elevations less than 200 feet AGL. Therefore, less than 65 sorties would occur at elevations between 200 and 499 feet AGL annually. This information has been added to the FEIS, along with similar information for Alt 1 and Alt 2.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-12	Section 3.4.3.3.3, page 3.4-42 describes fixed wing aircraft noise/sound exposure for Alternative 2 that was not described in Table 3.4-6 (page 3.4-17) of the no action alternative. Table 2-4 on page 2-40 shows the number of sorties by aircraft type for each alternative in one table. The Department recommends including a similar table for sound exposure in the FEIS. It was clear from Table 2-4 that the exposure information for the F-35, P-3/EP-3/P8, C-130, C-17, and C-23 could be found in the text but it would be helpful to have it one place. For example the dBA for the C-130H was located on page 20 of the Operational Noise Program. This information will be needed to estimate impacts to wildlife.	Table 3.4-6 in the FEIS presents the SELs for airframes utilized under the No Action Alternative. A new table presenting the P-3, C-13, C-17, and C-23 has been added under the description of air activities proposed under Alternative 1. Additionally, the F35 description remains under Alternative 1 and 2 discussion, as the airframe is not involved in activities presented under the No Action Alternative. Wyle Laboratories, as part of their revised noise report, has provided SEL and L_{max} values for all airframes proposed for use at NWSTF Boardman. Wyle has also provided additional metrics for use in the Wildlife (3.6) section.
USDOI-OEPC-13	Section 3.4.3.4.3, page 3.4-45, lines 10-12 says that detonations of NEWs above 50 pounds are restricted between February and August unless necessitated by operational or disposal requirements. Mostly, these detonations will occur between September and January. If not completed already, the Department recommends the impacts of detonations occurring in January to WGS be analyzed, since their above ground activity starts in this month. The completion of these actions before the beginning of January will help minimize potential negative effects to this species.	The restrictions placed on detonations of NEWs above 50 pounds have been reviewed as part of the Washington Ground Squirrel Conference Package. The mitigation measures and training activity restrictions presented in the Conference Opinion have been incorporated in this section, Chapter 2 (Description of the Proposed Action and Alternatives), 3.6 (Wildlife), and Chapter 5 (Mitigation). Due to hibernation patterns of the Washington ground squirrel and the nesting of migratory birds, detonations of NEWs above 50 lb. (22.7 kilograms [kg]) are restricted from January to August. Detonations of NEWs greater than 50 lb. will be performed between September and December unless necessitated by operational or disposal requirements.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-14	Vegetation Section 3.5.3.4.3, and other sections of the DEIS, describe relocating RNA-A into one or more suitable locations. The proposed location(s), acres, and habitat type(s) of the relocated RNA do not appear to be described in the DEIS and should be provided in the FEIS.	Because this action would be completed through the INRMP and its associated NEPA coverage, RNA-A relocation is not part of the proposed action or discussed in the FEIS. A specific proposed location has not yet been identified for RNA-A. The Navy will keep USFWS apprised of the RNA-A relocation process.
USDOI-OEPC-15	Wildlife Section 3.6.1.1, page 3.6-1, lines 12-13 say much of the land beneath the special use airspace is agricultural land with little or no native vegetation and describes the Boardman Conservation Area and Umatilla Depot as an exception (lines 14-22). The FEIS should note that the NWSTF Boardman also supports native vegetation communities.	The FEIS was revised to include this information.
USDOI-OEPC-16	Section 3.6.1.3, page 3.6-5, lines 30-31 indicate that the impact analysis considered effects of the proposed action on an individual and population level; however, line 38 states that significance is in context of populations. Information on effects to individuals will be required in the conference report.	Information regarding potential impacts on individual Washington ground squirrels was included in the conferencing package submitted to USFWS and has been included in Section 3.6 (Wildlife) of the FEIS.
USDOI-OEPC-17	Section 3.6.2.1.2, page 3.6-7, table 3.6-1. Please add low shrub (LS) to the habitat types for WGS.	The FEIS was revised to include this information.
USDOI-OEPC-18	Section 3.6.2.1.2, page 3.6-9, table 3.6-3. Please include the first week of July for the category of “juveniles return to burrows.” This is based on Figure 4 in Carlson et al. (1980), which suggests juveniles were captured during the first week of July that year.	The FEIS was revised to include this information.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-19	Section 3.6.2.1.2, page 3.6-10, 42-43 discusses the high detections of WGSs in the southern end of the range and references Figure 3.6-1 in the DEIS. It appears there are numerous detections on the northern end of the range as well, so the assumption that the southern end is more heavily occupied by squirrels may not be accurate. These lines also cite historic data in Appendix F, but we could not find additional historic information on locations in Appendix F. The Department recommends modifying Figure 3.6-1 (page 3.6-11) to include all WGS data. Since there are numerous detections, consider categorizing the points into small, medium, and large sized colonies (following protocol used by The Nature Conservancy), and unknown for detections that could represent dispersers or were colonies that were not given a specific category. The Department recommends that the FEIS show where transect data has been collected on the range over time and highlight the colonies that have been persistent over time, regardless of size.	The cross reference to Appendix F in the DEIS was a typographical error. Additional data and maps showing Washington ground squirrel detections and historically occupied habitat are included in Section 3.6 (Wildlife) of the FEIS. Numerous Washington ground squirrel surveys have been conducted at NWSTF Boardman by various surveyors. The Navy and the ORNG reviewed the database and determined that information such as transect locations and colony size were not recorded consistently across surveys and that colony persistence could not be fully defined based on the data. Therefore, specific information about transect locations, colony size, and colony persistence were not included in the FEIS.
USDOI-OEPC-20	Section 3.6.2.1.2, page 3.6-10, lines 15-17; page 3.6-12, line 1; and page 3.6-14, lines 8-10 describe the importance of Warden soils to WGS on the southern end. Given the widespread distribution of WGS across the range, there are other soils that should be included in the FEIS as important features of WGS habitat.	This information is reflected in updated discussions of Washington ground squirrel occurrence at NWSTF Boardman in FEIS Section 3.6 (Wildlife).
USDOI-OEPC-21	Section 3.6.2.1.2, page 3.6-12, lines 3-7 and page 3.6-14 mention WGS “core areas.” While this is a possible explanation for having more squirrel occupancy in the southern portion range at a given point in time, it is not clear if this was mainly due to more monitoring efforts in that area. Furthermore, transect surveys on the range may suggest more activity in the northern end of the range at other times. The Department recommends the FEIS state this as a hypothesis. Section 3.6.2.1.2, page 3.6-13, lines 12-14. Please clarify what areas the Navy considers to be highly disturbed and therefore an exception of suitable WGS habitat.	This information is reflected in updated discussions of Washington ground squirrel occurrence at NWSTF Boardman in FEIS Section 3.6.2.1.2 (Washington Ground Squirrel) and the subsection titled “Occurrence in the Study Area.”

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-22	Section 3.6.2.1.2, page 3.6-14, lines 15-16 say WGS are not expected to occur on the Umatilla Chemical Depot (UCD) because of the soil types on that site but does not say what soil types are on the Depot. The Depot and northern portion of the range may share some similar soil types, such as Quincy loamy fine sand. Please clarify in the FEIS what type of soils are found at the UCD site.	This information is reflected in updated discussions of Washington ground squirrel occurrence the Study Area in FEIS Section 3.6 (Wildlife).
USDOI-OEPC-23	Section 3.6.3.1.1, page 3.6-33, lines 22-24 says aircraft above 3,000 ft. are not expected to provide a meaningful response to most wildlife but does not offer a citation or explanation. Please clarify in the FEIS if this reasoning is based in part on the statement that the RQ-7 Shadow cannot be heard above 3,000 feet (page 3.4-18, lines 21-24).	Section 3.6.3.1.1 (Noise) of the FEIS was revised to include additional information about noise levels for aircraft at various altitudes and an explanation of why aircraft flying above 3,000 ft. would not elicit a meaningful response in most wildlife.
USDOI-OEPC-24	Section 3.6.3.1.1, page 3.6-33, lines 26-27 says low flights only occur in Restricted Areas 5701A-E, which appear from Figure 1-3 on page 1-9 to cover the majority of the range and the majority of the Boardman Conservation Areas. If this is not a typo, we recommend removing the word “only” in the FEIS.	The FEIS was revised to include this information.
USDOI-OEPC-25	Section 3.6.3.1.1, page 3.6-36, lines 24-27 mentions the exposure of WGS to noise associated with military aircraft and other military readiness activities for 50 years on the range. In order to better inform the impact analysis, the Department recommends including more specific information about the location and timing of past activities relative to the closest known WGS occurrences on the range in the FEIS.	Section 3.6.3.1.1 (Noise) of the FEIS was revised to include additional analysis of aircraft overflight noise, including the location and timing of overflight noise for the No Action Alternative relative to known Washington ground squirrel detections.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-26	Section 3.6.3.1.1, page 3.6-36, lines 33-34 say that when squirrels are underground the sound will decrease by about 3 dB in burrows. The Department recommends the FEIS clarify if the analysis first looked at the dBAs for squirrels above ground (January through the first week of July) and then modified the dBA (-3dB) to look at exposure underground during the rest of the year.	The FEIS was revised to clarify that Washington ground squirrel responses to noise were primarily evaluated above ground.
USDOI-OEPC-27	Section 3.6.3.1.1, page 3.6-36, lines 42-43. Hooper (2011) may provide more information about road noise and ground squirrel response (for other ground squirrel species) that are applicable to this section or other parts of your analysis. The Department will continue to work with the Navy and OMD to explore any additional reports or studies that may be available on ground squirrel responses to noise.	Hooper (2011) was reviewed, and a brief summary of findings are provided in Section 3.6 (Wildlife) of the FEIS.
USDOI-OEPC-28	Section 3.6.3.1.1, page 3.6-38, lines 10-12. What would be an actual threat that would wake WGS, other than a badger? Some noises, depending on the length and intensity may rouse squirrels from sleep. Noises from military activities will be perceived as a threat when they are above ground. The Department recommends monitoring the response of activities to estivating/hibernating squirrels and applying adaptive management to avoid, minimize, and mitigate effects.	Sections 3.6.3.1.1, 3.6.3.2.1, and 3.6.3.3.1 (Noise for No Action Alternative, Alternative 1, and Alternative 2) of the FEIS include a revised analysis of how Washington ground squirrels might respond to noise, including when squirrels are most likely to perceive noise a threat (e.g., when noise is associated with visual or other cues). Section 3.6 (Wildlife) and Chapter 5 (Management Practices, Monitoring, and Mitigation Measures) of the FEIS contain the adaptive management and monitoring process developed during conferencing with USFWS that would be used to reduce uncertainty associated with squirrel responses to noise. The FEIS includes provisions for preparing site-specific Washington ground squirrel survey protocols. These protocols will be developed in coordination with USFWS, ODFW, and TNC. The initial meeting of the survey protocol development group was held at the USFWS Portland Office in September 2013.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
USDOI-OEPC-29	Section 3.6.3.2.1, page 3.6-45, line 19 refers to avoiding Restricted Area 5701. Please clarify in the FEIS if this refers to all of 5701A-E or just one of the sites	The FEIS was revised to clarify that this refers to 5701A-E.
USDOI-OEPC-30	Section 3.6.3.2.1, page 3.6-45, lines 28-30. The "Wildlife Exposure to Noise from Training Activities on the New Ranges" section is written in a way that makes it difficult to understand the analysis of peak sound levels. The Department recommends the FEIS clearly state how often the single event noise levels will exceed the peak sound level.	Section 3.6 (Wildlife) of the FEIS was revised to provide a better explanation of single-event noise levels and how often noise events would occur on each of the proposed new ranges.
USDOI-OEPC-31	Section 3.6.3.2.1, page 3.6-45 lines 39-40. The specific schedule provided for this shooting activity is helpful. When the number of events or days of exposure are described as intermittent it is difficult to analyze that impact, but saying the 12 days translates to 6 weekends is helpful. For this and other shooting activities, the Department recommends including an approximate break period between firing rounds – if not articulated in the document elsewhere	To the extent possible, the analysis presented in Section 3.6.3 (Environmental Consequences) of the FEIS includes updated specific information regarding representative training scenarios for proposed activities, including seasonality, days per year or week, time of day, and the progression of a training event over the course of a day or weekend training event. However, in many cases the information is presented in terms of number days per year, number of activities per year, or number of rounds per year. In most cases, factors such as deployment schedules, training cycles, training budgets, and world events preclude defining long-term training schedules at a finer scale.
USDOI-OEPC-32	Section 3.6.3.2.1, page 3.6-48, lines 2-9 mention hearing damage thresholds for humans in dBP and then talks about peak intensities in dB, and most of the information on exposure is in dBA. This discrepancy makes it difficult to follow the analysis. The Department recommends the unit used for measuring sound be consistent in the FEIS.	As discussed in Section 3.4 (Noise) and Section 3.6 (Wildlife), because noise can have a wide range of characteristics, various noise metrics have been developed and used to describe various types of sound. Short-term noise is analyzed differently than long-term noises. Further, short-term noise may be analyzed differently based on the characteristic sounds. Impulsive noise (short in duration [less than one second], high intensity) is analyzed using peak unweighted decibels (dBP).

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
		Short-term noise that is not impulsive (i.e., aircraft overflights) are analyzed using sound exposure levels (SEL) which are weighted sound levels, in this case, A-weighted. Long-term noise (those analyzed for community impacts) use hourly equivalent sound levels (Leq) to determine Day-Night-Levels (DNL). Threshold criteria are specifically developed for each unit, and thus the analysis must present different units based on the type of noise that is being analyzed.
USDOI-OEPC-33	Section 3.6.3.4.1, page 3.6-64, lines 33-34 mention construction between September 1 and January 31. The Department recommends finishing construction before mid-January to avoid the WGS breeding season (Table 3.6-3, page 3.6-9).	Section 3.6 (Wildlife) and Chapter 5 (Management Practices, Monitoring, and Mitigation Measures) of the FEIS have been revised to incorporate this recommendation as a management practice (MP).
State of Oregon Department of State Lands (Mail)	The Oregon Department of State Lands appreciates the opportunity to comment. It does not appear that there are jurisdictional "waters of the state" affected by the proposed actions, or that any authorizations are required from the Department. In section 3.3.2.1 the draft EIS mentions intermittent flows and old stock ponds. If these features meet the definition of "intermittent streams" or "wetlands", as defined in OAR 141-085-0510(44) and (97), then any removal or fill projects exceeding 50cy within these waters may require a state removal fill authorization.	As stated in Section 3.3.2.1 (Surface Water) of the FEIS, no activities are proposed in areas that experience intermittent flows of surface water.
Oregon Parks and Recreation Department, State Historic	Our office recently received your report about the project referenced above. I have reviewed your report (SHPO# 24933) and have entered it into our GIS database. To date, our office has not received a letter from you regarding the determinations of eligibility of the sites identified during the above survey. Our office has reviewed the recommendations of your archaeologists and will	The Navy submitted a letter to the Oregon State Historic Preservation Office on November 26, 2012 requesting concurrence with our determination of eligibility. In a letter dated December 18, 2012, the Oregon State Historic Preservation Office concurred with the Navy's determination

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
Preservation Office (OPRD - SHPO)	wait to receive your determination letter before offering an opinion on eligibility concurrence. The project maps were not very clear in the report; however, we were able to contact the consultant and they provided us with shape files which made our review process much quicker and more accurate. We appreciate the inclusion of this type of data with all projects.	that the archaeological sites identified in the survey are not eligible for listing on the National Register of Historic Places. A copy of these communications is included in Appendix C, Tribal and Cultural Correspondence.
OPRD-SHPO-2	As per our discussion at our recent meeting here in Salem, I did have a few questions about some of the site maps that lacked a legend that would inform the reader what was being illustrated on the map (e.g., red circle or points). Clarification on all future maps would be appreciated. Please be aware that if during development activities you or your staff encounters any cultural material (i.e., historic or prehistoric), all activities should cease immediately and an archaeologist should be contacted to valuate the discovery. If you have any questions regarding any future discovery or my letter, feel free to contact our office at your convenience.	Maps have been reviewed, and all items displayed now are presented in the legend, or via callouts on the map itself. With regards to development activities, Section 3.10 (Cultural Resources) of the Final EIS now states, "If during development activities the Navy or Oregon National Guard inadvertently discovers any cultural material (i.e., historic or prehistoric), all activities shall cease immediately and the Naval Air Station Whidbey Island Cultural Resources manager, who is also an archaeologist, shall be contacted to evaluate the discovery."
State of Oregon State Archaeologist (SOSA)	I have reviewed the draft EIS for the above project and have a number of comments that I would like to make regarding potential impacts to cultural resources through the proposed alternatives. My comments include: 1). In the EIS you state that the Navy is waiting for concurrence from SHPO regarding the latest Applied Archaeological Research (AAR) report and concurrence on eligibility for the three sites discovered during that survey (i.e. 35MW215, 35MW216, 35MW217), in addition to the number of isolates. Our office reviewed the AAR report and sent a letter to your office on February 24, 2012 regarding the report and site forms (copy attached). The report has been added to our database (SHPO# 24933) and our office has been waiting for a letter from you as to your determinations of eligibility for the sites identified in the report. We are aware of the recommendations made by AAR but not the Navy's determinations of eligibility. Once we receive a letter asking for concurrence on such determinations we will get back to you in regards to site	The Navy submitted a letter to the Oregon State Historic Preservation Office on November 26, 2012 requesting concurrence with our determination of eligibility. In a letter dated December 18, 2012, the Oregon State Historic Preservation Office concurred with the Navy's determination that the archaeological sites identified in the survey are not eligible for listing on the National Register of Historic Places. A copy of these communications is included in Appendix C, Tribal and Cultural Correspondence.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
	eligibility.	
SOSA-A	2. Alternatives I & 2 note that the draft Integrated Wildland Fire Management Plan calls for the creation of new firebreaks (10 acres). Our office looks forward to receiving a copy of the proposed APE for this component of the project and a copy of a cultural resource survey once one can be completed.	The Navy will submit the proposed area of potential effects for the new fire breaks to the Oregon State Historic Preservation Office upon Navy approval of the Final Integrated Wildland Fire Management Plan. A cultural resources survey will be conducted after the Navy receives concurrence on the area of potential effect. The new fire breaks would not be established until the National Historic Preservation Act Section 106 consultation process is completed.
SOSA-B	4. We have noted that the TCP study of the project area is being conducted by the Confederated Tribes of the Umatilla Reservation. We look forward to receiving a copy upon its completion.	The Confederated Tribes of the Umatilla Indian Reservation agreed to provide a separate copy of the Traditional Use Study directly to the Oregon SHPO offices and did so in September 2013. The Confederated Tribes of the Umatilla Indian Reservation has reserved the right to further distribute the Traditional Use Study on a case-by-case basis.
State of Oregon State Historic Preservation Office (SHPO)	Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the NWSTF Boardman Military Readiness Activities Project. We have reviewed the DEIS, and have the following comments: 1. The Area of Potential Effects appears to have been insufficiently surveyed for the purposes of identification of historic properties and the analysis of impacts that may result from the implementation of the proposed project. The DEIS appears to have considered properties listed in or eligible for listing in the NRHP before the current undertaking, as well as an inventory of the Naval Weapons Systems Training Facility Boardman (Hardlines Design Company 20 I0). That inventory, however, appears to have been limited to the boundaries of the facility itself, and did not include the APE for visual, noise, and vibration effects. Section 3.10.2.2 (Architectural Resources) of the DEIS notes that "most of the area within the APE for noise,	The Navy, in consultation with your office, determined that additional inventory of architectural resources in the indirect area of potential effects is not warranted. Your office concurred with the Navy's finding of no adverse effect on historic properties. Copies of correspondence with the Oregon SHPO are provided in Appendix C (Tribal and Cultural Correspondence) of the FEIS.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
	vibration, and visual intrusions is agricultural land and small farms with limited architectural resources (farmhouses and outbuildings). This area should be inventoried, and all architectural resources within them should be evaluated for NRHP-eligibility and effects that may arise from the project.	
SHPO-2	2. On page 3.10-2, the DEIS states that "a historic property must also possess integrity of location, design, setting, materials, workmanship, feeling, and association to convey its significance and qualify it for the National Register of Historic Places." While these aspects of integrity are those defined by the National Park Service, an eligible resource need not exhibit integrity across all of these aspects. National Register Bulletin # 15 "How to Apply the National Register Criteria for Evaluation," indicates that "to retain historical integrity, a property will always possess several and usually most of the aspects." These comments reflect our review for historic built resources only. Archaeological review is occurring separately. If you have any questions, or need additional clarification on either of the above points, please do not hesitate to contact me.	Section 3.10.1.2 (Regulatory Framework) was revised as follows: “To convey significance and qualify for the National Register of Historic Places, a historic property also possesses several and usually most of the following aspects of integrity: location, design, setting, materials, workmanship, feeling, and association.”
State of Oregon Water Resources Department	In reading through section 3 dealing with water resources, there is no estimate of the water needs for the various functions proposed in alternatives 1 and 2. It also isn't clear what the water will be used for. Without this information I can't determine if you would need to file an application for a permit to use the ground water resources of the state. Below is information on the water use that is exempt from needing to file an application for a permit. If your water use does not exceed the limitations allowed in the various categories you would not need to file an application for a permit. However, if you anticipate you would exceed these limitations, you need to file an application for a permit and receive the permit (ORS 537.535) before you drill a new well. Ground water uses exempt from water right application process Under ORS 537.545 the following uses of ground water do not require an	Thank you for providing this useful information about the groundwater permitting process with respect to the Proposed Action. Specific groundwater needs will be quantified as part of the facility planning and design process for the Unmanned Aircraft Systems Facility and Joint-Use Range Operations Control Center. The Navy and ORNG will contact your office to further define permitting requirements when the detailed facility planning and design process is started.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
	application for water right permit: • Group and single-family domestic use up to 15,000 gallons per day. • Stock watering. • Watering any lawn and/or non-commercial garden totaling one-half acre or less in area. • Down-hole heat exchangers. • Any single industrial or commercial development up to 5,000 gallons per day. • Watering the lawns, grounds and fields not exceeding 10 acres in area of schools located within a critical ground water area established pursuant to ORS 537.730 to 537.740 In section 3.3.2.2 you mention the OWRD has designated Critical Ground Water Areas and Ground Water limited areas in the vicinity of NWSTF Boardman. While this is a true statement generally, only the southerly two miles of the NWSTF Boardman is within the Ella Butte Basalt Ground Water Classified Area (Classified Area). This means you could not file an application for a ground water permit and receive authorization to drill a well that would develop water from the basalt aquifer in the Classified Area. You could however file an application for a ground water permit and if authorized you could drill a well that develops water from the alluvial aquifer within the Classified Area. Outside of the Classified Area you could file an application for a ground water permit and if granted you could receive authorization to construct a well in either the alluvial or basalt aquifers. I cannot predict the outcome of whether you would actually receive a permit, as it will be based on whether water is available and other rules of OWRD. If you are successful in securing water supplies from the basalt aquifer it could be a possible solution to your stated anticipation that water from an alluvial well might not meet drinking water standards.	

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
Oregon Department of Fish and Wildlife (ODFW)	Washington ground squirrels are a U.S. Fish & Wildlife Service (USFWS) Candidate Species, as well as an endangered species listed under the Oregon Endangered Species Act. The proposed activities as outlined in the EIS would affect Washington ground squirrels (WGS). As such ODFW recommends that surveys are completed in any suitable habitat within 1,000 feet of any ground disturbing activity. ODFW recommends that surveys be completed according to approved protocols to detect Washington ground squirrels. ODFW also recommends that no ground disturbing activities occur within 785 feet of any known Washington ground squirrel colony. ODFW considers WGS colonies and the 785 foot buffer to be Category one habitat under the ODFW Mitigation policy and the management direction for Category one habitat is "no impacts".	The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012, for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including ODFW and The Nature Conservancy, provided input to the conferencing process.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
ODFW-2	ODFW is also concerned about the effects to WGS of increased noise and disturbance associated with the proposed activities. ODFW would recommend that as part of the proposed WGS monitoring outlined in the EIS that the Navy include long term monitoring of the colonies in and around the proposed activities to determine the long term effects on the persistence of the colonies. The Navy would also need to have some known "control" colonies to monitor and compare to the impacted colonies through time. This would help determine if any changes associated with the colonies in and around the disturbance area are associated with increased disturbance or some other natural phenomenon. ODFW would also recommend the EIS include provisions for increased mitigation if the operation of the proposed ranges results in loss of WGS colonies in and around the proposed ranges.	The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012, for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including ODFW and The Nature Conservancy, provided input to the conferencing process.
ODFW-3	The EIS states on page 3.6.59 that the noise impacts from Alternative one and Alternative two are relatively the same even though the second convoy live fire range would be developed on the western side of the Range. ODFW recognizes that the Navy is only proposing a certain number of total trips and ammunition fired regardless if there is one or two ranges, however, the area impacted by the noise and the wildlife issues associated with that noise is increased with the two ranges and would greatly increase the land mass that is impacted.	The Navy and ORNG agree that potential noise impacts on wildlife and area of disturbance would increase for two Convoy Live Fire ranges. The analysis presented in Section 3.6 (Wildlife) of the FEIS was updated to include additional quantification of the land area that would be exposed to noise under Alternatives 1 (Section 3.6.3.2.1, Noise) and 2 (Section 3.6.3.3.1, Noise).

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
ODFW-4	The EIS states that the mitigation for the proposed activities on the range would be to improve the 13,000 acre southern portion of the range for WGS. The EIS goes on to state that the improvements will be implemented as outlined in the Integrated Natural Resource Management Plan (INRMP) for the range. However, the EIS also states that the work outlined in the INRMP is not well funded and any improvements will be dependent on funding availability. ODFW recommends that any mitigation would require long term protection of the mitigation area as well as commitments to complete the improvements outlined in the INRMP.	As discussed in FEIS Section 3.6.3.4 (Proposed Management Practices, Monitoring, and Mitigation Measures), "The NWSTF Boardman INRMP currently provides a mechanism to adaptively manage natural resources cooperatively with USFWS and ODFW. If a decision is made to implement the Proposed Action, commitments to fund and implement specific BMPs, mitigation measures, and an adaptive management process would be made in the Record of Decision. The INRMP would continue to provide the overall management structure for implementing adaptive management. After the Record of Decision is signed, the INRMP would be updated to include applicable commitments made in the Record of Decision, including monitoring and mitigation." The INRMP provides a tool and framework for implementing mitigation and other management actions associated with the Proposed Action based on commitments made in the signed Record of Decision, which will be based on the management practices (MPs) and mitigation measures contained in the Conference Opinion issued by USFWS on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). Commitments made within the signed Record of Decision will be implemented outside of the INRMP funding process.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
ODFW-5	The EIS states on page 3.6.67 that if additional mitigation measures were determined to be necessary the Navy would look to minimize impacts to the resources of concern or complete additional mitigation measures such as expanding the restoration program in the southern portion of the Range or look for other offsite mitigation areas. The EIS however does not state the triggers that would require the Navy to implement these additional mitigation measures. ODFW recommends that the EIS clearly state when and why the Navy would implement these additional mitigation measures.	FEIS Section 3.6.3.6.3.4 (Proposed Management Practices, Monitoring, and Mitigation Measures) was updated to include additional specifics with respect to monitoring and adaptive management, including clearly defined objectives and decision points or triggers.
ODFW-6	The EIS states on page 3.6.66 that surveys will be completed for WGS, burrowing owls and long billed curlews starting in 2012 and continuing for a minimum of ten years after construction. ODFW recommends that a long term raptor nest monitoring program also be completed to determine the impacts of the proposed activities on nesting Swainson's and Ferruginous hawks. ODFW also recommends that the EIS clearly state how and where the surveys would be conducted; will they cover the entire range or are just specific to the area around the proposed activities. ODFW recommend that these surveys cover the area impacted by the proposed actions as well as the southern mitigation area.	FEIS Section 3.6.3.6.3.4 (Proposed Management Practices, Monitoring, and Mitigation Measures) was updated to include additional specifics with respect to Washington ground squirrel monitoring. However, the FEIS does not include specifics with respect to bird monitoring because no significant impacts on birds were identified in the analysis. Bird surveys will continue to be conducted as part of the INRMP wildlife management program.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
ODFW-7	Throughout the plan the EIS states that habitat work and surveys will be completed depending on funding availability. ODFW recommends that the EIS clearly state what the Navy proposes to implement, and how and when those actions will be taken. ODFW recommends removing any language regarding funding availability so there is a clear understanding of the actions the Navy will take to minimize and mitigate for the impacts of the proposed actions.	The DEIS stated that current INRMP project recommendations are implemented based on funding availability. It should be noted that none of the current INRMP project recommendations are tied to specific commitments made in a Record of Decision. The NWSTF Boardman INRMP currently provides a mechanism to adaptively manage natural resources cooperatively with USFWS and ODFW. If a decision is made to implement the Proposed Action, commitments to fund and implement specific BMPs, mitigation measures, and an adaptive management process would be made in the Record of Decision. The INRMP would continue to provide the overall management structure for implementing adaptive management. After the Record of Decision is signed, the INRMP would be updated to include applicable commitments made in the Record of Decision, which will be based on the management practices (MPs) and mitigation measures contained in the Conference Opinion issued by USFWS on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence).

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
ODFW-8	The EIS states on page 5-11 that invasive plant management and control would continue to be implemented under the guidelines of the INRMP. The NEPA document also states that the INRMP is currently not very well funded. ODFW recommends that the EIS clearly state that the proposed invasive species management would be fully funded and recommend that additional steps to reduce the introduction and/or spread of new weed species. This can be accomplished through the development of a comprehensive weed management plan that includes a wash station for vehicles coming onto and off of the range.	Invasive plants would continue to be managed and controlled under the NWSTF Boardman INRMP. The Plan would be updated in cooperation with ORNG, USFWS, and the ODFW during routine annual reviews to reflect the evolving invasive plant management situation associated with construction and operation of the new ranges. Updates to the Plan would include provisions for short- and long-term monitoring of invasive plants; responsibilities and procedures for integrating efforts of the Navy, ORNG, and The Nature Conservancy; criteria for prioritizing management actions and adaptive management strategies to control invasive plants; and annual work plans, including funding requirements and funding sources. A vehicle wash rack is not currently proposed for NWSTF Boardman. ORNG vehicles and equipment are washed at their home station, which should help to minimize introduction of invasive plants and weeds. It should be noted that none of the current INRMP project recommendations are tied to specific commitments made in a Record of Decision. The NWSTF Boardman INRMP currently provides a mechanism to adaptively manage natural resources cooperatively with USFWS and ODFW. If a decision is made to implement the Proposed Action, commitments to fund and implement specific BMPs, mitigation measures, and an adaptive management process would be made in the Record of Decision. The INRMP would be used to help schedule, implement, and track commitments made in the ROD.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
Terry Tallman, Judge Morrow County	The Morrow County Commissioners would like to request an extension of the deadline to comment on the Naval Weapons Systems Training Facility Boardman Draft Environmental Impact Statement. We would like to request a thirty day extension from November 6, 2012 to December 6, 2012.	The public comment period was extended to December 6, 2012, as requested.
County Court, Morrow County (MCCC)	Executive Summary Page ES-8 ES 1.10 Summary of Effects: Public Health and Safety are listed as resource categories with significant impacts, but they are not identified in Table ES-2.	Acknowledged; the executive summary has been modified to accurately reflect the conclusions made in the body of the Final EIS.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-2	Executive Summary Page ES-13 Table ES-2 3.6 Wildlife Mitigation: Morrow County intends to participate in USFWS actions concerning the Washington Ground Squirrel (WGS) providing evidence that the WGS does not qualify for federal listing. Wind farm development throughout the lower Columbia Basin in Oregon has shown that the WGS is abundant and thriving.	Thank you for providing this information about Morrow County's involvement in the Endangered Species Act (ESA) listing process for the Washington ground squirrel (WGS). As you know, this species is currently classified as a candidate for listing by the USFWS and is being reviewed to determine if ESA listing is warranted. The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012, for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including ODFW and The Nature Conservancy, provided input to the conferencing process.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-3	Chapter 1 Page 1-4 1.2 Purpose and Need: The term “associated airspace” is used in this section, but is not defined. It is not clear if that airspace is limited to the currently defined MOA or R-5701 and R-5706. Or is it referring to a larger area that would include associated MTRs. As it is not defined it is difficult to comment on the full effect of this DEIS on Morrow County due to a limited understanding of this terminology. If the intent is to include airspace beyond the current MOA or restricted airspace Morrow County does not feed that the Draft EIS adequately covers those impacts from a land use or economic impact.	The FEIS was updated to define the term "associated airspace" after its first use in Section 1.1. Associated airspace includes the existing Boardman Military Operations Area (MOA), Restricted Area 5701 (A-E), and Restricted Area 5706, as shown in Figure 1-3 of the Draft EIS. Military Training Routes (MTRs) are not addressed in the EIS and are not defined as associated airspace in the EIS.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-4	Chapter 1 Page 1-5 1.3 Background 1.3.1 History of NWSTF Boardman The State of Oregon Department of Veterans Affairs at one point owned what is now Threemile Canyon Farms, the Boardman Airport, property owned by the city along the east side of Tower Road and the property north of Interstate 84 owned by both the Port of Morrow and Threemile Canyon Farms. The total acreage of that area is closer to, if not over, 90,000 acres, not the 48,568 acres identified in this section.	The FEIS describes the history of the land parcels that are or were part of NWSTF Boardman. As stated in the DEIS, on 23 January 1941, the President issued Executive Order (EO) 8651, which withdrew public lands and reserved it for the use of the War Department as an aerial bombing and gunnery range. According to the real estate records of the Navy and the historical search performed for this EIS, in 1943, the Air Force/Army Air Corps acquired approximately 96,000 acres for a training range. In 1958, the Navy acquired the land from the Air Force under a permit agreement. This permit was approved by the Senate Committee in a letter dated 11 August 1959. The property was formally transferred from Air Force to Navy in November 1960. In January 1960, even before the actual transfer took place, representatives of the State of Oregon contacted the Department of Defense with a proposal to relocate the range and turn the property over to the State. After a series of complex negotiations, the Navy agreed in principle to an "exchange," and members of the Oregon delegation introduced enabling legislation in April 1960 in both the House and Senate. This legislation was approved, and a conveyance of 48,568 acres to the State of Oregon was concluded in 1963. There have been no subsequent land transactions. NWSTF Boardman retains approximately 47,432 acres (roughly half of the original acquired property).

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-5	Chapter 1 Page 1-13 1.3.4.3 Training Land This section indicates the NWSTF Boardman is federally withdrawn land. However Morrow County records indicate that when the Bombing Range was originally created in the 1940s it was a mixture of federal land and private land.	The land component of NWSTF Boardman is a combination of federally withdrawn land (approximately 37,320 acres) and fee land (approximately 10,112 acres) with title held by the United States but with management functions held by U.S. Navy, Commander, Navy Region Northwest. This clarification has been added to the Final EIS.
MCCC-6	Chapter 3 Section 3.1 Soils • Figure 3.1-3 Prime Farmland identifies the northern half of NWSTF Boardman as having “not prime farmland.’ However if you were to look at any aerial map of the region and compare it against the soils maps you have provided you would find that the area is covered in circle irrigation and the crops being grown are varied. In short Umatilla and Morrow Counties have the best soil, possibly in the world, for growing potatoes. Those potatoes, once processed, can be found around the world as french fries in almost every McDonald’s, Burger King and Wendy’s. The lost financial opportunity by not having that land available for crop production can be valued for potatoes at $6,000 per acre for the potato and $14,280 for a finished product (prior to store sales). If only the northern portion of NWSTF Boardman were available for crop production (assuming 15,000 acres) the region could experience new jobs and a valued added crop valued at over $200,000,000.	The Navy acknowledges the value of this land, were it made available for agricultural uses; however, agricultural leases or transfer of the land are not within the scope of the EIS. The farmland designations presented in Figure 3.1-3 are based on soil data available from the U.S. Department of Agriculture, Natural Resources Conservation Service. Some soil types classified as "not prime farmland" could be productive for agriculture, but they are not currently classified as prime farmland, unique farmland, or farmland of statewide importance based on Natural Resources Conservation Service data. The EIS presents the potential impacts from the activities proposed in the alternatives. Under the No Action Alternative, and Alternatives 1 and 2, the lands of NWSTF Boardman are not identified for agricultural use.
MCCC-7	Soils is a component of the County’s continuing concern with Fire Management, both pre- and post-fire. A more thorough description of the fire-management techniques to be used can be found in the Fire Management Plan, however consideration to how soils affects native plant structures is needed.	Section 3.5.2.2 (Vegetation Communities at NWSTF Boardman) of the Final EIS includes a discussion of the relationships between soils and native plant communities. As the two issues are related, the discussion on their importance with regard to fire management was reserved until both resources were presented.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-8	Chapter 3 Section 3.3 Water Resources • The northern two-thirds of NWSTF Boardman is within the Lower Umatilla Basin Groundwater Management Area (LUB GWMA), a designation made by the Oregon Department of Environmental Quality based on groundwater quality. The indicator for this 1995 designation was nitrite/nitrate. Later testing found perchlorate in groundwater as well. (3N 25; 4N 25 Sections 25-36 and 4N24 north half of Section 25-26) • The southern two miles of NWSTF Boardman is within the Ella Butte Classified Groundwater Area, an Oregon Water Resources Department designation based on water quantity. (2N 25 Section 13-24) Based on these designations Morrow County would ask the Navy and National Guard to fully participate in any groundwater protection methods during construction and operations of current and proposed activities. In particular any installation of wells for drinking water should be tested regularly and installation of any waste water treatment processes should meet all Oregon DEQ standards. Additionally Morrow County would request that the Navy and Guard participate in well monitoring and testing that would benefit both the LUB GWMA Citizens Advisory Committee and the Umatilla Basin Water Commission.	As discussed in Section 3.3.3.5.1 of the FEIS (Proposed Management Practices) the Navy and ORNG would implement several measures to protect groundwater during construction and operations. The proposed groundwater well would serve the proposed UAS Training and Maintenance Facility with non-potable water. Regular water quality testing would be conducted if a potable well were installed in the future. As discussed in Section 3.3.3 of the FEIS (Environmental Consequences), the proposed septic system would be designed and built in accordance with Oregon Onsite Wastewater Treatment System Rules (Oregon 17 Administrative Rules Chapter 340, Divisions 071 and 073). While specific discussions about well monitoring and testing that would benefit both the LUB GWMA Citizens Advisory Committee and the Umatilla Basin Water Commission are beyond the scope of the EIS, the Navy and ORNG are available to discuss this concept in more detail with Morrow County. It should also be noted that the Navy has been working closely with U.S. Environmental Protection Agency (EPA) and Oregon Department of Environmental Quality (DEQ) since 2002 to help address groundwater issues in the LUB GWMA. Through the Navy's Range Sustainability Environmental Protection Assessment (RSEPA) program, several groundwater monitoring wells have been installed on NWSTF Boardman property, with well installation data and sampling results shared with both EPA and DEQ. This cooperative relationship is on-going with recurring assessments planned for the future range.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-9	Chapter 3 Section 3.4 Acoustic Environment (Noise) Based on comments made by Navy personnel it is Morrow County's understanding that additional noise analysis is to be completed. Morrow County would like the opportunity to see that additional noise analysis and reserve comment until that time.	Section 3.4 (Noise) of the Final EIS has been revised based on additional noise analysis conducted to address comments received on the DEIS. The additional analysis was necessary to accurately reflect flight profiles as they pass over the City of Boardman, as well as flight profiles transferring between the different airspaces, which each have their own set of minimum altitudes. The FAA also requested this additional noise analysis, which highlights the "differences" in community noise levels between the Action Alternatives and the baseline conditions. This analysis and associated graphics have been inserted into the Final EIS. The Navy and ORNG have provided this analysis to Morrow County for review.
MCCC-10	Chapter 3 Section 3.4 3.4.2 Affected Environment 3.4.2.1 Sensitive Receptors Residential zones (and residences outside those zones) are considered sensitive receptors. Morrow County is concerned that the land, and by reference the homes, to the east and west of NWSTF Boardman are "not considered noise-sensitive, as they are classified as agricultural use." Under Oregon land use law homes are allowed to support farm activities and farm ownership. To discount those homes in this analysis is troubling and would NOT be allowed under Oregon's Noise Rule. The analysis would be better served if all homes within the impact area were identified and considered.	As noted above, Section 3.4 (Noise) of the FEIS has been revised based on additional noise analysis conducted following completion of the Draft EIS to accommodate this exact issue. Part of this reanalysis evaluated residences that are present on lands that are classified as agricultural. The FAA also requested this additional noise analysis, which highlights the "differences" in community noise levels between the Action Alternatives rather than absolute levels from each individual Alternative. This analysis and associated graphics has been inserted into the Section 3.4 (Noise) Final EIS, and better serves the discussion regarding all sensitive receptors.
MCCC-11	Chapter 3 Section 3.5 Vegetation As stated earlier under Soils, Morrow County believes this is another component that directly impacts fire management on NWSTF Boardman.	The Navy and ORNG agree that vegetation at NWSTF Boardman affects fire management. Accordingly, the relationship between vegetation and fire was discussed in Section 3.5 (Vegetation), Section 3.12 (Public Health and Safety), Section 3.13 (Wildfire) and Appendix H of the FEIS.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-12	Chapter 3 Section 3.5 3.5.2.3 Invasive Plants and Weeds Page 3.5-8 The draft EIS identifies the Oregon State Noxious Weed Classification System, but does not account for the weeds listed in Morrow County. This local list is more specific to concerns in county and should also be relied on to determine specific areas of concern.	Thank you for this pertinent information. Section 3.5.2.3 (Invasive Plants and Weeds) and Table 3.5-2 of the Final EIS have been updated to reflect the Morrow County List of Noxious Weeds, which is used to help identify specific areas of concern on NWSTF Boardman and in the surrounding areas.
MCCC-13	Chapter 3 Section 3.5 Vegetation Mitigation Request It is suggested that to minimize both introduction locally and transport to other locations that a wash station be installed to remove from vehicles and other carriers weeds and other plant species, limiting their transport both in and out.	A vehicle wash rack is not proposed for NWSTF Boardman; however, the Navy and National Guard recognize your concern about the spreading of invasive plant species. Transport of invasive plant seeds by ORNG vehicles and equipment would be minimized by washing vehicles and equipment before and after training events. Washing would normally occur at the unit's home station. Section 3.5.3.4.1 (Proposed Management Practices) of the FEIS has been updated to include this information. Vehicle contamination with seed would also be minimized by operating vehicles on existing roads and trails. Invasive plants would continue to be managed and controlled under the NWSTF Boardman INRMP (Section 3.5.3.4.1, Proposed Management Practices). The Plan would be updated in cooperation with ORNG, USFWS, and ODFW during routine annual reviews to reflect the evolving invasive plant management situation associated with construction and operation of the new ranges.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-14	Chapter 3 Section 3.6 Wildlife Morrow County recognizes that the WGS is a state listed species and a candidate for federal listing. Both of those actions took place at a time when the known habitat area for the WGS was limited predominately to NWSTF Boardman. Since that time wind development in the Oregon portion of the lower Columbia Plateau has identified extensive WGS habitat. Morrow County intends to participate in the current review initiated by the USFWS concerning WGS encouraging local wind farm developers to provide the necessary reports and studies to further inform this discussion.	Thank you for providing this information about Morrow County's involvement in the Endangered Species Act status review process for the Washington ground squirrel. As you know, this species is currently classified as a candidate for listing by the USFWS. The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012, for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including ODFW and The Nature Conservancy, provided input to the conferencing process.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-15	Chapter 3 Section 3.7 Land Use and Recreation • Apart from this EIS process Morrow County has had ongoing conversation with NASWI concerning land uses under the current R5701 and R-5706 as well as the MOA, both current and proposed. No action taken by the Navy, either as part of this action or as part of any other action, can be construed as a land use action. Land use decisions are local decisions and can only be made by the local jurisdictions (either city or county). In order for the Navy to further preserve the land not owned by them, but covered by either a MOA or restricted airspace designation, from further encroachment deemed harmful to NWSTF Boardman local jurisdictions must be engaged. There are appropriate next steps that the Navy and NASWI need to be considering once a Record of Decision is obtained under this EIS. Morrow County is prepared to work with appropriate staff on land use decisions, but the Navy must stay engaged and available for this to work long-term. (Please also see attached article concerning an agreement for wind farm development between a developer, the DOD and the US Navy.)	The Navy and OR National Guard will remain engaged with local jurisdictions pertaining to land uses outside of NWSTF Boardman; however, this comment is beyond the scope of the EIS.
MCCC-16	Chapter 3 Section 3.7 Land Use and Recreation • The Oregon Trail runs through the center of Morrow County from the east to the west. A portion of the Trail crosses NWSTF Boardman at the southern end. Currently there are two recreational turnouts with interpretive signs and walking areas designated. Both are out of date and do not reflect current practice as well as needing maintenance for wind and sun damage. Morrow County supports maintenance of these facilities, both from an availability standpoint and from a perspective of upkeep. At a minimum maintenance needs to occur, but enhancement of these recreational opportunities would be a support to Morrow County tourism and providing an economic benefit.	The Navy agrees that maintenance of the Oregon Trail interpretive displays is an important issue and a responsibility to the public, as we help preserve this important cultural resource. NASWI has funded a project to specifically address safety and security in the public access areas. Though not part of the Proposed Action of this EIS, the Navy is developing a proposal to update and replace interpretive signage and displays.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-17	Chapter 3 Section 3.8 Socioeconomics and Environmental Justice Mitigation Request Earlier in this table under Section 3.1 Soils there is comment about the agricultural underutilization of the northern portion of NWSTF Boardman. It is more appropriate within this section to discuss the financial impacts of NWSTF Boardman to Morrow County. For 70+ years the current 47,000 acres +/- has been in military ownership deriving the county of both tax revenue and economic opportunity. In years past agricultural leases of varying types have been let for portions of the property, but since about 2000 those have been discontinued depriving local agricultural producers an economic benefit. Morrow County appreciates efforts made to engage in conversation about these issues as part of the EIS and in other venues, but actions need to replace words in working towards an economic benefit to Morrow County and its residents for the ongoing operations that both the Navy and the National Guard have and will continue to benefit from at NWSTF Boardman. • Specifically there needs to be acknowledgment within the EIS of the negative economic impacts or lack of economic benefits NWSTF Boardman has in Morrow County. There should also be an acknowledgment of the lost opportunity costs to Morrow County based on the inability to develop those agricultural opportunities.	The Navy and ORNG recognize the concern of the County. Currently, no agricultural activity occurs at NWSTF Boardman because of safety concerns. The scope of this EIS presents the potential impacts from the activities proposed in the Action Alternatives. Under the No Action Alternative, the lands of NWSTF Boardman are not available for agricultural use. Implementation of either Alternative 1 or Alternative 2 would not change the availability of land. Analysis of agricultural uses on NWSTF Boardman is beyond the scope of the EIS.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-18	Chapter 3 Section 3.8 Socioeconomics and Environmental Justice Mitigation Request • The number of jobs that are currently attached to NWSTF Boardman are limited and the economic benefit in Morrow County is a very small component of the economic benefits NASWI provides to the Puget Sound region. Within the DEIS there is discussion of the proposed additional jobs, however the impacts are not quantified. Seven additional staff, while welcome, do not balance well against the lost opportunities. That is somewhat recognized on page 3.8-13 under the Impact Conclusion of Alternative 1 and 2 stated as, "...would result in no significant impacts on the socioeconomics of the Boardman region." The point being Morrow County would like to see an impact, preferably significant, based on these actions.	Though there would be some economic benefit, it is not anticipated that the increase in personnel or troop presence would contribute significantly to the regional economy. However, it is also noted in the FEIS that local employment and materials purchasing associated with the proposed construction of four new facilities would provide economic benefits to the local economy that would last for the duration of the construction. Over the long-term, increased training usage of NWSTF Boardman would also have measurable economic benefits, such as the influx of personnel coming for short- and long-term training periods and for routine services, materials, and maintenance of roads and facilities. Further, as the Navy did not find significant negative impact to socioeconomics, there is no need for mitigation.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-19	Chapter 3 Section 3.8 Socioeconomics and Environmental Justice Mitigation Request • Current and future military actions may also negatively impact other development opportunities within Morrow County. As a definition of affected airspace is lacking it is unclear how Military Training Routes are being considered. But both the activities specifically covered by this EIS and MTRs may have a negative impact on the development of wind and solar facilities as well as transmission lines that support both renewable resource development as well as improvements to the electrical grid. The concern Morrow County has is that Navy actions may continue to negatively impact economic development and benefit. Proactive actions by NASWI and the National Guard to bring significant jobs to Morrow County, either through direct employment or the establishment of agricultural leases on NWSTF Boardman would be considered as mitigation to the socioeconomic impacts of the proposed actions within the EIS.	Military Training Routes (MTRs) are not within the scope of this EIS. The Proposed Action includes additional airspace (Boardman Low MOA and Boardman MOA [Proposed Extension]). Currently, there are no locations identified under the proposed MOA that are proposing wind or solar development. The Navy and OR National Guard will remain engaged with local jurisdictions pertaining to land uses outside of NWSTF Boardman; however, this comment is beyond the scope of the EIS.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-20	Chapter 3 Section 3.9 Transportation Mitigation Request There are two aspects of transportation that are concerning to Morrow County. The first is the movement of troops to training and the additional trips generated; the second and more concerning is the movement of heavy equipment associated with the proposed troop training. It is unclear which route is preferred to moving heavy equipment onto NWSTF Boardman and whether that equipment would be coming from the UMCD or from other locations. Should it be coming from UMCD and the intent is to avoid the Interstate system county roads can provide an alternate route. But with much concern as to the impact of those heavy loads on a gravel road system. Those roads are NOT built to a standard to withstand those loads. If that is the chosen route Morrow County would need to have the National Guard fund initial improvements and well as provide ongoing maintenance to assure that the roads do not degrade to the point that they cannot support current farm-to-market activities. The same would be true, but for different reasons, should the choice be to use the Interstate and Bombing Range Road as the delivery route. While Bombing Range Road is in good condition its maintenance is currently funded by an agreement with Waste Connections and road maintenance fees collected when waste is 'tipped' often referred to as a 'tippage fee.' It would not be acceptable to have these fees maintain a road and address degradation that should be attributable to heavy loads delivered by the National Guard to NWSTF Boardman. Similar reconstruction and maintenance programs need to be established in this instance as well.	The typical route for troops and equipment is expected to utilize the interstate system, whether troops are coming from UMCD and locations east or west, and would utilize Boardman Bombing Range Road for access to the current main gate of NWSTF Boardman. With the decision made to remove the Digital Multipurpose Training Range from the Preferred Alternative, the impacts of heavy tanks and large tracked vehicles will not be evaluated under the Preferred Alternative. The impacts associated with tracked vehicles would be included under the analysis of Alternative 1, which would include a small number of large vehicles mobilizing for training activities traveling on weekends. The nominal volume of additional traffic accessing NWTSF Boardman during operation of the proposed training ranges is not anticipated to impede local traffic patterns. The low overall number of vehicles associated with training activities would represent an incremental impact on the road conditions when combined with the total amount of traffic anticipated on these roads. The low number of vehicles is not anticipated to cause additional maintenance requirements due to road degradation from Navy and Guard vehicular traffic.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-21	Chapter 3 Section 3.10 Cultural Resources See earlier comments related to The Oregon Trail. Chapter 3 Section 3.12 Wildfire Appendix H: Integrated Wildland Fire Management Plan Wildfire continues to be of concern to Morrow County and the proposed uses have the potential to add risk. It is appropriate for NASWI and the National Guard to that a proactive role in addressing the risk and associated concerns. Currently there are 7 individuals assigned to NWSTF Boardman and only 7 new individuals are identified to be added should the proposed activities be approved. Even if some are volunteers at local fire departments there are continuing concerns for both natural and manmade fire incidents. Commitment now and into the future must be identified and quantified to assure that the necessary equipment and training continue to be available. Within the draft Integrated Wildland Fire Management Plan there is reference to an MOA with the UMCD, a facility that is now closed under BRAC orders and process. There is limited staffing as part of the base with most individuals onsite connected to the dismantling of the demilitarization facility. This aspect of the IWFMP needs to be addressed and appropriate MOAs need to be established with local providers.	The Navy recently improved firefighting capabilities at NWSTF Boardman by obtaining additional equipment and improved training and qualifications for fire response personnel. If the Preferred Alternative is selected, National Guard assets and manning increases will further improve fire response capabilities at NWSTF Boardman. As presented in Section 3.13.2.3 (Current Requirements and Management Practices) of the FEIS, the Navy previously had a mutual aid agreement for wildland fire response with Umatilla Chemical Depot (UCD) fire department. However, the Depot completed its mission in late 2011 and was closed down through the Base Realignment and Closure process. The fire department responsibilities have been transferred to the Oregon Military Department, and a Mutual Aid Agreement was drafted and signed in 2013 and is effective through 2018 A Draft Fire Management Plan (Appendix H) is presented in the Final EIS, which has been revised by the Navy and National Guard, to include the latest information and a discussion on these responsibilities.
MCCC-22	Chapter 4 Cumulative Impacts There are some specific errors in Table 4-1 referring to Boardman County. In one instance the correct label would be the City of Boardman, in another it should be Morrow County.	The locations of all projects in Table 4-1 have been revised to present the counties in which the alternatives are proposed to occur.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-23	Chapter 4 Cumulative Impacts Poplar Wind Farm is identified as a viable project and is to be retained as the preparers have determined that it has ongoing and future implications. As stated earlier land use determinations are a function of local jurisdictions and in Oregon energy projects may be approved by the Energy Facility Siting Council. In the case of Poplar Wind NO LOCAL OR STATE APPLICATION HAS EVER BEEN FILED. It is NOT a viable project and its continued use as a 'bad example' is frustrating and moves the conversation away from issues that are more important. The turbines are keyed as 'proposed for construction' which cannot happen without a valid permit from either the county or the state. As just stated... NO LOCAL OR STATE APPLICATION HAS EVER BEEN FILED.	Following review of Oregon Department of Energy's Energy Facility Siting Council records, Poplar Wind does not show on any records for facilities under review. Further, First Wind, LLC no longer lists Poplar as a location of a proposed project. Poplar Wind Farms has been removed from the cumulative impacts section and from Table 4-1.
MCCC-24	Chapter 4 Cumulative Impacts The cumulative impacts map shown as Figure 4-1 was developed with input from Morrow County Planning. It would be appropriate for conversations to continue relative to current and future projects between NASWI staff and Morrow County.	The Navy and ORNG will continue to engage with Morrow County as necessary and appropriate.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-25	Chapter 4 Cumulative Impacts On page 4-26 under Section 4.4.8 Socioeconomics and Environmental Justice it was anticipated there would be discussion, even if minor, about the potential lack of temporary workforce housing in Morrow County should any number of projects move to construction in the same time frame. This was one of the driving concerns that prompted the coordinated conversation (DOD/BLM/USFS/Morrow County) about cumulative impacts. While the Navy or Guard impacts taken alone will be negligible, when taken as part of a larger mix they could be troublesome. Various Morrow County entities have taken a proactive approach to these concerns, but that should not eliminate them from analysis by this or any other project currently being planned in Morrow County.	The Final EIS presents a discussion regarding the potential for a local workforce housing shortage if Navy and National Guard construction projects overlap with other projects proposed for Morrow County.
MCCC-26	Chapter 5 Mitigation Measures Section 5.4 Water Resources should incorporate 'good neighbor' support of both the LUB GWMA and UBWC activities to address both water quality and quantity, respectively. As stated earlier portions of NWSTF Boardman are listed as part of the LUB GWMA and the Ella Butte Classified Groundwater Area. Additionally any waste water treatment facilities that are proposed to be installed need to meet Oregon DEQ standards.	As discussed in Section 3.3.3.5.1 (Proposed Management Practices) of the FEIS, the Navy and ORNG would implement several measures to protect groundwater during construction and operations. The Navy and ORNG must also comply with state regulations regarding drinking water wells and systems. The proposed groundwater well would serve the proposed UAS Training and Maintenance Facility with non-potable water. Regular water quality testing would be conducted if a potable well were installed in the future. As discussed in Section 3.3.3 (Environmental Consequences) of the FEIS, the proposed septic system would be designed and built in accordance with Oregon Onsite Wastewater Treatment System Rules (Oregon 17 Administrative Rules Chapter 340, Divisions 071 and 073). Please refer to response to comment MCCC-9.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-27	Section 5.5 Acoustics should account for residences on farm land and not discount them. They are allowed uses on Exclusive Farm Use zoned land in Oregon under the statewide planning system.	Section 3.4 (Noise) of the Final EIS was revised based on additional noise analysis conducted following completion of the DEIS. The additional analysis was necessary to accurately reflect flight profiles as they pass over the City of Boardman, as well as flight profiles transferring between the different airspaces, which each have their own set of minimum altitudes. The FAA also requested this additional noise analysis, which highlights the "differences" in community noise levels between the Action Alternatives and the baseline conditions. This analysis and associated graphics have been inserted into the Final EIS. The applicable information from Section 3.4 (Noise) has been brought into the mitigation measures section of Chapter 5 (Management Practices, Monitoring, and Mitigation Measures) as well.
MCCC-28	Section 5.6 Vegetation should address wash stations to diminish transfer of noxious weed seeds both onto and off NWSTF Boardman.	A vehicle wash rack is not currently proposed for NWSTF Boardman. ORNG vehicles and equipment are washed at their home station, which should help to minimize introduction of invasive plants and weeds. Please refer to the response to comment MCCC-14.
MCCC-29	Section 5.8 Land Use and Recreation should identify updating and ongoing maintenance of the recreational opportunities located along the southern boundary of NWSTF Boardman and part of The Oregon Trail.	The Navy agrees that maintenance of the Oregon Trail interpretive displays is an important issue. Though not part of this Proposed Action, NASWI has submitted an internal project proposal to specifically address safety and security in the public access areas, provide basic maintenance and signage care, and update signage and displays.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-30	Section 5.8 Land Use and Recreation There is reference in this section to the MOA with UMCD which is now closed under BRAC law and practice.	The Navy previously had a mutual aid agreement for wildland fire response with Umatilla Chemical Depot (UCD) fire department. However, the Depot completed its mission in late 2011 and was closed down through the Base Realignment and Closure process. The fire department responsibilities have been transferred to the Oregon Military Department, and a Mutual Aid Agreement was drafted and signed in 2013 and is effective through 2018.
MCCC-31	Section 5.9 Socioeconomics and Environmental Justice does not address lost opportunities within Morrow County nor does it address the lost revenue to Morrow County of not pursuing agricultural activities on NWSTF Boardman.	Analysis of agricultural activity on NWSTF Boardman does not support the purpose and need of the proposed action and is not within the scope of the EIS. Lands that make up NWSTF Boardman have been used for military training since 1943. Currently, no agricultural activity occurs at NWSTF Boardman because of safety concerns. Accordingly, the baseline conditions described in the affected environment section of the EIS reflect the fact that NWSTF Boardman is not used for agriculture. The Proposed Action does not include agricultural use of NWSTF Boardman because agriculture is not part of the purpose and need for the action.
MCCC-32	Section 5.10 Transportation needs to better address impacts to local roads and transportation networks based on the needed movement of troops and more importantly heavy equipment. While no specific request has been made for a local Traffic Impact Analysis and it does not appear one would be triggered by the number of average daily trips, one may be justified based on the impact of heavy loads.	Based on the FEIS analysis, transportation impacts are anticipated to be minimal.
MCCC-33	Section 5.13 Wildfire and the associated Appendix H needs to incorporate more coordination with local emergency providers and less reliance on UMCD (see earlier BRAC comments).	The Draft Fire Management Plan has been revised by the Navy and National Guard to include the most recent management information.

Table G.4-1: Responses to Comments from Agencies (continued)

Commenter	Comment	Navy Response
MCCC-34	Chapter 8 References Section 3.7 Land Use and Recreation: It is interesting that the Boardman Comprehensive Plan was considered, but not Morrow County's.	While Morrow County's Comprehensive Plan was described in Section 3.7.1.2.2 (Morrow County Comprehensive Plan) of the DEIS, no direct citation of the document was made. The FEIS now includes a direct citation of the comprehensive plan.
MCCC-35	Chapter 8 References The UMCD redevelopment plan is referenced and credit given to the CTUIR. This is not correct as the local reuse authority, or UMADRA, was the organization responsible for its development.	The reference to the redevelopment plan citation in the Final EIS has been changed to reflect UMADRA as preparers of this document.
MCCC-36	Chapter 8 References It is interesting how many of the local sources are referenced to the Internet. There does not appear to be any reference to fact check those citations.	As described in Section 3.0.1 (Data Sources and Best Available Data) of the FEIS, 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.

Table G.4-2 contains comments from American Indian Tribes received during the public comment period and the Navy's response. Responses to these comments were prepared and reviewed for scientific and technical accuracy and completeness. Comments appear as they were submitted and have not been altered.

Table G.4-2: Responses to Comments from American Indian Tribes

Commenter	Comment	Navy Response
Confederated Tribes of the Umatilla Indian Reservation, Department of Natural Resources (CTUIR-DNR)	The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Natural Resources (DNR) appreciates the opportunity to review the Military Readiness Activities at Naval Weapons Systems Training Facility Boardman, Draft Environmental Impact Statement (DEIS). DNR is encouraged by the work we have done in the recent past with the Navy regarding the Boardman Bombing Range (BBR). Nevertheless, large portions of the site suffer from the effects of extreme neglect over the years that must be remedied through the INRMP, ICRMP and DEIS. Further, the DEIS needs to acknowledge the presence of Native American resources at the BBR, to which the CTUIR retains rights pursuant to the Treaty of 1855.	Regarding American Indian resources, the Draft EIS stated that these resources have not yet been identified in the project areas of Potential Effect (APE). This is because at the time of the Draft EIS preparation, the Traditional Use Study was not yet completed with the CTUIR. The EIS team received the Traditional Use Study report on March 21, 2013, and has incorporated the appropriate level of information from the study into the Final EIS analysis. In addition, a new Section 3.11 (American Indian Traditional Resources) has been added to the FEIS. This section discusses treaty rights and analyzes potential impacts on American Indian traditional resources. A formal government-to-government meeting between the CTUIR Board of Trustees and the Commanding Officer of Naval Air Station Whidbey Island was held on July 11, 2013. The Navy, Oregon SHPO, CTUIR, and ACHP prepared a Memorandum of Agreement (Appendix C), which was signed in October 2015, to resolve adverse effects on traditional cultural properties and establish protocols for protection and management of these resources in accordance with Section 106 of the NHPA.
CTUIR-DNR-2	The CTUIR provided comments on the draft Integrated Natural Resources Management Plan (INRMP) for the BBR on July 8, 2010. I have attached those comments for reference. The DEIS should include a discussion of the CTUIR's Treaty Rights, similar to the one contained in the final INRMP. The DEIS does not contain any discussion of the Treaty of 1855 beyond one paragraph in the Cultural Resources section. At a minimum, the DEIS should contain references to the Treaty in the Socioeconomics and Environmental Justice sections, and	A new Section 3.11 (American Indian Traditional Resources) has been added to the FEIS. This section discusses treaty rights and analyzes potential impacts on American Indian traditional plant and animal resources. The Socioeconomics and Environmental Justice and Cultural Resources sections now include a reference to this separate section for readability. This new section incorporates your comments on the

Commenter	Comment	Navy Response
	also in the Federal Requirements section. Treaty Rights should be analyzed in a dedicated section rather than relegated to a subsection of the Cultural Resources analysis.	definition of American Indian resources to improve accuracy and clarity. In response to your comment about the Treaty language on page 3.10-11 in the Draft EIS, the Navy has updated language on the Treaty of 1855 in the Final EIS in this new section.

Table G.4-2: Responses to Comments from American Indian Tribes (continued)

Commenter	Comment	Navy Response
CTUIR-DNR-3	At numerous locations the DEIS states that no Native American resources have been identified that may be impacted by the proposed action. DEIS pages 3.10-15, -17, -18, -19, 4-28, 6-2 and 6-3. The DEIS defines Native American resources as: Native American resources are sites, areas, and materials important to Native Americans for religious or heritage reasons. Resources may include prehistoric sites and artifacts, contemporary sacred areas, traditional use areas (e.g., native plant or animal habitat), sources used in the production of sacred objects and traditional implements, or traditional cultural properties. Traditional cultural properties are resources that are considered eligible for or listed in the National Register of Historic Places and may be associated with Native Americans. Sacred places important to religion may also be present and include mountain peaks, springs, and burial sites. Traditional rituals may prescribe the use of particular native plants, animals, or minerals from specific places. Therefore, activities that may affect sacred areas, their accessibility, or the availability of materials used in traditional practices may be of concern.	Regarding American Indian resources, the Draft EIS stated that these resources have not yet been identified in the project areas of Potential Effect (APE). This is because at the time of the Draft EIS preparation, the Traditional Use Study was not yet completed with the CTUIR. The EIS team received the Traditional Use Study report on March 21, 2013, and has incorporated the appropriate level of information from the study into the Final EIS analysis. In addition, a new Section 3.11 (American Indian Traditional Resources) has been added to the FEIS. This section discusses treaty rights and analyzes potential impacts on American Indian traditional resources. A formal government-to-government meeting between the CTUIR Board of Trustees and the Commanding Officer of Naval Air Station Whidbey Island was held on July 11, 2013.. The Navy, Oregon SHPO, CTUIR, and ACHP prepared a Memorandum of Agreement (Appendix C), which was signed in October 2015, to resolve adverse effects on traditional cultural properties and establish protocols for protection and management of these resources in accordance with Section 106 of the NHPA.
CTUIR-DNR-4	DEIS page 3.10-1. Prehistoric sites, traditional gathering locations and traditional resources such as plants and wildlife that were used by tribal members are clearly within the impact area. The CTUIR has confirmed on multiple occasions that there are traditional resources on the BBR, most recently in our letter of July 8, 2010, expressing interest in hunting opportunities and the desire for tribal members to hunt on these lands. Hunting is a traditional use, which CTUIR members engaged in at (what is now) the BBR since time immemorial. While the Navy recently closed the BBR to all hunting, the opportunity to hunt the area	The EIS team received the Traditional Use Study report on March 21, 2013, and has incorporated the appropriate level of information from the study into the Final EIS analysis. In addition, a new Section 3.11 (American Indian Traditional Resources) has been added to the FEIS. This section discusses treaty rights and analyzes potential impacts on American Indian traditional resources. A formal government-to-government meeting between the CTUIR Board of Trustees and the Commanding Officer of Naval Air Station Whidbey

Table G.4-2: Responses to Comments from American Indian Tribes (continued)

Commenter	Comment	Navy Response
	remains important to the CTUIR. Even if the present generation of tribal members does not have access to BBR for hunting, the CTUIR has a strong interest in preserving wildlife habitat and populations for future generations. Given this, it is inaccurate to state there are no Native American resources within this project's impact area. The CTUIR suggests the following revisions to the definition of Native American resources to improve accuracy and clarity: Native American resources include, but are not limited to, sites, areas, and materials important to Native Americans for religious or traditional and cultural reasons. Resources may include prehistoric sites and artifacts, sacred sites, traditional use areas (e.g., native plant gathering areas or wildlife habitat), material sources, sites for cultural practices, and traditional cultural properties. Traditional cultural properties are areas that are or may be eligible for inclusion in the National Register of Historic Places and may be associated with Native Americans. Many TCPs are also sacred places important to Native Americans and may include mountain peaks, springs, and burial sites. Traditional uses may prescribe the use of particular native plants, animals, or minerals from specific places. Therefore, activities that may affect sacred areas, their accessibility, or the availability of materials used in traditional practices are of concern.	Island was held on July 11, 2013. In accordance with Section 106 of the NHPA, the Navy, Oregon SHPO, CTUIR, and ACHP prepared a Memorandum of Agreement (Appendix C), which was signed in October 2015, to resolve potential adverse effects on traditional cultural properties and establish protocols for protection and management of these resources.
CTUIR-DNR-5	The CTUIR met with the Navy on October 23, 2012, and attended the meeting between the Navy, the U.S. Fish and Wildlife Service, and the Oregon Department of Fish and Wildlife (ODFW) on October 25, 2012, at Boardman. The CTUIR agrees with many of the concerns that have been raised by ODFW, the Nature Conservancy, the U.S. Fish and Wildlife Service and the Defenders of Wildlife. I will not repeat all the concerns raised but I will reiterate a few. The proposed activities for Alternatives 1 and 2 "would result in significant increases in the potential for wildfire…." DEIS, page ES-16. Both the fire-break system (blading without vegetative treatment) and post-fire natural seeding increase the spread of noxious weeds. The BBR needs an aggressive fire	As described in Section 3.5 (Vegetation) of the FEIS, invasive plants would continue to be managed and controlled under the NWSTF Boardman INRMP. The Plan would be updated in cooperation with ORNG, USFWS, and ODFW during routine annual reviews to reflect invasive plant management associated with construction and operation of the new ranges. Updates to the Plan would include provisions for short- and long-term monitoring of invasive plants; responsibilities and procedures for integrating efforts of the Navy, ORNG, and The Nature Conservancy; criteria for prioritizing management

Table G.4-2: Responses to Comments from American Indian Tribes (continued)

Commenter	Comment	Navy Response
	monitoring and response capacity on-site at all times during training and fire seasons regardless of whether Alternatives 1 or 2 are implemented or not. Inadequate funding to address noxious weeds is a critical problem in management of the BBR. If the Navy does not have the capacity to meet its current obligations regarding natural resource management, it certainly does not have the resources to meet its natural resource obligations under expanded operations.	actions and adaptive management strategies to control invasive plants; and annual work plans, including funding requirements and funding sources.
CTUIR-DNR-6	Further, as discussed in October, ongoing and proposed activities will result in habitat destruction and fragmentation through disturbance and noise. Activities must be scheduled to avoid disturbing sensitive wildlife species such as long-billed curlew and Washington ground squirrel. There has never been a complete survey of the BBR for wildlife under a consistent and uniform protocol. The Navy should immediately implement a survey and monitoring protocol for all areas, whether proposed for development or not, so that it will have baseline data to determine the wildlife impacts of increased activity and to monitor the effectiveness of mitigation measures. The BBR and adjacent conservation lands represent "one of the largest remaining single blocks of predominantly native shrub-steppe and grassland habitats in Oregon's portion of the Columbia Plateau Ecoregion." DEIS 3.5.2.2, page 3.5-3. Habitat in this endangered area should not be impacted without careful analysis, and all measures to avoid impact should be addressed. Finally, all proposed mitigation measures must be funded prior to implementation of expanded operations. If mitigation does not occur, neither should expanded operations.	Table 5-1 in the Final EIS lists all proposed mitigation measures that would be implemented under Alternatives 1 or 2 and identifies which agency is responsible for implementing the mitigation measures. The Record of Decision for the EIS, which will be issued by the Assistant Secretary of the Navy for Energy, Installations and the Environment, will commit the Navy to implementing mitigation measures.
CTUIR-DNR-7	The DEIS does not propose any monitoring mitigation measures for cultural resources. DEIS 3.10-19. As the Integrated Cultural Resources Management Plan (ICRMP) is not complete, it is unclear how the entire facility will be managed for cultural resources. However, it would be prudent to monitor ground disturbance for cultural resources. Further, section 3.10.3.4.3 provides that the only avenue for identification of Native American resources is through consultation. Clearly the Navy could encounter Native American resources	The Navy, in consultation with the Oregon SHPO and CTUIR, has determined that the Proposed Action would have no adverse effect on historic properties. Therefore, no specific construction monitoring or mitigation measures are proposed for cultural resources in the FEIS. Section 3.10.3.4.2 (Proposed Monitoring) of the FEIS includes the following updated information: "No monitoring is required for cultural resources

Table G.4-2: Responses to Comments from American Indian Tribes (continued)

Commenter	Comment	Navy Response
	(i.e., archaeological sites) inadvertently through construction or during survey. As the Traditional Use Study is not yet completed, it is certainly premature to conclude that there are no historic properties of religious or cultural significance to Indian tribes. Hopefully that study can be thoroughly incorporated into the Final EIS before it is published. It is our understanding the Navy intends to complete the ICRMP prior to the Final EIS. How exactly will the ICRMP influence implementation of the EIS?	during construction of the range enhancements proposed under Alternative 1 or Alternative 2 because no NRHP-eligible or -listed archaeological resources, historic trails, architectural resources, or American Indian traditional cultural properties are located in the direct APE. However, if during development activities the Navy or ORNG inadvertently discovers any cultural material (i.e., prehistoric or historic), all activities shall cease immediately and the Naval Air Station Whidbey Island Cultural Resources Manager shall be contacted to evaluate the discovery. "No monitoring is required for archaeological resources, historic trails, or architectural resources in the indirect APE because the Proposed Action has no potential to cause physical damage to or deterioration of these resources within the indirect APE. Potential adverse effects within the indirect APE would be limited to transient noise and visual intrusions that would affect the setting of traditional cultural properties. The Navy, Oregon SHPO, CTUIR, and ACHP prepared a Memorandum of Agreement (Appendix C) to resolve potential adverse effects on traditional cultural properties and establish protocols for protection and management of these resources, including a monitoring plan, in accordance with Section 106 of the NHPA. The Memorandum of Agreement includes stipulations for monitoring traditional cultural properties in cooperation with the CTUIR." The Navy finalized an Integrated Cultural Resources Management Plan (ICRMP) for NWSTF Boardman in consultation with the Oregon SHPO and CTUIR in March 2015. As stated in the FEIS, cultural resources at NWSTF Boardman would continue to be managed in accordance with the

Table G.4-2: Responses to Comments from American Indian Tribes (continued)

Commenter	Comment	Navy Response
		National Historic Preservation Act, the Archaeological Resources Protection Act, the Archeological and Historic Preservation Act, the American Indian Religious Freedom Act, the Native American Grave Protection and Repatriation Act, and appropriate Navy Instructions.
CTUIR-DNR-8	The CTUIR DNR supports the Current Requirements and Management Practices to "[e]nforce federal laws that prohibit vandalism of cultural resources on federal properties through law enforcement, monitoring, and public awareness." Too much of the landscape of the BBR has been neglected over the years. Monitoring, enforcement and training are critical to protect the resources that are present on the BBR. The Navy must have sufficient full-time staffing to prevent trespassing and archaeological site destruction. The fences need to be maintained and monitored daily and violators should be prosecuted. We recommend the following specific changes to the EIS: Table 6-1 on page 6-2 includes references to obligations under §106 of the National Historic Preservation Act (NHPA). Section 110 should also be added to this discussion regarding the obligation of the Navy to survey all of their lands for historic properties.	Section 110 of the National Historic Preservation Act is not included in Table 6-1 because this table focuses on the federal compliance requirements for the specific proposed actions analyzed in the EIS. National Historic Preservation Act Section 110 and its broader applicability to cultural resource management on federal property is more appropriately included in the ICRMP.
CTUIR-DNR-9	On page 3.10-11 the DEIS has the following to say about the Treaty of 1855: In 1855, a treaty establishing the Umatilla Indian Reservation was signed by Isaac Stevens, governor of Washington Territory and its superintendent of Indian affairs, and headmen who were seen as representatives of the various bands of the Umatilla, Cayuse, and Walla Walla. Stevens and his associates were forced to yield certain concessions, including a reservation separate from the Nez Perce for the Umatilla, Cayuse, and Walla Walla, and allowing them to retain rights to their traditional lands. The treaty was ratified in 1860, and the Confederated Tribes of the Umatilla, Cayuse, and Walla Walla Reservation were removed to reservation lands. However, large numbers of the Umatilla and Walla Walla remained in their homelands along the Columbia River and	A new Section 3.11 (American Indian Traditional Resources) has been added to the FEIS. This section discusses treaty rights and analyzes potential impacts to American Indian traditional resources. The Socioeconomics and Environmental Justice and Cultural Resources sections reference Section 3.11 (American Indian Traditional Resources) for readability. Section 3.11 (American Indian Traditional Resources) also incorporates CTUIR comments on the definition of American Indian resources to improve accuracy and clarity. In response to your comment about the Treaty language on page 3.10-11 in the Draft EIS, the Navy also incorporated language on the Treaty

Table G.4-2: Responses to Comments from American Indian Tribes (continued)

Commenter	Comment	Navy Response
	continued their seasonal use of the region (Stern 1998:415). First of all, the Treaty of 1855 did more than establish the Umatilla Indian Reservation. In 1855, the Cayuse, Umatilla, and Walla Walla Tribes ceded to the United States more than 6.4 million acres of land in what is now northeastern Oregon and southeastern Washington, including the BBR. A parcel of land, designated the Umatilla Indian Reservation, was retained by the tribes as a permanent homeland. Also in the Treaty of 1855, the tribes reserved pre-existing rights to fish, hunt, and gather traditional foods and medicines throughout our traditional areas. The tribes still protect and exercise those rights within the 6.4 million acres of ceded land and beyond notwithstanding current state borders and boundaries. It is important to understand that the U.S. Government and the Treaty did not "give" tribal people those rights to fish, hunt, and gather foods and medicines. They are rights that we have had and exercised since time immemorial. Further, to say the United States was "forced to yield certain concessions" is a ridiculous overstatement that misrepresents the negotiating power of the tribes at the treaty council. If anything, the roles were reversed. The representatives of the United States may have been outnumbered, but the provision regarding a separate reservation for the Cayuse, Umatilla and Walla Walla tribes was hardly "forced" upon the United States, which best interests were well served by entering into the treaties to avoid continuing warfare. Finally, the treaty was ratified in 1859, not 1860.	of 1855 in the FEIS in Section 3.11 (American Indian Traditional Resources) and corrected inaccuracies.
CTUIR-DNR-10	The CTUIR provided comments to the INRMP in 2010. We were not provided a draft INRMP before the final was published, and there are errors we would like to correct. For instance, the Treaty of 1855 to which the Umatilla, Walla Walla and Cayuse tribes were a party is not the same Treaty of 1855 to which the Yakama were a party. They are two different treaties. The CTUIR Treaty is 12 Stat. 945, the Yakama Treaty is 12 Stat. 951. In the event there is a revision to the INRMP, we look forward to working with the Navy on it. The CTUIR understands the Navy has determined that hunting is no longer appropriate	As requested in your letter of December 20, 2012, the Navy provided a detailed response letter dated April 25, 2013. The Navy and National Guard requested Section 106 consultation early in the EIS process to allow better integration of NHPA requirements with development of the EIS analysis. Additionally, the tribes were provided with revised versions of the FEIS prior to publication. A formal government-to-government meeting between the CTUIR Board of Trustees

Table G.4-2: Responses to Comments from American Indian Tribes (continued)

Commenter	Comment	Navy Response
	for the BBR, however, as noted in the INRMP, the CTUIR would like to work with the Navy through ongoing consultation to explore options whereby parts of the southern portion of the BBR may be determined appropriate for traditional uses such as hunting and gathering. Finally, the CTUIR DNR requests that the Navy respond to our comments in writing so that we can ensure our concerns are addressed clearly and cooperatively. Similarly, we would like the opportunity to review a final draft before it is published to minimize any further inaccuracies. The CTUIR DNR will continue to review the DEIS and will notify the Navy of any additional concerns. It would be prudent and worthwhile to schedule a meeting with the Navy and the Board of Trustees to discuss this project pursuant to your invitation to consult on a Government-to-Government level. Please have your staff contact Audie Huber, Intergovernmental Affairs Manager of DNR, at 541-429-7228 to schedule this meeting.	and the Commanding Officer of Naval Air Station Whidbey Island was held on July 11, 2013. The Navy, Oregon SHPO, CTUIR, and ACHP prepared a Memorandum of Agreement (Appendix C), which was signed in October 2015, to resolve adverse effects on traditional cultural properties and establish protocols for protection and management of these resources in accordance with Section 106 of the NHPA.

Table G.4-3 contains comments from non-governmental organizations received during the public comment period and the Navy's response. Responses to these comments were prepared and reviewed for scientific and technical accuracy and completeness. Comments appear as they were submitted and have not been altered.

Table G.4-3: Responses to Comments from Organizations

Commenter	Comment	Navy Response
Craig Reeder, Hale Companies	The purpose of this letter is to provide comment in opposition to the current plans for the Naval Weapons Systems Training Facility Boardman. Consistent with the facility's history, the current plans do not address the facility's negative impacts to our local economy. The land the facility occupies, if developed, would be one of the most valuable assets in our area for several reasons including its proximity to water sources, its soil type, and its proximity to tremendous processing and shipping assets. We have tried to engage in discussion to outline these opportunities and work on a compromise position with the Navy and National Guard. It is imperative to the sustainability and grown of our area that the Navy understands the jobs and hundreds of millions of dollars those acres would add to the economy and work with the community on a development, exchange, or mitigation program. In closing, I would like to thank you for your service to our country and assure you that I am no way questioning the importance of the facility to our Armed Forces. I am however, questioning the apparent lack of significance placed on the potential economic impact of that property's very unique economic highest and best use. That land is part of a narrow region that is, quite literally, the best place in the world to grow irrigated vegetables. There is a local group of stakeholders who would be happy to revisit this issue with you and work toward a solution. In the meantime, our group will be working on the issue with our State and Federal Congressional delegations.	Currently, no agricultural activity occurs at NWSTF Boardman because of safety concerns. The scope of this EIS presents the potential impacts from the activities proposed in the Action Alternatives. Under the No Action Alternative, the lands of NWSTF Boardman are not available for agricultural use. Implementation of either Alternative 1 or Alternative 2 would not change the availability of land for agricultural use outside of NWSTF Boardman. Analysis of agricultural activity on NWSTF Boardman does not support the purpose and need of the proposed action and is not within the scope of the EIS.

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
Aircraft Owners and Pilots Association	The Aircraft Owners and Pilots Association (AOPA), representing more than 400,000 general aviation members, nationwide submits the following comments in response to the Draft Environmental Impact Statement (DEIS) for military training activities at the Naval Weapons System, Training facility (NWSTF) Boardman, OR. AOPA would offer that any request for new Special Use Airspace (SUA) must include the return of existing unusable SUA as described in the DEIS. Release of Airspace Based on the DEIS, the justification for requesting new SUA is a result of the proliferation of obstructions in the national airspace system (NAS). AOPA understands, the challenges, that exist from competing interests within the AS and their associated impact on airspace operations. In light of the fact the Department of the Navy (DoD) has indicated the existing SUA is no longer useable or adequate for training, we strongly urge the DoN to return all SUA that can no longer be used. Any request for new SUA resulting from the encroachment of wind turbines should be accompanied by a return of airspace that no longer meets the needs of DoN training requirements. This giveback of airspace will allow for the continued use of this airspace for civilian operations as necessary. Summary We appreciate the opportunity to comment on the DEIS for Naval Weapons Systems Training Facility Boardman. OR. AOPA strongly encourage the DoN to return any unused airspace back to the NAS as they seek to establish new SUA to meet mission and training requirements.	As described in the FEIS, the existing Boardman airspace will continue to be used for military training activities and cannot be released for public use. The proposed Boardman MOA would join the Boardman MOA. Low-altitude flight tracks would be oriented along a northeast axis to facilitate the use of this additional MOA, avoiding existing wind turbines on the far eastern end of R-5701C. The MOA would not limit use by non-participating aircraft flying under Visual Flight Rules, although aircraft entering this area would need to maintain vigilance, especially from 2 hours after sunrise until 2 hours before sunset, which is when activities could occur in the MOA.
PGE Property Services	Thank you for the opportunity to provide comments on the Navy's Draft Environmental Impact Statement concerning proposed Military Readiness Activities at the Naval Weapon System Training Facility (NWSTF) near Boardman, Oregon. Portland General Electric Company (PGE) provided initial comments on the Navy's proposal November 11, 2010. PGE proposes to	Thank you for your comment, information regarding the Cascade Crossing Transmission Project, and participating in the NEPA process. Although the Cascade Crossing project has been cancelled, the Navy will continue to engage with PGE as necessary.

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	construct, operate, and maintain a new 500 kilovolt (kV) extension of its electric transmission system starting in Boardman, Oregon, and running generally southwest, across the Cascades to the Willamette Valley, east of Salem, Oregon. Since 2010, (PGE) has been in discussions with the Navy regarding our proposed Cascade Crossing Transmission Project. We appreciate the Navy's effort in working through mutual interests so that compatible uses surrounding NWSTF proceed in ways that meet our mutual efforts for a reliable and secure electric energy supply, maintain homeland security and a strong national defense, address environmental protection requirements and benefit the Boardman community. To that end, PGE understands that the Navy will continue to make every effort to support PGE's proposed energy infrastructure within and/or adjacent to the perimeter of the NWSTF, the proposed Boardman Northeast Military Operations Area (MOA) and Restricted Area 5701. The first segment ("Segment One") of PGE's project runs from PGE's Coyote Springs generating plant at the east end of the City of Boardman to a new Grassland Substation to be constructed just west of PGE's Boardman generating plant, 13 miles southwest of Boardman. For this segment, PGE has identified several routing options, but there are two that are typically discussed: one is the initial route that parallels the northern edge of the bombing range and is located predominately on private lands (this route was part of PGE's original routing plan, so it was labeled as the "Proposed Corridor"); the other route is comprised of two alternate segments called "North Navy" and "Dalreed". Despite its label, PGE's preferred route is not the "Proposed Corridor", but rather the North Navy and Dalreed alternative because it minimizes impacts to private, irrigated farmland and the Boardman Community. Segment Two of the Project leaves the Grassland Substation in a westerly direction and serves as a connection to the remainder of the Project, which is collectively designed to carry the output from the generators in the Boardman area to the Willamette Valley.	

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	Portions of Segment One (both on the Proposed and alternate routes) and a portion of Segment Two are within the R-s701 airspace and the proposed MOA. The attached drawing and spreadsheet provide information on the proposed location and height of towers PGE is planning to install. PGE's present design has a range of 100- to 200-foot structure heights within the area designed as R-s701. Structure heights on the "North Navy" alternative are designed at 160 feet. If sited on private property in the "Proposed Corridor", just north of the Bombing Range, structures would range from 160- to 200 feet in order to span pivot irrigation circles. Structure heights on the north-south section west of the Bombing Range are predominately 100 feet tall on both the Proposed and Dalreed Alternative. From Grassland, structures will be located within PGE's existing transmission right-of-way and adjacent to an existing transmission line, with structure heights of up to 200 feet. PGE appreciates the cooperation the Navy has shown through its participation in the Cascade Crossing's permitting process and looks forward to a continued positive relationship as both the Navy's and PGE's projects move forward.	
Northwest Environmental Defense Center (NEDC)	I. The Navy Inaccurately Describes the Purpose and Need of the Action and Fails to Consider a Reasonable Range of Alternatives. NEPA directs federal agencies to prepare an environmental impact statement whenever agencies propose "major federal actions significantly affecting the quality of the environment." 42 U.S.C. § 4332(2)(C). The scope of the environmental analysis required by NEPA, which must include consideration of a range of actions, alternatives and impacts, 40 C.F.R. § 1508.25, is prescribed first by the stated purpose and need of the action under review. Id. § 1502.13. As a result, an agency may not arbitrarily assign an overly narrow purpose or need, with the effect of eliminating otherwise viable alternatives from consideration. See National Wildlife Foundation v. Whistler, 27 F. 3d 1341, 1346 (8th Cir. 1994) (citing Sylvester v. U.S Army Corps of	As detailed in Section 2.6 (Alternatives Considered but Eliminated From Further Analysis) of the FEIS, the Navy and ORNG evaluated a full range of alternatives to identify reasonable alternatives that would be carried forward for analysis in this EIS. Pursuant to 40 C.F.R. § 1502.14(a) the Navy and ORNG eliminated several alternatives from further analysis because they did not meet the purpose of and need for the Proposed Action or were not practical or feasible from a technical or economic standpoint. The alternatives considered included Constructing Range Enhancements and Conducting Training at Locations Other Than NWSTF Boardman, Simulated Training, Constructing Fewer Facilities at NWSTF Boardman, Reduction in the Level of Current Training

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	Engineers, 882 F. 2d 407, 409 (9th Cir. 1989)). Yet, this is precisely what the Navy has done here. The stated purpose and need of this action is to "achieve and maintain military readiness by using NWSTF Boardman and its associated airspace to support and conduct current, emerging, and future military readiness activities, while enhancing training resources through investments and development of necessary infrastructure on the range." DEIS at 1-4 (emphasis added). By limiting the purpose of this action to include the requirement that these activities occur at the NWSTF Boardman the Navy has eliminated the possibility that other sites could be used to fulfill what is in fact the true purpose here-namely "to achieve and maintain military readiness." To correct this fatal flaw the Navy will need to consider alternatives that include shifting training operations away from Boardman. Indeed, as the Navy itself admits, the NWSTF Boardman has numerous shortcomings as a training facility. See DEIS at 1-6. Moreover, the facility is less than ideal given its location, not only because of its ecological sensitivity and importance, but also its incredible distance for the Navy's other operations in the region. See id. at 1-2, figure 1-1. In addition, the Navy's subsequent analysis must include a range of alternatives for operations at the NWSTF Boardman that reduce or eliminate the impacts to the site. The absence of such alternatives in the current DEIS undermines the analysis as it fails to include a reasonable range of viable alternatives. 40 C.F.R. § 1502.14. Specifically, Alternatives 1and 2 both commit to new construction to support training requirements, accommodating mission requirements associated with force structure changes, and introduction of new weapons systems for training, and implementing range enhancements. The new and expanded training activities focus specifically on force structure changes for new aircrafts and new weapons systems. The construction and operation of a Multi-Purpose Gun Range (MPMGR) and the designation and establishment of a Drop Zone create a loss of habitat for special status species such as the Washington	NWSTF Boardman, and Constructing Range Enhancements and Conducting Training within Alternative Locations on NWSTF Boardman. The reasoning behind eliminating alternatives that included range developments at locations other than NWSTF Boardman were informed by studies that occurred prior to the beginning of this EIS effort. A required by Department of the Army and National Guard Bureau polices, the ORNG conducted a detailed analysis of alternative range locations to meet its training needs. A Range Development Plan for the ORNG, completed in April 2000, identified the need to develop Army-standard training ranges that would accommodate live-fire training and qualification for assigned weapon systems and vehicles (Oregon Military Department 2000). The ORNG then prepared a Land Use Requirements Study that identified NWSTF Boardman as the only practical location in Oregon that could accommodate the proposed new training ranges (Oregon Military Department 2003). The Navy also conducted an analysis of alternative locations for current and required future training activities and determined that NWSTF Boardman and associated special use airspace is the only practical alternative. Currently, the NWSTF Boardman special use airspace is the only airspace in the western United States that affords EA-6B and EA-18G aircrews that conduct the Airborne Electronic Attack mission the ability for Low-Altitude Tactical Training and Surface-to-Air Counter-Tactics Training. These pre-existing studies informed both the purpose and need of this EIS effort and were not arbitrarily assigned. .

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	ground squirrel. What is missing, either as a part of these alternatives or as a standalone alternative option, are measures that would eliminate, reduce, or mitigate for the ongoing and additional impacts these operations will have on the site.	
NEDC-2	II. The Navy Fails to Describe and Consider the Effects of the Proposed Alternatives Regardless of the alternatives ultimately considered, the Navy must move towards operations at the NWSTF Boardman that eliminate or minimize the negative environmental impacts on the site and the region. The first step in this effort, of course, is for the Navy to consider the impacts of it proposed actions. Although such an in-depth discussion of the adverse environmental effects of the proposed activities is required by NEPA, the DEIS fails to meet these requirements. [summary of duty under 40 C.F.R. § 1502.16]	The potential effects of Navy and Oregon National Guard training and testing activities were addressed and analyzed in Chapter 3 of the EIS. Also, as described in Chapter 5 (Management Practices, Monitoring, and Mitigation) of the EIS, the Navy will implement to the maximum extent possible, management practices (MPs), and mitigation measures during its training and testing activities.
NEDC-3	A. Washington Ground Squirrel Currently, the vast majority of the Washington ground squirrel's total historical range has been converted to agricultural and residential uses. The most contiguous, least- disturbed expanse of suitable habitat within the species' range is the NWSTF. As a result, the NWSTF supports the highest known concentration of Washington ground squirrels and the best available habitat (Carlson et al. 1980, Betts 1990, Quade 1994, Greene 1999). Although around 11 percent of the 42,682 acres that comprise the NWSTF has the designation as a Research Natural Area managed by The Nature Conservancy, the remaining 89 percent is managed by the Navy for military training, and has previously been managed for grazing allotments (Quade 1994, Greene 1999). Looking beyond the limited scope of the activities on the BNWSTF, the best available research suggests that the ground squirrel's range is now separated into three distinct populations. Historically, the species range was most likely	The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012, for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including ODFW and The

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	contiguous (Verts and Carraway 1998). Currently, the inhabited range of the WGS is estimated to be less than 50% of what it was historically. Research suggests that the number of colonies has dropped dramatically, and over 50% of those that have disappeared have collapsed since 1985 (USFWS 1999). Habitat for the squirrel is at a premium, and the construction proposed in both alternative 1 and alternative 2 of the draft EIS will take nearly 13 percent of critical squirrel habitat in the NWSTF. Moreover, Alternative 1 and Alternative 2 could cause the direct loss of squirrels from construction and increased road kills, possible incidental harm and harassment from operations, as well as an increased wildfire and invasive species threat that may also affect the adjacent BCA. The direct loss of squirrels and suitable habitat will likely have significant, potential devastating and irreparable impacts on the squirrel. Although the WGS is only listed as a candidate species under the federal ESA, it currently is listed as all endangered species under Oregon State Law (ORS 496.171-496.192). While NEDC acknowledges the supremacy of federal law on military bases, we feel that it's important to note that State of Oregon has decided that this species is important enough amongst its citizens to justify statutory protection under the Oregon Endangered Species Act. It is the policy of the State of Oregon that endangered wildlife be managed to prevent serious depletion. Oregon state law is constructed so that any endangered, indigenous species is protected to provide the optimum recreational and aesthetic benefits for present and future generations of the citizens of this state. Maintaining all species of wildlife at optimum levels, especially those that are endangered, is the main tenant of the Oregon endangered species program. The taking of critical habitat represented by both alternative 1 and 2 could have adverse effects on this species, causing numbers to dwindle drastically into the endangered range recognized not only by the state, but also by the federal government. If the WGS was elevated from a candidate species to an endangered species under the federal ESA, then there is a high probability that the NWSTF	Nature Conservancy, provided input to the conferencing process.

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	constitutes "critical habitat" as defined statute. From ESA section (5)(A) - "The term "critical habitat" for a threatened or endangered species means- (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection;.(ESA; 7 U.S.C. § 136,16 U.S.C. § I531 et seq.) By choosing the no action alternative, the Navy can reduce the impact on this fragile species, assist the citizens of the state of Oregon in maintaining the Washington ground squirrel as a cornerstone of our ecosystem, and prevent the need to have the squirrel listed on the ESA.	
NEDC-4	B. Migratory Birds Alternative 1 and alternative 2 will also impact golden eagle and other migratory bird populations in the area. Specifically, the proposed construction and training activities will have a marked impact on the WGS, among other small mammals in the area, which serve as major food source for golden eagles. The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles. The Act defines "take" as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. (emphasis added). The action considered by the Navy here fall under the definition of "disturb" as it relates to the Golden Eagle.	The analysis provided in Section 3.6 (Wildlife) of the FEIS concludes that the Proposed Action would not disturb golden eagles and that the Proposed Action would not have a significant adverse effect on any populations of migratory bird species.
NEDC-5	III. Other considerations A. Water Resources	As discussed in Section 3.3 (Water), the Navy and ORNG have several existing environmental programs that would address

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	The NWSTF Boardman EIS addresses the Resource Conservation and Recovery Act (RCRA) in relation to water resources. The action NWSTF Boardman appears to be taking to mitigate incidental spills in compliance seems appropriate and effective if followed. One possible area for concern is the potential for incidental spills under Alternative I and 2 with increased activity. The use of drip pads and whether they will be effective enough is a question that continued monitoring of the soil and surrounding area in these secondary containment areas should be encouraged to discover issues or possible seepage potential. The EIS also addresses domestic wastewater treatment and disposal through the permit process with the Oregon Department of Environmental Quality assessment on the placement of septic systems and their potential impact. Further analysis will be placed after these findings are complete and an area is designated. The impact of lead from non-explosive munitions could be of concern if the pH level of the soil changes or annual precipitation increases, to prevent seepage or other contamination. The lack of specific monitoring and proposed plans for monitoring as well as the only consideration coming during the Range Condition Assessment Five-Year Review raises the concern that if mitigation measures are not inline or as effective as predicted, potential harm or impact could be established. Under the Resource Conservation and Recovery Act (42 U.S.C. §6901 et seq.) and the "cradle-to-grave" control of hazardous and non-hazardous solid waste, an increased monitoring program greater than the five year period would be beneficial.	potential water quality issues under the Proposed Action, and the FEIS included several BMPs to avoid and minimize potential impacts on water quality. In addition, the Navy and ORNG will continue to comply with all requirements of the Resource Conservation and Recovery Act that apply to NWSTF Boardman. The effectiveness of BMPs and compliance with environmental laws is monitored as a matter of standard practice in accordance with Navy and ORNG Environmental Management Systems.
NEDC-6	IV. Conclusion Before proceeding with any action at the NWSTF Boardman, the Navy must comply with the mandates of NEPA. The DEIS falls well short of considering a reasonable range of alternatives and assessing the environmental impacts of continued or expended training exercises at the facility. More specifically, Alternatives 1 and 2 both carry with them the risk of irreparable harm to the	In compliance with NEPA, the Navy and ORNG have conducted a comprehensive analysis of the potential environmental effects of the proposed action and its alternatives, consulted with the USFWS on the WGS, and with the tribes on traditional cultural properties present on NWSTF Boardman. The alternatives considered a broad range of

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	unique ecosystem present in the Boardman area. While the no action alternative in comparison represents a less harmful option, given the Navy's patent failure to consider other reasonable alternatives and full address the environmental impacts of such approaches, even this alternative cannot be chosen at this point.	alternative actions: Constructing Range Enhancements and Conducting Training at Locations Other Than NWSTF Boardman, Simulated Training, Constructing Fewer Facilities at NWSTF Boardman, Reduction in the Level of Current Training NWSTF Boardman, and Constructing Range Enhancements and Conducting Training within Alternative Locations on NWSTF Boardman.
Oregon Pilots Association	The Oregon Pilots Association, a strong military supporter, would like to request that the Navy return unused airspace to the public airspace system for use by all pilots. The restricted airspace in and around the Boardman, Oregon area supports many general aviation activities. By reducing the airspace restrictions to just what is absolutely necessary for Navy training exercises you will be allowing general aviation to more freely utilize that space appropriately and safely. The advantages are clear. The FAA and military would have less restricted space to monitor. General aviation could use the space more often for time saving flight plans and for possible safety reasons. Everyone wins. And if the needs of the Navy change in the future to require the restrictions again, then that is not hard to accomplish. And of course the environment wins due to the lower impact usage by general aviation versus military traffic. Thank you for hearing our concerns. Dennis Smith, President, Oregon Pilots Association	As described in the FEIS, the existing Boardman airspace will continue to be used for military training activities and cannot be released for public use. As presented in Section 1.3.2.3 (Area of Training Space), non-participating aircraft (general aviators) are prohibited to enter Restricted Areas at NWSTF Boardman unless they have prior approval from the controlling authority (Seattle ARTCC). Non-military aviators must coordinate any flight activities that require entrance at any time into the Restricted Airspace with Seattle ARTCC, who in turn works with local aviators and military training schedules to determine available flight times. If scheduling conflicts arise, Seattle ARTCC contacts the local aviator. The proposed Boardman MOA would join the Boardman MOA. Low-altitude flight tracks would be oriented along a northeast axis to facilitate the use of this additional MOA, avoiding existing wind turbines on the far eastern end of R-5701C. The proposed MOA would not limit use by non-participating aircraft flying under Visual Flight Rules, although aircraft entering this area would need to maintain vigilance, especially from 2 hours after sunrise until 2 hours before sunset, which is when activities could occur in the MOA.
Defenders of	I am writing to provide Defenders of Wildlife's comments on the draft	In identifying reasonable alternatives for evaluation in the EIS,

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
Wildlife (DoW)	environmental impact statement for Naval Weapons System Training Facility Boardman. The Boardman area has been a focus for Defenders' biodiversity conservation efforts for more than 15 years. We appreciate the draft EIS's recognition of the Boardman Bombing Range's importance for wildlife; the Navy's stewardship of these lands is one of the reasons they retain such significant biodiversity values. We understand the importance of NWSTF Boardman for the Navy's mission and the need to maintain its viability as a training facility. We also understand the Oregon National Guard's need for additional training facilities, and the difficulty of finding suitable sites for that training. However, much of the National Guard-related development proposed in the draft EIS poses significant risks to wildlife habitats and sensitive species. Implementation of either of the action alternatives is likely to trigger new regulatory restrictions that will make it difficult to achieve the Navy's purposes and could constrain future management of the bombing range. We suggested in our November 2010 scoping comments that the Navy consider an alternative that would be limited to the Navy proposed actions, not including the actions proposed to address the Oregon National Guard's training facility needs. We continue to believe this offers a more viable path forward.	particularly concerning ORNG proposed activities, the ORNG, as required by Department of the Army and the NGB policies, conducted a detailed analysis of alternative range locations to meet its training needs. A Range Development Plan, completed by a military planning firm for the ORNG in April 2000, identified the need to develop Army-standard training ranges that would accommodate live fire training and qualification for assigned weapon systems and vehicles (Oregon Military Department 2000). The ORNG then prepared a Land Use Requirements Study that identified NWSTF Boardman as the only practical location in Oregon that could accommodate the proposed new training ranges (Oregon Military Department 2003). The Land Use Requirements Study looked at the development of needed weapons training ranges and concluded that construction of a MPMGR or DMPTR on existing ORNG installations was not possible and obtaining new lands through purchase or the Congressional withdrawal of public lands was not within the capability of the Oregon National Guard to implement.
DoW-2	Although our concerns are more broadly about the importance of maintaining the ecological integrity, functions and processes associated with the remaining native habitats on the bombing range, impacts on the Washington ground squirrel are at the heart of this issue from a legal and policy standpoint. The draft EIS: . Correctly identifies the importance of the bombing range for Washington	The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012, for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B,

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	ground squirrels and concludes that virtually all of NWSTF Boardman is suitable Washington ground squirrel habitat. . Finds that noise, ground disturbance and habitat alteration are "likely to adversely affect" Washington ground squirrel. . Acknowledges that development may directly impact some "core areas" and contribute to further fragmentation of other core areas. . Identifies "dense clusters" of Washington ground squirrel detections - and implies that these may also be "core areas" - in the northern portion of the site, including some on and near the proposed machine gun and digital training ranges. . Does not quantify Washington ground squirrel population effects and does not quantify habitat impacts beyond direct ground disturbance. . Proposes no specific mitigation actions and provides no assurance that mitigation will offset impacts. . Provides no specific assessment of Washington ground squirrel habitat, use, and populations in area proposed for mitigation, information that is necessary to establish baseline and quantify potential uplift associated with mitigation actions.	Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including ODFW and The Nature Conservancy, provided input to the conferencing process.
DoW-3	The draft EIS ignores some important realities. The U.S. Fish and Wildlife Service will be making a decision on listing of the Washington ground squirrel under the Endangered Species Act by September 2013. Publication of the draft EIS in itself may be sufficient to increase the imminence of threats to the species to the level requiring listing under the ESA. Nothing in the draft EIS suggests that the Navy is adequately prepared to move forward with implementation within the context of an ESA listing.	The Navy and ORNG recognize that the Washington ground squirrel could be proposed for listing under the Endangered Species Act in the near future, as the USFWS decision has not yet been issued. The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012, for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
		Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including ODFW and The Nature Conservancy, provided input to the conferencing process. If the Washington ground squirrel is listed in the future, the Navy and ORNG would request Section 7 consultation with USFWS and USFWS would ultimately issue a Biological Opinion. We expect that the Conference Opinion would serve as the starting point or perhaps basis for the terms and conditions in the Biological Opinion.
DoW-4	The draft EIS also maintains that the proposed development actions are exempt from requirements of Oregon Threatened and Endangered Species Act. This is not the case for the Oregon National Guard. The Oregon Department of Justice issued an opinion in 2006 finding that the Oregon Military Department's activities are subject to the state's endangered species protections. [A CITATION TO THE OPINION MAY BE USEFUL HERE]	As described in Section 1.4.3 (Endangered Species Act), the Washington ground squirrel was listed as a state-endangered species in 2000 under the Oregon Endangered Species Act. NWSTF Boardman is federal property under exclusive federal legislative jurisdiction. Since the Washington ground squirrel is a candidate species that is afforded no protection currently under federal ESA law, the Navy is not under a regulatory requirement to conference or consult with USFWS regarding the species. Nevertheless, the Navy and the ORNG (acting as the National Guard Bureau's agent) have included the ODFW in discussions with the USFWS concerning potential effects to the squirrel and mitigation actions. The development of the Washington Ground Squirrel Conferencing Package has also been reviewed by ODFW and mitigation and survey methods that are in the conferencing package have been incorporated into USFWS's Conference Opinion, which is included in

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
		Appendix B, Regulatory Compliance Correspondence, of the FEIS.
DoW-5	In light of these issues, we continue to believe, as noted in our scoping comments, that the final EIS should consider the effects of a federal ESA listing of the Washington ground squirrel as well as the need for compliance with the Oregon ESA. This should include a full assessment of the likely impacts on the Washington ground squirrel, necessary modifications to the proposed alternatives, and a detailed plan for mitigation of unavoidable impacts and compliance with the Oregon ESA. If the Navy does not begin to adequately mitigate for impacts to the squirrel now, the Navy may have fewer options for avoiding jeopardy to the species once it becomes listed. This will result in potentially greater restrictions to Navy operations in the future. This outcome is all the more likely considering that the Navy has already determined that noise, ground disturbance and habitat alteration are "likely to adversely affect" the species, and such a finding triggers formal consultation for listed species under section 7(a)(2) of the ESA.	The Navy and ORNG recognize that the Washington ground squirrel could be proposed for listing under the Endangered Species Act in the near future. The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012 for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts; mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement; and adaptive management and monitoring. Other stakeholders, including ODFW and The Nature Conservancy, provided input to the conferencing process. If the Washington ground squirrel is listed in the future, the Navy and ORNG would request Section 7 consultation with USFWS and USFWS would ultimately issue a Biological Opinion. We expect that the Conference Opinion would serve as the starting point or perhaps basis for the terms and conditions in the Biological Opinion.
DoW-6	There are numerous other issues in the draft EIS that give us concern, but recognizing that others are providing much more detailed comments, we will highlight only a few:	The FEIS was updated to include additional information with respect to historical Washington ground squirrel detections at NWSTF Boardman and historically occupied habitat. The

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	. The draft EIS implies that the northern portion of the bombing range, where most development is proposed, provides lower quality wildlife habitat and/or is less important for Washington ground squirrels and other sensitive species. We are not aware of any data to support this implication and in fact some of the information in the DEIS suggests that some of the highest wildlife values are found on the northern portion of the property, including some of the densest concentrations of Washington ground squirrel detections.	analysis in both the DEIS and FEIS was based on the assumption that all habitats affected by the Proposed Action are potentially suitable and historically occupied habitat. The Navy and ORNG have conferred with USFWS regarding the Proposed Action and the Washington ground squirrel. A conferencing package was submitted to USFWS after public release of the DEIS, and the USFWS issued their Conference Opinion for the Washington ground squirrel on December 2, 2013. The FEIS has been updated to reflect outcomes of the conferencing process and the Conference Opinion.
DoW-7	The assertion that undefined future habitat enhancement actions in the southern portion of the bombing range will be sufficient to offset the as-yet unquantified negative effects on Washington ground squirrels and other wildlife is inadequate to support an informed decision on the merits of the proposed actions. The final EIS should include a fully developed mitigation plan that describes the methodology for quantifying both negative impacts and offsets; how and where specific impacts will be offset; and provisions to ensure timely implementation of the mitigation program and maintenance of conservation benefits over time.	The Navy and ORNG have conferred with the USFWS regarding the Proposed Action and the Washington ground squirrel. A conferencing package was submitted to USFWS after public release of the DEIS, and the USFWS issued their Conference Opinion for the Washington ground squirrel December 2, 2013. The FEIS has been updated to reflect outcomes of the conferencing process and the Conference Opinion has been included in Appendix B (Regulatory Compliance Correspondence). The Conference Opinion includes provisions for Washington ground squirrel monitoring and adaptive management.
DoW-8	In conclusion, we believe that the analysis in the draft EIS contains serious flaws and is inadequate to support a decision to move forward with either of the proposed action alternatives. Most of the problematic issues are associated with the Oregon National Guard's proposed actions. The Navy proposed actions appear unlikely to have significant environmental impacts, and we would encourage consideration of a new alternative limited to those proposals. The final EIS should also include an analysis of the effects of a potential federal ESA listing of the Washington ground squirrel and the need for Oregon National Guard compliance with the Oregon ESA, and a detailed	An alternative without Oregon National Guard training would not meet the purpose of and need for the action. Additionally, a Conference Opinion for the Washington ground squirrel has been developed by the USFWS, and is provided in Appendix B (Regulatory Compliance Correspondence) of the Final EIS.

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	mitigation plan laying out the measures proposed to offset unavoidable negative impacts on the Washington ground squirrel and other sensitive wildlife and habitats.	
Aero Scan	With the US Navy's dissolution of facilities in the state of Oregon, it is only fitting and totally justified to request that they relinquish the protected airspace once used by the weapons testing teams back to the existing C, D, and E airspace standards. Civilian aviation airspace is being dramatically reduced by more and more SUAs because of the proliferation of drones, testing, and security measures. If unused airspace does not revert back to the public, it will cause an unnecessary, undue hardship on both working and privately owned aircraft as newer demands gobble up airspace. This not only makes travel in a direct path between two points (the most fuel efficient course)nearly impossible, but opens up pilots to the possibility of violating airspace restrictions by being unaware of, or flying easily mistaken routes to navigate the horribly complicated maze that numerous SUAs present. It is for these reasons that I, as a constituent, adamantly request the repatriation of the Oregon Naval SUAs.	As described in the FEIS, the existing Boardman special use airspace continues to be a critical asset in Navy electronic warfare training. The proposed MOA would enhance the value of the SUA by joining the existing Boardman MOA. Low-altitude flight tracks would be oriented along a northeast axis to facilitate the use of this additional MOA, avoiding existing wind turbines on the far eastern end of R-5701C. Use of the restricted airspace by non-participating aircraft and scheduling would be allowed given proper authority and prior notifications. The proposed MOA would not limit use by non-participating aircraft although aircraft entering this area would need to maintain vigilance, especially from 2 hours after sunrise until 2 hours before sunset, which is when activities could occur in the MOA.
Idaho Power (Idaho Power)	II. Idaho Power Interest in the NWSTF Draft EIS Idaho Power is currently in the process of developing, siting and permitting the Boardman to Hemingway ("B2H") 500 kilovolt ("kV") single-circuit transmission line. This approximately 300 mile project was initiated in December 2007 and will connect the Hemingway Station southwest of Boise, Idaho, to the Mid-Columbia Market in the greater Boardman, Oregon, area. B2H requires both federal and state permitting processes to be completed, with the Bureau of Land Management ("BLM") the lead permitting agency for the National Environmental Policy Act ("NEPA") process, and the Oregon Department of Energy ("ODOE") leading the state Energy Facility Siting Council ("EFSC") permitting process. It is anticipated that these processes will both be completed by 2015 with an in-service date of no earlier than 2018. PacifiCorp and Bonneville Power Administration have recently become Permit	Thank you for providing additional information regarding your project, which is discussed within the Cumulative Impacts (Chapter 4) analysis of the EIS.

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	Funding Partners on B2H. B2H is currently investigating two termination options in the vicinity of the NWSTF Boardman, the Grassland Station and the Longhorn Station. The Grassland Station, located west of the NWSTF Boardman, is Idaho Power's proposed action with the proposed line route skirting the southern boundary of the NWSTF Boardman. The Longhorn Station, located northeast of the northeastern boundary of the NWSTF Boardman, is an alternate action. Its current proposed route is located east of the eastern NWSTF Boardman boundary (see Figure I - B2H Map). The B2H team has been coordinating routing activities with the Navy since late 2010. Coordination has occurred between Idaho Power's Project Team and VIR Scott Smith, PE, Team Whidbey Business Manager, Dave Belote, Executive Director, DoD Siting Clearinghouse, Ronald Tickle, CIY OPNAY, N45 and Kent Mathes, Range Program Manager.	
Idaho Power-2	III. Comments on the Draft EIS Three alternates were evaluated in the NWSTF Boardman Draft E1S; No Action Alternative, Alternative I and Alternative 2. The proposed actions associated with both Alternatives I and 2 appear to have no conflicting activities with either B2H's proposed Grassland action or its alternate Longhorn action. Idaho Power is interested in continuing coordinating efforts with the Navy and other interested parties outside this Draft EIS with the goal of minimizing potential land-use conflicts while still meeting strong national defense objectives and federal, state and regional electric grid requirements.	Thank you for your participation in the NEPA process. As you have provided a very detailed comment, it has been broken down into component parts to ensure that all comments provided in your letter are addressed. As a result, this portion of the comment does not contain a specific question or inquiry related to the Draft EIS. Therefore, no response is provided.
Idaho Power-3	Page # 4-11 Line # 34: The sentence that reads "The current project design currently proposes the use of single and double circuit towers, and steel lattice and tubular towers." can be misleading. This states that single and double circuit towers would be used. This could be interpreted that IPC would use double circuit towers on the 500 kV single circuit transmission line. That is not correct. Only single circuit towers are proposed be used on the 500 kV	Thank you for providing additional information regarding your project, which is discussed within the Cumulative Impacts analysis of the EIS. The information provided has been used to revise the current design sentence within the FEIS.

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	transmission line. There is a section of the project that will combine a portion of two unrelated lower voltage single circuit lines (one that is 138 kV and another that is 69 kv) onto a new section of double circuit line. But that section is over 100 miles away from the NWTSF Boardman facility. The inclusion of that portion of the project in the discussion could be interpreted incorrectly as relating to the 500 kV line. Please revise the sentence to read -The current project design proposes the use of single circuit lattice steel and tubular steel towers in the vicinity of the NWSTF Boardman facility	
The Nature Conservancy, Columbia Basin Office (TNC)	We have a set of concerns with the Draft EIS, particularly relative to effects of the proposed National Guard range development on the habitats and wildlife on the NWSTF. Representation of those effects is incomplete or incorrect in the document. The species of most immediate concern on the NWSTF is the Washington ground squirrel (WGS); it is listed as Endangered in Oregon and is a Candidate for federal listing under the Endangered Species Act. The USFWS is currently in the process of determining the status of the WGS and whether it should be listed. The status review will now include the proposed training range development, as well as impacts from the Cascade Crossing transmission line and recent wind developments that have significantly impacted WGS on private lands since the last review. We believe the proposed training facilities, transmission, and wind projects will likely have significant long-term impacts on this population and may very well jeopardize the survival of the species. A decision to federally list the WGS will impact the Department of the Navy's use of the NWSTF at Boardman, and would therefore be considered a significant encroachment issue. By creating such a situation, the current action alternatives would be violating one of the criteria laid out by the Navy and National Guard for development of possible alternatives that support the underlying purpose of and need for the Proposed Action (Section 2.2.1, criteria number 7).	The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012 for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts; mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement; and adaptive management and monitoring. Other stakeholders, including ODFW and The Nature Conservancy, provided input to the conferencing process. If the Washington ground squirrel is listed in the future, the Navy and ORNG would request Section 7 consultation with USFWS and USFWS would ultimately issue a Biological Opinion. We expect that the Conference Opinion would serve as the starting point or perhaps basis for the

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
		terms and conditions in the Biological Opinion.
TNC-2	In addition we recommend further exploration of the issues related to the Endangered status of the WGS under the Oregon Endangered Species Act. While this status does not require federal agencies to abide by state regulations, including obtaining take permits for endangered species as mentioned in Section 1.4.3, we believe there is uncertainty with regards to the responsibility of the Oregon National Guard and others. The Oregon National Guard, like all state National Guards, is a “dual status” entity: it is simultaneously the “Oregon Army National Guard” (ARNG, its state status) and the “Oregon Army National Guard of the United States” (ARNGUS, its federal status). Accordingly, unless acting in its federal/ARNGUS status, it functions as a state agency. If training activities on the NWSTF are done primarily in its state status, then they fall into a potential situation where, because of their status as state agency employees, they may have a duty while performing state agency actions beyond that of a private citizen to not take actions inconsistent with the rule established by the ODFW for the WGS, even if, as a technical matter of legislative jurisdiction, that rule is inapplicable inside the fence line of the NWSTF.	Thank you for your comment. As you correctly pointed out, pursuant to Section 1.3.1 (History of NWSTF Boardman), the lands encompassed by NWSTF Boardman are federal lands with exclusive federal jurisdiction.
TNC-3	The document makes multiple references to the northern portion of the range, where the training ranges are proposed, as “less valuable habitat” than the southern portion of the site. However, the wildlife maps in the document do not support the statement, as they show larger, more widespread wildlife use in the northern portion (i.e. long-billed curlews, burrowing owls).	The FEIS was revised to reference "more valuable habitat" in the southern portion of the installation. The term "less valuable habitat" was removed from the FEIS.
TNC-4	The map showing burrowing owl nest locations is incomplete; it appears to show that the owls do not use the area where training ranges are proposed. The areas mapped and surveys to date are where burrowing owl work was conducted in the 1980s (Greg Green) and 1990s (Aaron Holmes). These surveys were not done randomly, and should not be construed as complete surveys of the NWSTF. Green established some habitat parameters and then	Thank you for this information regarding the burrowing owl surveys conducted at NWSTF Boardman. The analysis in the FEIS considered the entire footprint of the range enhancements as confirmed breeding habitat for the western burrowing owl.

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	did systematic surveys in those areas. Holmes initially focused on areas where the 1980s work was conducted. Some of those areas were occupied and some were not; he found many other sites, especially in the southern portion of the facility, that were occupied. When Dr. Holmes was asked about the validity of basing future burrowing owl surveys on historic locations, he answered "Owls likely occupy different portions of the range through time based on patterns of prey and burrow availability, as well as possibly through social feedback and patterns of conspecific attraction. Thus, from a biological point of view, the entire NWSTF is high quality habitat for the owls, and assigning them to the areas where they were found 30 years ago lacks merit."	
TNC-5	Long-billed curlew distribution on the site is not confined to the area depicted on the map from Dr. Holmes' study. Similar to the burrowing owl work, those surveys did not cover the entire NWSTF, and should therefore not be considered comprehensive.	Thank you for this information regarding the long-billed curlew surveys conducted at NWSTF Boardman. The analysis in the FEIS considered the entire footprint of the range enhancements as confirmed breeding habitat for the long-billed curlew.
TNC-6	In addition, the Washington ground squirrel (WGS) survey data from 2005-2006 is interpreted incorrectly. This data does not support the idea of "better" habitat (as described in the Draft EIS) or more squirrel activity in the southern portion of the site. Most of the WGS surveys conducted on the NWSTF, including the 2005-2006 surveys, were not designed to determine all locations where WGS are active. Rather, they were designed to revisit historical locations (239 historic points on NWSTF) and determine if they were still active. They do not represent a thorough and systematic survey of the entire NWSTF. The 2005-2006 data show detections of WGS associated with the historic points that were checked. There are many squirrel activity sites that are not monitored, so would not have been visited in either 2005 or 2006.	Thank you for this information regarding the Washington ground squirrel surveys conducted at NWSTF Boardman. The analysis in the DEIS and FEIS considered the entire footprint of the range enhancements as historically occupied Washington ground squirrel habitat. Additional squirrel data for NWSTF Boardman were obtained from ODFW and others, and were used to produce new figures depicting known squirrel detections and historically occupied habitat for the FEIS.
TNC-7	In a WGS activity area analysis exercise, The Nature Conservancy mapped WGS sites that were occupied in 2005 & 2006 by size category (Figure 1).	Thank you for these insights into the Washington ground squirrel distribution at NWSTF Boardman. We concur with

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	Results do not support the assertion that the habitat in the northern portion of the range is "less valuable"; the 2005-2006 occupied sites are distributed fairly evenly between north and south portions of the NWSTF. The size categories of activity sites are also well distributed throughout the NWSTF; larger activity sites are not concentrated in the southern part of the NWSTF.	your assessment and this information is reflected in Section 3.6 (Wildlife) of the FEIS.
TNC-8	The Draft EIS identifies the entire NWSTF range as suitable WGS habitat, but asserts that the "core" habitat, and "highest quality" habitat is located in the southern portion of the NWSTF. On page 3.6-14, lines 7-10 state: "Washington ground squirrel habitat exists on and near the proposed MPMGR and DMPTR. Numerous active detections have been recorded in these areas. Some evidence and observations suggest that this habitat is lower quality than habitat found farther south on Warden soils." We are not aware of evidence to support this statement, see no citation to support this conclusion and know of no research that provides such a habitat ranking.	The FEIS includes the following statement: "Therefore, the available data cannot be used to draw definitive conclusions about relative squirrel activity on various parts of the property or to specifically identify Washington ground squirrel 'core areas.'"
TNC-9	Spatial analysis of information used to draw conclusions about WGS activity areas and relative importance of habitats across the NWSTF seems to have excluded additional existing data. The Oregon National Guard hired a contractor to survey the areas of proposed range development in 2005, 2006 and 2008; however the results of those surveys are only represented in the Draft EIS in tabular form. Given that there were WGS detections throughout the areas proposed for development we recommend that this data be utilized and mapped for inclusion in the Draft EIS.	These data are included in FEIS Figure 3.6 1: Known Washington Ground Squirrel Detections at NWSTF Boardman Historic through 2009.
TNC-10	Direct and cumulative effects The Draft EIS discussion of direct and cumulative effects of training range development on wildlife habitat is confined to the footprint of the buildings. While these impacts are important and should be analyzed we have concerns about effects of additional activities that are not adequately reviewed in the document.	The analysis of potential impacts on wildlife habitat in the DEIS was not confined to the building footprints, as is stated in your comment. Section 3.6 (Wildlife), analyzed the potential impacts of noise, construction activities, vehicles, non-explosive practice munitions, maintenance activities, invasive plants, and wildfire on wildlife habitat. Additional analyses and

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
		quantification of some impacts has been included in the FEIS.
TNC-11	We recommend that a comprehensive impacts analysis be completed that incorporates direct, indirect and cumulative impacts. We further recommend that this impacts analysis follow natural resource management agency protocols (USFWS and ODFW) used for the habitats and species found on the NWSTF, as they are being used in assessments and legal decisions for nearby developments. One such example is the PGE Cascade Crossing transmission line siting effort. ODFW provides impact analysis and mitigation recommendations to land-use decision agencies. Their recommendations for Washington ground squirrel include complete surveys and avoidance of ground disturbance within 785 feet of any known WGS colony. They also provide some guidance on noise impacts and suggest an adaptive management approach to measuring and moderating any detected negative impacts.	Additional analyses and quantification of impacts, as well as implementation of a systematic monitoring and adaptive management program, was included in Section 3.6 (Wildlife) and Chapter 5 (Management Practices, Monitoring, and Mitigation Measures).
TNC-12	In addition, we note some areas of concern that require further clarification or resolution: Construction, operation and maintenance of the MPMGR and DMPTR (Pages 2-23 to 2-27) would result in substantial and sustained disturbance. Page 2-24, lines 23-29 describes the MPMGR occupying 260 acres, of which 27.5 acres would be disturbed during construction and 11.6 of those acres would be re-vegetated after construction. The DMPTR would occupy 865 acres, disturb 45 acres of which 21.4 acres would be re-vegetated (Page 2-26, lines 3-6). However, maintenance activities would include “periodic vegetation control” for both training ranges. The specifics of what that vegetation control would entail are lacking, but it appears that ongoing disturbance could potentially occur across the entire 260 acres of the MPMGR and 865 acres of the DMPTR. In addition, the document does not provide sufficient information concerning materials and methods of restoration to determine the potential for returning natural function to the disturbed areas.	FEIS Section 3.6 (Wildlife) includes additional analysis of the type and extent of impacts on wildlife habitat associated with range use. Stressors would include noise, maintenance activities, projectiles striking the ground, vehicle and equipment operations (on-road), and training-caused wildfires. It is expected that the combined effects of these stressors would result in long-term habitat degradation within the entire range footprints. Areas temporally disturbed during construction would be restored in accordance with the post-construction restoration plan (Appendix F), a mitigation plan has been developed to compensate for these impacts, and adaptive management and monitoring plans have been developed to reduce uncertainty related to these effects (see USFWS Conference Opinion in Appendix B, Regulatory Compliance Correspondence, of the FEIS).

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
TNC-13	Page 2-27, lines 39-43 indicate that CLFR target areas would be moved periodically and the "former target locations would be re-vegetated with native species". The document provides no indication as to how often target repositioning would occur, nor is there sufficient description of materials and methods to be used for restoration of the abandoned target sites to determine the potential for success. Impacted areas are significant sources of fragmentation and vectors for invasive species if not appropriately restored and managed.	The impact analysis in the FEIS for the CLFRs assumes that the entire range footprint would experience long-term habitat degradation, and compensatory mitigation is provided for these impacts. In addition, disturbed areas would be restored in accordance with the revegetation plan provided in Appendix F (Additional Biological Information) of the FEIS when target emplacements are relocated.
TNC-14	Regarding the establishment and use of the proposed drop zone, lines 19-29, page 2-29 states that "no construction or ground disturbance would be required to establish the drop zone"; however, the impacts from military equipment and supplies being dropped from aircraft, as well as vehicle and pedestrian ingress to retrieve those dropped items will certainly cause substantial ground disturbance over time. We recommend addressing this concern in the Draft EIS.	Negligible ground disturbance would occur in the drop zone because it would be used infrequently (12 days per year, see Table 2-1 of FEIS) for paradropping personnel and small-medium containerized military equipment and supplies. As discussed in Section 3.5 (Vegetation) of the FEIS, ground vehicle use under Alternatives 1 and 2 would be limited to the existing road network.
TNC-15	The Ground Disturbing Activities and Habitat Alteration section (pages 3.6-53 to 56) identifies many things that will adversely affect many species, but the summary (lines 5-9, page 3.6-56) states "…an overall reduction in impacts to wildlife habitat from ground disturbing activities would be observed under Alternative 1 compared to the No Action Alternative when the combined effects of construction, training, and maintenance activities are considered. The total area of disturbance from construction activities would be 92 ac (37 ha), but proposed modifications to the fire break system would result in restoration of about 219 ac (89 ha) of disturbed land." This implies that the fire break restoration will serve as mitigation for the construction rather than being an action included in the INRMP. Fire break management would provide only marginal benefit, if any, to the WGS or any other wildlife species, and mitigation for construction should be additive (to address the mitigation issue of Additionality); that is, beyond those activities that should be	The Navy and ORNG believe that fire break restoration could benefit the Washington ground squirrel and other sage-steppe dependent species through creation of new habitat or restoration of severely degraded habitat. The FEIS (Section 3.5.3.2, Alternative 1) includes additional discussion of possible benefits associated with fire break restoration. Although not required by the Endangered Species Act, the Navy and ORNG initiated early conferencing with USFWS on April 12, 2012 for the Washington ground squirrel. A conferencing package was submitted to USFWS after public release of the DEIS and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts; mitigation measures to

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	conducted regardless of whether range development occurs	compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement; and adaptive management and monitoring. As indicated in the Conference Opinion and in Section 3.6.3.4.2 (Proposed Best Management Practices) of the FEIS, fire break restoration is considered a BMP. The proposed acreage for fire break restoration is not counted as credit towards compensatory habitat restoration.
TNC-16	Increased risk of wildfire The Draft EIS implies that implementation of NWSTF Boardman Integrated Wildland Fire Management Plan would not occur unless training range development occurs. This is another situation, similar to the fire break management, where the activity should be slated to occur regardless of whether range development occurs. It should also be detailed in a draft revised INRMP attached to the EIS.	Currently, a fire management plan is in place for NWSTF Boardman. This plan is periodically reviewed and updated to address changing conditions. The Draft Integrated Wildland Fire Management Plan provided in the FEIS was specifically designed to address conditions if the Proposed Action were implemented. The NWSTF Boardman INRMP currently provides a mechanism to adaptively manage natural resources cooperatively with USFWS and ODFW. If a decision is made to implement the Proposed Action, commitments to fund and implement specific BMPs, mitigation measures, and an adaptive management process would be made in the Record of Decision. The INRMP would continue to provide the overall management structure for implementing adaptive management. After the Record of Decision is signed, the INRMP would be updated to include applicable commitments made in the Record of Decision, including monitoring and mitigation.
TNC-17	Mitigation and monitoring The Draft EIS relies heavily on what may be contained in a future INRMP for mitigation, restoration and associated monitoring. However, the current INRMP, finalized in January 2012, does not include actions associated with the construction and operation of the MPMGR and DMPTR ranges. Given the	The FEIS includes a detailed mitigation, monitoring, and adaptive management plan based on the outcome of conferencing with USFWS. The FEIS states that "The NWSTF Boardman INRMP currently provides a mechanism to adaptively manage natural resources cooperatively with

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	current WGS status review by the USFWS and the potential designation of critical habitat should that species be listed, it seems that a detailed proposed revised INRMP for the preferred alternative should be a part of the Draft EIS. Senior Navy officials, and the public, cannot determine either the biological or mission impacts of the proposed alternatives without a fully developed draft revised INRMP available for review.	USFWS and ODFW. If a decision is made to implement the Proposed Action, commitments to fund and implement specific BMPs, mitigation measures, and an adaptive management process would be made in the Record of Decision. The INRMP would continue to provide the overall management structure for implementing adaptive management. After the Record of Decision is signed, the INRMP would be updated to include applicable commitments made in the Record of Decision, including monitoring and mitigation." The INRMP provides a tool and framework for implementing mitigation and other management actions associated with the Proposed Action based on commitments made in the signed Record of Decision.
TNC-18	In addition to the lack of detailed training range development impacts analysis, the Draft EIS also lacks description or detail, as to the locations, size, type and potential benefits of any mitigation. It is impossible to determine if habitat and wildlife population effects from the development will be adequately mitigated because there is no formula to calculate how much restoration would be adequate to mitigate for the loss of or fragmentation of habitat, there is no description of the process or criteria to be used to identify where to do restoration, there is no description of the methods or materials (i.e. seed source) to be used for restoration, nor is any description of the monitoring that will be implemented to determine success of the restoration.	A conferencing package was submitted to USFWS after public release of the DEIS and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts; mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement; and adaptive management and monitoring. Although the mitigation measures contained in the FEIS focus on the Washington ground squirrel, the Navy and ORNG have taken a landscape scale approach to mitigation through restoration and enhancement of shrub-steppe and grassland habitats. This approach is expected to provide ecological uplift and ecosystem stability at NWSTF Boardman that will benefit multiple species. In addition, the FEIS includes several BMPs or conservation measures designed to avoid and minimize

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
		impacts to other species. The conferencing package and Conference Opinion (Appendix B, Regulatory Compliance Correspondence, of the FEIS) include specifics addressing the deficiencies identified in this comment.
TNC-19	Likewise, there is no monitoring plan described for the plant communities or any of the sensitive wildlife species found on the NWSTF that could be affected by the training range development. Mitigation, restoration and any associated monitoring rely heavily on an INRMP that has yet to be developed, and is not included in the Draft EIS. Again, it is not possible for Navy decision makers, or the public, to determine what those activities will be or whether they will adequately protect the significant natural resources on the NWSTF without a fully developed revised INRMP.	A conferencing package was submitted to USFWS after public release of the DEIS and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts; mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement; and adaptive management and monitoring. Although the mitigation measures contained in the FEIS focus on the Washington ground squirrel, the Navy and ORNG have taken a landscape scale approach to mitigation through restoration and enhancement of shrub-steppe and grassland habitats. This approach is expected to provide ecological uplift and ecosystem stability at NWSTF Boardman that will benefit multiple wildlife species and vegetation communities. In addition, the FEIS includes several BMPs or conservation measures designed to avoid and minimize impacts to other species and plant communities. The conferencing package, Conference Opinion (Appendix B, Regulatory Compliance Correspondence, of the FEIS), and the FEIS include vegetation monitoring. The FEIS did not identify significant impacts on other wildlife species. Therefore, monitoring for species other than the Washington ground squirrel is not specifically addressed in the FEIS, but will continue to be conducted in accordance with the INRMP, which is routinely reviewed and

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
		updated in cooperation with USFWS and ODFW.
TNC-20	We would offer the following recommendations: • Include a fully developed draft revised INRMP in the EIS that would be finalized and implemented if either of the proposed alternatives is chosen under the Record of Decision.	Thank you for your recommendations. The FEIS does not include a “fully developed draft revised INRMP” as recommended in your comment. However, the FEIS states that "The NWSTF Boardman INRMP currently provides a mechanism to adaptively manage natural resources cooperatively with USFWS and ODFW. If a decision is made to implement the Proposed Action, commitments to fund and implement specific BMPs, mitigation measures, and an adaptive management process would be made in the Record of Decision. The INRMP would continue to provide the overall management structure for implementing adaptive management. After the Record of Decision is signed, the INRMP would be updated to include applicable commitments made in the Record of Decision, including monitoring and mitigation." The INRMP provides a tool and framework for implementing mitigation and other management actions associated with the Proposed Action based on commitments made in the signed Record of Decision.
TNC-21	• Develop plant community and wildlife survey and monitoring protocols that would track these resources in a meaningful and statistically valid manner. There are standard protocols that have been widely used to map and assess vegetation types and quality, population dynamics of sensitive wildlife species, and, in particular, Washington ground squirrel activity site size and distribution that should be used on the NWSTF.	The conferencing package, Conference Opinion (Appendix B, Regulatory Compliance Correspondence, of the FEIS), and the FEIS include vegetation monitoring. The FEIS did not identify significant impacts on other wildlife species. Therefore, monitoring for species other than the Washington ground squirrel is not specifically addressed in the FEIS, but will continue to be conducted in accordance with the INRMP, which is routinely reviewed and updated in cooperation with USFWS and ODFW.

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
TNC-22	• Commit to an accepted mitigation framework that incorporates the ODFW mitigation policy and USFWS mitigation practices to provide net benefit to the Washington ground squirrel. These policies and practices are guiding mitigation alternatives for WGS habitat designations and habitat mitigation scenarios for wind development projects and the Cascade Crossing transmission projects in the vicinity of the NWSTF and should be followed by the Navy for any development on the site.	A conferencing package was submitted to USFWS after public release of the DEIS and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Although the mitigation measures contained in the FEIS focus on the Washington ground squirrel, the Navy and ORNG have taken a landscape scale approach to mitigation through restoration and enhancement of shrub-steppe and grassland habitats. This approach is expected to provide ecological uplift and ecosystem stability at NWSTF Boardman that will benefit multiple wildlife species and vegetation communities. In addition, the FEIS includes several BMPs or conservation measures designed to avoid and minimize impacts to other species and plant communities.
TNC-23	The Draft EIS contains proposals for changes and additions to the management of the NWSTF that we feel will be neutral in impacts to species and habitats or produce mutual benefit to those concerns and the military training values of the site. These changes include the addition of the propose Northeast Boardman MOA, relocation of the Research Natural Area “A” to a more appropriate location and the modification of the firebreak system. We continue to encourage the EIS planning team to create additional alternatives for consideration that incorporate various elements of the proposed additional uses that take these impacts into consideration. A more complete assessment of potential natural resource impacts and trade-offs to offset those impacts would be provided by including 1) a standalone airspace	An alternative without Oregon National Guard training would not meet the purpose of and need for the action. Therefore, such alternatives were not carried forward for detailed analysis in the EIS. Further, as required by Department of the Army and National Guard Bureau polices, the ORNG has conducted a detailed analysis of alternative range locations to meet its training needs. A Range Development Plan, completed by a military planning firm for the ORNG in April 2000, identified the need to develop Army-standard training ranges that would accommodate live fire training and qualification for assigned weapon systems and vehicles

Table G.4-3: Responses to Comments from Organizations (continued)

Commenter	Comment	Navy Response
	addition that is not linked to development of on-ground National Guard training ranges and 2) alternatives for developing only some elements of the MPMGR and DMPTR training ranges rather than an all or nothing approach. The need for new airspace designation to protect the NWSTF from encroachment of commercial development and the potential loss of ability to train at the site is clear and we are supportive of the addition of the MOA to the northeast of the NWSTF. We believe, however, that senior Navy officials should be presented with fully analyzed alternatives that would allow them to proceed with the addition of the proposed MOA as an action separate from and independent of the proposed additional on-ground National Guard training ranges.	(Oregon Military Department 2000). The ORNG then prepared a Land Use Requirements Study that identified NWSTF Boardman as the only practical location in Oregon that could accommodate the proposed new training ranges (Oregon Military Department 2003). The Land Use Requirements Study looked at the development of needed weapons training ranges and concluded that construction of a MPMGR or DMPTR on existing ORNG installations was not possible, and obtaining new lands through purchase or the Congressional withdrawal of public lands was not within the capability of the Oregon National Guard to implement. However, as detailed in Section 2.5 (Alternative 2), due to the changing fiscal priorities impacting the Department of Defense and the services, as well as changing priorities necessary to meet mission requirements, the National Guard Bureau and Oregon National Guard is evaluating Alternative 2 without the proposed DMPTR. Under Alternative 2, the DMPTR would not be constructed or operated. Thank you for your participation in the NEPA process as well as the additional information provided in support of your comments.

Table G.4-4 contains comments from private individuals received during the public comment period and the Navy's response. Responses to these comments were prepared and reviewed for scientific and technical accuracy and completeness. Comments appear as they were submitted and have not been altered with the exception that expletives, addresses, and phone numbers have been removed, as necessary.

Table G.4-4: Responses to Comments from Private Individuals

Commenter	Comment	Navy Response
David Gray	I am against this proposal as it will not add any additional federal employees and at some point in time if it hasn't already happened there will be a bunch of lies regarding this project as there were promises made and broken with the closure of Umatilla Chemical Depot. Case in point I was promised two more years of employment as part of a transition force which took me from a category one on the priority placement program to a category three (lower priority for job placement as I had a job promised in writing). The President Barack Obama signed a document into policy which mandated our depot and the Deseret Chemical Depot in Toole, UT be closed within a year of the last chemical round going into the furnace. This decision took me back to a category one with the PPP but with no time to find federal employment in the job skill sets for positions I have held in the last 15 years as a federal employee. What will happen when policies regarding land ownership or use get changed to some unsuspecting land owner due to the stroke of a Governor or President's pen like the employment situation with me changed at the stroke of a pen? Leave things like they are, let the Nat'l Guard use their own land (the old Umatilla Chemical Depot), and leave things as they are at the Navy Bombing Range. David A. Gray, US Navy Veteran of Desert Shield/Desert Storm with VA-145; Former Army Chemical Materials Agency Civilian	Thank you for your comment and participating in the NEPA process. The Navy and Oregon National Guard share your concerns about the local economy and jobs. Potential socioeconomic impacts associated with the Proposed Action are analyzed in Section 3.8 (Socioeconomics and Environmental Justice) of the EIS. The Proposed Action does not include changes to land ownership.
Robert Haywood	Yes, I'm a veteran, and is a part of the "green environmental", so how, could all keep me up to date on the NWSTF as well send me info about what's happen with the NWSTF movement. I would highly appreciated, if you all the best with the Project EIS. So please write back to let me know you all received my letter until time you all have a green planet day. Bless the USA. truly Robert W/ respect, loyalty, please write back ASAP.	Thank you for your comment and participating in the NEPA process. The Navy has added you to the information distribution list for this FEIS. Updated information regarding the NWSTF Boardman EIS is available on the Internet at http://nwstfboardmaneis.com/. Availability of the FEIS has been announced by newspaper advertisements and other means.

Table G.4-4: Responses to Comments from Private Individuals (continued)

Commenter	Comment	Navy Response
Louis Carlson, Retired Judge, Morrow County (Carlson)	A number of thoughts: 1. All of this land belonged to individual Citizens of Morrow County. The Doheny Family - Crawford Family etc. they were ordered out of the land with no compensation. Ww2	The FEIS describes the history of ownership of land parcels that are or were part of NWSTF Boardman (Section 1.3.1, History of NWSTF Boardman). As stated in the FEIS, on January 23, 1941, the President issued Executive Order (EO) 8651, which withdrew public lands and reserved it for the use of the War Department as an aerial bombing and gunnery range. In 1943, the Air Force/Army Air Corps acquired approximately 96,000 acres for a training range. In 1958, the Navy acquired the land from the Air Force under a permit agreement. This permit was approved by the Senate Committee in a letter dated August 11, 1959. The property was formally transferred from Air Force to Navy in November 1960. In January 1960, even before the actual transfer took place, representatives of the State of Oregon contacted the Department of Defense with a proposal to relocate the range and turn the property over to the State. After a series of complex negotiations, the Navy agreed in principle to an "exchange," and members of the Oregon delegation introduced enabling legislation in April 1960 in both the House and Senate. This legislation was approved, and a conveyance of 48,568 acres to the State of Oregon was concluded in 1963. There have been no subsequent land transactions. NWSTF Boardman retains approximately 47,432 acres (roughly half of the original acquired property).
Carlson-2	2. With the additional proposed for use - wild fires are inevitable the EIS says additional Management Practices will be introduced. Question: What are the plans for fire man made and lightning fires. This land would be your responsibility under ALL conditions.	If Alternative 1 or 2 were selected for implementation, the NWSTF Boardman Draft Integrated Wildland Fire Management Plan (Appendix H) would be finalized and implemented. This plan addresses fires caused by human activities such as military training and fires started by natural causes such as lightning.

Commenter	Comment	Navy Response
Carlson-3	3. With the additional impact on the farming community what mitigation conditions do you propose to offset the impact on our farmers? Sounds like the Navy and Guard are all the winners and Morrow County residents are the losers except for National Defense.	Currently, no agricultural activity occurs at NWSTF Boardman because of safety concerns. The scope of this EIS presents the potential impacts from the activities proposed in the Action Alternatives. Under the No Action Alternative, the lands of NWSTF Boardman are not available for agricultural use. Implementation of either Alternative 1 or Alternative 2 would not change the availability of land for agricultural use outside of NWSTF Boardman. Analysis of agricultural activities or lack of agricultural activities on NWSTF Boardman is beyond the scope of the EIS.
Carlson-4	4. Very much concerned with the low fly zone - ground to 500 foot elevation. this could have a very devastating effect on future development in this zone. 0-500 feet. This means no construction in this area. Sorry, but this is intolerable!! Final analysis - We need you - You need us - Lets make this a cooperative effort.	As described in Section 2.3.1.1.1 (Low-Altitude Tactical Training) of the EIS, Low-Altitude Tactical Training simulates combat conditions, where aircraft will operate at altitudes as low as 200 feet above ground level (AGL) within Boardman airspace to defeat simulated ground missile radars and avoid sophisticated surface-to-air missiles, anti-aircraft artillery, and enemy fighters. Training flights spend a majority of time at 500 ft. AGL or above; however, flights may be as low as 200 ft. AGL for brief times during the training. The proposed airspaces each have a defined lower altitude. The Boardman Low MOA has a lower altitude of 500 feet AGL, and Boardman MOA (Proposed Extension) has a lower altitude of 4,000 feet AGL. There are no proposed aircraft flights below 500 feet AGL under the proposed MOAs.
Chelsea Stromberg	In regards to the proposed expansion of activities at the Naval Weapons System Training Facility Boardman, I am writing to pose some questions about the project. While I understand and support providing a training environment which will offer the most advanced forms of training to our military, I am concerned about the environment that will be affected by this expansion. From my understanding, these new ranges and facilities will be developed in	Thank you for your comment and participating in the NEPA process. The Navy and Oregon National Guard share your concerns about natural resources and wildlife on and around NWSTF Boardman. Potential impacts on vegetation and wildlife are analyzed in Section 3.5 (Vegetation) and 3.6

Commenter	Comment	Navy Response
	those areas of NWSTF Boardman which currently have no or few structures, otherwise known as "open space". If all of the open space within NWSTF Boardman utilized, what happens to the fragile ecosystem in this area? I realize the animals have all probably left the area, for the most part, due to the extreme levels of training activities. However, my question is if any mitigation measures are being discussed, in terms of the dedication of a nature preserve, perhaps. The Sikes Act only offers protection to on-site habitat, but how much of that habitat is actually safe for the many different species on-site? Noise pollution and other factors of these training exercises may drive species off the base to a habitat which may not be suitable for them. Dedication of land for the preservation of the species which call the Snake-Columbia Shrub-Steppe Ecoregion home could help keep the species currently living on NWSTF Boardman off of the threatened or endangered species list. Though it is not federally listed, the Washington Ground Squirrel (listed in Oregon) needs a place to live that is protected from training activities and other development. Has there been an analysis of what can be done to help protect those Species of Concern which are found on-site? It would be valuable to assess what can be done to help keep the population of that species up, since the ecoregion itself is already rapidly deteriorating. If there is anything that can be done to help protect this valuable habitat, I believe it should be done, especially if it can be done in conjunction with the needs of our military training exercises. I support Alternative 2 as it would offer the most and best training facilities, and I think it would benefit everyone to separate the habitat and various species from the potential risk of the training activities.	(Wildlife) of the EIS. As you know, this species is currently classified as a candidate for listing by the USFWS and is being reviewed to determine if ESA listing is warranted. The Navy and ORNG identified potential impacts on the Washington ground squirrel as an important topic early in the NEPA process and proactively addressed these concerns. Although not required by the Endangered Species Act, we initiated early conferencing with USFWS on April 12, 2012, for this candidate species. A conferencing package was submitted to USFWS after public release of the DEIS, and USFWS issued their Conference Opinion on December 2, 2013 (Appendix B, Regulatory Compliance Correspondence). The FEIS reflects outcomes of the conferencing process. The Conference Opinion includes BMPs to avoid and minimize impacts, mitigation measures to compensate for unavoidable impacts on Washington ground squirrel habitat through habitat restoration and enhancement, and adaptive management and monitoring. Other stakeholders, including ODFW and The Nature Conservancy, provided input to the conferencing process.
Louis Carlson	it would be nice if a comprehensive plan could be put in place for fire fighting - Boardman, County, Navy, National Guard. Who is responsible? Public relations are very important. Upgrade the kiosk pictures and add new info.	If Alternative 1 or 2 were selected for implementation, the NWSTF Boardman Draft Integrated Wildland Fire Management Plan (Appendix H) would be finalized and implemented. While the Oregon Trail interpretive kiosk on NWSTF Boardman is not part of the Proposed Action, the Navy is developing a proposal to update and replace interpretive signage and

Commenter	Comment	Navy Response
		displays.
Carol VanStrum (VanStrum)	In the tradition of the Navy's marine training range environmental impact statements, the Boardman EIS is a glossy, verbose presentation of essentially no information whatsoever. The lack of data on what actions the Navy intends to conduct, particularly concerning the major component of its proposal, precludes meaningful comment and renders the entire document an expensive exercise in futility.	Please see Chapter 2 (Description of Proposed Action and Alternatives) for a description of the proposed actions and alternatives including selection criteria and alternatives not considered. Please see Chapter 3 (Affected Environment and Environmental Consequences) with regard to affected environment and environmental consequences. Please see Chapter 5 (Standard Operating Procedures, Mitigation, and Monitoring) with regard to mitigation measures. The Navy is committed to protecting the environment during the conduct of its training and testing activities. The impact analysis in the Final EIS has been refined in coordination with USFWS.
VanStrum-2	Discussion of Drone Aircraft Epitomizes EIS Failure The Navy's discussion of its drone aircraft operations at Boardman offers a painful illustration of the EIS failure. With some three times more flight time than fixed wing aircraft, the operation of drone aircraft is by far the major item covered by the Boardman EIS. The Navy plans 9,781 hours per year of flight time for drone aircraft, aka Unmanned Aerial Systems (UAS), Small Unmanned Aerial Systems (SUAS) or Tactical Unmanned Aerial Systems (TUAS). One would therefore expect an eight-pound EIS to devote at least a few ounces to its major component. The Boardman EIS, however, is effectively bereft of any information concerning its drone aircraft operations. After a grand total of three paragraphs (pp. 2-11 and 2-12) listing the specifications for three drones, the EIS does no more than mention drones in passing throughout the rest of the document. Thanks to the inoperative search function on the Navy's Boardman EIS website and the failure to provide the document on CDROM, it has taken many hours to examine the EIS's coverage of drone operations or any other subject, and the incredible bulk of the hard copy made searches extremely difficult and time-consuming. Some 32 unpaid hours search leaves a raft of questions unanswered and apparently never raised about drones:	As presented in Section 2.4.4.6.2 (Operations and Maintenance) of the EIS, the Scan Eagle UAS is a relatively small aircraft that is currently operated at NWSTF Boardman. Typically these activities are conducted in NWSTF Boardman airspace, result in 800–1,000 sorties a year, and consist of testing and training. A typical UAS activity lasts approximately 6 hours. UAS activities can be conducted in Restricted Area 5701 and Restricted Area 5706. Scan Eagle UAS activities in Restricted Area 5701 and Restricted Area 5706 are anticipated to continue. The Broad Area Maritime Surveillance system is a future Navy system that may be used for training within Restricted Area 5701 and Restricted Area 5706. Potential impacts from UAS activities are discussed throughout the EIS, most notably in Section 3.4 (Noise), 3.6 (Wildlife), 3.7 (Land Use and Recreation), 3.8 (Socioeconomics and Environmental Justice), and 3.11 (Public Health and Safety and Protection of Children).

Commenter	Comment	Navy Response
	The EIS does not identify what other drone aircraft besides the RQ-11B Raven, the Scan Eagle, and the RQ-7B Shadow are being flown at Boardman or may be flown at Boardman in the near future. The EIS states that “the special use airspace is used by DoD contractors to conduct Unmanned Aerial System (UAS) testing” (p. ES-3), but does not identify the DoD contractors or the drone aircraft they are or will be testing. The EIS omits mention of current or future testing or training with armed drone aircraft at Boardman, despite readily available news reports of munitions for the RQ-7B Shadow, see e.g., http://en.wikipedia.org/wiki/RQ-7_Shadow:	
VanStrum-3	Armed Shadow On 19 April 2010 the Army issued a "solicitation for sources sought" from defense contractors for a munition for the Shadow system with a deadline for proposals due no later than 10 May 2010.[28] <http://en.wikipedia.org/wiki/RQ-7_Shadow#cite_note-27> Although no specific munition has been chosen yet, some possible munitions include the General Dynamics 81 mm 10-pound[29] <http://en.wikipedia.org/wiki/RQ-7_Shadow#cite_note-didRq7-28> [30] <http://en.wikipedia.org/wiki/RQ-7_Shadow#cite_note-gary81-29> [31] <http://en.wikipedia.org/wiki/RQ-7_Shadow#cite_note-30> air-dropped guided mortar, as well as the QuickMEDS system for delivering medical supplies to remote and stranded troops. The Army subsequently slowed work, and the Marine Corps then took the lead on arming the RQ-7 Shadow. Raytheon has conducted successful flight tests with the Small Tactical Munition <http://en.wikipedia.org/wiki/Small_Tactical_Munition> ,[32] <http://en.wikipedia.org/wiki/RQ-7_Shadow#cite_note-31> and Lockheed Martin <http://en.wikipedia.org/wiki/Lockheed_Martin> has tested the Shadow Hawk glide weapon from an RQ-7.[33] <http://en.wikipedia.org/wiki/RQ-7_Shadow#cite_note-32> On November 1, 2012, General Dynamics <http://en.wikipedia.org/wiki/General_Dynamics> successfully demonstrated their guided 81 mm Air Dropped Mortar, with three launches at 7,000 ft hitting within seven meters of the target grid.[34]	Your comment has been broken down into component parts to ensure that all comments provided in your letter are addressed. As a result, this portion of the comment does not contain a specific question or inquiry related to the Draft EIS.

Commenter	Comment	Navy Response
	<http://en.wikipedia.org/wiki/RQ-7_Shadow#cite_note-33> As of August 2011, the Marine Corps has received official clearance to experiment with armed RQ-7s, and requires AAI to select a precision munition ready for deployment.[35] <http://en.wikipedia.org/wiki/RQ-7_Shadow#cite_note-34> AAI was awarded $10 million for this in December 2011, and claims a weapon has already been fielded by the Shadow.	
VanStrum-4	The EIS is also spectacularly silent on the very relevant issue of drone aircraft crash rates and system failures, nowhere mentioning their excessive crash rates. Again, such information is readily available and should have been accorded extensive examination for potential impacts of such common events as GPS failures and glitches, pilot mistakes, coordination snafus, software failures, electronic interference (e.g., solar CMEs), crashes, etc. Given the potential for environmental, property, and human damage in the event of navigation or control failures in an Unmanned Aerial System – to say nothing of such potential should the drone be armed -- the EIS's silence on the subject is positively deafening. See e.g., http://www.bloomberg.com/news/2012-06-18/drones-most-accident-prone-u-s-air-force-craft-bgov-barometer.html http://www.homeland1.com/homeland-security-products/unmanned-aerial-vehicles-uav/articles/847069-accident-reports-show-us-drone-aircraft-plagued-with-problems/ http://nation.time.com/2012/03/01/4-keeping-track-of-the-drones/ Indeed, the entire EIS is predicated on the entirely unfounded assumption that nothing will EVER go wrong; its only discussion touching on crash possiblities is a single paragraph on p. 3.11-3 saying all Boardman aircraft follow FAA regulations, as if FAA regulations magically prevent accidents, and “UASs follow the same safety regulations as aircraft. Additionally, if a UAS loses radio or other contact, it is designed to circle in place until it can reacquire the signal. If it cannot, it is preprogrammed to return to a specific point.” Not a word about what happens if those elements fail!!	All flight operations at NWSTF Boardman follow standard operating procedures as listed in NATOPS General Flight and Operating Instructions (OPNAVINST 3710.7), Army Unmanned Aircraft System Operations (FMI 3-04.155), and Pacific Northwest Training Range Complex Manual (NASWHIDBEYINST 3770.1) which highlight safe flight operations in the NWSTF Boardman airspace. Additionally, Chapter 4 of FMI 3-04.155 list the numerous considerations operators must make prior to launch of a UAV, which include considerations for terrain and weather, which must be in compliance prior to operation. It is important to note that the operation of UASs are conducted with due consideration of the potential hazards. As defined in OPNAVINST 3710.7, when planning and conducting the flightpath to, in, and from operating areas, all activities operating UASs select and adhere to those tracks and altitudes that completely minimize the possibility of UASs falling into a congested area in the event of electronic or material malfunction. These operating procedures and controls help to minimize the potential for a UAV. None of the UAS operated under the Action Alternatives will be deployed outside of the NWSTF Boardman Restricted Airspace.

Commenter	Comment	Navy Response
VanStrum-5	In omitting discussion of drone aircraft system failures, the EIS conveniently fails to inform residents of Oregon, Washington, and neighboring states of the possibility of vagrant, uncontrolled drone aircraft, possibly armed, over their homes, work places, and recreation areas, to say nothing of the impacts of a crash onto Army's Umatilla Chemical Weapons Depot adjacent to the Boardman range. Needless to say, the EIS includes absolutely no mitigation measures for such events. Apparently, the Navy's reputation for considering UAVs to be “expendable” applies also to the Navy's attitude toward humans and their environment. See. e.g., http://www.casr.ca/bg-mini-uav-scaneagle.html The Navy certainly regards at least some residents as expendable, given its failure to provide the draft EIS to Oregon Department of Corrections or its Two Rivers Correctional Facility (TRCI) nearly adjacent to the Boardman range. The Navy may regard TRCI's 1,800 inmates and 440 staff workers as expendable, but it's just possible that neither inmates nor staff nor their families share the Navy's cavalier attitude.	All flight operations at NWSTF Boardman follow standard operating procedures as listed in NATOPS General Flight and Operating Instructions (OPNAVINST 3710.7), Army Unmanned Aircraft System Operations (FMI 3-04.155), and Pacific Northwest Training Range Complex Manual (NASWHIDBEYINST 3770.1) which highlight safe flight operations in the NWSTF Boardman airspace. Additionally, Chapter 4 of FMI 3-04.155 list the numerous considerations operators must make prior to launch of a UAV, which include considerations for terrain and weather, which must be in compliance prior to operation. None of the UAS operated under the Action Alternatives will be deployed outside of the NWSTF Boardman Restricted Airspace It is important to note that the operation of UASs are conducted with due consideration of the potential hazards. As defined in OPNAVINST 3710.7, when planning and conducting the flightpath to, in, and from operating areas, all activities operating UASs select and adhere to those tracks and altitudes that completely minimize the possibility of UASs falling into a congested area in the event of electronic or material malfunction. These operating procedures and controls help to minimize the potential for a UAV. If a mishap does occur, the Navy and ORNG have plans and procedures (OPNAVINST 3710.7, FMI 3-04.155, NASWHIDBEYINST 3770.1) for reporting and responding to aircraft incidents. Additionally, the analysis in the EIS addresses the all facilities that underlie the airspace used for training. The correctional facilities mentioned in the comment do not underlie NWSTF Boardman airspace, as such, are not included in the EIS analysis.

Commenter	Comment	Navy Response
VanStrum-6	Conclusion While by no means a complete catalog, the above examples amply demonstrate the massive failure of the EIS to address the most basic concerns about drone aircraft, which comprise the majority of the Navy's Boardman flight plans but are given only passing mention in the EIS. Such stunning paucity of information precludes any informed comment, and the Boardman EIS should therefore be withdrawn until the Navy provides adequate data on its drone expansion plans, on planned or potential testing or use of armed drone aircraft, on the drone aircraft systems' potential failings, and detailed mitigation measures for a range of system failures and crashes. The Navy must also provide such materials to all possibly impacted areas of Oregon, Washington, and neighboring states, including as well the staff and inmates of TRCI.	Thank you for your participation in the NEPA process. The Navy shares your concerns regarding safe operation of all its assets, and follows strict regulations regarding such operation. All flight operations at NWSTF Boardman follow standard operating procedures as listed in NATOPS General Flight and Operating Instructions (OPNAVINST 3710.7), Army Unmanned Aircraft System Operations (FMI 3-04.155), and Pacific Northwest Training Range Complex Manual (NASWHIDBEYINST 3770.1) which highlight safe flight operations in the NWSTF Boardman airspace. Additionally, Chapter 4 of FMI 3-04.155 list the numerous considerations operators must make prior to launch of a UAV, which include considerations for terrain and weather, which must be in compliance prior to operation. None of the UAS operated under the Action Alternatives will be deployed outside of the NWSTF Boardman Restricted Airspace It is important to note that the operation of UASs are conducted with due consideration of the potential hazards. As defined in OPNAVINST 3710.7, when planning and conducting the flightpath to, in, and from operating areas, all activities operating UASs select and adhere to those tracks and altitudes that completely minimize the possibility of UASs falling into a congested area in the event of electronic or material malfunction. These operating procedures and controls help to minimize the potential for a UAV mishap. If a mishap does occur, the Navy and ORNG have plans and procedures (OPNAVINST 3710.7, FMI 3-04.155, NASWHIDBEYINST 3770.1) for reporting and responding to aircraft incidents.
Thomas Kirkpatrick	Thank you for the invitation to assist the U.S. Navy and the Oregon National Guard that was recently made publicly available in The Oregonian newspaper. After review of the draft Naval Weapons Systems Training Facility Boardman	The phrase “encroachment” has been replaced in Section 2.2.1 (Alternatives Development) of the FEIS.

Commenter	Comment	Navy Response
(Kirkpatrick)	Environmental Impact Statement, related posters, and the video that were available at www.nwstfboardmaneis.com, I would like to suggest the use of more clear and comprehensive wording relating to the term "encroachment". This subject was mentioned and described on page 215 of the draft EIS document.	
Richard Melaas	I fully support the joint use of NWSTF Boardman by all DOD activities. Alternative 2 should be the preferred alternative as it allows the best possible use of NWSTF Boardman for military training. If soldiers/marines/special forces are expected to use mortars in combat, they should be permitted to train with them at NWSTF Boardman so mortar pads are required. The western CLF range should be established to ensure one CLF is always available if for some reason the eastern CLF range cannot be used, to ensure there is enough variety in scenarios and geography to represent differing scenarios (difficult to simulate a single file convoy strung out over several miles on the eastern CLF range), to make it more difficult for soldiers to memorize the possible convoy ambush areas/scenarios and thereby "game" the training, and to allow for unanticipated increased throughput requirements if again in the future "surges" in overseas deployments are necessary.	Thank you for your comments and participating in the NEPA process.
J.D. Smith	Please return the Boardman, Oregon naval weapons airspace to use by general aviation. Now that the weapons storage facility has been retired, and the Navy no longer uses the airspace, it should become public,	As described in the FEIS, the existing Boardman airspace will continue to be used for military training activities and cannot be released for public use. As presented in Section 1.3.2.3 (Area of Training Space), non-participating aircraft (general aviators) are prohibited to enter Restricted Areas at NWSTF Boardman unless they have prior approval from the controlling authority (Seattle ARTCC). Non-military aviators must coordinate any flight activities that require entrance at any time into the Restricted Airspace with Seattle ARTCC, who in turn works with local aviators and military training schedules to determine available flight times. If scheduling conflicts arise, Seattle ARTCC contacts the local aviator. The proposed MOA would join the Boardman MOA. Low-altitude

Commenter	Comment	Navy Response
		flight tracks would be oriented along a northeast axis to facilitate the use of this additional MOA, avoiding existing wind turbines on the far eastern end of R-5701C. The proposed MOA would not limit use by non-participating aircraft flying under Visual Flight Rules, although aircraft entering this area would need to maintain vigilance, especially from 2 hours after sunrise until 2 hours before sunset, which is when activities could occur in the MOA.
Rosalind Peterson	I would like a CD of the U.S. Navy Boardman Range Draft EIS. In addition, when one can't right click to paste in information into this document. It makes it very difficult to edit and make corrections prior to the final public comment being placed into this window. If you could correct this problem it would make this window easier to use for everyone.	The “right-click” issue has been resolved to enable pasting of information into the comment fields on the NWSTF Boardman website. A CD was sent as requested.
Bob Law	First off, I hope I didn't miss the comment period. Did I miss the comment period? I hope I didn't miss the comment period. Anyways, I love antelope. I love their antlers and cute little tails. I love the way they run away when I try to catch them. I love the Boardman antelope most of all. They're so cute. And easier than most antelope. To catch. Please protect my friends. I hold and caress those beautiful beasts when I visit. I need them in my life. Protect my antelope.	Thank you for your comment and participating in the NEPA process.
James Follansbee	The EIS does not address the effects of the new northeast special use airspace on the instrument approaches to the Hermiston, OR airport (KHRI) or the effects on aerial application operations. There may also be effects on the instrument approaches to the Pendleton, OR airport (KPDT) which are not addressed. I am a general aviation pilot with a single engine airplane based at the nearby Pasco, WA airport (KPSC) and regularly fly on instrument flight plans in this area. (end of comment)	The Hermiston Municipal Airport is located approximately 5 miles to the east of the border of the proposed MOA. According to FAA charts, the instrument approaches into Hermiston Municipal are approximately 17 miles southeast of the airport. As such, the new MOA would not impact the instrument approach into Hermiston Municipal. Additionally, the Eastern Oregon Regional Airport at Pendleton, OR (KPDT) is located approximately 24 nautical miles east of the edge of the proposed Boardman MOAs. According to FAA charts, the instrument approaches to KPDT do not extend past 20 nautical

Commenter	Comment	Navy Response
		miles from the airport. As such, the new MOA would not impact the instrument approach into KPDT. Because the proposed additional airspace would be a MOA, only IFR traffic is separated and limited during military readiness activities, as a MOA does not restrict VFR operations. However, while VFR operations are not restricted, it is not advised to fly in a MOA while the airspace is active, but pilots who choose to operate under VFR should exercise extreme caution while flying within, near, or below an active MOA. Low-Altitude Tactical Training at NWSTF Boardman is restricted to the daylight period, and further restricted to being conducted within the timeframe of 2 hours after sunrise and 2 hours before sunset for safety purposes. This 4-hour daylight buffer would allow general aviators, such as crop dusters, the flexibility to traverse the proposed MOAs outside of flight hours.
Rosalind Peterson	The U.S. Navy website has this comment on their link to the public comment section for the Boardman Range in Oregon Draft EIS: "...The comment period is now closed. Public comments were accepted between 9/06/2012 12:00:00 AM PST and 12/6/2012 11:59:59 PM PST on this website..." http://nwstfboardmaneis.com/GetInvolved/OnlineCommentForm.aspx It appears that they closed the public comment period one day early, on December 5, 2012, instead of December 6, 2012, and did not allow for public comments to be made online on December 6, 2012 on their website. This is the statement by the Navy Boardman Range on How to Make Public Comments: "...Comments during the Draft EIS period must be postmarked or received online by Dec. 6, 2012, for consideration in the Final EIS. There will be other opportunities to participate when the Final EIS is released..." is the quote on this Boardman link: http://nwstfboardmaneis.com/GetInvolved/HowCanIComment.aspx	Thank you for alerting us to this website issue. The technical difficulties with the online comment form were corrected on December 6, 2012, and comments were accepted via the comment form through 11:59 p.m., December 9, 2012.

Commenter	Comment	Navy Response
	Would you be able to check this for me and make sure that we can make comments through today?	
Rosalind Peterson-2	1) I am formally requesting both a hard copy and a CD of the Boardman Final Environment Impact Statement when it is issued to the public for public comment.	Your contact information has been added to the distribution list for the Final EIS.
Rosalind Peterson-3	2) UAS, commonly referred to as drones, are flown either remotely or autonomously with the following control equipment required to operate UAVs. UAS are often used in combination with cameras, thermal imaging devices, and audio recording devices to capture and store information. They can also be used with wireless radios to transmit information back to a base station, where it can be stored. Increasingly UAS have been used on domestic law enforcement missions to capture images of U.S. residents. A) Will domestic police training take place on the Boardman Range now or in the future? B) Will domestic surveillance be conducted, either by the U.S. Navy, other branches of the military, FAA, universities or other private or public entities, including but not limited to law enforcement use and training in drones? C) What impact do thermal imaging devices have on marine mammals, aquatic life, animal and human health? What type of exposure and how much do these devices emit while being used? D) How long will U.S. land and ocean images recorded by drones be kept before being destroyed? Who will have access to this type of collected information? E) How many autonomously or remote control drones will be flying over land areas each month? F) What precautions will be taken that these drones don't interfere with commercial and private aircraft? G) What is the U.S. Navy record with regard to drone crashes, losses, and	The NWSTF Boardman mission includes supporting UAS activities. Therefore, a variety of UAS platforms and emerging technologies are proposed to continue to be operated in the NWSTF Boardman restricted airspace, which is far removed from areas supporting marine mammals or other marine life. Table 2-1 of the FEIS presents the proposed annual number of UAS activities. NWSTF Boardman includes testing conducted by various Department of Defense (DoD) offices and training conducted by the Navy and ORNG. The number of proposed activities involving UAS is presented in Table 2-1 and 2-4 of the FEIS. The number presented is an annual number, as fluctuation in training requirements precludes the calculation of monthly values. As presented under the Proposed Action, there are no domestic police, surveillance, or thermal imaging activities proposed, thus, the discussion of archival of images, information, and information access is outside the scope of this EIS. Future UAS platforms are expected to be similar to platforms historically used at NWSTF Boardman, particularly from an environmental effects perspective. Therefore, this EIS assumes that the UAS platforms used under Alternatives 1 and 2 would be within the range of systems historically used at NWSTF Boardman and described under the No Action Alternative in

Commenter	Comment	Navy Response
	accidents over the past 5 years? Land areas? Ocean areas? Other?	Section 2.3.1.4 (Unmanned Aircraft Systems Operations). All flight operations at NWSTF Boardman follow standard operating procedures as listed in NATOPS General Flight and Operating Instructions (OPNAVINST 3710.7), Army Unmanned Aircraft System Operations (FMI 3-04.155), and Pacific Northwest Training Range Complex Manual (NASWHIDBEYINST 3770.1) which highlight safe flight operations in the NWSTF Boardman airspace. Additionally, Chapter 4 of FMI 3-04.155 list the numerous considerations operators must make prior to launch of a UAV, which include considerations for terrain and weather, which must be in compliance prior to operation. It is important to note that the operation of UASs are conducted with due consideration of the potential hazards. As defined in OPNAVINST 3710.7, when planning and conducting the flightpath to, in, and from operating areas, all activities operating UASs select and adhere to those tracks and altitudes that completely minimize the possibility of UASs falling into a congested area in the event of electronic or material malfunction. These operating procedures and controls help to minimize the potential for a UAV. If a mishap does occur, the Navy and ORNG have plans and procedures (OPNAVINST 3710.7, FMI 3-04.155, NASWHIDBEYINST 3770.1) for reporting and responding to aircraft incidents.
Rosalind Peterson-4	3) Are nuclear powered drones being used at this time in Oregon or other areas? A) If this type of drone nuclear power drones are being used how many accidents or losses have been reported in the last 5 years? B) What ocean (marine mammals-fish) or land impacts will nuclear powered drones have if they crash or are damaged? C) How much radioactive material and type of material would be release in a	As presented in Section 2.3.1.4 (Unmanned Aircraft Systems Operations) of the EIS, the RQ-11B Raven and RQ-7B Shadow and the Scan Eagle UAS are currently operated at NWSTF Boardman, and none of these UAS are nuclear powered.

Commenter	Comment	Navy Response
	crash? D) How would the U.S. Navy mitigate the impacts of this type of radiation release in a crash?	
Rosalind Peterson-5	4) How many military drones have crashed over ocean or land areas in the past 5 years? A) How many Boardman Range drones have crashed in Oregon, surrounding states, or over ocean areas in the past 5 years? B) How many Boardman Range Drones have crashed that were carrying weapons in the past five years? C) What mitigation measures were taken to prevent these types of accidents when drones are carrying weapons systems or powered by nuclear power systems? D) What are the cleanup costs related to drone crashes when weapons systems are involved? E) In order to determine the number of military drone crashes involving the U.S. Boardman Range drones a full examination of logbooks and also maintenance records related to repairs following accidents should be used. Also this should include the statistics of all military drone crashes in the United States and while operating in any of the U.S. Navy military range complexes in the Pacific, Atlantic, and the Gulf of Mexico.	As presented in Section 1.3.2.3 (Area of Training Space), UAS training at NWSTF Boardman takes place within Boardman Restricted Airspace. None of the UAS operated under the Action Alternatives will be deployed outside of the NWSTF Boardman Restricted Airspace. All flight operations at NWSTF Boardman follow standard operating procedures as listed in NATOPS General Flight and Operating Instructions (OPNAVINST 3710.7), Army Unmanned Aircraft System Operations (FMI 3-04.155), and Pacific Northwest Training Range Complex Manual (NASWHIDBEYINST 3770.1) which highlight safe flight operations in the NWSTF Boardman airspace. Additionally, Chapter 4 of FMI 3-04.155 list the numerous considerations operators must make prior to launch of a UAV, which include considerations for terrain and weather, which must be in compliance prior to operation. It is important to note that the operation of UASs are conducted with due consideration of the potential hazard presented when they are out of control. As defined in OPNAVINST 3710.7, when planning and conducting the flightpath to, in, and from operating areas, all activities operating UASs select and adhere to those tracks and altitudes that completely minimize the possibility of UASs falling into a congested area in the event of electronic or material malfunction. These operating procedures and controls help to minimize the potential for a UAV mishap in populated areas surrounding NWSTF Boardman. Selected mishap rates can be reviewed within the 2012 Congressional Research Service's report on U.S. UASs, which indicate that UAS mishap rates are

Commenter	Comment	Navy Response
		similar to small single-engine private airplanes flown in the United States, as well as indicate that advances in system design, durability improvements, and reliability upgrades have significantly reduced mishap rates.
Rosalind Peterson-6	5) It is clear that the U.S. Board Drone Range supports the NWTRC (U.S. Navy Northwest Training Range Complex – Northern California, Oregon, Washington & Idaho), at this time. A) Does it support any of the other twelve operating ranges in the Pacific, Atlantic, or the Gulf of Mexico? B) What weapons systems, carried by Boardman Drones, are being used at this time or are in experimental testing over land areas and in the Pacific Ocean? C) What weapons systems will negatively impact land wildlife areas or ocean marine mammals when used or when these drones crash? D) What types of impacts will be felt if drone weapons are involved in a crash when a plane is carrying this type of weapon?	As presented in Section 1.3.2.3 (Area of Training Space), UAS training at NWSTF Boardman takes place within Boardman Restricted Airspace to support the Fleet. None of the UAS operated under the Action Alternatives will be deployed outside of the NWSTF Boardman Restricted Airspace. Therefore, the discussion of UAS weapons systems and their potential impact is outside the scope of this EIS and not addressed within the analysis
Rosalind Peterson-7	6) Lasers, sonar, and other weapons systems have impacts on marine mammals and impact human health. Please list these negative impacts and proposed mitigation measure that are effective 90% of the time on both land and ocean areas?	As described in 2.3.1.3.1 (Air-to-Ground Bombing Exercise) of the EIS, Alternatives 1 and 2 include the use of laser guided training rounds. NWSTF Boardman training activities do not include sonar. Training and testing utilizing sonar are outside the scope of this EIS and are not presented within the analysis of this EIS. Some NWSTF Boardman training activities use live ammunition, such as small- and non-exploding medium-caliber rounds, and non-explosive practice bombs. Activities utilizing live ammunition do not project hazardous effects off site because of their size, and because safety zones are established specifically to control these effects. Section 3.12.3 (Environmental Consequences) of the EIS presents the weapons danger zones (WDZs) and Surface Danger Zones (SDZ) at Boardman as well as the potential impacts to human

Commenter	Comment	Navy Response
		health and safety.
Rosalind Peterson-8	7) With more drones (UAVs & UAS), flying in the National Airspace System in ever-increasing numbers how will the U.S. Navy protect both commercial and private aircraft from accidents involving drones?	Aircraft supporting NWSTF Boardman training operate out of NAS Whidbey Island, National Guard locations, and from within NWSTF Boardman as well (Unmanned Aircraft System [UAS] launched and recovered on site). Aircraft fly to and from NWSTF Boardman following Federal Aviation Administration (FAA) regulations and enter the airspace according to instructions from the controlling agency, Seattle Air Route Traffic Control Center (ARTCC). Air operations would continue to be conducted in accordance with regulations for the use of aircraft targets, Restricted Area Airspaces, and MOAs/Air Traffic Control Assigned Airspace (ATCAA) scheduled by NAS Whidbey Island (NASWHIDBEY INSTRUCTION 3770.1E). During exercises, pilots typically avoid towns, noise-sensitive areas, and wilderness areas at prescribed vertical or horizontal distances (14 C.F.R. §91.119). During flights, pilots avoid areas where obstructions to air navigation have been identified. UASs follow the same safety regulations as aircraft.
Rosalind Peterson-9	8) The prospect of pervasive and prolonged surveillance of movements by Americans may be exacerbated with this Boardman Drone Range Expansion. A) What precautions will the U.S. Navy be taking to prevent any illegal, pervasive, or prolonged surveillance while operating in the Boardman Range, over land, and ocean areas? B) Who will be allowed to conduct drone experiments besides the U.S. military in the Boardman Drone Range Complex? C) And how will they be monitored to protect the public from surveillance and from accidents which may occur as ever-increasing numbers of drones are used in the Boardman Range? D) If this type of data is collected will the U.S. Navy and other entities (private individuals, private corporations, law enforcement use, universities, cities, states, counties, and other government agencies (etc.), using the Boardman	As presented in Section 1.3.2.3 (Area of Training Space), UAS training at NWSTF Boardman takes place within Boardman Restricted Airspace. NWSTF Boardman includes testing conducted by various Department of Defense (DoD) offices and training conducted by the Navy and ORNG. The number of proposed activities involving UAS is presented in Table 2-1 and 2-4 of the FEIS. The number presented is an annual number, as fluctuation in training requirements precludes the calculation of monthly values. As presented under the Proposed Action, there are no domestic surveillance activities proposed; thus, the discussion of domestic surveillance, archival of images, information, and information access is outside the scope of

Commenter	Comment	Navy Response
	Range for training be required to obtain a "search warrant" before collecting and storing surveillance information? E) How long will these entities be able to keep surveillance data derived from the use of the Boardman drone range expansion? F) What privacy framework will the U.S. Navy have in place to protect the public from surveillance collection and retention? G) Will the U.S. Navy guarantee that privacy rights will be upheld during drone surveillance and recording activities? H) What procedural protections will the U.S. Navy have in place to ensure that UAS (UAVs), and other drones are used in accordance with current U.S. laws regarding privacy, keeping, and storing surveillance data? I) What U.S. Navy Boardman Range practices and procedures will be in place for storing surveillance data, accessing, and sharing data obtained though drone surveillance? J) All records regarding the Use of Drones including flight records of all flights that are operated or owned by the U.S. Navy should be included as well as the type of data obtained through surveillance. K) A complete listing of the types and capabilities of the UAV (all drones), including their data capture systems and any other payloads (also to include weapons systems).	this EIS.
Rosalind Peterson-10	9) Who will have access to surveillance data (from any source), from land and ocean surveillance and will the U.S. Navy have legal justification before anyone can access or store UAS data? A) Listing of purposes for which surveillance data may be accessed or may not be accessed. B) Procedures for obtaining access to surveillance data and how this data is stored and managed. C) Please list which training manuals are now used to instruct anyone engaged in surveillance, of any type, that are in place or will be in place before the Final Boardman Range Expansion E.I.S. is made public?	As presented under the Proposed Action, there are no domestic surveillance activities proposed; thus, the discussion of domestic surveillance, archival of images, information, and information access is outside the scope of this EIS.
Rosalind	10) CNN News & Video – May 22, 2012 Sen. Carl Levin: "…Counterfeit military	Manufacturing of UAS drones is outside the scope of activities

Commenter	Comment	Navy Response
Peterson-11	parts pose 'significant safety' risk…including pieces of equipment used in aircraft…" or weapons systems. A) What precautions has the U.S. Navy taken to make sure that UAS drones are not going to be using counterfeit military parts? B) Have there been any drone accidents in the last five years in UAS drones that have had accidents due to the use of counterfeit military parts? C) What precautions will the Board Range be taking to make sure that everyone using their range will not be using counterfeit parts in their UAS drones to avoid accidents?	addressed in this EIS. However, the U.S. Department of Defense employs military standards, or MILSPECs, to ensure that all parts meet essential technical requirements. Information regarding these MILSPECs can be found through the Defense Standardization Program.
Rosalind Peterson-12	11) AIRBORNE ELECTRONIC ATTACK – GAO Study - March 2012 – "…Airborne electronic attack involves the use of aircraft to neutralize, destroy, or suppress enemy air defense and communications systems. Proliferation of sophisticated air defenses and advanced commercial electronic devices has contributed to the accelerated appearance of new weapons designed to counter U.S. airborne electronic attack capabilities….The Department of Defense's (DOD) evolving strategy for meeting airborne electronic attack requirements centers on acquiring a family of systems, including traditional fixed wing aircraft, low observable aircraft, unmanned aerial systems, and related mission systems and weapons…" A) Where will airborne electronic attack capabilities be tested over land or ocean areas using the Boardman Range as a base? B) What missions systems and weapons will be used which could impact marine mammals, fish, ocean marine life and habitats using UAS drones from the Boardman Range Complex? C) What impacts will this type of testing have on marine mammals, ocean habitats, fish, and wildlife on land areas? D) Will these capabilities be tested in the Boardman Drone Range and/or in the Pacific Ocean? E) Airborne electronic attack—a subset of the electronic attack mission—involves use of aircraft to neutralize, destroy, or temporarily degrade (suppress) enemy air defense and communications systems, either through destructive or disruptive means.	As presented in Table 2-1 of the EIS, Electronic Attack training activities are proposed to be conducted within the Boardman MOA and Restricted Areas. The analysis of potential impacts on wildlife from training activities is addressed in Section 3.6 (Wildlife).

Commenter	Comment	Navy Response
	F) Will the testing of airborne electronic attack aircraft and drones be tested using the Boardman range as a base for testing over land areas and ocean areas in concert with the twelve U.S. Navy Warfare Testing Ranges in the Pacific, Atlantic, and Gulf of Mexico? G) Will airborne electronic attack aircraft and UAS drones be used for this type of testing at the Boardman Range Complex?	
Rosalind Peterson-13	H) The following listing, found on the March 2012 GAO Report lists some of the technologies that are or are planned to be tested in the future under airborne electronic attacks using aircraft and UAS drones and others (not listed below), are included and listed in the Boardman Draft EIS: The EA-6B Prowler, Tactical Jamming System, EC-130H Compass Call, F-22A Raptor, EA-18G Growler, IDECM, Next Generation Jammer, F-35 Lightning II Joint Strike Fighter, AN/ALQ-99 Tactical Jamming System, EC-130H Compass Call, AGM-88E Advanced Anti-Radiation Guided Missile (AARGM), Integrated Defensive Electronic Countermeasures (IDECM), Miniature Air Launched Decoy (MALD), Miniature Air Launched Decoy—Jammer (MALD-J), HARM, EA-6B, EC-130H,AARGM Advanced Anti-Radiation Guided Missile, AESA Active Electronically Scanned Array, CEASAR Communications Electronic Attack with Surveillance and Reconnaissance, HARM High Speed Anti-Radiation Missile, ITALD Improved Tactical Air Launched Decoy, J-UCAS Joint Unmanned Combat Air Systems, LAIRCM Large Aircraft Infrared Countermeasures, MALD Miniature Air Launched Decoy, MALD-J Miniature Air Launched Decoy—Jammer, TALD Tactical Air Launched Decoy, Caesar Pod, Intrepid Tiger II, MQ9 Reaper Electronic Attack Pod, etc. • What impact will these experimental tests have on marine mammals, fish, wildlife, marine life, ocean habitats, and human health? • Since these systems are carried on aircraft and UAS drones moving over land areas and over ocean areas and are tested in these areas what precautions are in place to mitigate their impacts 90% of the time? • What are the types of emissions from these systems and what impact do they have on our oceans, land areas, and on our atmosphere…including impacts on beneficial atmospheric ozone? (Please list each emission type and	As presented in Table 2-1 of the EIS, Electronic Attack training activities are proposed to be conducted only within the Boardman MOA and Restricted Areas. The analysis of potential impacts on wildlife from training activities are addressed in Section 3.6 (Wildlife) and 3.12 (Public Health and Safety and Protection of Children). The analysis of air emissions from the RQ-7, RQ-11, and SCAN EAGLE during training activities are presented in the Air Quality section of the EIS, and details regarding emission factors, criteria air pollutants, and greenhouse gas emissions are presented in Appendix E. The analysis of potential impacts of energy stressors from training activities are addressed in Section 3.6 (Wildlife) and 3.12 (Public Health and Safety and Protection of Children).

Commenter	Comment	Navy Response
	number of pounds.) • How much water vapor (a greenhouse gas), is released from these systems themselves and the aircraft and UAS drones that will use and carry these systems? • Infrared Radiation, UV Radiation and lasers can cause animal, marine life (and habitat), and human health problems. Please list the devices that are using this type of radiation and lasers and list the human and marine mammal impacts from using devices that emit either type of radiation or laser use.	
Rosalind Peterson-14	11) Many drones don't have, according to a GAO September 2012, "…elaborate on-board detection systems to help them avoid crashes in the air <http://www.wired.com/threatlevel/2012/08/faadocuments- raise-questions-about-safety-of-drones-in-u-s-airspace/> …" which could cause complications when UAS drones share airspace with private aircraft. A) How many UAS Drones will carry on-board detection systems that use the Boardman range? B) What protections do the citizens of Oregon and other states have that protects both commercial and private aircraft from drones that don't carry on-board detection systems? C) Will small aircraft in Oregon and other states, along with commercial airlines, now be required to carry on-board detection systems to protect themselves from UAS drones? D) How many accidents have occurred in the United States that involve private or commercial aircraft and drones in the past 5 years? E) How many accidents has the Boardman Range drone program had with commercial or private aircraft in the past 5 years? F) What precautions are taken to protect public and private aircraft from UAS drone accidents when drone carrying weapons or nuclear powered drones use the Boardman Range?	As presented in Section 1.3.2.3 (Area of Training Space), UAS training at NWSTF Boardman takes place within Boardman Restricted Airspace. While UAS systems may not have on-board detection systems, non-participating aircraft are prohibited to enter Restricted Areas at NWSTF Boardman unless they have prior approval from the controlling authority (Seattle ARTCC). Non-military aviators must coordinate any flight activities that require entrance at any time into the Restricted Airspace with Seattle ARTCC, who in turn works with local aviators and military training schedules to determine available flight times. If scheduling conflicts arise, Seattle ARTCC contacts the local aviator. As UAS activities are limited to use within Restricted Airspace, this control of the airspace by Seattle ARTCC inherently protects both non-military aviators and UAS activities alike. The analysis presented in the EIS/OEIS is limited to the activities and reasonable outcomes of such activities. As accidents involving aircraft are neither anticipated nor reasonably foreseeable, the impact of such occurrences are not addressed or analyzed. None of the UAS operated under the Action Alternatives will be deployed outside of the NWSTF Boardman Restricted Airspace, and none of the UAS would be

Commenter	Comment	Navy Response
		nuclear powered.
Rosalind Peterson-15	12) GPS & Spoofing Issues – "…The Global Positioning System, commonly referred to as GPS, is a space-based satellite navigation system. It's what allows you to get turn-by-turn directions to the minimart in your automobile. But most people don't know that it also has countless other crucial applications…it's the backbone of the global air traffic system. It is also used to control the power grid, to power banking operations (for instance, ATMs depend on it) and to keep oil platforms in position. And virtually all communications systems, like the world's cellular networks, rely on it… Since its signals comes from satellites at very high altitude, GPS relies on very weak signals that are extremely vulnerable not only to spoofing attacks but also to jamming – the deliberate or accidental transmission of radio signals that interfere with regular communications…" A) What precautions are being taken by the Boardman Range and its clients conducting UAS drone testing to make sure that GPS & Spoofing Issues don't arise where civilian and private aircraft are compromised or accidents happen between UAS drones and other aircraft? B) It appears that the use of more and more UAS drones carrying weapons systems or nuclear powered could subject to GPS and Spoofing issues. How is the Boardman Range (U.S. Navy), going to protect the public from these types of issues which could cause drones to crash or where accidents with other aircraft could occur? C) What types of mitigation measure are in place to protect the public from these types of accidents? D) Prior to any expansion of the Boardman Range Complex and an escalation of the use of UAS carrying weapons systems, testing weapons systems, and other experiments there should be a full investigation in how the public and other aircraft would be protected from accidents or testing experiments. What warning systems and mitigation measures does the Boardman Range have at this time to protect the public and marine life from the impacts of these UAS drone experiments and/or accidents? E) What weapons systems will be tested in the future using UAS drones? And	All flight operations at NWSTF Boardman follow standard operating procedures as listed in NATOPS General Flight and Operating Instructions (OPNAVINST 3710.7), Army Unmanned Aircraft System Operations (FMI 3-04.155), and Pacific Northwest Training Range Complex Manual (NASWHIDBEYINST 3770.1), which highlight safe flight operations in NWSTF Boardman airspace. The Navy does not anticipate spoofing issues. As presented in Section 2.3.1.4 (Unmanned Aircraft Systems Operations) of the EIS, the RQ-11B Raven and RQ-7B Shadow and the Scan Eagle UAS are currently operated at NWSTF Boardman. Non-participating aircraft are prohibited to enter Restricted Areas at NWSTF Boardman unless they have prior approval from the controlling authority (Seattle ARTCC). Non-military aviators must coordinate any flight activities that require entrance at any time into the Restricted Airspace with Seattle ARTCC, who in turn works with local aviators and military training schedules to determine available flight times. If scheduling conflicts arise, Seattle ARTCC contacts the local aviator. As UAS activities are limited to use within Restricted Airspace, this control of the airspace by Seattle ARTCC inherently protects non-military aviators. While specifics regarding future UAS platforms are unknown, they are expected to be similar to platforms historically used at NWSTF Boardman, particularly from an environmental effects perspective. None of the UAS operated under the Action Alternatives will be deployed outside of the NWSTF Boardman Restricted Airspace, and none of the UAS will be

Commenter	Comment	Navy Response
	what will be the impact of each weapon system when tested on marine mammals, oceans, land areas and the public? F) What effective types of mitigation measures, effective 90% of the time, are in place to warn the public and handle accidents involving weapons systems on UAS drones in an accident? Please address the above issues in your Final Boardman Environmental Impact Statement. It is important, before any expansion, that these vital issues be answered and that the U.S. Navy fully recognize that public and environmental protection is expected prior to any expansion of the Boardman Range.	nuclear powered.
Paul Gisi	My name is Paul Gisi, G-I-S-I. I'm hoping as an 11-year veteran, Navy, and person that worked on the range, and a 20-year citizen of Boardman, that hopefully seeing the military in bad light and in good light, in good faith, that we could work with the land use and possibly unlock the land and getting some farmland back on the north end. That's my agenda.	Lands that make up NWSTF Boardman have been used for military training since 1941. Currently, no agricultural activity occurs at NWSTF Boardman because of safety concerns. Persons authorized to access NWSTF Boardman are all military and civilian employees of DoD, or authorized contractors and personnel from research organizations. Use of NWSTF Boardman by the general public is not authorized at this time due to the nature of the facility being used as an active training range.

G.5 TRANSCRIPTS OF PUBLIC MEETINGS

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NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN ENVIRONMENTAL IMPACT STATEMENT

PUBLIC MEETING

September 25, 2012

Hermiston Conference Center

Hermiston, Oregon

BRIDGES REPORTING & LEGAL VIDEO
Certified Shorthand Reporters
P. O. 223
Pendleton, Oregon 97801
(541) 276-9491 - (800) 358-2345

MODERATOR: ALLISON TURNER

PANEL MEMBERS:

CAPTAIN JAY JOHNSTON - Commanding Officer of Naval Air Station Whidbey Island

COLONEL TODD FARMER - State Army Aviation Officer with the Oregon National Guard

JOHN MOSHER - EIS program manager from the United States Pacific Fleet

PUBLIC COMMENTS:

(None)

MODERATOR ALLISON TURNER: Good evening and thank you for coming today. My name is Allison Turner, and I will be the moderator for tonight's public meeting on the draft environmental impact statement for the Naval Weapons Systems Training Facility Boardman, which we'll refer to tonight as the Boardman EIS. Hopefully you've had the opportunity to talk with the representatives from the Navy and the Oregon National Guard staffing the poster stations during the information session.

We're here tonight because the Navy, in cooperation with the National Guard Bureau and the Oregon National Guard, and the Navy, has analyzed the environmental effects associated with ongoing and proposed military readiness activities taking place at Boardman. The purpose of tonight's meeting is to receive public comments on the draft EIS. This is the first of two public meetings for this phase in the EIS development process.

The Navy and National Guard have prepared a short presentation, and here tonight to receive your comments are Captain Jay Johnston, Commanding Officer of Naval Air Station, Whidbey Island; Colonel Todd Farmer, State Army Aviation Officer with the Oregon National Guard; and Mr. John Mosher, EIS program manager from the

United States Pacific Fleet.

My role is to ensure that we have a fair and orderly meeting where you have an opportunity to make comments on the draft EIS. Tonight's presentation and the public comment session are also being transcribed for the administrative record by Dina, seated across from me here.

So, first, it is my pleasure to introduce Captain Johnston.

MR. JOHNSTON: Thank you. I guess I'll keep my corny jokes to a minimum since we're being transcribed here. You going word for word?

Okay. My name is Captain Jay Johnston, Commanding Officer of Naval Air Station in Whidbey Island, Washington. That also makes me the range complex commander to the U.S. Pacific Fleet for the Pacific Northwest range complex, which includes Naval Weapons System Training Facility Boardman. So that's why I'm here before you tonight.

I've been in the Navy about 27 years. Grew up in North Carolina, so I talk funny, but moved out here in '96, and this is where the kids grew up, and we're happy to call it home. Pretty thrilled to be in command of the base down there, and coming down to Boardman has certainly been a treat and an interesting

experience. So I appreciate meeting everyone.

So my duty -- am I doing the slides? Here's the agenda. We'll give you an overview of Boardman, the importance of military readiness at Naval Weapons System Training Facility Boardman. There will be an overview of proposed actions and the draft EIS, and we'll have the public comment session after that.

So for my part of this, I'm going to give you kind of a background of why this is such an important training area for the Navy and the Oregon National Guard, as well as other services. It's really a joint training area that is used by just about every service, except maybe the Coast Guard. Has the Coast Guard been in there? A lot of water.

But, anyway, for more than 70 years, the Boardman training area has been in existence. And if you look at the maps, you can see the 12-mile-by-six-mile rectangle that is Navy property there. That used to be double that back when they first instituted the range back in the '40s. But somewhere along there, Jerry Sodano, our range guy, can help me on this, but back in the '60s, we actually gave that half back to Morrow County for farming and whatnot.

The Oregon National Guard has been participating in the area since the '80s. The important

thing about it, you can't just look at the -- if you've been around it, you've seen not only is there Navy property, but there's overlying airspace, which is absolutely critical to our training.

It's one of the few restricted areas in the Pacific Northwest, and it is the only restricted airspace in which we can do low altitude tactical training which is important for our air crews to fully implement their training, we call it a training matrix, all their training quals that they need to get. About a fifth of their training qualifications require low altitude airspace to complete.

So with this being the only area, it is of vital importance. The area itself is, I forget the -- it's about 380-square miles of restricted airspace, a few more with the military operating area above that. What restricted airspace means, we discussed this earlier, is that it's protected airspace so that we minimize the potential for collisions with civilian traffic, which means you have to have a clearance to get in there and whatnot. So there's very little of that airspace actually available up here in the Pacific Northwest.

Regional training area for the Northwest units. Primarily that's, in addition to Todd's guys in

the Guard, our jets from Whidbey Island: The Prowlers, EA-6B Prowlers and EA-18G Growlers fly down from Whidbey Island to conduct their tactical training down here. The beauty of this range is it allows them to do so in one tank of gas. They can get down here, do their training, and return to Whidbey Island.

Without this range, we would be forced to relocate, fly ourselves around the country, find another airspace, which is a huge expense to the taxpayer. You'd have to pay people to move temporarily to a new base, fly the jets, and then return to home base. Or if we try to fly the jets to these other ranges and then back, we're talking about excessive fuel costs and an excessive service life expenditures on the airplane.

So this airspace really is ideal for our jets at Whidbey Island, economically and efficiently for the taxpayer, to complete their training. Let's go ahead and go to the next slide.

Readiness activities that we do here are, in the airspace overlying it, we do anti-air and electronic warfare. Means we do a little dogfighting up there with electronic warfare. We don't actually turn the jammers on there, but we do the tactics associated with the electronic warfare mission.

And the electronic warfare mission is really

one of the most rare missions out there. No strike aircraft will go into bad guy land without that without electronic sanctuary, which means the circuits -- jamming the surface to air missiles, jamming communications. The electromagnetic spectrum has become so important to combat operations that the electronic warfare is critical.

And Whidbey Island is the center of gravity for our electronic warfare department. We're the only service that does tactical and electronic warfare, since the Air Force got out of the EF-111 Raven business in the late '90s.

So not only do we carry Navy air crew up there, we carry all the Marine Corps electronic warfare specialists, the Air Force training, we actually have an Air Force squadron. No airplanes, but an organization in a sense that they're a group of folks that train with us up there. And then we provide support to the Army, both in Afghanistan and Iraq. So it is a DOD center of excellence.

We listed live fire exercises up there. That's primarily guard type of activities, as well as our demolition mission and combat command, including the Seals, EOD units, and some of our maritime security forces will go out to do their cruise surf weapons

training on the Boardman range.

We had -- as well as we had special tactics, a special tactics squadron of the Army and the Air Force reserve come out and use it, as well as the Oregon guard do the live fire exercises up on the range out there. That's a lot of what this EIS is all about, is expanding that capability for Todd and his guys to bring different types of weapons out.

Talked a little bit about the low altitude flight training. The training we're talking about is a -- low would be 200 to 500 feet above the ground, which is pretty low. And you take these hundred million dollar jets and you put these young kids in them, and you make them go out there and do these tactics to evade surface-to-air missiles, AAA surface-to-air activities, AAA aircraft type artillery fire. And a lot of these guys and gals, this is the first time that they've done this actual mission.

So the Boardman area, the area in Morrow County, Umatilla, and Gilliam County, for low-altitude flight training is perfect. It is flat, it is free of obstructions. And, again, this goes back to providing them the ideal training environment so that they can master their craft with minimum chance of obstructions and then having an accident and that kind of stuff.

Which when the jets cost as much as they do and it costs as much to train these aviators, the safety of flying these young guys doing this kind of training is pretty important.

Insertion and extraction, that has to do with a lot of the Army operations and the special forces aspect, the helicopters and the -- giving us this range allows us to have a little freedom of a new route to do that kind of thing.

ISR, well, that's just another aspect of the electronic warfare mission that we'll conduct down in the Boardman area. And then we do some research, development, test and evaluation, which is another benefit provided by the restricted area and the property out there. We do a lot of running an aerial system, like UAV type of stuff out there, where we can actually validate tactics and validate interactions with the UAVs and ground forces, which has become pretty important of late in the combat operations that we're doing.

So, again, all that rolls into just explaining how critical this airspace and this property is for sustainment of our training for both the guard and the Navy, as well as the other services. Might as well go to another slide.

That's an EA-18G Growler, brand-new airplane,

still has the new smell, in Whidbey Island. We have 13 squadrons up there, and we're about halfway through the transition between the old Prowler and the Growler. You won't see a Prowler there, but you'll know it when you see it. It's a big ugly thing that I flew, big fuel probes out the front. We're transitioning to these nice, sleek fighter-jet-looking things.

We've got an old hulk of a tank out there, which is kind of one of our targets that we use. We did use it when it was a bombing range. We don't bomb so much up here anymore, although we still can. Oh, and I'd be remiss if I don't mention that the Oregon Guard uses it for their F-15s out of Portland to do its training classes. And then that's just a picture of Boardman in the lower right corner there.

And that's about all I have. That just explains to you how important this is to us. It is really a joint training range for all the services. And it is a -- I hate to use the word premiere or it's paramount. It's at a premium right now. There's really not -- we don't have a lot of capability to get new airspace in the United States with the congestion and whatnot that's growing.

In fact, commercial air traffic on average grows about 5 percent a year. Doubles every 20 years,

basically. So we are fortunate in the Pacific Northwest to have a pretty low density air traffic picture up here. So to have this range and this type of environment is going to be a key for the military for years to come. And I think that's all I have.

So I guess I'll introduce Todd Farmer. He's the State Army Aviation Officer with the Oregon National Guard. Went down to his facility the other weekend in Salem. Phenomenal facility, proving once again that the reserves and the guard have the nicer facilities than the active duty. Made me jealous.

But with that, I'll turn it over to Todd. Thank you.

COLONEL FARMER: Thank you, Captain. Again, I'm Todd Farmer. I'm the State Army Aviation Officer for the Oregon National Guard. Just a note about myself: I've been in the Oregon National Guard for 32 years now. Many of those years I actually lived in Pendleton area, and have been working on this Boardman bombing range for over 10 years now.

I have a great appreciation for the area and specifically for this range, especially living here for so long and training. I actually began training, as the Captain said, back in the early '80s when I was an instructor pilot in Pendleton. So very familiar with

the range and training areas.

The Oregon National Guard is composed of 8600 folks, both Army National Guard and Air National Guard. 6600 of those are in the Army National Guard. Our mission is to provide citizens of the state of Oregon and United States a ready force, equipped and trained to respond to any contingency both here in the states and abroad, as we deploy so often since 9/11.

Our readiness requires specialized locations, like Boardman, to train these airmen and soldiers. Boardman, as the Captain indicated, is very unique with airspace specific to training needs that we can't accomplish anywhere else in Oregon.

Our aviation units are constantly training throughout the year. We use Boardman and other airspace in the area, but Boardman is very unique for those. As well as our ground crews that have to train on their weapon systems throughout the year, as well. Boardman provides that opportunity for training with those guys.

Boardman and its associated special-use airspace currently play a vital part in the execution of our readiness training for the Oregon National Guard. The National Guard uses Boardman as a joint initiative. We're a tenant of the range. The Navy owns the property, but we have a license to use the property.

It provides critical training opportunities for the Oregon National Guard to prepare for all those missions that we accomplish both here in the states and abroad. Again, it's very unique for us. We do not have a range in Oregon that would allow us to do the things we do here in Boardman.

As mentioned before, the unique piece of this is the restricted airspace, which is the only one in Oregon state. It provides, it will provide, if our proposals move forward, a regional training opportunity for weapon systems -- we'll describe those ranges here in a little bit -- for all the military units throughout Oregon and the Oregon National Guard. And it accommodates unmanned aerial systems, and the live fire training, again, is unique to us here at the Boardman area.

Currently at Boardman we conduct a number of training sessions out there. We do fly our unmanned aerial vehicles, Shadow. They're based in Pendleton, but fly quite often. Some of you have had the opportunity to see that. I know, Carla, you've been able to see those. You missed that? I'm sorry.

Our helicopters train out there. We do low-level training, night vision goggle training, as well as wildland fire suppression training with water buckets on

our C-47's. We also do, infrequently, F-15 strafe fighting training with our F-15s out of Portland. We have this great field for the occasion to come do this.

Proposed at the site, and the story board is out here to describe those in more detail, and I know John will speak to this again with some maps later, is an unmanned aerial vehicle maintenance facility, a multipurpose machine gun range, and a digital multi-purpose training range, as well as a convoy live fire range. And there will be a map later that will describe where those are located on the range.

So without further ado, I'll introduce Mr. John Mosher. He can speak to a number of the things that I mentioned.

Thank you.

MR. MOSHER: Thank you, Colonel. Once again, I am John Mosher, I work for the U.S. Pacific Fleet, and I'm the program manager for the EIS for the Boardman EIS project. The captain and the colonel discussed a little bit about the mission of the Navy and the National Guard on the range, some of the importance of the range in military readiness activities, and I'm going to get into a little bit of the EIS analysis.

I hope everybody has had some opportunity to review the EIS. It's been on the streets since about

September 7th. It is that 900-page document back there on some of the tables. If you haven't had the opportunity, I do encourage you to take a look at the document. As I mentioned, I'm just going to give some very general information on the EIS analysis, but there is a lot of detail in the actual document itself.

And if you don't care about every section, about every resource area that we analyze, then I'd encourage you to look at those areas that do have interest to you, so you don't have to read all 900 pages, just maybe chunks of it. Next slide.

The proposed action. The Navy and the National Guard are proposing several actions to ensure continued military readiness. This is current, ongoing, and into the future. The proposed action is needed to provide a military training environment at Boardman, including ranges, training areas, and instrumentation that is capable of fully supporting units and personnel training requirements into the future. Next slide.

So the draft EIS contains three alternatives. A no action alternative. This is training and testing activities, these would continue at the current levels, what's currently conducted at the range, and these include both the activities by the Navy, the Oregon National Guard, and the occasional other Department of

Defense user.

These would not include some of the proposed developments or range enhancements, as we've referred to them, and with the no action alternative, this is the baseline that we use for assessing the impact of the other alternatives that we'll discuss next.

Alternative 1. This proposes to increase current levels of training activities to accommodate similar training activities with future equipment, as that equipment, those systems are developed and are turned over to the military for actual use. It would implement the range enhancements. Again, that's a term we use in the EIS quite a bit.

Range enhancements are actual different areas of construction or development. They include the military operations area, and that's the special use airspace that we've proposed, and new ranges and new facilities. The captain and colonel mentioned some of these, but specifically new range areas include a machine gun range; a multipurpose training range; a convoy live fire range; a demolition training range; and the UAS, unmanned aerial system strip, launch strip; and a maintenance facility. Next slide.

And then alternative 2, and this is the preferred alternative in the EIS. This includes all of

the elements of alternative 1. It also allows for redistribution of training to different areas of the range. It includes -- it implements additional range enhancements than those that are included in alternative 1.

And these may include a second convoy live fire range. Some are in the graphic, I believe on the next slide, I'll show you where some of these are. Also includes a separate range control center building, and three mortar training positions. Next slide.

And there's the graphic. A picture is worth a thousand words. So some of you may have had a chance to look at this in the poster station, as we talked about some of the proposals, but I'll point out a few of these. So the larger property itself, as the captain mentioned, approximately six miles by 12 miles of Boardman property itself. Within that we've got a couple of good reference points.

Right in the center, that's the main bulls-eye, main target area that's been in existence for air-to-ground bombing ranges for a good number of years. So that's part of the no action alternative, but that's something that would continue to be used into the future. Some of the newer proposed enhancements that I mentioned include a digital multipurpose training range.

That's this rectangle right in here.

There's also a multipurpose machine gun range, which is this section over here. Convoy live fire range, there's two indicated on this graphic. This is the eastern convoy live fire range here, a series of kind of squiggly lines that would be put in place on some of the existing roads on the range. And then the western convoy live fire range is this straight line over here, also proposed for one of the existing roads.

This convoy live fire range is in alternative 1, and then a big change for alternative 2 is we've added this second convoy live fire range, as I mentioned, to add extra flexibility in where the training would occur.

The other range enhancements, the UAS facility. This would include both the runway for takeoff and landing for the unmanned aerial systems, as well as the maintenance facility to service that equipment. Would be up in this corner, this box up here.

And then down here we have the demolition training range, a fairly small location, but demolition training with explosive charges would occur there. And then the drop zone down here is a location identified for the safe insertion and extraction by parachute of

personnel and equipment. Next slide.

And this graphic takes you out to a greater distance. You can still see the range property and in the center there, the kind of orange-colored rectangle, but then up overlying it and surrounding it is the special use airspace into this area. And there are a number of different lines that designate the special use airspace, different pieces to it that -- for a different elevation. And those are indicated over this box, this box of the graphic, which is also in the information material we've provided.

So if you want to look at what the different elevations are and all of those, I'd encourage you to grab those and look at the breakdown. What I do want to point out in this graphic is the northeast military operations area. That's the new special use airspace that we are proposing as part of the proposed action in alternatives 1 and 2, and that's this piece up here.

It's got some different elevations associated with it, but in general it extends from 500 feet at the lowest elevation up to approximately 18,000. It's being proposed in an area that has an existing type of airspace. It's a national security area, and that's the green box that underlays it right there. That's been in place for a number of years with the Umatilla Chemical

Depot that used to be in operation there for the disposal of chemical munitions.

So that piece of airspace has been there for some time, and that's where we are now proposing this new military operations area. And it adjoins up against the existing airspace. Next slide.

Okay. The draft EIS evaluates the potential effects of the alternatives on a number of different resource categories. These are the resource categories addressed in the EIS. These are all addressed in some detail, some with more detail than others. I do want to specifically point out three of these. That's the first three on the left over here: Wildfire, wildlife, and acoustic environment.

Those three are resource areas that we've identified that could have potential significant effects. The rest of the resources that are identified in this slide we determined do not have significant effects. So in the next several slides we're going to drill down into a little bit of detail on those three specifically.

But if you have interest in some of the areas that I'm not going to talk about today, I would encourage you again to dig into the EIS, look at what we've said in there about what the potential is for the

impacts, and then again whether we have significant impact or not. Next slide.

Wildfire. And this is not really a resource area. Wildfire is not a resource, of course, but we've addressed it very similar to the other resource areas. And this is specifically because wildfire is a factor of the range, factor of the training that we do there, and it does have very specific potential effects on some of the other resource areas.

For wildfire, with the proposed action and the increase in training activities, there would be an increase for potential cause of wildfires. We already have natural causes, of course, in this area for wildfires, but there are also some potential sources from training activities themselves.

With the increase for potential, then there is also potentially significant impacts, as I mentioned, in some of the other resource areas. And we mention here, in the slide here, vegetation, wildlife, and air quality.

So if we have a potential for significant effect in the EIS, we're required to analyze or to look at potential practices, mitigations, different ways to reduce or minimize those significant effects. And that's what we've also done in these slides. So over on

this side, we have listed or addressed this concern. And with the proposed actions, we would propose several of these different practices.

And up here we list monitoring for wildfire. So there would be an increased monitoring piece to go with the increased training. There would be some limited use restriction. This specifically addresses some of the different types of trainings that would have ignition sources, so the use of pyrotechnics, things that burn very hotly, obviously those would be something that could cause fire, so we put limitations, restrictions in place to limit that potential.

We would look at implementing fire prevention protocols, and this involves a number of different practices, including the training of personnel, the qualification of personnel, and the types of training, when it can occur during certain seasons. To address all of this and to pull it together as a project, kind of running parallel to the EIS we have developed an integrate -- we've implemented, or proposed to implement an integrated wildland fire management plan.

And it addresses each of these topics that I just mentioned. It is a draft document. It is included as an appendix to the EIS, so if you're interested in reading it in its entirety as a draft document, I would

recommend that you do so. It does, as I mentioned before, get into a lot of the details as to how we are proposing to address the increased potential for wildfire. Next slide.

Wildlife. With the proposed action, we have determined the proposed actions could have some potentially significant impact on wildlife. We have determined that training activities, noise, or construction may affect some birds and mammals, some of the habitat quality of the range, nesting habitat for migratory birds and special status species, and this is specifically the Washington ground squirrel.

If you're familiar with the area, that is a special status species of concern. It is an Oregon state endangered species, and it is a candidate species for federal listing as endangered species status. Some of the mitigation measures that we have proposed to minimize the impacts on wildlife include implementation of adaptive management strategy, as we've started to develop with the U.S. Fish and Wildlife Service.

This would address the habitat and the different species that are occupants of the habitat. We've also looked at time constraints involving the construction of certain activities or certain projects that we're proposing, so working around nesting season

for migratory birds, for example. And we've also proposed a long-term habitat restoration program for those areas of the range that would be -- that would not be involved with the actual training activities. Next slide.

Acoustic environment. And this is referring to the noise that's produced or potentially produced either by construction activities or by the training and testing activities that would occur on the range. We have determined that aircraft activities may significantly affect noise-sensitive areas.

And noise-sensitive areas are term -- it's a term specifically identified or defined by the Federal Aviation Administration, and these include schools, hospitals, religious structures and sites, parks and recreational areas, wildlife refuges, and cultural and historic sites. There are a number of these in this general area, so we have looked very specifically in the EIS at these areas.

In our initial look at the EIS in the draft, our determination was that none of these had a significant effect based on the current noise levels. A piece of information that we got in comments, working closely with the FAA, Federal Aviation Administration, was that we need to also consider changes in current

levels of noise to what would be expected in the future with some of our proposals.

So in an effort to better address that, we are conducting an extended noise analysis. There is a current noise analysis study in the EIS as another appendix, but we'll be conducting an initial follow-on piece to that noise analysis to address this concern. So that's something we will be further addressing.

We also determined in our noise analysis that the land-based range activities are not anticipated to have a significant impact on the acoustic environment. Some of the other mitigation measures that we have proposed to address the acoustic impacts include restricting certain detonation activities. So this is that demolition training range I mentioned before, noise associated with that.

And then also noises that would be associated with that training, when certain charges of larger size were used on a less frequent basis, to notify, to let people know that these types of training are occurring, because they would hear them. Next slide.

In the EIS we're also required to address cumulative impacts, so this is looking at the impacts that would be potentially caused by our proposed action and those that are also proposed would be associated

with other proposed actions, either in the past or in the future. So this does get a little bit complicated looking at all the different things out there that are being proposed and trying to say what we would do cumulatively looking at it all together to these different resource areas like we've been talking about.

In our analysis, we have determined that the proposed action would contribute to an increase of impacts on air quality, greenhouse gas emissions, vegetation, wildlife, and wildfire. Construction and operation proposed wind farms and transmission line projects in the area have also been determined to have a potential impact in a cumulative sense on both military aviation, as well as civilian aviation. Next slide.

And here I just want to just take a quick look at the NEPA process and the remaining schedule for the EIS. We have already achieved a number of the milestones on here. We have completed notices of intent back in 2010 and 2011, there were two phases to that. Scoping meetings, of course, were conducted back then in 2010 and 2011, and then now we're at the draft EIS phase of the project. So that was, again, released on September 7th.

We are, of course, holding public meetings and are in the middle of the public comment period now.

Two public meetings, one tonight and one tomorrow night in the town of Boardman. And then following this phase of the EIS, the next big milestone would be release of the final EIS, and that's expected or anticipated about the summer of 2013.

So it gives us some time to incorporate all the comments we receive through this process, those we receive in writing, and through some of our other methods for obtaining comments, and then making any changes that are necessary to the analysis based on those comments or new information that we've found.

And the following final EIS release, there is a 30-day wait period, and then gets us to the final step, which is the record of decision, or ROD, and that is anticipated in about the fall of 2013. And that is the process that adds the ultimate selection of the alternative, what the final action will be, and that is decided upon at the Assistant Secretary of the Navy level. That's the decision-making authority. Next slide.

For the public review of the EIS project, we have several tools to assist us in this. We do have a project website, and that is identified on the screen here and in all the information materials we've provided. It does, the website does provide download

capabilities for the draft EIS.

It also has the fact sheet booklet that we're passing out tonight, the posters that we have at each of the stations tonight, we have some additional information. And there is some other information at the website as well. We also have six public locations for information repositories, and those contain again both the EIS and some other clarifying information.

At this point, I'm going to turn it back over to Allison.

MODERATOR ALLISON TURNER: Thank you, John.

The Navy and the National Guard welcome public review and input on the analysis contained in the draft EIS, and there are several ways for you to submit comments. Oral comments will be accepted tonight, immediately after this presentation.

If you don't feel comfortable standing up to make a statement, you can submit an oral comment directly to the court reporter here on my left one-on-one after the session. You can also submit a written comment tonight or via the project website or by U.S. postal mail. You just want to make sure that you do so before the close of the comment period on November 6th.

There is no page limit on written comments, and the Navy and Oregon National Guard give equal weight to oral or written comments. And all comments become part of the official record and are included in the final EIS.

At this time I have not received any requests to make an oral comment tonight. Has anybody changed their mind and do want to stand up here at the microphone and make a comment? No? Okay. Well, we will be here until 8:00 tonight. I will be sitting here with the court reporter, with Dina, if you would like to come up and make an oral comment.

Again, we've got comment forms on the table, feel free to take one with you or fill it out tonight, and then again the website is a very convenient place for you to do that electronically. So with that, I would like to thank you all for coming. And we will go back to the poster stations, and if you have any questions for our team members, they will be available to answer your questions.

Thank you.

(8:00 p.m.)

* * *

STATE OF OREGON)
) ss.
COUNTY OF UMATILLA)

I, Dina Ranger, do hereby certify that at the time and place heretofore mentioned in the caption of the above-entitled matter, I was a Professional Registered Reporter and Notary Public for Oregon; that at said time and place I reported in stenotype all testimony adduced and proceedings had in the foregoing matter; that thereafter my notes were reduced to typewriting and that the foregoing transcript consisting of 30 typewritten pages is a true and correct transcript of all such testimony adduced and proceedings had and of the whole thereof.

Witness my hand at Pendleton, Oregon, on this 30th day of September, 2012.

_____
Dina Ranger, RPR
Registered Professional Reporter
Notary Public for Oregon
My Commission Expires: 10/17/14

A

AAA (2) 9:15,16
able (1) 14:22
above-entitled (1) 31:6
abroad (2) 13:8 14:4
absolutely (1) 6:4
accepted (1) 29:16
accident (1) 9:25
accommodate (1) 17:8
accommodates (1) 14:14
accomplish (2) 13:13 14:3
achieved (1) 27:17
acoustic (4) 21:14 25:6 26:11,13
action (11) 16:12,15,21 17:4 18:22 20:17 22:10 24:5 26:24 27:8 28:17
actions (5) 5:6 16:13 23:2 24:6 27:1
active (1) 12:11
activities (19) 3:15 7:19 8:22 9:15 15:22 16:22,24 17:8 17:9 22:11,15 24:8 24:24 25:4,8,9,10 26:10,14
actual (5) 9:18 16:6 17:11,14 25:4
adaptive (1) 24:19
add (1) 19:13
added (1) 19:12
addition (1) 6:25
additional (2) 18:3 29:4
address (7) 23:17 24:3,21 26:3,7 26:13,22
addressed (4) 21:10,10 22:5 23:1
addresses (2) 23:7,22
addressing (1) 26:8
adds (1) 28:16
adduced (2) 31:9,13
adjoins (1) 21:5
Administration (2) 25:14,24
administrative (1) 4:6
ado (1) 15:12
aerial (6) 10:15 14:14,19 15:7 17:22 19:17
affect (2) 24:9 25:11
Afghanistan (1) 8:19
agenda (1) 5:3
ahead (1) 7:17
air (15) 2:7 3:23 4:14 6:8 8:4 8:11,13,15,16 9:3 11:24 12:2 13:3 22:19 27:9
aircraft (3) 8:2 9:16 25:10
airmen (1) 13:10
airplane (2) 7:14 10:25
airplanes (1) 8:16
air-to-ground (1) 18:21
Allison (5) 2:1 3:1,2 29:10,11
allow (1) 14:5
allows (3) 7:4 10:8 18:1
alternative (11) 16:21 17:4,7,24,25 18:1,4,22 19:10,11 28:17
alternatives (4) 16:20 17:6 20:18 21:8
altitude (3) 6:7,12 9:9
analysis (9) 15:23 16:5 26:4,5,7,9 27:7 28:10 29:14
analyze (2) 16:8 22:22
analyzed (1) 3:13
answer (1) 30:20
anticipated (3) 26:10 28:4,15
anti-air (1) 7:20
anybody (1) 30:7
anymore (1) 11:11
anyway (1) 5:15
appendix (2) 23:24 26:6
appreciate (1) 5:1
appreciation (1) 12:21
approximately (2) 18:16 20:21
areas (18) 6:5 13:1 16:9,17 17:14,19 18:2 21:15 21:22 22:5,9,18 25:3,11,12,16,19 27:6
Army (9) 2:9 3:24 8:18 9:3 10:6 12:7,15 13:3,4
artillery (1) 9:16
aspect (2) 10:7,10
assessing (1) 17:5
assist (1) 28:22
Assistant (1) 28:18
associated (7) 3:14 7:23 13:20 20:19 26:16,17,25
authority (1) 28:19
available (2) 6:22 30:19
average (1) 11:24
aviation (9) 2:9 3:24 12:7,15 13:14 25:14,24 27:14,14
aviators (1) 10:2

B

back (12) 5:19,20,22,22 7:13 9:22 12:24 16:1 27:19,20 29:9 30:18
background (1) 5:9
bad (1) 8:2
base (3) 4:24 7:11,11
based (3) 14:19 25:22 28:10
baseline (1) 17:5
basically (1) 12:1
basis (1) 26:19
beauty (1) 7:4
began (1) 12:23
believe (1) 18:7
benefit (1) 10:14
better (1) 26:3
big (4) 11:5,5 19:11 28:3
birds (3) 24:9,11 25:1
bit (7) 9:9 14:12 15:20,23 17:13 21:20 27:2
board (1) 15:4
bomb (1) 11:10
bombing (3) 11:10 12:20 18:21
booklet (1) 29:2
box (4) 19:19 20:9,10,24
brand-new (1) 10:25
breakdown (1) 20:14
BRIDGES (1) 1:22
bring (1) 9:7
buckets (1) 14:25
building (1) 18:9
bulls-eye (1) 18:20
Bureau (1) 3:12
burn (1) 23:10
business (1) 8:11

C

call (2) 4:23 6:9
candidate (1) 24:15
capabilities (1) 29:1
capability (2) 9:7 11:21
capable (1) 16:18
captain (10) 2:7 3:22 4:9,13 12:14 12:24 13:11 15:19 17:18 18:15
caption (1) 31:5
care (1) 16:7
Carla (1) 14:21
Carolina (1) 4:21
carry (2) 8:13,14
categories (2) 21:9,9
cause (2) 22:12 23:11
caused (1) 26:24
causes (1) 22:13
center (6) 1:15 8:8,19 18:9,19 20:4
certain (5) 23:17 24:24,24 26:14 26:18
certainly (1) 4:25
Certified (1) 1:23
certify (1) 31:4
chance (2) 9:24 18:12
change (1) 19:11
changed (1) 30:7
changes (2) 25:25 28:10
charges (2) 19:23 26:18
chemical (2) 20:25 21:2
chunks (1) 16:11
circuits (1) 8:3
citizens (1) 13:5
civilian (2) 6:19 27:14
clarifying (1) 29:8
classes (1) 11:14
clearance (1) 6:20
close (1) 29:24
closely (1) 25:24

Coast (2)
5:13,13
collisions (1)
6:19
colonel (6)
2:9 3:23 12:14 15:16 15:19 17:18
combat (3)
8:6,23 10:19
come (4)
9:4 12:5 15:3 30:12
comfortable (1)
29:18
coming (3)
3:2 4:24 30:17
command (2)
4:24 8:23
commander (1)
4:16
Commanding (3)
2:7 3:22 4:14
comment (10)
4:5 5:7 27:25 29:19 29:22,24 30:7,9,12 30:13
comments (13)
2:17 3:17,22 4:4 25:23 28:7,9,11 29:16,16 30:1,3,3
commercial (1)
11:24
Commission (1)
31:22
communications (1)
8:5
complete (2)
6:12 7:17
completed (1)
27:18
complex (2)
4:16,17
complicated (1)
27:2
composed (1)
13:2
concern (3)
23:1 24:14 26:7
conduct (3)
7:3 10:11 14:17
conducted (2)
16:23 27:20
conducting (2)
26:4,6
Conference (1)
1:15
congestion (1)
11:22
consider (1)
25:25
consisting (1)
31:11
constantly (1)
13:14
constraints (1)
24:23
construction (5)
17:15 24:9,24 25:8 27:10
contain (1)
29:7
contained (1)
29:14
contains (1)
16:20
contingency (1)
13:7
continue (2)
16:22 18:23
continued (1)
16:14
contribute (1)
27:8
control (1)
18:9
convenient (1)
30:15
convoy (8)
15:9 17:21 18:6 19:3 19:5,8,10,12
cooperation (1)
3:12
corner (2)
11:15 19:19
corny (1)
4:11
Corps (1)
8:14
correct (1)
31:12
cost (1)
10:1
costs (2)
7:13 10:1
country (1)
7:8
County (4)
5:23 9:20,20 31:2
couple (1)
18:18
course (4)
22:4,13 27:20,24
court (2)
29:20 30:11
craft (1)
9:24
crew (1)
8:13
crews (2)
6:8 13:17
critical (4)
6:4 8:7 10:21 14:1
cruise (1)
8:25
cultural (1)
25:16
cumulative (2)
26:23 27:13
cumulatively (1)
27:5
current (6)
16:14,22 17:8 25:22 25:25 26:5
currently (3)
13:21 14:17 16:23
C-47's (1)
15:1

D

day (1)
31:16
decided (1)
28:18
decision (1)
28:14
decision-making (1)
28:19
Defense (1)
17:1
defined (1)
25:13
demolition (5)
8:23 17:21 19:21,22 26:15
density (1)
12:2
department (2)
8:9 16:25
deploy (1)
13:8
Depot (1)
21:1
describe (3)
14:11 15:5,10
designate (1)
20:7
detail (5)
15:5 16:6 21:11,11,20
details (1)
24:2
determination (1)
25:21
determined (7)
21:18 24:6,8 25:10 26:9 27:7,12
detonation (1)
26:14
develop (1)
24:20
developed (2)
17:10 23:19
development (3)
3:19 10:13 17:15
developments (1)
17:3
different (16)
9:7 17:14 18:2 20:7,8 20:8,12,19 21:8 22:23 23:3,8,14 24:22 27:3,6
dig (1)
21:24
digital (2)
15:8 18:25
Dina (4)
4:6 30:11 31:4,20
directly (1)
29:20
discuss (1)
17:6
discussed (2)
6:17 15:20
disposal (1)
21:2
distance (1)
20:3
document (5)
16:1,4,6 23:23,25
DOD (1)
8:19
dogfighting (1)
7:21
doing (3)
5:2 10:3,19
dollar (1)
9:13
double (1)
5:19
Doubles (1)
11:25
download (1)
28:25
draft (12)
3:4,17 4:4 5:6 16:20 21:7 23:23,25 25:20 27:21 29:1,15
drill (1)
21:20
drop (1)
19:24
duty (2)
5:2 12:11

E

earlier (1)
6:18
early (1)
12:24
eastern (1)
19:5
EA-18G (2)
7:2 10:25
EA-6B (1)
7:2
economically (1)
7:16
effect (2)
22:22 25:22
effects (6)
3:14 21:8,17,19 22:8 22:24
efficiently (1)
7:16
effort (1)
26:3
EF-111 (1)
8:11
either (2)
25:8 27:1
electromagnetic (1)
8:5
electronic (10)
7:20,22,24,25 8:3,6,9 8:10,14 10:11
electronically (1)
30:16
elements (1)
18:1
elevation (2)
20:9,21
elevations (2)
20:13,19
emissions (1)
27:9
encourage (4)
16:3,9 20:13 21:24
endangered (2)
24:15,16
enhancements (6)
17:3,12,14 18:4,24 19:15
ensure (2)
4:2 16:13
entirety (1)
23:25
environment (6)
9:23 12:4 16:16 21:14 25:6 26:11
environmental (3)
1:6 3:4,14
EOD (1)
8:24
equal (1)
30:2
equipment (4)
17:9,10 19:19 20:1
equipped (1)
13:6
especially (1)
12:22
evade (1)
9:14
evaluates (1)
21:7
evaluation (1)
10:13
evening (1)
3:1
everybody (1)
15:24
example (1)
25:1
excellence (1)
8:20
excessive (2)
7:13,14
execution (1)
13:21
exercises (2)
8:21 9:5
existence (2)

5:16 18:20
existing (4)
19:7,9 20:22 21:6
expanding (1)
9:6
expected (2)
26:1 28:4
expenditures (1)
7:14
expense (1)
7:9
experience (1)
5:1
Expires (1)
31:22
explaining (1)
10:21
explains (1)
11:17
explosive (1)
19:23
extended (1)
26:4
extends (1)
20:20
extra (1)
19:13
extraction (2)
10:5 19:25

F

FAA (1)
25:24
facilities (2)
12:10 17:18
facility (10)
1:5 3:5 4:18 5:5 12:8 12:9 15:7 17:23 19:16,18
fact (2)
11:24 29:2
factor (2)
22:6,7
fair (1)
4:2
fairly (1)
19:22
fall (1)
28:15
familiar (2)
12:25 24:13
Farmer (5)
2:9 3:23 12:6,14,15
farming (1)
5:23
farms (1)
27:11
federal (3)
24:16 25:13,24
feel (2)
29:18 30:14
feet (2)
9:11 20:20
field (1)
15:3
fifth (1)
6:11
fighter-jet-looking ...
11:7
fighting (1)
15:2
fill (1)
30:14
final (5)
28:4,12,13,17 30:5
find (1)
7:8
fire (16)
8:21 9:5,16 14:14,25 15:9 17:21 18:7 19:4,5,8,10,12 23:11,13,21
first (5)
3:18 4:8 5:19 9:17 21:12
Fish (1)
24:20
flat (1)
9:21
Fleet (4)
2:12 4:1,16 15:18
flew (1)
11:5
flexibility (1)
19:13
flight (2)
9:10,21
fly (6)
7:2,8,11,12 14:18,20
flying (1)
10:2
folks (2)
8:17 13:3
following (2)
28:2,12
follow-on (1)
26:6
force (5)
8:11,15,16 9:3 13:6
forced (1)
7:7
forces (3)
8:25 10:6,18
foregoing (2)
31:9,11
forget (1)
6:14
forms (1)
30:13
fortunate (1)
12:1
forward (1)
14:10
found (1)
28:11
free (2)
9:21 30:14
freedom (1)
10:8
frequent (1)
26:19
front (1)
11:6
fuel (2)
7:13 11:5
fully (2)
6:8 16:18
funny (1)
4:21
further (2)
15:12 26:8
future (6)
16:15,19 17:9 18:24 26:1 27:2
F-15 (1)
15:1
F-15s (2)
11:13 15:2

G

gals (1)
9:17
gas (2)
7:5 27:9
general (3)
16:5 20:20 25:18
Gilliam (1)
9:20
give (4)
5:3,8 16:4 30:2
gives (1)
28:6
giving (1)
10:7
go (8)
7:17,18 8:2,25 9:14 10:24 23:5 30:17
goes (1)
9:22
goggle (1)
14:24
going (8)
4:12 5:8 12:4 15:23 16:4 21:19,23 29:9
good (3)
3:1 18:18,21
grab (1)
20:14
graphic (6)
18:7,11 19:4 20:2,10 20:15
gravity (1)
8:8
great (2)
12:21 15:3
greater (1)
20:2
green (1)
20:24
greenhouse (1)
27:9
grew (2)
4:20,22
ground (4)
9:11 10:18 13:17 24:12
group (1)
8:17
growing (1)
11:23
Growler (2)
10:25 11:3
Growlers (1)
7:2
grows (1)
11:25
guess (2)
4:10 12:6
gun (3)
15:8 17:20 19:2
guy (2)
5:21 8:2
guys (5)
6:25 9:7,17 10:3 13:19

H

habitat (5)
24:10,10,21,22 25:2
half (1)
5:22
halfway (1)
11:2
hand (1)
31:15
happy (1)
4:23
hate (1)
11:19
hear (1)
26:21
helicopters (2)
10:7 14:23
help (1)
5:21
heretofore (1)
31:5
Hermiston (2)
1:15,16
historic (1)
25:17
holding (1)
27:24
home (2)
4:23 7:11
hope (1)
15:24
Hopefully (1)
3:7
hospitals (1)
25:15
hotly (1)
23:10
huge (1)
7:9
hulk (1)
11:8
hundred (1)
9:12

I

ideal (2)
7:15 9:23
identified (5)
19:24 21:16,17 25:13 28:23
ignition (1)
23:9
immediately (1)
29:17
impact (7)
1:6 3:4 17:5 22:2 24:7 26:11 27:13
impacts (7)
22:1,17 24:18 26:13 26:23,23 27:9
implement (3)
6:9 17:12 23:20
implementation (1)
24:18
implemented (1)
23:20
implementing (1)
23:13
implements (1)
18:3
importance (3)
5:4 6:14 15:21
important (7)
5:9,25 6:8 8:6 10:4,18 11:17
include (10)
16:24 17:2,15,19 18:6 18:25 19:16 24:18 25:14 26:13
included (3)
18:4 23:23 30:4
includes (4)
4:17 17:25 18:3,9
including (3)
8:23 16:17 23:15
incorporate (1)
28:6
increase (5)
17:7 22:11,12,16 27:8
increased (3)
23:5,6 24:3
indicated (3)
13:11 19:4 20:9
information (10)
3:10 16:5 20:10 25:23 28:11,24 29:5,5,7,8
infrequently (1)
15:1
initial (2)
25:20 26:6
initiative (1)
13:23
input (1)
29:14

insertion (2)
10:5 19:25
instituted (1)
5:19
instructor (1)
12:25
instrumentation (1)
16:17
integrate (1)
23:20
integrated (1)
23:21
intent (1)
27:18
interactions (1)
10:17
interest (2)
16:10 21:22
interested (1)
23:24
interesting (1)
4:25
introduce (3)
4:8 12:6 15:12
involved (1)
25:4
involves (1)
23:14
involving (1)
24:23
Iraq (1)
8:19
Island (9)
2:8 3:23 4:15 7:1,3,6 7:16 8:8 11:1
ISR (1)
10:10

J

jammers (1)
7:22
jamming (2)
8:4,4
Jay (3)
2:7 3:22 4:13
jealous (1)
12:11
Jerry (1)
5:21
jets (6)
7:1,11,12,15 9:13 10:1
John (6)
2:11 3:25 15:6,13,17 29:12
Johnston (5)
2:7 3:22 4:9,10,13
joint (3)
5:11 11:18 13:23
jokes (1)
4:11

K

keep (1)
4:11
key (1)
12:4
kids (2)
4:22 9:13
kind (8)
5:9 9:25 10:3,9 11:9 19:6 20:4 23:18
know (4)
11:4 14:21 15:5 26:20

L

land (1)
8:2
landing (1)
19:17
land-based (1)
26:10
larger (2)
18:15 26:18
late (2)
8:12 10:19
launch (1)
17:22
left (2)
21:13 29:20
LEGAL (1)
1:22
Let's (1)
7:17
level (2)
14:24 28:19
levels (4)
16:22 17:8 25:22 26:1
license (1)
13:25
life (1)
7:14
limit (2)
23:12 30:1
limitations (1)
23:11
limited (1)
23:7
line (2)
19:8 27:11
lines (2)
19:6 20:7
list (1)
23:4
listed (2)
8:21 23:1
listing (1)
24:16
little (9)
6:21 7:21 9:9 10:8 14:12 15:20,23 21:20 27:2
live (11)
8:21 9:5 14:14 15:9 17:21 18:6 19:3,5,8 19:10,12
lived (1)
12:18
living (1)
12:22
located (1)
15:11
location (2)
19:22,24
locations (2)
13:9 29:6
long (1)
12:23
long-term (1)
25:2
look (12)
5:17 6:1 16:3,9 18:13 20:12,14 21:24 22:22 23:13 25:20 27:16
looked (2)
24:23 25:18
looking (3)
26:23 27:3,5
lot (8)
5:14 9:6,16 10:6,15 11:21 16:6 24:2
low (7)
6:7,11 9:9,11,12 12:2 14:23
lower (1)
11:15
lowest (1)
20:21
low-altitude (1)
9:20

M

machine (3)
15:8 17:20 19:2
mail (1)
29:23
main (2)
18:19,20
maintenance (3)
15:7 17:23 19:18
making (1)
28:9
mammals (1)
24:9
management (2)
23:21 24:19
manager (3)
2:11 3:25 15:18
map (1)
15:10
maps (2)
5:17 15:6
Marine (1)
8:14
maritime (1)
8:24
master (1)
9:24
material (1)
20:11
materials (1)
28:24
matrix (1)
6:9
matter (2)
31:6,10
means (4)
6:17,20 7:21 8:3
measures (2)
24:17 26:12
meeting (5)
1:9 3:4,16 4:3 5:1
meetings (4)
3:18 27:20,24 28:1
members (2)
2:5 30:19
mention (2)
11:12 22:18
mentioned (12)
14:7 15:14 16:4 17:18 18:16,25 19:13 22:17 23:23 24:1 26:15 31:5
methods (1)
28:9
microphone (1)
30:9
middle (1)
27:25
migratory (2)
24:11 25:1
miles (3)
6:15 18:16,16
milestone (1)
28:3
milestones (1)
27:18
military (13)
3:15 5:4 6:16 12:4 14:12 15:22 16:14 16:16 17:11,16 20:15 21:5 27:13
million (1)
9:12
mind (1)
30:8
minimize (3)
6:19 22:24 24:18
minimum (2)
4:11 9:24
missed (1)
14:22
missiles (2)
8:4 9:15
mission (7)
7:24,25 8:23 9:18 10:11 13:5 15:20
missions (2)
8:1 14:3
mitigation (2)
24:17 26:12
mitigations (1)
22:23
moderator (4)
2:1 3:1,3 29:11
monitoring (2)
23:4,5
Morrow (2)
5:23 9:19
mortar (1)
18:10
Mosher (5)
2:11 3:25 15:13,16,17
move (2)
7:10 14:10
moved (1)
4:21
multi (1)
15:8
multipurpose (4)
15:8 17:20 18:25 19:2
munitions (1)
21:2

N

name (2)
3:2 4:13
natural (1)
22:13
Naval (7)
1:5 2:7 3:5,23 4:14,17 5:4
Navy (17)
3:8,11,13,20 4:20 5:10,18 6:2 8:13 10:23 13:24 15:20 16:12,24 28:18 29:13 30:2
necessary (1)
28:10
need (2)
6:10 25:25
needed (1)
16:15
needs (1)
13:12
NEPA (1)
27:16
nesting (2)
24:10,25
new (10)
7:10 10:8 11:1,21 17:17,17,19 20:16 21:5 28:11
newer (1)
18:24
nice (1)
11:7
nicer (1)
12:10
night (2)
14:24 28:1
noise (9)
24:8 25:7,22 26:1,4,5 26:7,9,15
noises (1)
26:17
noise-sensitive (2)
25:11,12

North (1)
4:21
northeast (1)
20:15
Northwest (5)
4:17 6:6,23,24 12:1
Notary (2)
31:7,21
note (1)
12:16
notes (1)
31:10
notices (1)
27:18
notify (1)
26:19
November (1)
29:24
number (9)
14:17 15:13 18:21 20:7,25 21:8 23:14 25:17 27:17

O

O (1)
1:23
obstructions (2)
9:22,24
obtaining (1)
28:9
obviously (1)
23:10
occasion (1)
15:3
occasional (1)
16:25
occupants (1)
24:22
occur (4)
19:14,23 23:17 25:9
occurring (1)
26:20
Officer (7)
2:7,9 3:22,24 4:14 12:7,16
official (1)
30:4
Oh (1)
11:11
Okay (3)
4:13 21:7 30:9
old (2)
11:3,8
once (2)
12:9 15:16
one-on-one (1)
29:21
ongoing (2)
3:14 16:14
operating (1)
6:16
operation (2)
21:1 27:11
operations (6)
8:6 10:6,19 17:16 20:16 21:5
opportunities (1)
14:1
opportunity (7)
3:7 4:3 13:19 14:10 14:21 15:24 16:3
oral (5)
29:16,19 30:3,7,12
orange-colored (1)
20:4
orderly (1)
4:3
organization (1)
8:16
overlying (3)
6:3 7:20 20:5
overview (2)
5:3,5
owns (1)
13:24

P

P (1)
1:23
Pacific (8)
2:12 4:1,16,17 6:6,22 12:1 15:17
page (1)
30:1
pages (2)
16:11 31:12
PANEL (1)
2:5
parachute (1)
19:25
parallel (1)
23:19
paramount (1)
11:20
parks (1)
25:15
part (5)
5:8 13:21 18:22 20:17 30:4
participating (1)
5:25
passing (1)
29:3
pay (1)
7:10
Pendleton (5)
1:24 12:19,25 14:19 31:15
people (2)
7:10 26:20
percent (1)
11:25
perfect (1)
9:21
period (3)
27:25 28:13 29:24
personnel (4)
16:18 20:1 23:15,16
phase (3)
3:18 27:21 28:2
phases (1)
27:19
Phenomenal (1)
12:9
picture (3)
11:14 12:2 18:11
piece (6)
14:7 20:18 21:3 23:5 25:23 26:7
pieces (1)
20:8
pilot (1)
12:25
place (7)
3:15 19:6 20:25 23:12 30:15 31:5,8
plan (1)
23:21
play (1)
13:21
pleasure (1)
4:8
point (4)
18:14 20:15 21:12 29:9
points (1)
18:18
Portland (2)
11:13 15:2
positions (1)
18:10
postal (1)
29:23
poster (3)
3:9 18:13 30:18
posters (1)
29:3
potential (13)
6:19 21:7,16,25 22:8 22:12,14,16,21,23 23:12 24:3 27:13
potentially (4)
22:17 24:7 25:7 26:24
practices (3)
22:23 23:3,15
preferred (1)
17:25
premiere (1)
11:19
premium (1)
11:20
prepare (1)
14:2
prepared (1)
3:20
presentation (3)
3:21 4:4 29:17
pretty (5)
4:23 9:12 10:3,18 12:2
prevention (1)
23:13
primarily (2)
6:25 8:22
probes (1)
11:6
proceedings (2)
31:9,13
process (4)
3:19 27:16 28:7,16
produced (2)
25:7,7
Professional (2)
31:6,21
program (4)
2:11 3:25 15:18 25:2
project (6)
15:19 23:18 27:22 28:21,23 29:22
projects (2)
24:24 27:12
property (9)
5:18 6:3 10:14,21 13:25,25 18:15,17 20:3
proposals (3)
14:10 18:14 26:2
propose (1)
23:2
proposes (1)
17:7
proposing (5)
16:13 20:17 21:4 24:3 24:25
protected (1)
6:18
protocols (1)
23:14
provide (5)
8:18 13:5 14:9 16:16 28:25
provided (3)
10:14 20:11 28:25
provides (3)
13:19 14:1,9
providing (1)
9:22
proving (1)
12:9
Prowler (2)
11:3,4
Prowlers (2)
7:1,2
public (15)
1:9 2:17 3:3,17,18 4:5 5:7 27:24,25 28:1 28:21 29:6,14 31:7 31:21
pull (1)
23:18
purpose (2)
3:16 15:9
put (3)
9:13 19:6 23:11
pyrotechnics (1)
23:9
p.m (1)
30:23

Q

qualification (1)
23:16
qualifications (1)
6:11
quality (3)
22:20 24:10 27:9
quals (1)
6:10
questions (2)
30:19,20
quick (1)
27:15
quite (2)
14:20 17:13

R

Ranger (2)
31:4,20
ranges (5)
7:12 14:11 16:17 17:17 18:21
rare (1)
8:1
Raven (1)
8:11
read (1)
16:10
readiness (7)
3:15 5:4 7:19 13:9,22 15:22 16:14
reading (1)
23:25
ready (1)
13:6
really (6)
5:11 7:15,25 11:18,20 22:3
receive (4)
3:17,21 28:7,8
received (1)
30:6
recommend (1)
24:1
record (3)
4:6 28:14 30:4
recreational (1)
25:16
rectangle (3)
5:18 19:1 20:4
redistribution (1)
18:2
reduce (1)
22:24
reduced (1)
31:10
refer (1)
3:6
reference (1)
18:18
referred (1)

17:3
referring (1)
25:6
refuges (1)
25:16
regional (2)
6:24 14:10
Registered (2)
31:7,21
release (2)
28:3,12
released (1)
27:22
religious (1)
25:15
relocate (1)
7:8
remaining (1)
27:16
remiss (1)
11:12
reported (1)
31:8
reporter (4)
29:20 30:11 31:7,21
Reporters (1)
1:23
REPORTING (1)
1:22
repositories (1)
29:7
representatives (1)
3:8
requests (1)
30:6
require (1)
6:11
required (2)
22:22 26:22
requirements (1)
16:19
requires (1)
13:9
research (1)
10:12
reserve (1)
9:4
reserves (1)
12:10
resource (10)
16:8 21:9,9,15 22:3,4 22:5,9,18 27:6
resources (1)
21:17
respond (1)
13:7
rest (1)
21:17
restoration (1)
25:2
restricted (6)
6:5,6,15,17 10:14 14:8
restricting (1)
26:14
restriction (1)
23:7
restrictions (1)
23:12
return (2)
7:6,11
review (3)
15:25 28:21 29:14
right (5)
11:15,20 18:19 19:1 20:24
roads (2)
19:7,9
ROD (1)
28:14
role (1)
4:2
rolls (1)
10:20
route (1)
10:8
RPR (1)
31:20
running (2)
10:15 23:19
runway (1)
19:16

S

safe (1)
19:25
safety (1)
10:2
Salem (1)
12:9
sanctuary (1)
8:3
schedule (1)
27:16
schools (1)
25:14
Scoping (1)
27:20
screen (1)
28:23
Seals (1)
8:24
season (1)
24:25
seasons (1)
23:17
seated (1)
4:6
second (2)
18:6 19:12
Secretary (1)
28:18
section (2)
16:7 19:3
security (2)
8:24 20:23
see (6)
5:17 11:4,5 14:21,22 20:3
seen (1)
6:2
selection (1)
28:16
sense (2)
8:17 27:13
separate (1)
18:9
September (4)
1:13 16:1 27:23 31:16
series (1)
19:5
service (5)
5:12 7:14 8:10 19:18 24:20
services (3)
5:11 10:23 11:18
session (4)
3:10 4:5 5:7 29:21
sessions (1)
14:18
Shadow (1)
14:19
sheet (1)
29:2
short (1)
3:21
Shorthand (1)
1:23
show (1)
18:8
side (1)
23:1
significant (9)
21:16,18 22:1,17,21 22:24 24:7 25:22 26:11
significantly (1)
25:11
similar (2)
17:9 22:5
site (1)
15:4
sites (2)
25:15,17
sitting (1)
30:10
six (2)
18:16 29:6
six-mile (1)
5:18
size (1)
26:18
sleek (1)
11:7
slide (17)
7:18 10:24 16:11,19 17:23 18:8,10 20:1 21:6,18 22:2,19 24:4 25:5 26:21 27:14 28:20
slides (3)
5:2 21:19 22:25
small (1)
19:22
smell (1)
11:1
Sodano (1)
5:21
soldiers (1)
13:10
sorry (1)
14:22
sources (2)
22:14 23:9
speak (2)
15:6,13
special (9)
9:2,3 10:6 17:16 20:6 20:7,16 24:11,14
specialists (1)
8:15
specialized (1)
13:9
special-use (1)
13:20
species (6)
24:11,14,15,15,16,22
specific (2)
13:12 22:8
specifically (9)
12:22 17:19 21:12,21 22:6 23:7 24:12 25:13,18
spectrum (1)
8:5
squadron (2)
8:16 9:3
squadrons (1)
11:2
squiggly (1)
19:6
squirrel (1)
24:12
ss (1)
31:1
staffing (1)
3:9
stand (1)
30:8
standing (1)
29:18
started (1)
24:19
state (8)
2:9 3:24 12:7,15 13:5 14:9 24:15 31:1
statement (3)
1:6 3:4 29:19
states (6)
2:11 4:1 11:22 13:6,7 14:3
station (4)
2:8 3:23 4:14 18:13
stations (3)
3:9 29:4 30:18
status (3)
24:11,14,16
stenotype (1)
31:8
step (1)
28:14
story (1)
15:4
strafe (1)
15:1
straight (1)
19:8
strategy (1)
24:19
streets (1)
15:25
strike (1)
8:1
strip (2)
17:22,22
structures (1)
25:15
study (1)
26:5
stuff (2)
9:25 10:16
submit (3)
29:15,19,21
summer (1)
28:5
support (1)
8:18
supporting (1)
16:18
suppression (1)
14:25
sure (1)
29:23
surf (1)
8:25
surface (1)
8:4
surface-to-air (2)
9:15,15
surrounding (1)
20:5
sustainment (1)
10:22
system (4)
4:18 5:4 10:15 17:22
systems (7)
1:5 3:5 13:18 14:11 14:14 17:10 19:17

T

table (1)
30:13
tables (1)
16:2
tactical (3)
6:7 7:3 8:10
tactics (5)
7:23 9:2,3,14 10:17
take (4)
9:12 16:3 27:15 30:14

takeoff (1)
19:17
takes (1)
20:2
talk (3)
3:7 4:21 21:23
talked (2)
9:9 18:13
talking (3)
7:13 9:10 27:6
tank (2)
7:5 11:8
target (1)
18:20
targets (1)
11:9
taxpayer (2)
7:9,17
team (1)
30:19
temporarily (1)
7:10
tenant (1)
13:24
term (3)
17:12 25:12,13
test (1)
10:13
testimony (2)
31:9,13
testing (2)
16:21 25:9
thank (9)
3:2 4:10 12:13,14 15:15,16 29:11 30:17,21
thereof (1)
31:14
thing (3)
6:1 10:9 11:5
things (5)
11:7 14:5 15:13 23:9 27:3
think (1)
12:5
thousand (1)
18:12
three (6)
16:20 18:10 21:12,13 21:15,20
thrilled (1)
4:23
time (7)
9:17 21:4 24:23 28:6 30:6 31:5,8
today (2)
3:2 21:23
Todd (6)
2:9 3:23 9:7 12:6,12 12:15
Todd's (1)
6:25
tomorrow (1)
28:1
tonight (12)
3:6,11,21 4:19 28:1 29:3,4,16,22 30:7 30:10,14
tonight's (3)
3:3,16 4:4
tools (1)
28:22
topics (1)
23:22
town (1)
28:2
traffic (3)
6:20 11:24 12:2
train (5)
8:17 10:2 13:10,17 14:23
trained (1)
13:6
trainings (1)
23:8
transcribed (2)
4:5,12
transcript (2)
31:11,12
transition (1)
11:3
transitioning (1)
11:6
transmission (1)
27:11
treat (1)
4:25
true (1)
31:12
try (1)
7:12
trying (1)
27:4
turn (3)
7:22 12:12 29:9
turned (1)
17:11
Turner (4)
2:1 3:1,3 29:11
two (4)
3:18 19:4 27:19 28:1
type (5)
8:22 9:16 10:16 12:3 20:22
types (4)
9:8 23:8,16 26:20
typewriting (1)
31:11
typewritten (1)
31:12

U

UAS (2)
17:22 19:15
UAV (1)
10:16
UAVs (1)
10:17
ugly (1)
11:5
ultimate (1)
28:16
Umatilla (3)
9:20 20:25 31:2
underlays (1)
20:24
unique (5)
13:11,16 14:4,7,15
United (4)
2:11 4:1 11:22 13:6
units (5)
6:25 8:24 13:14 14:12 16:18
unmanned (5)
14:14,18 15:7 17:22 19:17
use (15)
9:4 11:9,10,19 13:15 13:25 17:5,11,13,16 20:6,7,16 23:7,9
user (1)
17:1
uses (2)
11:13 13:23
U.S (4)
4:16 15:17 24:20 29:23

V

validate (2)
10:17,17
vegetation (2)
22:19 27:10
vehicle (1)
15:7
vehicles (1)
14:19
VIDEO (1)
1:22
vision (1)
14:24
vital (2)
6:14 13:21

W

wait (1)
28:13
want (6)
20:12,14 21:11 27:15 29:23 30:8
warfare (9)
7:21,22,24,25 8:7,9 8:10,14 10:11
Washington (2)
4:15 24:12
water (2)
5:14 14:25
ways (2)
22:23 29:15
weapon (2)
13:18 14:11
weapons (6)
1:5 3:5 4:18 5:4 8:25 9:8
website (5)
28:23,25 29:6,22 30:15
weekend (1)
12:8
weight (1)
30:2
welcome (1)
29:13
Went (1)
12:8
western (1)
19:8
we'll (7)
3:6 5:3,6 10:11 14:11 17:6 26:6
we're (16)
3:11 4:11,23 7:13 8:9 9:10 10:19 11:2,6 13:24 21:19 22:22 24:25 26:22 27:21 29:2
we've (18)
11:8 17:3,17 18:17 19:11 20:11 21:15 21:25 22:4,25 23:20 24:19,23 25:1 27:6 28:11,24 30:13
whatnot (3)
5:23 6:21 11:23
Whidbey (9)
2:8 3:23 4:14 7:1,2,6 7:16 8:8 11:1
wildfire (8)
21:13 22:3,4,6,10 23:4 24:4 27:10
wildfires (2)
22:12,14
wildland (2)
14:25 23:21
wildlife (8)
21:13 22:19 24:5,7,18 24:20 25:16 27:10
wind (1)
27:11
Witness (1)
31:15
word (3)
4:12,12 11:19
words (1)
18:12
work (1)
15:17
working (3)
12:19 24:25 25:23
worth (1)
18:11
writing (1)
28:8
written (3)
29:22 30:1,3

Y

year (3)
11:25 13:15,18
years (9)
4:20 5:15 11:25 12:5 12:18,18,20 18:21 20:25
young (2)
9:13 10:3

Z

zone (1)
19:24

1

1 (5)
17:7 18:1,5 19:11 20:18
10 (1)
12:20
10/17/14 (1)
31:22
12 (1)
18:16
12-mile-by (1)
5:17
13 (1)
11:1
18,000 (1)
20:21

2

2 (3)
17:24 19:11 20:18
20 (1)
11:25
200 (1)
9:11
2010 (2)
27:19,21
2011 (2)
27:19,21
2012 (2)
1:13 31:16
2013 (2)
28:5,15
223 (1)
1:23
25 (1)
1:13
27 (1)
4:20
276-9491 (1)
1:24

3

30 (1)
31:12
30th (1)
31:16
30-day (1)
28:13
32 (1)

12:18
358-2345 (1)
1:24
380-square (1)
6:15

4

40s (1)
5:20

5

5 (1)
11:25
500 (2)
9:11 20:20
541 (1)
1:24

6

6th (1)
29:25
60s (1)
5:22
6600 (1)
13:4

7

7th (2)
16:1 27:23
70 (1)
5:15

8

8:00 (2)
30:10,23
80s (2)
5:25 12:24
800 (1)
1:24
8600 (1)
13:2

9

9/11 (1)
13:8
90s (1)
8:12
900 (1)
16:10
900-page (1)
16:1
96 (1)
4:22
97801 (1)
1:24

NAVAL WEAPONS SYSTEMS TRAINING FACILITY BOARDMAN ENVIRONMENTAL IMPACT STATEMENT

PUBLIC MEETING

September 26, 2012

Port of Morrow Conference Center

Boardman, Oregon

BRIDGES REPORTING & LEGAL VIDEO
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MODERATOR: ALLISON TURNER

PANEL MEMBERS:

CAPTAIN JAY JOHNSTON - Commanding Officer of Naval air Station Whidbey Island

COLONEL TODD FARMER - State Army Aviation Officer with the Oregon National Guard

JOHN MOSHER - EIS program manager from the United States Pacific Fleet

PUBLIC COMMENTS:

MR. PAUL GISI: My name is Paul Gisi, G-I-S-I. I'm hoping as an 11-year veteran, Navy, and person that worked on the range, and a 20-year citizen of Boardman, that hopefully seeing the military in bad light and in good light, in good faith, that we could work with the land use and possibly unlock the land and getting some farmland back on the north end. That's my agenda.

MODERATOR ALLISON TURNER: Good evening everyone. Thank you all for coming tonight.

My name is Allison Turner and I am moderator of tonight's public comment session on the Draft Environmental Impact Statement for the Naval Weapons Systems Training Facility at Boardman, which we will refer to tonight as the Boardman EIS.

Hopefully you have had the opportunity to talk with the representatives from the Navy and Oregon National Guard staffing the poster station during the information session.

We are here tonight because the Navy, in cooperation with the National Guard Bureau and Oregon National Guard has analyzed the environmental facts associated with ongoing and proposed military readiness activities taking place at Boardman.

The purpose of tonight's meeting is to receive public comment on the Draft EIS. This is the second of two public meetings, here in Boardman, and last night in Hermiston, for this phase of the EIS development process.

The Navy and Oregon National Guard have prepared a short presentation and here tonight to receive your comments are Captain Jay Johnston, Commanding Officer of Naval Air Station, Whidbey

Island, Colonel Todd Farmer, State Army Aviation Officer with the Oregon National Guard, and Mr. John Mosher, EIS Program Manager from the United States Pacific Fleet.

My role is to ensure a fair and orderly meeting where you have an opportunity to make comments on the Draft EIS.

Tonight's presentation and the public comment session are also being transcribed for the administrative record by Mr. William Bridges. He is to my left.

First I would like to introduce Captain Johnston.

MR. JOHNSTON: Good evening. Thanks for having us here tonight. I will put my glasses on. Okay.

My name is Captain Jay Johnston. I am the Commanding Officer at Naval Air Station at Whidbey Island. And that also means I'm also the collateral duty, you might remember what collateral duty was, the complex commander for the U.S. Pacific Fleet, which includes the Naval Weapons System Training Facility at Boardman. So, I am here to talk to you tonight about how valuable this air space and this Bombing Range are to both the Navy and the Guard, as well as other

services. That I will try to touch on.

I originally am from North Carolina. Do I talk funny? I was told I was talking too fast. Throw something at me if I'm talking too fast.

I'm going to give you an overview of the Boardman, the importance of the readiness at NWSTF, which is the Naval Weapons System Training Facility Boardman.

I grew up in North Carolina, moved out here in 1996, and my kids grew up here. So this is pretty much our home. I hope you will consider me somewhat of a local.

I will talk to you about the importance of military readiness and of being here at Boardman, and give you, I'm going to give you, an overview.

And then we will have a public comment session after that. I understand the EIS might be a little dry, is that right? So, I'll try to jazz it up for you.

So, this is a picture of the Boardman area and Oregon and Washington. What you don't see on here is the basic Northwest Range Complex, which encompasses both states, and the focal point of that is the Boardman Bombing Range and the air space. It has been a training facility for more than 70 years.

If you look at the maps, you will see the 12 mile by six mile rectangle that is Navy property there. That used to be double that back when they first instituted the range back in the '40s. But back in the '60s we gave half of that back to Morrow County. It is being used by farmers today.

The Oregon National Guard started sharing the range with us back in the '80s. It is our only Navy high altitude training range here in the Pacific Northwest. The restricted air space usually means there's things like bombs in the air or that kind of thing.

So, you need to limit the amount of civilian traffic that goes through your restricted air space. And it's also used for high-speed military training. It also allows the Oregon Guard helicopters to do their thing, teams out of Portland and that kind of stuff.

There is very little airspace actually available up here in the Pacific Northwest.

This is a regional training area for the Northwest units. Primarily, in addition to the National Guard, our jets from Whidbey Island, such as the Prowlers, EA-18G Growlers, fly down here from Whidbey Island to conduct their tactical training.

This is our own range air space. Most places you will see that, at Nevada, they have a range, air space restricted area, that serves the concentration of aircraft there.

Without this range, we would be forced to relocate to another airspace, and at huge expense. You'd have to pay people to move to a new base on temporary status, fly the jets, and then return to Whidbey Island.

So, this airspace is perfect for our jets at Whidbey Island, saves money and efficiency for the taxpayers. We can do some dogfighting with electronic warfare. We don't actually have to turn the jammers on, but we do the tactics associated with the electronic warfare mission.

And the electronic warfare mission is a rare mission. No strike aircraft will go into bad guy land without an electronic sanctuary, which means jamming the surface to air missiles, jamming communications. The electromagnetic spectrum has become so important to combat operations that the electronic warfare is critical.

Whidbey Island is the center of gravity for our electronic warfare department. We're the only service that does tactical and electronic warfare,

since the Air Force got out of the EF-111 Raven business 20 years ago.

So, not only do we carry the Navy air crew up there, we carry all the Marine Corps electronic warfare specialists, the Air Force training, and we actually have an Air Force squadron. No airplanes, but an organization in a sense that they're a group of folks that train with us. And we provide support to the Army, both in Afghanistan and Iraq.

I will talk a little about low altitude flight training. Our guys come down here, and the gals, come down and we will fly 200, 500 feet above the ground. We will fly 450 knots or so, and we will maneuver at high G's, all simulating dodging enemy surface-to-air missiles and any Triple-A aircraft fire, bullets coming up at you basically.

And why this is important? This range is specifically, if you go out and compare it, to just go to the river and the rolling range, it's flat, it's as flat as a pool table out there. And it's very unobstructed.

Insertion and extraction has to do with a lot of the Army operations and the special forces aspect, the helicopters, and this range allows us to have a little freedom of a new route to do that kind

of thing.

ISR, that's just another aspect of the electronic warfare mission that we'll conduct down here. And we do research, development, test and evaluation, which is another benefit provided by the restricted area and the property out there.

So, again, that explains how critical this airspace and this property is for sustaining our training for both the Guard and the Navy.

This is the EA-18G Growler, a brand-new airplane that we have at Whidbey Island. We have 13 squadrons up there, and we're halfway through the transition between the old Prowler and the Growler. We're transitioning to these nice, sleek fighter-jet-looking planes.

Basically, the theme here is this is extremely valuable air space. It's all we have. And you really can't make any kind of this air space anymore. Air space is just too crowded, it's too expensive. So, to upgrade this air space, and this facility in the way we are talking about, it is really a valuable piece that will be sustained for our force right now. And there's really no other place for us to do that without costing the taxpayers a lot of money.

So, that's all I have. I know we will get your comments. So, I will turn it over to Colonel Farmer, with the Oregon Guard.

COLONEL Farmer: Thank you, Captain. Good evening.

Again, I want to echo how much we appreciate having you here to make comment and ask questions of us about this project. It's so important to us, both the Navy and the Army National Guard.

I'm Colonel Todd Farmer. I am the State Army Aviation Officer for the Oregon National Guard. I am an Oregonian. I was born in Nyssa, Oregon. I have been in the Oregon Guard for 32 years. Lived in Pendleton for a good number of years, in the '80s and the early '90s. I've been working on this Boardman project for the last 10 years.

I have great appreciation for the area and specifically for this range, especially living here for so long and training. So, we very much appreciate it.

So, the Oregon National Guard is composed of the 8600 members. 6600 of those are in the Army, the remainder is in the Air National Guard, stationed all throughout Oregon.

The primary mission of Oregon Guard is to

provide the citizens of the State of Oregon and the United States with a ready force of citizen soldiers and airmen, equipped and trained to respond to any contingency, both here in Oregon and abroad.

Our readiness requires specialized locations like Boardman. Our military personnel need to train on their specialized task in order to accomplish their mission.

Our aviation units, which we have in Pendleton and Salem, the fighter wing, both in Portland and Kingsley Field, rely on Boardman to accomplish many of those tasks that are so important to our proficiency.

In addition to that, in our proposed action here, we will call for an opportunity to build some ranges which will allow our ground units to train on their specific weapon systems through the year, which they don't get the opportunity to do right now in Oregon. Most of the places we have to go to are places like Idaho, Washington, California, to accomplish that task.

Boardman and its associated special-use air space currently plays a vital part to the execution of our readiness training here at the Oregon National Guard. Currently the Oregon National Guard uses

Boardman as a joint user. We have a license through the Navy to operate out here.

We currently have training activities. We are dependent on the Navy range here and it is absolutely critical to our future mission. Specifically, Boardman, as was mentioned, has restricted airspace. It is very unique.

The aircraft are actually out at another range right now, will be flying this evening. It is difficult for us to get this kind of space. It will also serve as a regional training site for everybody from Oregon. It gives us an opportunity to come to Boardman, train on our specific systems, and it is a lot closer than going to Idaho and Washington. And it accommodates our unmanned aerial systems and allows us to conduct exercises that are so important to our readiness.

We conduct a number of activities out here at Boardman. Our helicopters train out here, specifically Pendleton. Oftentimes they come out to do some night vision goggle training. We do our wildlife fire suppression training, supporting the training during wildfires. The F-15s occasionally will come down, and again as I mentioned, the unmanned aerial systems fly out of here in restricted air

space.

This EIS will ultimately lead to these proposed actions. The UAS facility, the operations facility that will accommodate these airplanes will be built out here, a multi-purpose machine gun range, a digital multi-purpose training range, and a convoy live fire range are all proposed. This action will be very beneficial to us.

Without anything else here, I would like to introduce Mr. John Mosher who is a big part of this EIS process.

MR. MOSHER: Thank you, Colonel. Once again, thank you, everybody, for coming out tonight. We appreciate you coming out to ask questions, get some information, and give us comments, which you will have an opportunity to do that here shortly.

Just a little bit about myself. I am an employee of the U.S. Pacific Fleet. I am a civilian environmental planner for that organization. In another capacity, I am a Navy Reserve Officer.

Unlike the distinguished aviation officers who just spoke, my specialty is under water, and I'm trained as an explosive ordnance disposal diver. That's what I do, in another capacity, and tonight I'm here in my job and my role as an environmental planner

for the Navy.

Tonight I will be going into just a little bit of detail on the EIS, Environment Impact Statement analysis.

The EIS, if you haven't had a chance to see it on some of the tables here, or some of you may have your own copies already, is a pretty robust document, almost 900 pages. I will put it there for your reference.

If you do not have the opportunity to read the entire EIS, I would encourage you to look at the different sections in the EIS, look at and review those sections. It would be most interesting or applicable to you. And we will talk about some of the different sections in just a little bit here on another slide.

Our goal tonight is to get your comments, to get your feedback on this EIS analysis. It is a draft document at this point of the NEPA process. So, we want to make sure we're doing it correctly, that what we've said in our analysis is thorough and is accurate. And if we have missed something, we need to know about that.

The Navy and National Guard are proposing several actions for the range and the air space

surrounding the range. These are to ensure military readiness requirements are met, both currently and in the future. And these are some of the things that the Captain and the Colonel just spoke about.

The proposed action is needed to provide training environment at Boardman, to include ranges, training areas, and instrumentation that is capable of fully supporting units and personnel training requirements in the future.

In this Draft EIS we have three alternatives to address the proposed actions.

First of these alternatives is the no action alternative. And in this, training and testing activities would continue at current levels. Proposed construction and development would not occur. And this is what we use as the baseline for assessing the positive environmental impacts for our other alternatives.

Next slide. Alternative 1. This proposes to increase current levels of training activities to accommodate similar training activities with future equipment. It would implement range enhancement, and these would include additional military operations areas. This is specialty air space. And there would also be new ranges and new facilities. Some of these

were mentioned, but I will go through a few again. This would include a machine gun range, a multi-purpose training range, convoy live fire range, demolition training range, and the UAS unmanned aerial system landing strip.

Alternative 2. And this is the preferred alternative in the Draft EIS. This includes all the elements of Alternative 1. It allows for redistribution of training to different areas on the range. It implements additional range enhancements, and these include a second convoy live fire range, a separate range Operations Control Center building, and three mortar training positions.

This graphic is showing some of the current training and training locations and areas of the range property itself, and also includes some of the proposed actions in Alternatives 1 and 2. And I will point to some of these for reference.

So, in the center is the existing main target area for the range. So, when area ground bombing training occurs from aircraft, that's the target that is generally used. And there are several other targets within this rectangle, again, in the center of the property.

This rectangle here in purple is the

multi-purpose range, and this would be a range area that would be utilized by National Guard tanks, Bradley armored vehicles, and other equipment of that nature.

Also on this side of the range is a series of lines here, is the convoy live fire range, the eastern live fire range.

Over on this portion, this shape here, is the multi-purpose machine gun range that was mentioned.

This line here is the western convoy live fire range. And we talked a little bit about the differences between Alternative 1 and 2. Alternative 2 includes both an eastern and a western convoy live fire ranges. And there were a couple other differences that I will mention here as well.

The box up here is the area that would accommodate the unmanned aerial system landing strip as well as the maintenance facility. And the difference between Alternative 1 and 2 is that in the same general location there would be one building serving the purpose of both the maintenance facility as well as the range Operations Control Center. And in Alternative 2 these will be separate buildings with two different facilities but in the same general area.

Also on the graphic is a drop zone. This is simply an area that is identified clear of obstructions that would be used for parachute insertion with personnel and equipment.

I mentioned the demolition training range. And that's included in both Alternative 1 and 2 right here. That is simply an area designated for use of explosive charges for training.

And then the mortar positions, there are three of those. They are these little dots right here. And this would be used for training with mortar weapons system, firing the main target area. And those are included in Alternative 2.

In this graphic, it takes us back to a greater distance now. It still incorporates range property in this orange rectangle here. It is approximately six miles by 12 miles.

And then the proposed actions within the range property that is mentioned. And then the greater picture here, it indicates the specialty air space. This entire area here, which surround the range property. And this is air space that's assigned to the military specifically for training purposes. Within that area there are a number of different lines, as you can see, some are marked with different

colors, different types of special use air space.

In this general area are all existing special use air space that has been in place for a number of years.

And then important to this graphic is military operations area that is a new proposal. It does not currently exist, but is being proposed in this EIS process. That area is proposed in a location that as it is currently existing, a national security area. That is air space that was designed and put in place years ago to protect the Umatilla Chemical Depot. That facility of course has been shut down now, is going through the BRAC process, for transfer of the property.

But because that air space currently exists, and currently prohibits certain aviation activities, it is a logical place for continued military air training in the future. So, that's part of this proposed action.

There is different elevations and different designations, as I mentioned, to the air space. And this chart here breaks those down into the different heights and elevations. So, we encourage you to get a copy, if you don't already, of the information package booklet that we have been passing out, it is available

here in the room, and all of that information with different height, and elevations are all indicated on the same graphic.

The Draft EIS evaluated potential effects of the proposed actions on a number of different resource categories. And those are indicated on this slide. These are all chapters of the EIS. And we get into a lot of detailed analysis in the EIS on each of these.

I do want to point out, the first thing, wildfire, wildlife and acoustic environment. And acoustic environment is simply noise. We may actually redefine that in the future when we start to do the draft -- or Final EIS. This is a term of art that has been used for several years, but it is relating to noise from our proposed activity. Those three areas, wildfire, wildlife, acoustic environment, those are the resource areas that we have identified to have potential significant impacts from our proposed action.

To go with areas that we have identified to have potentially significant impacts, we are required through the EIS process to identify potential mitigations or practices that we can put in place to help reduce those impacts or eliminate those impacts.

We will discuss those three specifically, and some of those mitigations that we are proposing.

Wildfire. This is an area we did receive quite a bit of comments through the scoping process for the EIS with recent events, the time of year we are in, with wildfires not too far away from this particular area.

It's an area obviously that does have a lot of concern and a lot of interest, as well as the users of the range, the Navy and National Guard. So, it is an area we did spend quite a bit of time addressing in the analysis.

For wildfire, with the proposed actions, an increase in training activities, there would be a potential increase for wildfires from those training activities. And with the increase for potential fires, there would be potential significant impacts on vegetation, wildlife and air quality.

To address these concerns, we have developed some proposed management practices. And to implement these management practices, we have developed a draft integrated wildland fire management plan. And this is included in the Draft EIS as an appendix at the back. So, you can look at that as a draft document, and I say draft document for that

management plan, because it is specifically designed to address what we're proposing in the EIS. And those decisions haven't been made at this point.

So, it would bring some different resources to address those concerns, including to limit the use of ignition sources in the training that we will be conducting, to implement fire prevention protocols, and it would add additional equipment and resources to combat fires, to help better manage the hazards of fires.

With the proposed action we have determined there may be potentially significant impacts on wildlife on the range property. We determined that training activities, noise and construction may affect some birds and mammal species, habitat quality, nesting habitat for migratory birds, and special status species, and this is specifically addressing the Washington ground squirrel, which is of great focus in this particular EIS.

To minimize these impacts we have identified some mitigation measures, and these include implementing of adaptive management strategy, using protocol developed alongside working with the U.S. Fish and Wildlife Service. It would include scheduling construction to avoid nesting seasons for

migratory birds. And we are looking at implementing a long-term habitat restoration program in designated areas of the range.

Next slide. Acoustic environment. And, again, this is the noise that would be produced through the training activities in the proposed action. Aircraft activities may significantly affect noise sensitive areas. And noise sensitive areas are simply defined by the Federal Aviation Administration to include schools, hospitals, religious structures and sites, parks and recreational areas, wildlife refuges, and cultural and historic sites.

We have also determined that the land-based activities that we are proposing in the Draft EIS are not anticipated to have significant impact on the acoustic environment.

Some of the mitigation measures that we are proposing to address these concerns include conducting an additional noise analysis, and this is based on some Federal Aviation Administration comments we received on our Draft EIS.

We will take that analysis a step further to specifically look at those noise sensitive areas that I just mentioned.

We also propose to restrict detonation

activities, limiting the size of those activities to limited quantities of larger-type explosive detonations that would occur. And we also propose to implement a notification process for certain detonation activities. So, we're advising the public in advance when those activities would be taking place, so people would be aware, if they are hearing it, what's going on.

Cumulative impacts. In the EIS we are also required to address cumulative impacts. So, this is taking a look at impacts that would be produced through our proposed action as well as those that would result from other actions outside of what the Navy and National Guard is proposing.

And these would be a number of different ongoing activities, some of the actions that have occurred in the recent past, and they are proposing into the future.

We have determined in the Draft EIS that the proposed action would contribute and provide increase in impacts on air quality, greenhouse gas emissions, vegetation, wildlife and wildfire. We also determined that construction and operation of proposed wind energy projects and transmission lines could affect both military and civilian aviation in the

general area.

Next slide. And this slide is just a snapshot of the NEPA process for the Boardman EIS. And we've already achieved a number of the initial milestones here, Notice of Intent, scoping meetings were conducted back in two different phases in 2010 and 2011, and then now we are in the Draft EIS phase.

The draft was released publicly on 7 September. We now are in the public comment period. And we do have a conclusion for the public comment period of November 6, 2012.

Following this portion of the project, we have an expected time frame for release of a Final EIS. So, that would be the document, the next version of the document that would address all the comments that were received through the EIS process and address any changes to the analysis that are necessary.

Again, we are looking at about the summer of 2013 for that Final EIS document. That would be followed by a 30-day wait period, give the public an opportunity to look at how comments were addressed from the EIS into the final, from the draft to the final. And then that would be followed by the Record of Decision, or the ROD, and that is the final step of the EIS process, and that is where the decision-making

authority, who is at the Assistant Secretary of the Navy level, makes the determination of which alternative is selected, and what is going to proceed in the future.

For the public review of the EIS, we have several tools to assist us. We do have a project website that is communicated here on the slide. This is in the information booklet as well. On the website we do have the Draft EIS. We can download the Draft EIS in its entirety to review it. We also have a fact sheet booklet, again, that we passed out tonight, as well as the posters that are around the room tonight that have some additional information.

And then there is some additional information on the website as well.

In addition to the website we have six public locations as information repositories. Those also have a hard copy as well as CD version of the EIS available, and some of the other information that I just mentioned.

And I am now going to turn it over to Allison for some more information. Thank you.

MODERATOR ALLISON TURNER: Okay. The Navy and Oregon National Guard welcome public review and input on the analysis contained in the Draft EIS.

And there are a couple ways for you to submit comments.

Oral comments will be accepted tonight immediately after this presentation. If you don't feel comfortable standing up to make a statement, you can also submit an oral comment directly to Bill one-on-one after the comment session tonight. You can also submit a written comment, either tonight at the meeting, or on the project website, or via U.S. postal mail.

We just want to make sure that you did so before November 6. There is no page limit on written comments. And the Navy and Oregon National Guard give equal weight to oral and written comment. And all comments become part of the official record and are included in the Final EIS.

At this time I have not received a request for anyone to make an oral statement tonight. Has anyone changed their mind, and decided they would like to?

Okay. If you do change your mind and you would like to make an oral comment, Bill and I will be over here. You can come up one-on-one and do that.

We'll go ahead and reconvene the poster stations, the team will go back to the posters. If

you have any questions, you can go ahead and speak directly to the team members and have your questions answered.

So, at this time I'll go ahead and move to our poster station phase of the meeting. Thank you very much for coming.

(8:00 p.m.)

STATE OF OREGON)
) ss.
County of Umatilla)

I, William J. Bridges, do hereby certify that at the time and place heretofore mentioned in the caption of the foregoing matter, I was a Certified Shorthand Reporter for the State of Oregon; that at said time and place I reported in stenotype all testimony adduced and proceedings had in the foregoing matter; that thereafter my notes were reduced to typewriting and that the foregoing transcript consisting of 29 typewritten pages is a true and correct transcript of all such testimony adduced and proceedings had and of the whole thereof.

Witness my hand at Pendleton, Oregon, on this _____ day of November, 2012.

_____
William J. Bridges
Certified Shorthand Reporter
Certificate No. 91-0244
My certificate expires: 10-31-13

A

abroad (1)
12:4
absolutely (1)
13:5
accepted (1)
28:3
accommodate (3)
14:4 16:21 18:18
accommodates (1)
13:15
accomplish (3)
12:8,12,21
accurate (1)
15:22
achieved (1)
26:4
acoustic (5)
21:11,12,17 24:4,16
action (10)
12:14 14:7 16:5,13 20:19 21:20 23:11 24:7 25:12,20
actions (9)
14:3 15:25 16:11 17:17 19:18 21:5 22:13 25:13,16
activities (18)
4:16 13:3,18 16:14,20 16:21 20:17 22:14 22:16 23:14 24:6,7 24:14 25:1,1,5,6,16
activity (1)
21:16
adaptive (1)
23:22
add (1)
23:8
addition (3)
7:22 12:14 27:16
additional (6)
16:23 17:10 23:8 24:19 27:13,14
address (8)
16:11 22:19 23:2,5 24:18 25:10 26:15 26:16
addressed (1)
26:21
addressing (2)
22:11 23:17
adduced (2)
30:9,13
Administration (2)
24:9,20
administrative (1)
5:10
advance (1)
25:6
advising (1)
25:5
aerial (4)
13:15,25 17:4 18:18
affect (3)
23:14 24:7 25:25
Afghanistan (1)
9:9
agenda (1)
3:13
ago (2)
9:2 20:11
ahead (3)
28:24 29:1,4
aircraft (6)
8:4,17 9:15 13:8 17:21 24:7
airmen (1)
12:3
airplane (1)
10:11
airplanes (2)
9:6 14:4
airspace (5)
7:19 8:6,10 10:8 13:7
Allison (5)
2:1 4:1,3 27:22,23
allow (1)
12:16
allows (4)
7:16 9:24 13:15 17:8
alongside (1)
23:23
alternative (12)
16:13,19 17:6,7,8 18:13,13,20,24 19:6 19:13 27:3
alternatives (4)
16:11,12,18 17:17
altitude (2)
7:9 9:10
amount (1)
7:13
analysis (9)
15:4,18,21 21:8 22:12 24:19,22 26:17 27:25
analyzed (1)
4:14
answered (1)
29:3
anticipated (1)
24:15
anymore (1)
10:19
appendix (1)
22:24
applicable (1)
15:14
appreciate (3)
11:7,19 14:14
appreciation (1)
11:17
approximately (1)
19:17
areas (12)
16:7,24 17:9,15 21:16 21:18,21 24:3,8,8 24:11,23
armored (1)
18:3
Army (7)
2:12 5:1 9:9,23 11:9 11:11,22
art (1)
21:14
aspect (2)
9:24 10:2
assessing (1)
16:16
assigned (1)
19:22
assist (1)
27:6
Assistant (1)
27:1
associated (3)
4:15 8:14 12:22
authority (1)
27:1
available (3)
7:20 20:25 27:19
aviation (9)
2:12 5:1 11:11 12:9 14:21 20:16 24:9,20 25:25
avoid (1)
23:25
aware (1)
25:7

B

back (10)
3:12 7:3,4,4,5,8 19:14 22:24 26:6 28:25
bad (2)
3:9 8:17
base (1)
8:7
based (1)
24:19
baseline (1)
16:16
basic (1)
6:22
basically (2)
9:16 10:16
beneficial (1)
14:8
benefit (1)
10:5
better (1)
23:9
big (1)
14:10
Bill (2)
28:6,22
birds (3)
23:15,16 24:1
bit (6)
14:17 15:3,15 18:12 22:4,11
bombing (3)
5:24 6:24 17:21
bombs (1)
7:11
booklet (3)
20:25 27:8,11
born (1)
11:12
box (2)
1:24 18:17
BRAC (1)
20:13
Bradley (1)
18:3
brand-new (1)
10:10
breaks (1)
20:22
Bridges (4)
1:23 5:10 30:4,21
bring (1)
23:4
build (1)
12:15
building (2)
17:12 18:21
buildings (1)
18:24
built (1)
14:5
bullets (1)
9:16
Bureau (1)
4:13
business (1)
9:2

C

California (1)
12:20
call (1)
12:15
capable (1)
16:7
capacity (2)
14:20,24
Captain (6)
2:8 4:24 5:12,17 11:4 16:4
caption (1)
30:6
Carolina (2)
6:2,9
carry (2)
9:3,4
categories (1)
21:6
CD (1)
27:18
center (6)
1:15 8:23 17:12,19,24 18:23
certain (2)
20:16 25:4
certificate (2)
30:22,22
Certified (3)
1:23 30:6,21
certify (1)
30:4
chance (1)
15:5
change (1)
28:21
changed (1)
28:19
changes (1)
26:17
chapters (1)
21:7
charges (1)
19:8
chart (1)
20:22
Chemical (1)
20:11
citizen (2)
3:8 12:2
citizens (1)
12:1
civilian (3)
7:14 14:18 25:25
clear (1)
19:2
closer (1)
13:14
collateral (2)
5:19,20
Colonel (7)
2:12 5:1 11:2,4,10 14:12 16:4
colors (1)
20:1
combat (2)
8:21 23:9
come (6)
9:11,12 13:12,20,24 28:23
comfortable (1)
28:5
coming (5)
4:2 9:16 14:13,14 29:6
commander (1)
5:21
Commanding (3)
2:8 4:25 5:18
comment (12)
4:4,18 5:9 6:16 11:7 26:9,10 28:6,7,8,14 28:22
comments (14)
3:1 4:24 5:6 11:2 14:15 15:17 22:4 24:20 26:15,21 28:2 28:3,13,15
communicated (1)
27:7

communications (1)
8:20
compare (1)
9:18
complex (2)
5:21 6:22
composed (1)
11:21
concentration (1)
8:3
concern (1)
22:9
concerns (3)
22:19 23:5 24:18
conclusion (1)
26:10
conduct (4)
7:25 10:3 13:16,18
conducted (1)
26:6
conducting (2)
23:7 24:18
Conference (1)
1:15
consider (1)
6:11
consisting (1)
30:12
construction (4)
16:15 23:14,25 25:23
contained (1)
27:25
contingency (1)
12:4
continue (1)
16:14
continued (1)
20:17
contribute (1)
25:20
Control (2)
17:12 18:23
convoy (6)
14:6 17:3,11 18:6,11 18:14
cooperation (1)
4:13
copies (1)
15:7
copy (2)
20:24 27:18
Corps (1)
9:4
correct (1)
30:13
correctly (1)
15:20
costing (1)
10:24
County (2)
7:6 30:2
couple (2)
18:15 28:1
course (1)
20:12
crew (1)
9:3
critical (3)
8:22 10:7 13:5
crowded (1)
10:19
cultural (1)
24:12
cumulative (2)
25:9,10
current (3)
16:14,20 17:14
currently (8)
12:23,25 13:3 16:2 20:7,9,15,16

D

day (1)
30:16
decided (1)
28:19
Decision (1)
26:24
decisions (1)
23:3
decision-making (1)
26:25
defined (1)
24:9
demolition (2)
17:4 19:5
department (1)
8:24
dependent (1)
13:4
Depot (1)
20:12
designated (2)
19:7 24:2
designations (1)
20:21
designed (2)
20:10 23:1
detail (1)
15:3
detailed (1)
21:8
determination (1)
27:2
determined (5)
23:11,13 24:13 25:19 25:23
detonation (2)
24:25 25:5
detonations (1)
25:3
developed (3)
22:20,22 23:23
development (3)
4:21 10:4 16:15
difference (1)
18:20
differences (2)
18:13,16
different (15)
15:12,15 17:9 18:25 19:24,25 20:1,20,20 20:22 21:2,5 23:4 25:15 26:6
difficult (1)
13:10
digital (1)
14:6
directly (2)
28:6 29:2
discuss (1)
22:1
disposal (1)
14:23
distance (1)
19:15
distinguished (1)
14:21
diver (1)
14:23
document (7)
15:7,19 22:25,25 26:14,15,19
dodging (1)
9:14
dogfighting (1)
8:12
doing (1)
15:20
dots (1)
19:10
double (1)
7:3
download (1)
27:9
drop (1)
19:1
dry (1)
6:18
duty (2)
5:20,20

E

early (1)
11:15
eastern (2)
18:7,14
EA-18G (2)
7:24 10:10
echo (1)
11:6
effects (1)
21:4
efficiency (1)
8:11
EF-111 (1)
9:1
either (1)
28:8
electromagnetic (1)
8:20
electronic (9)
8:12,15,16,18,22,24 8:25 9:4 10:3
elements (1)
17:8
elevations (3)
20:20,23 21:2
eliminate (1)
21:25
emissions (1)
25:22
employee (1)
14:18
encompasses (1)
6:23
encourage (2)
15:11 20:23
enemy (1)
9:14
energy (1)
25:24
enhancement (1)
16:22
enhancements (1)
17:10
ensure (2)
5:5 16:1
entire (2)
15:11 19:21
entirety (1)
27:10
environment (7)
15:3 16:6 21:11,12,17 24:4,16
environmental (6)
1:6 4:5,14 14:19,25 16:17
equal (1)
28:14
equipment (4)
16:22 18:3 19:4 23:8
equipped (1)
12:3
especially (1)
11:18
evaluated (1)
21:4
evaluation (1)
10:5
evening (4)
4:1 5:14 11:5 13:9
events (1)
22:5
everybody (2)
13:11 14:13
execution (1)
12:23
exercises (1)
13:16
exist (1)
20:7
existing (3)
17:19 20:2,9
exists (1)
20:16
expected (1)
26:13
expense (1)
8:6
expensive (1)
10:20
expires (1)
30:22
explains (1)
10:7
explosive (3)
14:23 19:8 25:2
extraction (1)
9:22
extremely (1)
10:17

F

facilities (2)
16:25 18:25
facility (11)
1:5 4:6 5:22 6:7,25 10:21 14:3,4 18:19 18:22 20:12
fact (1)
27:10
facts (1)
4:14
fair (1)
5:5
faith (1)
3:10
far (1)
22:6
Farmer (5)
2:12 5:1 11:3,4,10
farmers (1)
7:6
farmland (1)
3:12
fast (2)
6:3,4
Federal (2)
24:9,20
feedback (1)
15:18
feel (1)
28:5
feet (1)
9:12
Field (1)
12:11
fighter (1)
12:10
fighter-jet-looking ...
10:15
final (7)
21:14 26:13,19,22,23 26:24 28:16
fire (11)
9:15 13:22 14:7 17:3 17:11 18:6,7,12,15 22:22 23:7
fires (3)

22:17 23:9,10
firing (1)
19:12
first (4)
5:12 7:4 16:12 21:10
Fish (1)
23:24
flat (2)
9:19,20
Fleet (4)
2:17 5:4,21 14:18
flight (1)
9:11
fly (5)
7:24 8:8 9:12,13 13:25
flying (1)
13:9
focal (1)
6:23
focus (1)
23:19
folks (1)
9:8
followed (2)
26:20,23
Following (1)
26:12
force (5)
9:1,5,6 10:22 12:2
forced (1)
8:5
forces (1)
9:23
foregoing (3)
30:6,9,11
frame (1)
26:13
freedom (1)
9:25
fully (1)
16:8
funny (1)
6:3
further (1)
24:22
future (8)
13:5 16:3,9,21 20:18 21:13 25:18 27:4
F-15s (1)
13:23

G

gals (1)
9:12
gas (1)
25:21
general (4)
18:21,25 20:2 26:1
generally (1)
17:22
getting (1)
3:12
Gisi (2)
3:6,6
give (6)
6:5,15,15 14:15 26:20 28:13
gives (1)
13:12
glasses (1)
5:15
go (10)
8:17 9:18,18 12:19 17:1 21:21 28:24,25 29:1,4
goal (1)
15:17
goes (1)
7:14
goggle (1)
13:21
going (8)
6:5,15 13:14 15:2 20:13 25:8 27:3,21
good (6)
3:10,10 4:1 5:14 11:5 11:14
graphic (5)
17:14 19:1,14 20:5 21:3
gravity (1)
8:23
great (2)
11:17 23:18
greater (2)
19:15,20
greenhouse (1)
25:21
grew (2)
6:9,10
ground (4)
9:13 12:16 17:20 23:18
group (1)
9:7
Growler (2)
10:10,13
Growlers (1)
7:24
gun (3)
14:5 17:2 18:9
guy (1)
8:17
guys (1)
9:11
G's (1)
9:14
G-I-S-I (1)
3:7

H

habitat (3)
23:15,16 24:2
half (1)
7:5
halfway (1)
10:12
hand (1)
30:15
hard (1)
27:18
hazards (1)
23:9
hearing (1)
25:7
height (1)
21:2
heights (1)
20:23
helicopters (3)
7:16 9:24 13:19
help (2)
21:25 23:9
heretofore (1)
30:5
Hermiston (1)
4:20
high (2)
7:9 9:14
high-speed (1)
7:15
historic (1)
24:12
home (1)
6:11
hope (1)
6:11
hopefully (2)
3:9 4:8
hoping (1)
3:7
hospitals (1)
24:10
huge (1)
8:6

I

Idaho (2)
12:20 13:14
identified (4)
19:2 21:18,21 23:21
identify (1)
21:23
ignition (1)
23:6
immediately (1)
28:4
impact (4)
1:6 4:5 15:3 24:15
impacts (12)
16:17 21:19,22,25,25 22:17 23:12,20 25:9 25:10,11,21
implement (4)
16:22 22:21 23:7 25:4
implementing (2)
23:22 24:1
implements (1)
17:10
importance (2)
6:6,13
important (6)
8:21 9:17 11:8 12:12 13:16 20:5
include (8)
16:6,23 17:2,11 23:21 23:24 24:10,18
included (4)
19:6,13 22:23 28:16
includes (4)
5:22 17:7,16 18:14
including (1)
23:5
incorporates (1)
19:15
increase (5)
16:20 22:14,15,16 25:21
indicated (2)
21:2,6
indicates (1)
19:20
information (10)
4:11 14:15 20:24 21:1 27:8,13,15,17,19,22
initial (1)
26:4
input (1)
27:25
insertion (2)
9:22 19:4
instituted (1)
7:4
instrumentation (1)
16:7
integrated (1)
22:22
Intent (1)
26:5
interest (1)
22:9
interesting (1)
15:13
introduce (2)
5:12 14:10
Iraq (1)
9:9
Island (9)
2:9 5:1,19 7:23,25 8:9 8:11,23 10:11
ISR (1)
10:2

J

J (2)
30:4,21
jammers (1)
8:13
jamming (2)
8:19,19
Jay (3)
2:8 4:24 5:17
jazz (1)
6:18
jets (3)
7:23 8:8,10
job (1)
14:25
John (3)
2:16 5:2 14:10
Johnston (5)
2:8 4:24 5:13,14,17
joint (1)
13:1

K

kids (1)
6:10
kind (5)
7:11,17 9:25 10:18 13:10
Kingsley (1)
12:11
knots (1)
9:13
know (2)
11:1 15:23

L

land (3)
3:11,11 8:18
landing (2)
17:5 18:18
land-based (1)
24:13
larger-type (1)
25:2
lead (1)
14:2
left (1)
5:11
LEGAL (1)
1:23
level (1)
27:2
levels (2)
16:14,20
license (1)
13:1
light (2)
3:10,10
limit (3)
7:13 23:5 28:12
limited (1)
25:2
limiting (1)
25:1
line (1)
18:11
lines (3)
18:6 19:25 25:24
little (9)
6:18 7:19 9:10,25 14:17 15:2,15 18:12 19:10
live (7)
14:7 17:3,11 18:6,7 18:11,14
Lived (1)

11:13
living (1)
11:18
local (1)
6:12
location (2)
18:21 20:8
locations (3)
12:6 17:15 27:17
logical (1)
20:17
long (1)
11:19
long-term (1)
24:2
look (7)
7:1 15:11,12 22:24 24:23 25:11 26:21
looking (2)
24:1 26:18
lot (6)
9:23 10:24 13:14 21:8 22:8,9
low (1)
9:10

M

machine (3)
14:5 17:2 18:9
mail (1)
28:10
main (2)
17:19 19:12
maintenance (2)
18:19,22
mammal (1)
23:15
manage (1)
23:9
management (5)
22:20,21,22 23:1,22
manager (2)
2:16 5:3
maneuver (1)
9:14
maps (1)
7:1
Marine (1)
9:4
marked (1)
19:25
matter (2)
30:6,10
means (3)
5:19 7:10 8:18
measures (2)
23:21 24:17
meeting (5)
1:9 4:17 5:6 28:9 29:5
meetings (2)
4:19 26:5
members (3)
2:5 11:22 29:2
mention (1)
18:16
mentioned (10)
13:6,24 17:1 18:10 19:5,19 20:21 24:24 27:20 30:5
met (1)
16:2
migratory (2)
23:16 24:1
mile (2)
7:2,2
miles (2)
19:17,17
milestones (1)
26:5
military (11)
3:9 4:15 6:14 7:15 12:6 16:1,23 19:23 20:6,18 25:25
mind (2)
28:19,21
minimize (1)
23:20
missed (1)
15:22
missiles (2)
8:19 9:15
mission (7)
8:15,16,17 10:3 11:25 12:8 13:5
mitigation (2)
23:21 24:17
mitigations (2)
21:24 22:2
moderator (4)
2:1 4:1,4 27:23
money (2)
8:11 10:25
Morrow (2)
1:15 7:5
mortar (3)
17:13 19:9,11
Mosher (4)
2:16 5:3 14:10,12
move (2)
8:7 29:4
moved (1)
6:9
multi-purpose (5)
14:5,6 17:3 18:1,9

N

name (3)
3:6 4:3 5:17
nature (1)
18:4
Naval (7)
1:5 2:8 4:5,25 5:18,22 6:7
Navy (20)
3:7 4:9,12,22 5:25 7:2 7:9 9:3 10:9 11:9 13:2,4 14:20 15:1 15:24 22:10 25:14 27:2,24 28:13
necessary (1)
26:17
need (3)
7:13 12:6 15:22
needed (1)
16:5
NEPA (2)
15:19 26:3
nesting (2)
23:16,25
Nevada (1)
8:2
new (5)
8:7 9:25 16:25,25 20:6
nice (1)
10:14
night (2)
4:20 13:21
noise (8)
21:12,16 23:14 24:5,8 24:8,19,23
north (3)
3:12 6:2,9
Northwest (4)
6:22 7:10,20,22
notes (1)
30:10
Notice (1)
26:5
notification (1)
25:4
November (3)
26:11 28:12 30:16
number (7)
11:14 13:18 19:24 20:4 21:5 25:15 26:4
NWSTF (1)
6:6
Nyssa (1)
11:12

O

O (1)
1:24
obstructions (1)
19:3
obviously (1)
22:8
occasionally (1)
13:23
occur (2)
16:15 25:3
occurred (1)
25:17
occurs (1)
17:21
Officer (7)
2:8,12 4:25 5:2,18 11:11 14:20
officers (1)
14:21
official (1)
28:15
Oftentimes (1)
13:20
Okay (3)
5:16 27:23 28:21
old (1)
10:13
Once (1)
14:12
one-on-one (2)
28:7,23
ongoing (2)
4:15 25:16
operate (1)
13:2
operation (1)
25:23
operations (7)
8:21 9:23 14:3 16:23 17:12 18:23 20:6
opportunity (8)
4:8 5:6 12:15,18 13:12 14:16 15:10 26:21
oral (5)
28:3,6,14,18,22
orange (1)
19:16
order (1)
12:7
orderly (1)
5:5
ordnance (1)
14:23
Oregonian (1)
11:12
organization (2)
9:7 14:19
originally (1)
6:2
outside (1)
25:13
overview (2)
6:5,15

P

P (1)
1:24
Pacific (6)
2:17 5:4,21 7:9,20 14:18
package (1)
20:24
page (1)
28:12
pages (2)
15:8 30:12
PANEL (1)
2:5
parachute (1)
19:3
parks (1)
24:11
part (4)
12:23 14:10 20:18 28:15
particular (2)
22:7 23:19
passed (1)
27:11
passing (1)
20:25
Paul (2)
3:6,6
pay (1)
8:7
Pendleton (5)
1:24 11:14 12:10 13:20 30:15
people (2)
8:7 25:7
perfect (1)
8:10
period (3)
26:9,11,20
person (1)
3:8
personnel (3)
12:6 16:8 19:4
phase (3)
4:20 26:7 29:5
phases (1)
26:6
picture (2)
6:20 19:20
piece (1)
10:22
place (9)
4:16 10:23 20:3,11,17 21:24 25:7 30:5,8
places (3)
8:1 12:19,20
plan (2)
22:23 23:1
planes (1)
10:15
planner (2)
14:19,25
plays (1)
12:23
point (5)
6:23 15:19 17:18 21:10 23:3
pool (1)
9:20
Port (1)
1:15
portion (2)
18:8 26:12
Portland (2)
7:17 12:11
positions (2)
17:13 19:9
positive (1)
16:17
possibly (1)

3:11
postal (1)
28:9
poster (3)
4:10 28:24 29:5
posters (2)
27:12 28:25
potential (6)
21:4,19,23 22:15,16 22:17
potentially (2)
21:22 23:12
practices (3)
21:24 22:20,21
preferred (1)
17:6
prepared (1)
4:23
presentation (3)
4:23 5:8 28:4
pretty (2)
6:10 15:7
prevention (1)
23:7
Primarily (1)
7:22
primary (1)
11:25
proceed (1)
27:3
proceedings (2)
30:9,14
process (11)
4:21 14:11 15:19 20:8 20:13 21:23 22:4 25:4 26:3,16,25
produced (2)
24:5 25:11
proficiency (1)
12:13
program (3)
2:16 5:3 24:2
prohibits (1)
20:16
project (5)
11:8,16 26:12 27:6 28:9
projects (1)
25:24
property (10)
7:2 10:6,8 17:16,24 19:16,19,22 20:14 23:13
proposal (1)
20:6
propose (2)
24:25 25:3
proposes (1)
16:19
proposing (7)
15:24 22:2 23:2 24:14 24:18 25:14,17
protect (1)
20:11
protocol (1)
23:23
protocols (1)
23:7
provide (4)
9:8 12:1 16:5 25:20
provided (1)
10:5
Prowler (1)
10:13
Prowlers (1)
7:24
public (14)
1:9 3:1 4:4,18,19 5:8 6:16 25:5 26:9,10 26:20 27:5,17,24
publicly (1)
26:8
purple (1)
17:25
purpose (2)
4:17 18:22
purposes (1)
19:23
put (4)
5:15 15:8 20:10 21:24
p.m (1)
29:8

Q

quality (3)
22:18 23:15 25:21
quantities (1)
25:2
questions (4)
11:8 14:14 29:1,2
quite (2)
22:4,11

R

ranges (4)
12:16 16:6,25 18:15
rare (1)
8:17
Raven (1)
9:1
read (1)
15:10
readiness (7)
4:16 6:6,14 12:5,24 13:17 16:2
ready (1)
12:2
really (3)
10:18,21,23
receive (3)
4:18,24 22:3
received (3)
24:21 26:16 28:17
reconvene (1)
28:24
record (3)
5:10 26:23 28:15
recreational (1)
24:11
rectangle (4)
7:2 17:23,25 19:16
redefine (1)
21:13
redistribution (1)
17:9
reduce (1)
21:25
reduced (1)
30:10
refer (1)
4:7
reference (2)
15:9 17:18
refuges (1)
24:12
regional (2)
7:21 13:11
relating (1)
21:15
release (1)
26:13
released (1)
26:8
religious (1)
24:10
relocate (1)
8:6
rely (1)
12:11
remainder (1)
11:23
remember (1)
5:20
reported (1)
30:8
Reporter (2)
30:7,21
Reporters (1)
1:23
REPORTING (1)
1:23
repositories (1)
27:17
representatives (1)
4:9
request (1)
28:17
required (2)
21:22 25:10
requirements (2)
16:2,9
requires (1)
12:5
research (1)
10:4
Reserve (1)
14:20
resource (2)
21:6,18
resources (2)
23:4,8
respond (1)
12:3
restoration (1)
24:2
restrict (1)
24:25
restricted (6)
7:10,14 8:3 10:6 13:7 13:25
result (1)
25:13
return (1)
8:8
review (4)
15:12 27:5,10,24
right (6)
6:18 10:23 12:18 13:9 19:6,10
river (1)
9:19
robust (1)
15:7
ROD (1)
26:24
role (2)
5:5 14:25
rolling (1)
9:19
room (2)
21:1 27:12
route (1)
9:25

S

Salem (1)
12:10
sanctuary (1)
8:18
saves (1)
8:11
scheduling (1)
23:25
schools (1)
24:10
scoping (2)
22:4 26:5
seasons (1)
23:25
second (2)
4:19 17:11
Secretary (1)
27:1
sections (3)
15:12,13,15
security (1)
20:9
see (5)
6:21 7:1 8:2 15:5 19:25
seeing (1)
3:9
selected (1)
27:3
sense (1)
9:7
sensitive (3)
24:8,8,23
separate (2)
17:12 18:24
September (2)
1:13 26:9
series (1)
18:5
serve (1)
13:11
serves (1)
8:3
service (2)
8:25 23:24
services (1)
6:1
serving (1)
18:22
session (5)
4:4,11 5:9 6:17 28:7
shape (1)
18:8
sharing (1)
7:7
sheet (1)
27:11
short (1)
4:23
Shorthand (3)
1:23 30:7,21
shortly (1)
14:16
showing (1)
17:14
shut (1)
20:12
side (1)
18:5
significant (5)
21:19,22 22:17 23:12 24:15
significantly (1)
24:7
similar (1)
16:21
simply (4)
19:2,7 21:12 24:9
simulating (1)
9:14
site (1)
13:11
sites (2)
24:11,12
six (3)
7:2 19:17 27:16
size (1)
25:1
sleek (1)
10:14
slide (7)
15:16 16:19 21:7 24:4 26:2,2 27:7
snapshot (1)
26:3

soldiers (1)
12:2
somewhat (1)
6:11
sources (1)
23:6
speak (1)
29:1
special (4)
9:23 20:1,3 23:16
specialists (1)
9:5
specialized (2)
12:5,7
specialty (3)
14:22 16:24 19:20
special-use (1)
12:22
species (2)
23:15,17
specific (2)
12:17 13:13
specifically (9)
9:18 11:18 13:6,20 19:23 22:1 23:1,17 24:23
spectrum (1)
8:20
spend (1)
22:11
spoke (2)
14:22 16:4
squadron (1)
9:6
squadrons (1)
10:12
squirrel (1)
23:18
ss (1)
30:1
staffing (1)
4:10
standing (1)
28:5
start (1)
21:13
started (1)
7:7
State (6)
2:12 5:1 11:10 12:1 30:1,7
statement (5)
1:6 4:5 15:3 28:5,18
states (4)
2:17 5:3 6:23 12:2
station (5)
2:9 4:10,25 5:18 29:5
stationed (1)
11:23
stations (1)
28:25
status (2)
8:8 23:17
stenotype (1)
30:8
step (2)
24:22 26:24
strategy (1)
23:22
strike (1)
8:17
strip (2)
17:5 18:18
structures (1)
24:10
stuff (1)
7:18
submit (3)
28:1,6,8
summer (1)
26:18
support (1)
9:8
supporting (2)
13:22 16:8
suppression (1)
13:22
sure (2)
15:20 28:11
surface (1)
8:19
surface-to-air (1)
9:15
surround (1)
19:21
surrounding (1)
16:1
sustained (1)
10:22
sustaining (1)
10:8
system (5)
5:22 6:7 17:5 18:18 19:12
systems (6)
1:5 4:6 12:17 13:13 13:15,25

T

table (1)
9:20
tables (1)
15:6
tactical (2)
7:25 8:25
tactics (1)
8:14
take (1)
24:22
takes (1)
19:14
talk (6)
4:9 5:23 6:3,13 9:10 15:14
talked (1)
18:12
talking (3)
6:3,4 10:21
tanks (1)
18:2
target (3)
17:20,22 19:12
targets (1)
17:23
task (2)
12:7,21
tasks (1)
12:12
taxpayers (2)
8:12 10:24
team (2)
28:25 29:2
teams (1)
7:17
temporary (1)
8:8
term (1)
21:14
test (1)
10:4
testimony (2)
30:9,13
testing (1)
16:13
thank (6)
4:2 11:4 14:12,13 27:22 29:5
Thanks (1)
5:14
theme (1)
10:16
thereof (1)
30:14
thing (4)
7:12,17 10:1 21:10
things (2)
7:11 16:3
thorough (1)
15:21
three (5)
16:10 17:13 19:10 21:16 22:1
Throw (1)
6:3
time (7)
22:5,11 26:13 28:17 29:4 30:5,8
today (1)
7:6
Todd (3)
2:12 5:1 11:10
told (1)
6:3
tonight (16)
4:2,7,12,23 5:15,23 14:13,24 15:2,17 27:11,12 28:3,7,8 28:18
tonight's (3)
4:4,17 5:8
tools (1)
27:6
touch (1)
6:1
traffic (1)
7:14
train (5)
9:8 12:7,16 13:13,19
trained (2)
12:3 14:23
transcribed (1)
5:9
transcript (2)
30:11,13
transfer (1)
20:13
transition (1)
10:13
transitioning (1)
10:14
transmission (1)
25:24
Triple-A (1)
9:15
true (1)
30:12
try (2)
6:1,18
turn (3)
8:13 11:2 27:21
Turner (4)
2:1 4:1,3 27:23
two (3)
4:19 18:25 26:6
types (1)
20:1
typewriting (1)
30:11
typewritten (1)
30:12

U

UAS (2)
14:3 17:4
ultimately (1)
14:2
Umatilla (2)
20:11 30:2
understand (1)
6:17
unique (1)
13:7
United (3)
2:16 5:3 12:2
units (4)
7:22 12:9,16 16:8
unlock (1)
3:11
unmanned (4)
13:15,24 17:4 18:18
unobstructed (1)
9:21
upgrade (1)
10:20
use (6)
3:11 16:16 19:7 20:1 20:3 23:5
user (1)
13:1
users (1)
22:9
uses (1)
12:25
usually (1)
7:10
utilized (1)
18:2
U.S (4)
5:21 14:18 23:23 28:9

V

valuable (3)
5:24 10:17,22
vegetation (2)
22:18 25:22
vehicles (1)
18:3
version (2)
26:14 27:18
veteran (1)
3:7
VIDEO (1)
1:23
vision (1)
13:21
vital (1)
12:23

W

wait (1)
26:20
want (4)
11:6 15:20 21:10 28:11
warfare (8)
8:13,15,16,22,24,25 9:5 10:3
Washington (4)
6:21 12:20 13:14 23:18
water (1)
14:22
way (1)
10:21
ways (1)
28:1
weapon (1)
12:17
weapons (5)
1:5 4:6 5:22 6:7 19:12
website (5)
27:7,8,15,16 28:9
weight (1)
28:14
welcome (1)
27:24
western (2)
18:11,14
we'll (2)

10:3 28:24
we're (6)
8:24 10:12,14 15:20 23:2 25:5
we've (2)
15:21 26:4
Whidbey (9)
2:9 4:25 5:18 7:23,25 8:9,11,23 10:11
wildfire (5)
21:11,17 22:3,13 25:22
wildfires (3)
13:23 22:6,15
wildland (1)
22:22
wildlife (8)
13:22 21:11,17 22:18 23:13,24 24:11 25:22
William (3)
5:10 30:4,21
wind (1)
25:24
wing (1)
12:10
Witness (1)
30:15
work (1)
3:11
worked (1)
3:8
working (2)
11:15 23:23
written (3)
28:8,12,14

Y

year (2)
12:17 22:5
years (8)
6:25 9:2 11:13,14,16 20:4,11 21:15

Z

zone (1)
19:1

1

1 (6)
16:19 17:8,17 18:13 18:20 19:6
10 (1)
11:16
10-31-13 (1)
30:22
11-year (1)
3:7
12 (2)
7:2 19:17
13 (1)
10:11
1996 (1)
6:10

2

2 (8)
17:6,17 18:13,14,20 18:24 19:6,13
20 (1)
9:2
20-year (1)
3:8
200 (1)
9:12
2010 (1)
26:6
2011 (1)
26:7
2012 (3)
1:13 26:11 30:16
2013 (1)
26:19
223 (1)
1:24
26 (1)
1:13
276-9491 (1)
1:25
29 (1)
30:12

3

30-day (1)
26:20
32 (1)
11:13
358-2345 (1)
1:25

4

40s (1)
7:4
450 (1)
9:13

5

500 (1)
9:12
541 (1)
1:25

6

6 (2)
26:11 28:12
60s (1)
7:5
6600 (1)
11:22

7

7 (1)
26:8
70 (1)
6:25

8

8:00 (1)
29:8
80s (2)
7:8 11:14
800 (1)
1:25
8600 (1)
11:22

9

90s (1)
11:15
900 (1)
15:8
91-0244 (1)
30:22
97801 (1)
1:24

Appendix H

Draft

Integrated Wildland Fire Management Plan

INTEGRATED WILDLAND FIRE MANAGEMENT PLAN
DRAFT

Naval Weapons Systems Training Facility Boardman

August 2013

DRAFT

Integrated Wildland Fire Management Plan

NWSTF Boardman

Approving Official:

Captain Michael K. Nortier,
Commanding Officer, NASWI

Signature Date

Concurring Official:

Major General Daniel R. Hokanson,
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Navy Region Northwest Review

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Oregon National Guard Review

COL Phillip E. Appleton, G3
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Daniel R. Cleveland, Fire Management Officer

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DRAFT

Contents

1 INTRODUCTION & GENERAL OVERVIEW 1

1.1 COMMANDER NAVY REGION NORTHWEST OVERVIEW 1
1.2 CNRNW WILDLAND FIRE MANAGEMENT PLAN 1
1.3 NWSTF BOARDMAN INTEGRATED WILDLAND FIRE MANAGEMENT PLAN 1

2 WILDLAND FIRE MANAGEMENT CONTEXT 2

2.1 LOCATION 2
2.2 PROGRAMMATIC ENVIRONMENTAL ASSESSMENT 2
2.3 GOALS & OBJECTIVES 2
2.4 NWSTF BOARDMAN GOALS AND OBJECTIVES 5
2.5 WILDLAND FIRE HISTORY 6

3 FIRE MANAGEMENT AREA CHARACTERISTICS 8

3.1 WILDLAND FUELS 8
3.1.1 Wildland Fire Behavior Fuel Models 14
3.2 NATURAL AND CULTURAL RESOURCE CONSIDERATIONS 15
3.3 ORGANIZATION AND RESPONSIBILITIES 15
3.4 PERSONNEL TRAINING AND CERTIFICATION STANDARDS AND RECORDS 15
3.5 INTERAGENCY COOPERATION AND MUTUAL AID AGREEMENTS 16
3.6 MISSION CONSIDERATIONS 16
3.7 MILITARY TRAINING RESTRICTIONS 16
3.8 WILDLAND AND COMMUNITY/URBAN INTERFACE 17
3.8.1 NWSTF Boardman Firefighters and Structure Firefighting 17
3.8.2 Wildland and Community/Urban Interface 17
3.9 FIRE DANGER INDICES/RISK ASSESSMENT 17
3.10 SAFETY AND EMERGENCY OPERATIONS 19
3.11 PUBLIC RELATIONS 19

4 WILDLAND FIRE OPERATIONS 19

4.1 FIRE PROTECTION RESOURCES (AVAILABILITY/REQUIREMENTS) 19
4.1.1 Personal Protective Equipment 19
4.1.2 Current assets 20
4.1.3 Aerial resources 20
4.1.4 Water sites 20
4.1.5 Mutual Aid Agreements 20
4.2 PREVENTION 21
4.3 DETECTION PROCEDURES 24
4.4 DISPATCH PROCEDURES 24

DRAFT

4.4.1 Fires on Live Fire Training Ranges 24
4.5 SUPPRESSION 24
4.5.1 Staffing 24
4.5.2 Priorities 24
4.5.3 Pre-positioning firefighting resources 25
4.5.4 Hazards 26
4.5.5 Fire suppression and post-fire reports 26
4.6 COMMUNICATIONS PLAN 26
4.6.1 Extended attack procedures 26
4.6.2 Records, reports and monitoring 27
4.7 REHABILITATION NEEDS AND/OR PROCEDURES 27

5 REFERENCES 28

6 APPENDICES 29

6.1 APPENDIX A: MUTUAL AID AGREEMENT 30
6.1 APPENDIX B: FIREFIGHTER QUALIFICATIONS DESCRIPTION 34
6.1 APPENDIX C: FIRE DANGER RATING CARD 36
6.1 APPENDIX D: FIRE REPORT FORM 38
6.2 APPENDIX E: NAS WHIDBEY ISLAND INTEGRATED CULTURAL RESOURCES MANAGEMENT PLAN (ICRMP), INADVERTENT DISCOVERY SOP (DRAFT) 39

DRAFT

1 Introduction & General Overview

1.1 Commander Navy Region Northwest Overview

Commander Navy Region Northwest (CNRNW) located in the State of Washington is headquartered at Naval Base Kitsap Bangor and provides coordination of base operating support functions throughout the six-state area of Washington, Oregon, Idaho, Alaska, Montana, and Wyoming. Numerous commands and installations are located throughout the CNRNW Region including Naval Air Station (NAS) Whidbey Island which includes Ault Field, Outlying Landing Field Coupeville and the Seaplane Base; Naval Station Everett; Naval Magazine Indian Island; Naval Base Kitsap (NBK) which includes Naval Base Kitsap Keyport, Naval Base Kitsap Bremerton and Naval Base Kitsap Bangor; Jackson Park which includes Naval Hospital Bremerton and Jackson Park Housing; Naval Weapons Systems Training Facility (NWSTF) Boardman; Naval Radio Station Jim Creek; Naval Support Complex Smokey Point and MWR support facilities at Pacific Beach.

CNRNW supports the third largest concentration area of Navy assets, which includes two aircraft carriers, 10 surface ships, 15 submarines, and 115 aircraft. The supported fighters and families include 23,000 active duty members, 16,000 civilian employees, 6,000 drilling reservists and 42,000 family members.

To accomplish their mission, CNRNW personnel provide expertise in areas such as facilities and land management, exercise coordination, housing, environmental, security, Fire and Emergency Services (F&ES), family services, port services, air services, bachelor quarters and logistics.

1.2 CNRNW Wildland Fire Management Plan

Wildland fires can pose a significant threat to facilities and mission capabilities within CNRNW areas of responsibility. The purpose of the Wildland Fire Management Plan (WFMP) is to present a comprehensive approach to help reduce the frequency of wildland fires and the associated costs and damages. The plan lays out specific guidance, procedures, and protocols in the prevention and suppression of wildland fires. The goal is to convey the methods and protocols necessary to minimize wild fire frequency, severity, and size.

The CNRNW WFMP applies to wildland areas within CNRNW areas of responsibility at Naval Base Kitsap Bangor; NAS Whidbey Island Ault Field and Seaplane Base, Naval Magazine Indian Island; Naval Radio Station, Jim Creek; Toandos Peninsula including Browns Point, Zelatched Point and NWSTF Boardman.

Navy Region Northwest Regional Fire Chief is assigned responsibility for implementing and maintaining the CNRNW WFMP. The WFMP will implement improvements to its land and firefighting resources that will enhance the response and capabilities of firefighters.

1.3 NWSTF Boardman Integrated Wildland Fire Management Plan

Due to its size, geographic isolation, mission, and prevailing climate, this Integrated Wildland Fire Management Plan (IWFMP) has been developed to address the unique planning needs of

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NWSTF Boardman, as compared to the balance of Navy installations covered in the regional WFMP. In addition, NWSTF Boardman hosts a significant tenant/user in the Oregon National Guard. This plan will be revised as needed based on the results of ongoing environmental analysis and proposed project execution.

2 Wildland Fire Management Context

2.1 Location

NWSTF Boardman occupies 47,432 acres in Morrow County, located in north-central Oregon. The NWSTF Boardman is located approximately 2 miles (mi) (3.2 kilometers [km]) south of the city of Boardman, Oregon and the Columbia River, 6 mi (9.7 km) southwest of the US Army's Umatilla Chemical Depot, and 16 mi (25.7 km) southwest of Hermiston, Oregon. Figure 1 shows the location of NWSTF Boardman. The installation is federally withdrawn land with title held by the United States. Management responsibilities for the installation are held by the CNRNW and have been delegated to Commanding Officer Naval Air Station (NAS) Whidbey Island.

2.2 Environmental Impact Statement

The potential environmental effects of activities described in this Integrated Wildland Fire Management Plan (IWFMP) were analyzed in the *Naval Weapons Systems Training Facility Boardman Final Environmental Impact Statement* (Navy 2013).

2.3 Goals & Objectives

The following goals and objectives from the broader WFMP help to lay out the methods and protocols necessary to control wildland fire frequency, intensity, and size on CNRNW lands in order to comply with federal and state laws and meet CNRNW land stewardship responsibilities, while providing for firefighter and public safety and supporting continuation of military training and operations necessary to maintain a high level of combat readiness.

- Provide, first and foremost, for firefighter and public safety. All other objectives are secondary.
- Protect all natural and cultural resources, to the extent feasible, through a program of prevention, pre-suppression, and suppression. Support the goals and objectives of existing CNRNW land management plans.
- Base all fire management activities on the best available science.
- Incorporate public health and environmental quality considerations into fire management planning and execution.
- Coordinate and cooperate where possible and beneficial with other federal, state, and local agencies.
- Examine and identify resource requirements and availability at each organizational level, to provide needed suppression and support. Establish suppression measures and determine the confine, contain, and control strategies.
- Base fire management activities on the evaluation of economic factors that consider resource and social values.
- Continually evaluate and improve upon fire management policies and procedures with the goal of constantly improving the level of fire protection on CNRNW lands.

Objectives

- Maintain or improve the quality of lands represented within the installations of CNRNW.
- Allow military operations and training to occur at the tempo required to maintain a high level of combat readiness.
- Prioritize installations and locations within installations for funding and implementation of fire management improvements.
- Establish a series of firebreaks and/or fuel breaks at high fire risk installations/areas to reduce the probability of a fire moving into high value areas or off installation. Establish monitoring protocols and minimum specifications for these breaks.
- Control the timing of ignitions such that fires that occur do so when conditions are such that there is a high probability of controlling the fire and protecting all valued resources.
- Establish guidelines and implement a prescribed burn program that includes the use of wildland fires for resource benefit in predetermined areas and under predetermined conditions.
- Communicate within the fire management hierarchy to improve practices and policies.
- Communicate and educate other departments to facilitate a reduction in fire starts.
- Update interagency agreements as necessary to ensure prompt and complete cooperation during wildland fire incidents both on CNRNW lands and those of other agreeing agencies.
- Establish fire management qualifications for all firefighters and fire managers and ensure all personnel assigned to those positions are trained to a level appropriate for their expected duties.
- Fires will be suppressed at minimum cost while still considering firefighter and public safety and resources to be protected.

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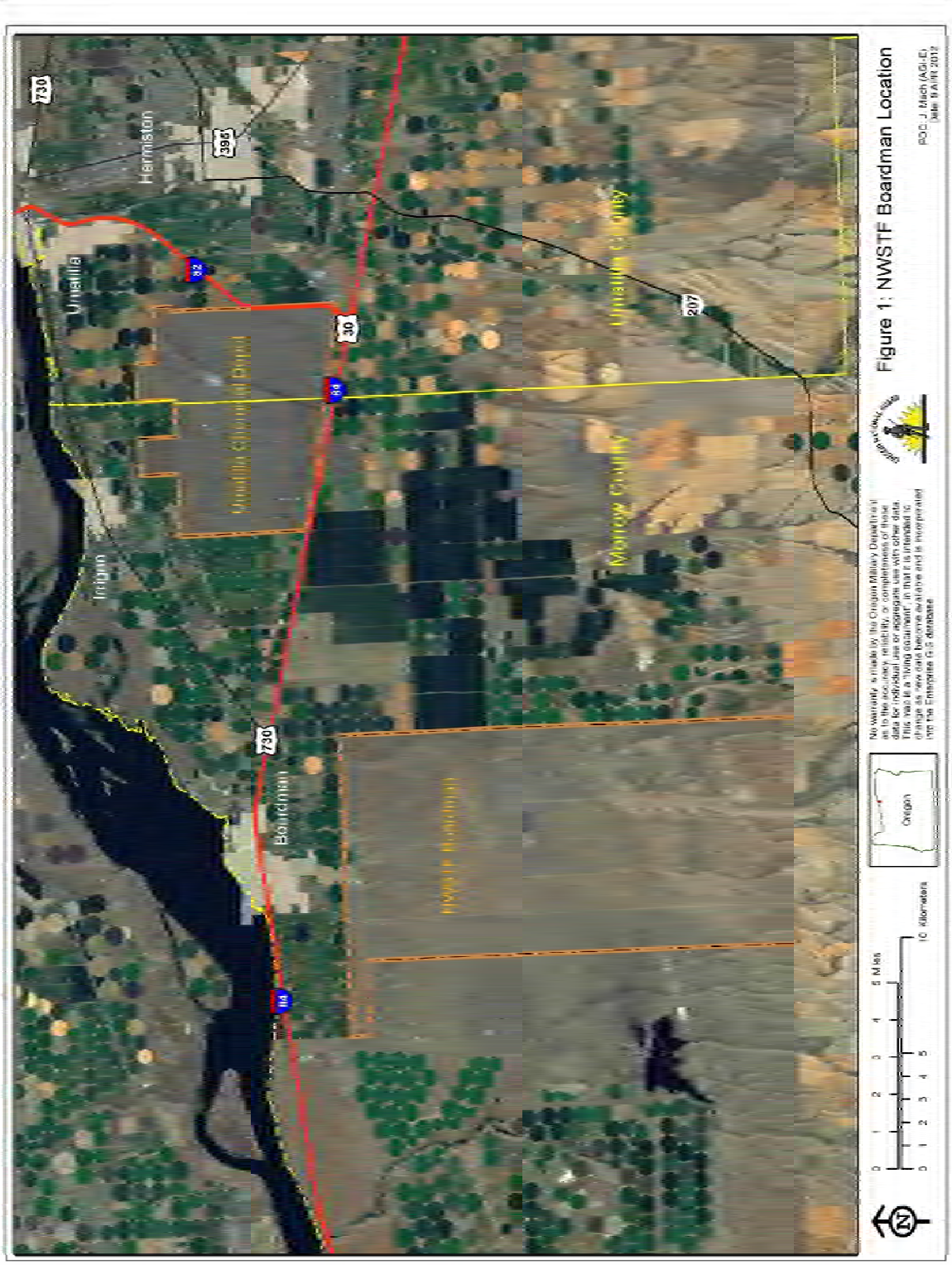
Hermiston
Umatilla
Irrigon
Boardman
Umatilla Chemical Depot
Morrow County
Umatilla County
NWSTF Boardman
730
395
82
84
30
207
Oregon
0 1 2 3 4 5 Miles
0 1 2 3 4 5 10 Kilometers
No warranty is made by the Oregon Military Department as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.
Figure 1: NWSTF Boardman Location
ROD_J_Mach (AGI-E)
Date: 9 A/W 2012

2.4 NWSTF Boardman Goals and objectives

The following goals and objectives are specific to NWSTF Boardman and are taken from the NWSTF Boardman 2012 Integrated Natural Resources Management Plan (INRMP).

Ecosystem restoration

Goal 1: Use soil parameters and historical vegetation data to protect soil stability, restore wildlife habitat, and restore training lands.

Objective 2: Utilize native seed for restoration seeding.

General wildlife management

Goal 1: Inventory natural resources and monitor species and/or communities that are components of prey habitat and/or indicators of ecosystem integrity, status of sensitive species, and maintaining the capability of NWSTF Boardman to support military missions.

Objective 13: Protect shrub habitats from fire and damage.

Rare and listed species management

Goal 2: Continue to mitigate potential negative effects to *Urocitellus washingtoni* (Washington ground squirrel) from military training and other military-related activities.

Objective 1: Mitigate potential negative effects to *Urocitellus washingtoni* from military training.

- Provide an adequate and safe level of rapid response fire protection for military-related (and other) wildland fires.

Goal 3: Continue to mitigate negative effects to *Urocitellus washingtoni* from fire.

Objective 1: Suppress fires.

- Suppress wildland fires, regardless of origin, on NWSTF Boardman and surrounding areas if requested.
- Maintain fire crews on alert during summer training exercises.
- Develop mutual support agreements with other federal, state, and local entities for the suppression of wildland fires at the NWSTF Boardman.

Objective 2: Restore areas damaged by fires.

- Restore fire-damaged areas using native species and broadcast seeding.
- Collect and plant small amounts of native seed not commercially available.
- Monitor the success of the seeding.

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Fire management

Goal 1: Prevent and suppress wildland fires to maintain ecosystem biodiversity and functionality.

Objective 1: Maintain trained and equipped wildland fire crews during the fire season while training activities are occurring.

Objective 2: Continue mutual aid agreements for wildland fire suppression on NWSTF Boardman.

Objective 3: Provide natural/cultural resources management-related recommendations relative to suppression activities to NWSTF Boardman Range personnel.

Objective 4: Respond to wildland fires as soon as possible and begin immediate suppression, consistent with safety and staffing requirements.

Objective 5: Manage range and training activities to prevent wildland fires.

Objective 6: Provide environmental awareness materials to stress the importance of fire prevention to all users of NWSTF Boardman.

2.5 Wildland fire history

NWSTF Boardman has an extensive history with wildland fires. Historically, the area was comprised of fire adapted habitats with fire return intervals from around 20-50 years. With the widespread introduction of invasive plant species and non-native annual grasses, the fuel loading of understory vegetation has greatly changed and fires now tend to be more frequent, more severe and can be long-term or permanent habitat altering events. Therefore, wildland fire can have a major effect on natural resources. Studies conducted after a large fire in 1998 showed that avian species and Washington ground squirrel occurrence and densities can be affected by the habitat-altering effects of a large hot burning wildland fire (Humple and Holmes 2001, Marr 2001). Wildland fires can be from a natural ignition source (e.g. lightening) and from a manmade ignition source (e.g. military training and/or ordnance use). Most major fires since 1998 have been from lightening strikes with the exception of a 2009 fire for which the ignition source is unknown. Since 1998, more than 85% of NWSTF Boardman has been burned by wildland fires which have caused short and long-term habitat alterations. The fires ranged in size from 17,514 acres; 1,639 acres; 11,664 acres; 30,612 acres; and 618 acres in 1998; 2002; 2007; 2008; and 2009, respectively. Figure 2 shows the locations of the wildland fires which have occurred since 1998.

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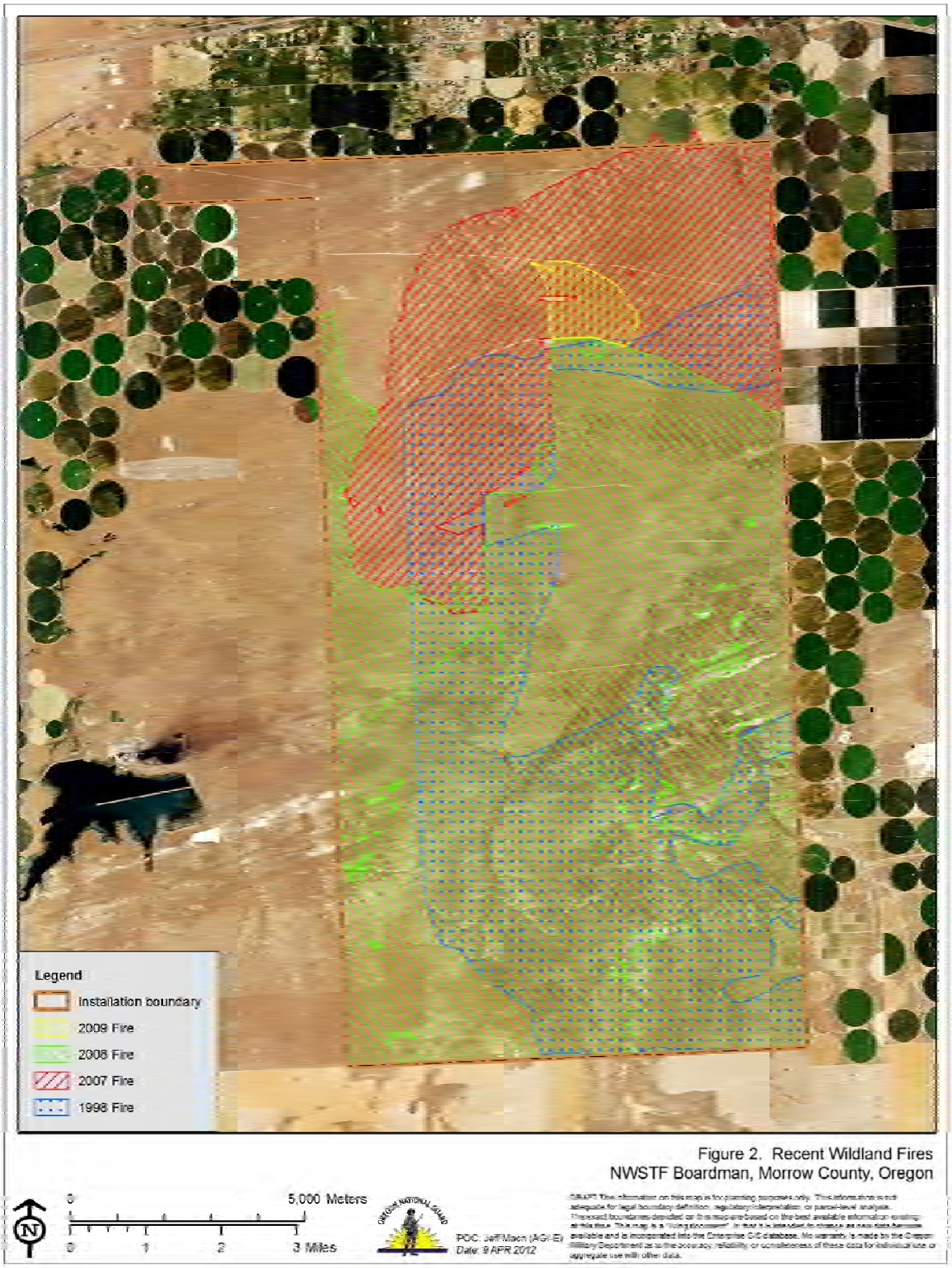

Figure 2. Locations of the wildland fires on NWSTF Boardman since 1998

3 Fire Management Area Characteristics

3.1 Wildland fuels

At a coarse scale, the area of the NWSTF Boardman is classified as dry shrub land. This dry shrub land is a remnant of the dry shrub sagebrush steppe of the interior Columbia River basin. The grass, forbs and shrub communities in the interior Columbia Basin, particularly the sagebrush and shrub steppe cover types, have been altered over time (ICBEMP Strategy, 2003), principally through historic grazing and fire suppression practices. The Interior Columbia Basin Ecosystem Management Project (ICBEMP) identified twenty-nine potential vegetation types representing rangeland ecosystems within the interior Columbia Basin. The ICBEMP combined these vegetation types into six groups; two of which are found at NWSTF Boardman: dry grass and dry shrub (ICBEMP, 1997). However, on NWSTF Boardman, these two vegetation groups, dry grass and dry shrub, actually represent separate seral stages in the development and life cycle of the big sagebrush steppe ecosystem and are considered here as meeting the reference conditions for the "Sagebrush – Warm (Basin Big Sagebrush) Without Trees" potential natural vegetation group (PNVG) or biophysical setting (BPS) according to the Interagency Fire Regime Condition Class (FRCC) Guidebook and website (Hann, *et al*, 2003). Figure 3 illustrates the various potential vegetation pathways within the sagebrush steppe cycle (ICBEMP, 1997). Wildland fire, particularly the return frequency of wildland fire, is a key component in splitting the natural cycle into the three pathways illustrated in Figure 3. In resetting the vegetation seral stage of burned areas against the backdrop of unburned areas, wildland fire creates of mosaic pattern of juxtaposed seral stages from early, through mid-development, to late seral stages across the landscape. Table 3 provides a synopsis of the fire regime condition class data.

Historically, the early settlers of the Columbia Plateau region started livestock grazing soon after the Civil War, mid to late 1860's (Quigley, et al, 1996). By present day standards, the region was overgrazed by the late 1800's resulting in significant changes to the native vegetation communities and several collapses in range land grazing starting in the 1890's into the 1920's due to the general decline in rangeland vegetation conditions. However, grazing activities continued on NWSTF Boardman until the late 1990's. Consequently the current sagebrush steppe plant community is not entirely representative of pre-settlement sagebrush steppe conditions.

The INRMP (US Navy, 2012) identifies the numerous plant species found on NWSTF Boardman. The INRMP groups the plant species into six major plant associations. These plant associations are: Big Sagebrush with Bluebunch Wheatgrass; Big Sagebrush with western Needle-and-Thread Grass; Bluebunch Wheatgrass and Sandberg's Bluegrass; Antelope Bitterbrush with Western Needle-and Thread Grass; Western Needle-and Thread Grass with Sandberg's Bluegrass; and Snowy Buckwheat with Sandberg's Bluegrass. These six plant associations represent seral stages in the sagebrush steppe cycle and collectively make up the surface fire fuels that carry wildland fires on the Range. Due to the semi-arid climate conditions and sandy soils, there is not an accumulation of ground fuels to carry a fire nor is there a canopy of aerial fuels that will carry a crown fire. Consequently, surface wildland fire in the fine grass-shrub fuels is the dominant fire spread condition on NWSTF Boardman.

The major wildland fires of 1998, 2002 and 2007 on NWSTF Boardman significantly affected the current distribution of seral sagebrush steppe vegetation; hence class distribution of wildland fire fuels. These fires were stand replacing for much of the Big Sagebrush that once covered portions of the central area of the NWSTF Boardman project area. Whether these burned areas were formerly in mid or late seral stages can no longer be determined, however, the fires did reset conditions in much of the north and central fire management zones back to an early seral stage dominated by native bunch grasses and herbs coupled with invasive non-native grasses. Carson (2005) discusses the fire adaptability of Big Sagebrush and other major plant species on NWSTF Boardman, noting that Big Sagebrush is "readily killed when the above ground plant parts are charred by fire". During field investigations in 2005, observations were made of

dead charred limbs and trunks of sagebrush in areas where no living big sagebrush currently grow, sites now dominated by annual or perennial grasses with only a minor small shrub component. Figure 4 documents some of these field observations of the charred remnants of Big Sagebrush in an area now dominated by bunchgrass. Figure 5 illustrates the now uniform early seral stage grass steppe which covers much of the central area of NWSTF Boardman, replacing the former sagebrush steppe. This photo also illustrates the very low relief of NWSTF Boardman's central plain. Figures 6 through 9 document several of the sagebrush steppe seral stages and illustrate current fuel types on NWSTF Boardman. Carson (2005) provides a further discussion of the wildland fire fuels and the fire regime at NWSTF Boardman.

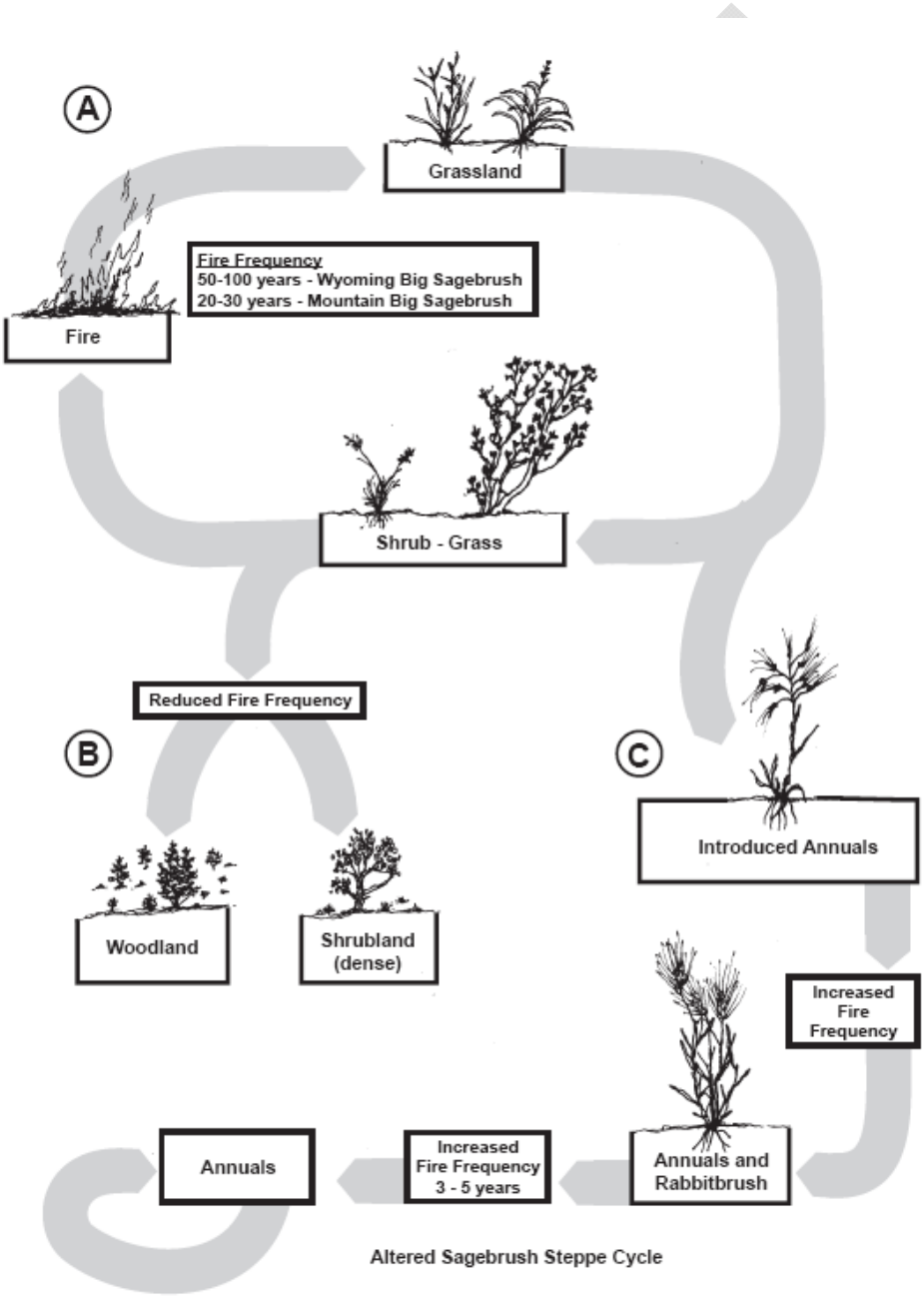

Figure 3: Sagebrush Steppe Plant Successions: The Interior Columbia Basin Ecosystem Management Project (ICBEMP) illustrates three common pathways of plant succession for the Columbia Basin dry shrub sagebrush steppe. Pathway A represents a succession from native perennial grassland to a mixed

shrub-grass community with fire acting to return the community back to the native perennial grassland. Pathway B represents a succession diverting from shrub-grass dominate community towards a dominate shrub land or juniper woodland by a reduction of the fire frequency. Pathway C represents a succession diverting from a shrub-grass dominant community towards a community dominated by introduced annual grasses characterized by an increase in the fire frequency. (Illustration from: ICBEMP, 1997)

Figure 4: Photograph of charred Big Sagebrush remnants in an area currently dominated by bunch grasses in December, 2005. Location of this site is west of the proposed east side range development area within the Central Fire Management Zone. The large number of charred remains indicates that this area once sustained a large stand of Big Sagebrush which suffered a stand replacing wildland fire.

Figure 5: This aerial view of NWSTF Boardman looking southeast across the area of the proposed MPMG range, within the Central Fire Management Zone, shows the uniform grass steppe which covers much of the Boardman Range. This uniform grass steppe is the result of the major wildland fires of 1998,

2002 and 2007 which replaced stands of Big Sagebrush and other shrubs with a dominance of grasses (Fuel Models L or GR4).

Figure 6: Early seral stage, post fire, dominant short perennial bunch grass fuels of heights less than 2 feet (Fuel Models L or GR-4) in the vicinity of the proposed MPTR range project within the Central Fire Management Zone.

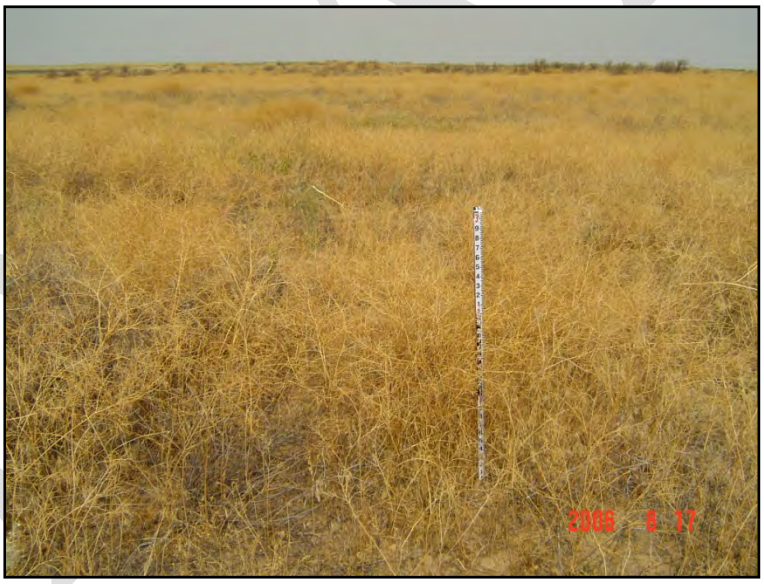

Figure 7: Early seral, post fire, mixed grass and small shrub fuels of heights less than 3 feet (Fuel Models L or GS-2) downrange of the proposed MPTR range project within the Central Fire Management Zone. A mosaic pattern of scattered Big Sagebrush can be seen in the background.

Figure 8: Mid seral stage, open (<15%), mixed Big Sagebrush, shrub and bunchgrass fuels near the Oregon Trail, east of Juniper Canyon within the South Fire Management Zone (Fuel Models L or GS2).

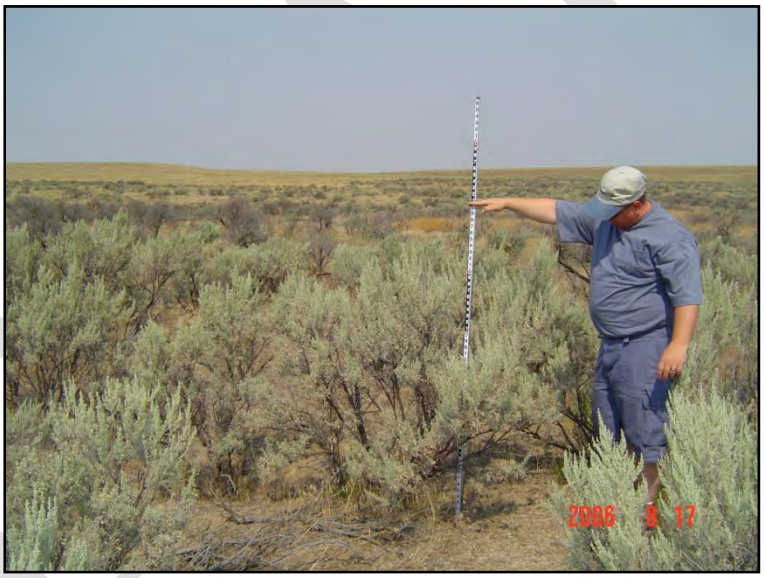

Figure 9: Late seral development, closed (>15%), Sagebrush steppe fuels with brush heights ranging from 4 to 5 feet with non-native annual grass understory (Fuel Models T or SH-5). This Big Sagebrush stand is near the outflow of Juniper Canyon onto the central plain within the Central Fire Management Zone. The central plain is seen in the background and represents the mosaic of early seral stage sagebrush steppe against the late seral development stage.

Table 3: Vegetation data table showing potential natural vegetation group or biophysical setting, mean fire interval (MFI), dominant fire regime, stand replacement probability due to wildland fire for NWSTF Boardman. Data table follows standard fire regime condition class terminology and definitions (Hann, Wendel; Havlina, Doug; Shlisky, Ayn, et al, 2003, Interagency and The Nature Conservancy Fire Regime Condition Class Website: USDA Forest Service, US Department of the Interior, The Nature Conservancy, and Systems for Environmental Management [http://www.frcc.gov]).

Potential Natural Life Form	Biophysical Life Form	PNVG/BPS	Class	Seral Stage	Percent of natural landscape (%)	Mean Fire Interval (MFI)	Dominant Fire Regime	Percent Stand Replace Potential (%)	Fire Regime Condition Class (FRCC)
Shrub land	Shrub dominated uplands - sagebrush, bitterbrush	Sagebrush – Warm (Basin Big Sagebrush) without trees (PNVG Code: BSAG1)	**A:** Post-fire replacement	Post fire community of forbs and perennial grasses (*e.g.*: Figure X8(a&b))	25%	24	II, primarily short-interval (e.g. <25 yr) stand replacement and mixed severity fires	61%	1
			B: Mid-development closed	Mid-seral, dense (>15%) canopy cover sagebrush stands with understory of forbs and grasses	20%				1
			C: Mid-development open	Mid-seral, open (<15%) sagebrush community with perennial grasses and forbs in interspaces. (*e.g.*: Figure X8(c))	25%				1
			D: Late-development open	Late-seral, open (<15%) sagebrush community with limited shrub/herbaceous community	15%				2
			E: Late-development closed	Late-seral, closed (>15%) sagebrush community, noticeable dead component with limited shrub/herbaceous community (*e.g.*: Figure X8(d))	15%				2

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Table 4: Table of fuels classification within the NWSTF Boardman project area. Fuels within the project area are classified by either the National Fire Danger Rating System (NFDRS) or by the Fire Behavior Prediction System (FBPS). The FBPS has been recently revised (Scott and Burgan, 2005) and consequently this table provides a cross walk between the NFDRS classifications, the older FBPS fuel model classification (Anderson, 1982) and the revised FBPS fuel model classification (Scott and Burgan, 2005).

Wildland Fire Fuel Models Identified at NWSTF Boardman				
Fuel Descriptions	**Photograph**	**NFDRS Fuel Models**	**FBPS Fuel Models**	
			(Anderson, 1982)	(Scott & Burgan, 2005)
Annual Grasses		A	1	GR-2
Western Perennial Grasses	Figures 5 & 6	L	1	GR-4
Mixed Grass and Shrub	Figures 7 & 8	L	2	GS-2
Sagebrush	Figure 9	T	2 and 6	GS-2 and SH-5

3.1.1 Wildland Fire Behavior Fuel Models

A number of wildland fire fuel models have been developed over the past four decades to bring uniformity to fuel descriptions and compute fire danger and fire behavior. Table 4 presents a compilation of the most common fuel model descriptions and relates these to wildland fire fuel conditions on NWSTF Boardman and the photographic illustrations presented above. The common fuel model descriptions are: the National Fire Danger Rating System (NWCG, 2002), the fire behavior models of Anderson (1982) and the most recent by Scott and Burgan (2005). These fuel classifications are based upon the fire behavior of these fuels under active burning conditions and do not directly correlate to plant community associations, potential natural vegetation group seral stages, or biophysical setting.

Carson (2005) modeled potential wildland fires for the NWSTF Boardman fuels. By varying the parameters and assumptions used, Carson modeled six potential wildland fires on Boardman. Known parameters are terrain and fuels. The fire weather assumptions input by Carson are based on mean parameter values and do not represent the most extreme potential fire weather conditions found on the Range. Output data from the models include probable fire rate of spread and flame length for the given terrain and fuel parameters, and fire weather assumptions. Of the six models, only two produced flame lengths of approximately 4.7 feet or less that would allow for direct wildland fire attack by hand crews. Modeled flame lengths varied from 4.7 feet up to 11.2 feet. The potential rates of spread for the modeled wildland fires were 112 chains per hour up to 270 chains per hour. These fire spread rates exceeded the fire line production rate for hand crews with the upper values exceeding production rates for tractors (NWCG, 2004). Consequently, based on Carson's modeled wildland fires and if not caught early enough while still small, indirect attack procedures are the most probable fire suppression tactics for the Boardman Range. Output data from Carson's modeling appears to agree with fuel type data for flame length and rate of spread as graphed in Scott and Burgan (2005). Note that in the models, assumptions for fire weather conditions approximated mean fire weather conditions and not the potential extreme fire weather conditions.

3.2 Natural and cultural resource considerations

Wildland fire management on NWSTF Boardman implements the natural and cultural resource conservation direction given in the INRMP and in the Integrated Cultural Resources Management Plan (ICRMP).

The primary natural resource considerations are to protect juniper trees, native sagebrush stands, and native perennial grasses from wildland fire as much as possible.

Natural resource implications for fire management include:

- Aggressively, but safely, suppress all wildland fires in or threatening juniper trees, native shrub stands, and native perennial grasslands
- Do not use tracked vehicles in fire suppression

Cultural resources on NWSTF Boardman are primarily susceptible to fire management activities, not to fire damage.

Cultural resource implications for fire management include:

- Notify Cultural Resources Manager if any cultural resources are found during fire management activities. For further guidance, refer to the NWSTF Boardman Integrated Cultural Resources Management Plan, Standard Operating Procedure 3: Accidental Discovery of Archaeological Sites or Burials. Also attached to this IWFMP as Appendix H.
- Do not use tracked vehicles or ground disturbing fire fighting methods on or across remnants of the Oregon Trail or known archaeological sites for either fire management or fire suppression.

3.3 Organization and responsibilities

Naval Air Station Whidbey Island has overall responsibility for wildland firefighting activities on NWSTF Boardman. The Oregon Military Department (OMD) is responsible for wildland firefighting activities occurring at Oregon Army National Guard (ORARNG) training facilities located on NWSTF Boardman. All OMD wildland firefighting actions are coordinated with NAS Whidbey Island and NWSTF Boardman staff who will be trained in accordance with the National Wildfire Coordination Group (NWCG) standards.

For the OMD, the fire budget will be the responsibility of the Fire Management Officer or his/her designated representative (FMO). The OMD Fire Captain reports to the FMO and ensures full time and seasonal firefighters are trained to the appropriate levels in accordance with the NWCG standards and is responsible for their scheduling and pay. Based on the annual ORARNG training range schedules and forecasted fire potential, seasonal firefighters will be hired and trained to provide wildland fire suppression accordingly.

3.4 Personnel training and certification standards and records

The OMD Fire Captain will maintain a Crew Boss or higher standard and the Navy is in the process of training all range personnel to maintain their Red Card certifications. All other OMD and NWSTF Boardman firefighters must meet the Firefighter Type 2 (FFT2) requirements established in the Wildland Fire Qualification System Guide, PMS 310-1 (National Wildfire Coordinating Group, National Interagency Incident Management System, November 2011) as a minimum to be able to engage in any fire operations. This standard requires completion of basic firefighter training and an annual safety refresher. The annual safety refresher must be completed proceeding each fire season. The Basic fire training and annual safety refresher will be coordinated by either the OMD or NAS Whidbey Island Fire

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Programs using qualified instructors, and is ultimately the responsibility of NRNW Fire and Emergency Services Training Division.
All personnel engaging in fire activities must meet the arduous physical fitness level established in the PMS 310-1. This standard requires passing the pack test: completing a 3-mile hike with a 45 pound pack in 45 minutes. All OMD and NWSTF Boardman fire personnel will take the pack test annually, prior to beginning their firefighting duties. NWSTF Boardman fire personnel certification records are kept on file at NWSTF Boardman and with NRNW Fire Emergency Services Training Division. OMD certification records are kept by the FMO or designated training officer.

3.5 Interagency cooperation and mutual aid agreements

NWSTF Boardman has a mutual aid agreement with the Oregon Military Department's Camp Umatilla Oregon located within the confines of the Army's Umatilla Chemical Depot approximately 15 miles east of Boardman. A copy of the Memorandum of Agreement (MOA) is found in Appendix A. The MOA establishes a fire protection responsibility area for the NWSTF Boardman firefighters; identifies incident command, organization, and communications; and outlines the cooperators' capabilities and limitations. Under the MOA, Oregon Military Department resources may assist Navy and resources on wildland fires on Boardman and vice versa. Additional mutual aid agreements will be established with adjacent Rural Fire Departments and federal and state agencies in the region where appropriate and where mutually acceptable arrangements can be negotiated. NWSTF Boardman is bounded to the south by the Ione Rural Fire Department and on all other boundaries by the Boardman Rural Fire Department.

3.6 Mission considerations

To maximize safety for training units, wildland fire suppression activities will be conducted as quickly as safety permits. No suppression actions will be taken on wildland fires occurring within "exclusion areas" which are areas known or suspected to have Unexploded Ordnance (UXO) or white phosphorous and are depicted on Figure 11.

3.7 Military training restrictions

On high fire danger days during ORARNG live-fire training, the OMD FMO will recommend modifying the use of pyrotechnics (e.g. IED simulators, artillery simulators, flares, smoke grenades, etc.) Pyrotechnic devices may be fired in open-topped 55-gallon metal drums with fire extinguishers present. These drums mitigate the risk of fire and allow training to continue with minimal disruption. On very high and extreme fire danger days (Red Flag Warning, Fire Weather Watch); the OMD FMO will recommend disallowing the use of pyrotechnics. The range Officer in Charge (OIC) retains the authority to accept or reject recommendations made by the OMD FMO to limit or modify the use of certain munitions based on fire hazard, except in cases of extreme danger. Overall authority to permit training during extreme fire danger lies with NAS Whidbey Island Commanding Officer, who has delegated this responsibility to the Operations Office located at NAS Whidbey Island. Such an authorization would be coordinated through the NAS Whidbey Island Range Program Manager. Determination of fire danger is made based on the criteria established in Section 3.9, Fire Danger Indices.

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3.8 Wildland and Community/Urban Interface

3.8.1 NWSTF Boardman Firefighters and Structure Firefighting

NWSTF Boardman firefighters are not trained and therefore not permitted to suppress structural fires. The NWSTF Boardman firefighter's involvement in structure firefighting will be limited to suppressing the fire while still in wildland fuels or if the threat to loss of life is imminent.

3.8.2 Wildland and Community/Urban Interface

There are no communities or urban areas within NWSTF Boardman boundary. However, the Navy does have multiple structures within NWSTF Boardman. These are located primarily on the main Range Road near the center of the property. There are high-voltage wooden transmission lines located within the east boundary of the property running north/south. In addition, the ORARNG has proposed construction of several live-fire ranges and an Unmanned Aerial Systems building within the NWSTF Boardman range.

Structures outside of, but adjacent to the NWSTF Boardman include the McCarty Power Plant on the southwest boundary, the Boeing Test Facility just north of that, and rural agricultural residential areas along the north boundary. High value non-structural areas exist in the form of The Nature Conservancy's Conservation area adjacent to the southwest corner of the property, a tree farm along Bombing Range Road on the east boundary, pivot irrigation agricultural farming on the east, north, and west boundaries, and dry land farming activities on the southern boundary.

3.9 Fire Danger Indices/Risk Assessment

Fire danger indices correlate weather and fuel moisture data to potential fire activity and intensity. These indices are used to determine the need to modify or limit the use of pyrotechnics and certain munitions. Table 5 relates the fire danger rating (NWCG 2002) to the Burning Index (BI). The correlation of fire danger rating to BI is based on historical BI data and past fire activity. The Bureau of Land Management (BLM) Vale District Office in Vale, Oregon calculates the BI daily and broadcasts the index as part of the fire weather forecast.

BI is derived from a combination of how fast the fire will spread and how much energy it will produce. The BI value for a particular fuel type is roughly equivalent to ten times the potential flame length in that fuel. For example, a BI of 40 indicates a potential flame length of four feet.

Table 5: Fire Danger Indices

Fire Danger Rating and Color Code	Burning Index (BI)	Description	Recommended Military Considerations
Low (Green)	0-20	Fuels do not ignite readily from small firebrands. Most prescribed burns are conducted in this range.	None.
Moderate (Blue)	21-40	Fires are not likely to become serious and control is relatively easy. Fires burning in these conditions generally represent the limit of control for direct attack methods.	None.

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High (Yellow)	41-60	Fires may become serious and their control difficult unless they are attacked successfully while small. Machine methods are usually necessary or indirect attack should be used.	OMD Fire Captain will recommend firing pyrotechnics into open drums or altering firing times to hours with lower fire danger.
Very High (Orange)	61-79	Fires start easily from all causes and, immediately after ignitions, spread rapidly and increase quickly in intensity. The prospects for direct control by any means are poor at this intensity.	No pyrotechnics allowed, except with written authorization from NWSTF Boardman OIC/ NCOIC (authorized by NAS Whidbey Island Operations Office).
Extreme (Red)	80+	Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. The heat load on people within 30 feet of the fire is dangerous.	No pyrotechnics allowed.

Fire danger rating pocket cards (pocket cards) illustrate daily historic average BI and maximum BI for a given area and fuel model. Information displayed on these pocket cards can indicate how a particular day's index rates relative to historical ones. Pocket cards are distributed annually to NWSTF Boardman firefighters and a poster of the pocket card is posted at Range Control. The current Vale North pocket card covering the NWSTF Boardman area is found in Appendix E. BLM pocket cards are updated annually and can be found at the following web site.

http://fam.nwcg.gov/fam-web/pocketcards/pocketcards.htm#

Table 6 displays additional local weather conditions that have historically led to extreme fire behavior and large fire growth. All weather parameters are reported in the National Oceanic and Atmospheric Administration (NOAA), National Weather Service Fire Weather daily forecast found at the following web site. Breakpoint values are identified on the current Vale District BLM pocket cards.

http://radar.srh.noaa.gov/fire/

Table 6: Weather conditions indicative of extreme fire behavior potential

Fuel model	Weather parameter	Value
Sagebrush – grass	Wind (20')	>12 mph
	Relative humidity	< 19 %
	Temperature	> 82 deg F
	BI	> 55
	Haines	> 5
Western annual grasses	Wind (20')	> 12 mph
	Relative humidity	< 14 %
	Temperature	> 91 deg F
	BI	> 44
	Haines	> 5

Note: Fuel models group vegetation based on potential fire behavior, not actual vegetation composition.

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3.10 Safety and emergency operations

During an actively burning fire, the Incident Commander on the ground will have overall authority; however, all safety and emergency operations are coordinated through Range Control. Any need to evacuate the NWSTF Boardman due to wildland fire will be communicated to personnel by Range Control. Medical emergencies requiring evacuations are also coordinated through Range Control.

3.11 Public relations

The NAS Whidbey Island Public Affairs Officer will provide public information for any fires on NWSTF Boardman. If a fire is related to ORARNG training, then the ORARNG Public Affairs Office will coordinate with the NAS Whidbey Island Public Affairs Officer.

4 Wildland Fire Operations

NWSTF Boardman firefighters respond to all wildland fires on the training area and those offsite that are covered by mutual aid agreements. At no time will the ORARNG or OMD fire fighting assets be used for other than wildland fire without approval from the FMO.

4.1 Fire Protection Resources (Availability/Requirements)

There is no organized career fire department located at NWSTF Boardman. The Navy has an authorization for six full time personnel at the range; however, the number actually on site varies at any given time. The NAS Whidbey Island Air Operations is responsible to maintain appropriate Naval personnel and needed support equipment for initial wildland firefighting capability and to maintain fire breaks. NAS Whidbey Island funds the rental of a tractor during the peak fire season, used by assigned personnel to maintain existing fire/fuel breaks as discussed in Section 4.2 of this plan. All personnel assigned wildland firefighting duties must maintain Red Card certification and be properly equipped and protected. .

In addition, the OMD provides additional fire fighting personnel and equipment when live-fire ranges are active during the fire season.

These Navy and OMD personnel are not stationed at the bombing range on a 24/7 basis. There are times during non training hours when there are no Seabees or Soldiers on duty, and the main gate is secured During these periods, NWSTF Boardman personnel, in coordination with ORARNG or OMD personnel, will monitor the NOAA weather website for fire watches and warning and a Lighting Tracker program.

These Navy and OMD personnel provide an initial wildland fire response force capable of containing a small fire or, when augmented by outside agency assistance, in extended wildland fire operations. This initial response force is critical as a first line of defense to contain a small fire and in providing initial efforts to prevent a wildland fire from spreading beyond the installation boundaries.

4.1.1 Personal Protective Equipment

All firefighting personnel will be issued and will carry personal protective equipment (PPE) that meets the minimum standards identified by the National Fire Protection Association (NFPA) and the NWCG:

- Flame-resistant Nomex pants and shirts
- Eight-inch (minimum) leather boots with Vibram sole
- Hard hats
- Gloves
- Eye and ear protection
- Fire shelter with carrying case and harness

4.1.2 Current Assets

NWSTF Boardman firefighters have nine vehicles assigned to them; however, only two are used for actual firefighting operations, a dedicated firefighting vehicle (Type VI Brush truck) and a GSA truck that has a 250-gallon firefighting skid unit mounted. The type VI Brush Truck and skid unit are Navy-owned assets assigned to NRNW F&ES and loaned to the NWSTF Boardman through an agreement with the CNRNW and the installation and maintained by N4 for all fuel and required maintenance. There is an old fuel truck converted for use as a 1000-gallon water tender. The converted fuel truck is not included on the plant accounts and is therefore not eligible for maintenance funding. The installation is slated to receive another Navy-owned asset (to replace the current tender) that will provide 1000 gallons of water via a converted Aircraft Rescue & Firefighting Vehicle. In addition, the Navy leases a tractor and disc during the four month fire season to maintain fire/fuel breaks. In extreme situations, the tractor could also be used for incipient wildland fire suppression efforts when the application of foam lines are unavailable, exhausted, or ineffective.

At minimum, the OMD supplies an additional modern Type VI engine when conducting live fire training on NWSTF Boardman. In extreme situations, the OMD can provide two Type VII and three Type VI engines, as well as aviation assets.

4.1.3 Aerial resources

A helicopter will be available for water or foam drops during ORARNG live-fire training events when the OMD FMO has determined that conditions warrant. The helicopter must be requested through Range Control and the ORARNG G-3 office to the ORARNG State Army Aviation Officer for final approval and coordination. Planned training events that may require aviation support will be coordinated at least two weeks in advance. Emergency requests for aviation support will be coordinated through the ORARNG Joint Operations Center (JOC). All aviation support will be dependent on availability. Through a Mutual Aid Agreement between the Navy and the OMD, aviation resources may also be able to support non-ORARNG training related firefighting on NWSTF Boardman at Navy request. In addition, Navy and OMD are exploring the potential to secure on-call services for Fixed Wing Initial Attack support during fire season, in cooperation with the Oregon Department of Forestry.

4.1.4 Water sites

Water supply on the range is very limited. There are two 10,000 gallon poly water storage tanks and two 5,000 gallon storage tanks which feed a fill connector hose for the fire vehicles. A deep well is located near the main facility building, but it is out of service awaiting repair. The Navy is currently in the process of evaluating the integrity of existing water storage tanks and the capabilities of existing water re-supply for both ground and aerial firefighting.

The ORARNG has an agreement with the Carty Power Plant to use their Cooling Pond as a dip source for helicopter firefighting activities.

4.1.5 Mutual Aid Agreements

NWSTF Boardman had a mutual aid agreement with the US Army's Umatilla Chemical Depot. However, the Depot completed its mission in late 2011 and is in the process of closing down through the Base Realignment and Closure (BRAC) process. Currently the UCD fire department responsibilities have been transferred to the Oregon Military Department under a "Caretaker" arrangement and a new Mutual Aid Agreement between NWSTF Boardman and the OMD has been developed.

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4.2 Prevention

In the course of developing this IWFMP, the Navy and OMD wildland fire personnel reviewed the existing fire/fuels break system at NWSTF Boardman to determine what modifications should be implemented to improve their effectiveness. This review included analyzing historical fire data, typical weather conditions, and better understanding the function of fire/fuel breaks, and tradeoffs between prevention/suppression of wildland fires and management of natural resources. Clear from this analysis is the understanding that on-site firefighting capability (trained personnel, equipment, and effective SOPs) will be more effective in extinguishing wildland fires early, than any number of fire/fuel breaks, regardless of size or composition. Fire/fuel breaks are one tool of several available to support firefighters' ability to contain and extinguish wildland fires quickly.

Permanent firebreaks, typically of a width 4 times the height of adjacent downwind fuels, are designed to help prevent fires from advancing and slow down the rate of spread during low wind speeds, providing firefighters an anchor point for direct or flank attack, and a means of escape should the fire suddenly flare. Given the fuel regime and typical fire season weather patterns at NWSTF Boardman, permanent fire/fuel breaks are effective roughly 50 percent of the time and more so when the potential ignition location is well defined such as live-fire training ranges, as opposed to random lightning strikes. Application of temporary foam breaks in closer proximity to emerging wildland fires can be a more effective method to contain these lightning strike fires early, effectively reducing their spread and damage. During periods of moderate or extreme wind speeds, permanent fire breaks can provide a means of egress and a point at which firefighters can set back burns. These uses were evident during the fires of 1998, 2007 and 2008, where most firebreaks were breached in places and the fires were finally stopped with substantial back burns. The downside to permanent fire breaks from a natural resources management perspective is that they contribute to a loss of native habitat, blowing sand events, wind erosion, and promote invasive cheatgrass establishment (which, in turn, can create additional fuel loading issues).

Given that the prevailing winds during fire season are from the west and south, the Navy has determined that permanent fire breaks need to be east and north of major ignition source areas, and west and south of resource protection areas to be most effective. Lightening strike ignition sources occur evenly across the range from east to west, but seem to increase from north to south, possibly due to elevation rise. The primary training ignition source areas would be within the existing main target area and the proposed Multi-Purpose Machine Gun Range, Convoy Live-Fire Ranges, and Multi-Purpose Training Range. Based on this analysis, the following recommendations, also depicted in Figure 10, will be addressed in a phased approach.

- Existing disked firebreaks will be maintained along Bombing Range Road to help prevent escape of a wildland fire off of NWSTF Boardman, and the existing firebreak along the northern property boundary will be maintained and extended further to the west to help provide additional protection against escape.
- The existing road and disked firebreak that brackets all sides of the main target area will be maintained to help prevent escape of wildland fires from known ignition sources within the target area.
- Primary roads such as the "Interstate" running north-south, the main entry road to the compound running east-west, and a number of other roads on the northern end of the installation will be maintained; however, the disked firebreaks adjacent to these roads will be converted to fuel breaks with the establishment of low growing native species. This revegetation effort would likely include both herbicide applications and a mowing regime to reduce the likelihood of cheatgrass.
- The existing firebreak and road running north from the main target area past the compound and along the west side of the white phosphorous exclusion area will be maintained.

- The two disked firebreaks without associated roads that run east-west from Bombing Range Road to the east edge of the main target area, and from the west edge of the main target area to the "Interstate" will be eliminated as the priority protection areas are located south of these two breaks.
- A new fire break will be disked along an existing two-track road along the east side of the white phosphorous exclusion area in order to fully bracket all sides of this potential ignition source area (the Navy would conduct appropriate consultations under Section 106 of the National Historic Preservation Act prior to disking new fire breaks).
- Old grazing-related fences will be removed beginning with those adjacent to existing roads and firebreaks. These fences are no longer needed and compromise the effectiveness of the firebreak system by collecting significant accumulations of fuel loading in the form of tumble weeds.
- Though not under management control of either the Navy or the OMD, there are several north-south trending roads outside the west boundary of NWSTF Boardman that may help to protect the installation from slow moving fires originating on the 20,000-acre Conservation Area.
- Most of the proposed range improvement infrastructure projects will likely include firebreak features around them to help protect capital investments and to prevent potential wildland fires from live-fire training operations from escaping the immediate range areas.
- All units training at NWSTF Boardman are to be briefed on wildland fire hazards. Briefings include instructions on reporting fires to Range Control, and procedures for fires occurring down range.
- On high, very high and extreme fire danger days, the OMD Fire Captain will recommend modifying, limiting, or prohibiting the use of pyrotechnics.

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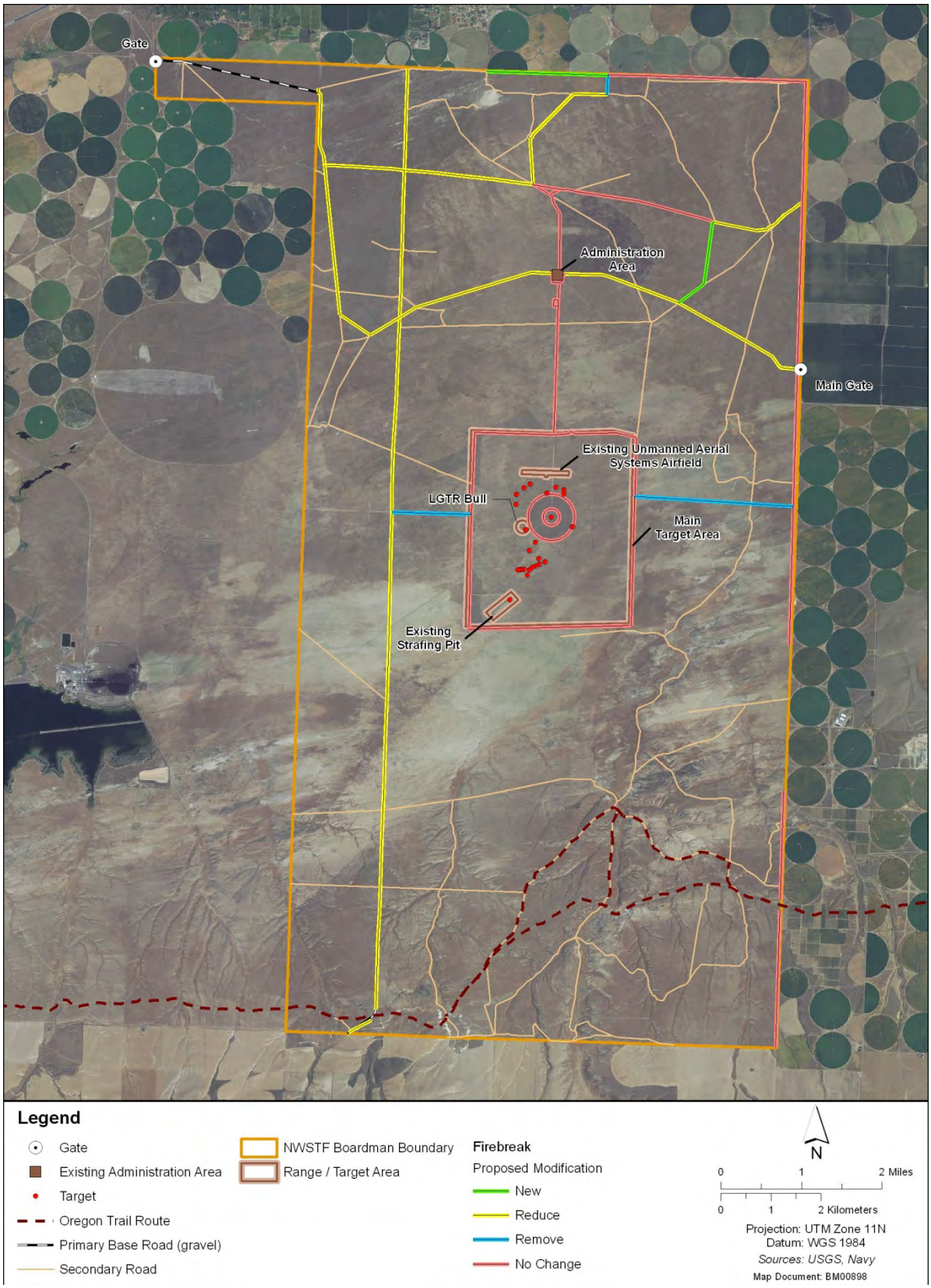

Figure 10. Firebreak analysis recommendations

4.3 Detection procedures

All personnel using or working on the NWSTF Boardman are responsible for detecting and reporting wildland fires. All wildland fires must be reported to Range Control.

4.4 Dispatch procedures

4.4.1 Fires on Live Fire Training Ranges

This applies to fires reported on any of the live-fire training ranges during active training days. Wildland fire reported to Range Control

- Range Control requests an approximate location
- Range Control will "check fire" all ranges affecting the wildland fire area
- Range Control dispatches firefighters down range
- Firefighters will notify Range Control when fire is extinguished and all firefighting personnel and equipment are clear
- Range Control will declare range "Hot" and training will resume

4.5 Suppression

4.5.1 Staffing

During ORARNG live-fire range training operations, OMD seasonal firefighters and NWSTF Boardman firefighters in addition to the OMD Fire Captain will be available, especially during fire season. The firefighters will work as engine crews of two or more. The number of crews on duty at any time will depend on fire danger and range activity, although all firefighters will be scheduled for 40 hours per week.

The OMD Fire Captain may determine that a fire watch is necessary during periods of high fire danger, when red flag warnings have been issued, or when night training activities are scheduled. The fire watch will be staffed by one fire crew; from 1200 to 2200 (exact times may change). Fires when Range Control is not on duty will be reported to the Military Point of Contact (MPOC). The fire crew on duty will then notify the OMD Fire Captain who will in turn notify any additional firefighters. The OMD Fire Captain will notify the Range Control emergency contact and request that Range Control be staffed.

4.5.2 Priorities

Firefighter and Soldier safety is the top priority.

Because of the potential for a wildland fire to spread and escape the installation, suppression of all wildland fires is a priority. Suppression actions taken to protect infrastructure and to prevent wildland fires from reaching exclusion areas or progressing off site will be conducted as first priority and as quickly as safety permits. In addition, four types of natural resource areas have been identified as priority areas for protection, if possible (Figure 11). Fire suppression at NWSTF Boardman is based on a Minimum Impact Suppression Techniques (MIST) strategy, such as using foam lines where possible to minimize impacts to natural resources. The priority for natural resources protections is the following:

1. Areas containing juniper trees used as raptor nesting sites;
2. Sagebrush stands which have not burned in recent fires;
3. The three Research Natural Areas; and
4. Areas which are showing good recovery after the recent wildland fires

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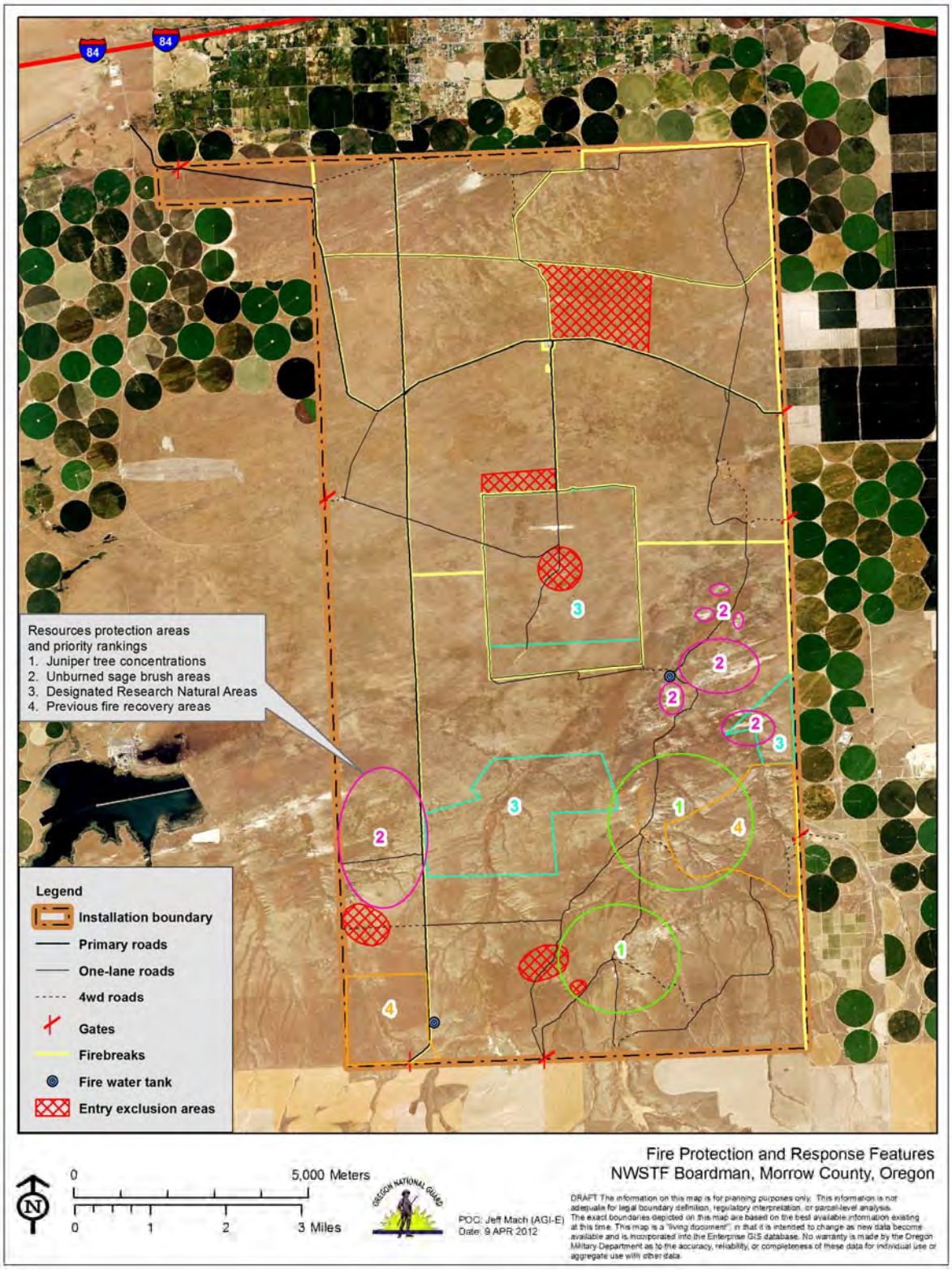

Figure 11 shows priority protection areas.

4.5.3 Pre-positioning firefighting resources

During ORARNG live-fire training and if staffing permits, one fire crew will be stationed by each range in use. If staffing is limited, one fire crew will be stationed by each of the active ranges with high fire danger or mid-way between two active ranges.

On high, very high and extreme fire danger days, the OMD FMO will recommend pre-positioning of an ORARNG HH-60 Blackhawk helicopter with a "Bambi-bucket" at NWSTF Boardman during live-fire training; a CH-47 Chinook helicopter with water bucket on standby at the ORARNG Army Aviation Support Facility located in Pendleton; or once an agreement is in place a Single Engine Attack Tanker (SEAT) on standby either at the Eastern Oregon Regional Airport (Pendleton) or other airport in the vicinity.

4.5.4 Hazards

Firefighting on the NWSTF Boardman presents multiple hazards in addition to those typically present in the wildland fire environment. These hazards demand heightened situational awareness:

- Flashy fuels
- Frequent strong winds, typically from the southwest
- UXO or white phosphorous in areas shown in Figure 11 as "exclusion areas"
- Potential for stray fire from adjacent ranges
- Potential for accidental fire from range on which wildland fire is located

4.5.5 Fire suppression and post-fire reports

Once NWSTF Boardman Range Control dispatches firefighters downrange, the firefighters will:

- Suppress fire
- Estimate fire size
- Obtain 6-8 digit coordinates for fire
- Ensure fire is extinguished
- Exit range

Firefighters will notify Range Control upon exiting ranges. Firefighters will then rehabilitate their trucks and reposition themselves as necessary.

All fires will be reported to NASWI ODO and be input into the National Fire Incident Reporting System as soon as possible by NRNW F&ES personnel. Report will include location, size, and expected time of control.

NWSTF Boardman firefighters protect the origin of non-lightning caused wildland fires and, if needed, request a fire investigator from NRNW F&ES. Request for investigator will be submitted to Range Control. Range Control will then contact CNRNW Regional Dispatch Center. Wildland fire cause is tracked by the ORARNG in the Range Facility Management Support System (RFMSS).

4.6 Communications plan

All fire engines and fire personnel assigned to the NWSTF Boardman will have radios programmed with appropriate frequencies. Operators of equipment without mobile radios will be provided portable radios and all ground-to-ground fire traffic takes place on FM 140.450, all ground-to-air traffic will take place on either UHF 305.8 or VHF 126.2.

4.6.1 Extended attack procedures

The Incident Commander will report to Range Control any fire that cannot be controlled with OMD and Navy resources and will advise that additional resources are necessary. Range Control will contact

appropriate Mutual Aid organizations and the CNRNW Regional Dispatch Center directly to request additional resources. The cooperative fire protection agreements with Mutual Aid organizations cover billing for assistance on wildland fires.

After the incident is contained, the Incident Commander will submit a report of all actions prior to and after the escape including weather, resources on site, ignition sequence, suppression actions and other pertinent data.

4.6.2 Records, reports and monitoring

Firefighters call in a fire report to Range Control after every fire. These fire reports include:

- Date, time, location
- Approximate size
- Cause
- Fuel type
- Number of personnel and equipment, amount of water used

Reports are stored by the ORARNG in the RFMSS. Fire perimeters are mapped and stored in a Geographic Information System (GIS).

Year-end reporting to National Fire Incident Reporting System includes the total acreage burned on NWSTF Boardman and a breakdown of fire cause.

4.7 Rehabilitation needs and/or procedures

All fires over five acres will be evaluated by the Navy and OMD Natural Resources Staffs to determine rehabilitation needs. If deemed necessary, a seeding plan will be developed within 90 days of evaluation. Native seeds will be used if available. The Natural Resources Staffs determine post-rehabilitation monitoring needs on a site by site basis.

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5 References

Department of the Army 2002. Army Wildland Fire Policy Guidance. Memorandum dated September 4, 2002.

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Commander Navy Region Northwest (CNRNW), Fire and Emergency Services (F&ES) 2009. Wildland fire Management Plan. CNRNW F&ES, NAS Whidbey Island, Washington, USA.

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6 Appendices

6.1 Appendix A: Mutual Aid Agreement

6.2 Appendix B: Firefighter qualifications Description

6.3 Appendix C: Fire Danger Rating Card

6.4 Appendix D: Fire Report Form

6.5 Appendix E: NAS Whidbey Island Integrated Cultural Resources Management Plan (ICRMP), Inadvertent Discovery SOP (Draft)

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6.1 Appendix A: Mutual Aid Agreement

Memorandum of Agreement: 68742-20110927-0027

DEPARTMENT OF THE NAVY
COMMANDER, NAVY REGION NORTHWEST
1100 HUNLEY ROAD, SILVERDALE WA 98315-1100

DEPARTMENT OF THE ARMY
UMATILLA CHEMICAL DEPOT
78798 ORDNANCE ROAD, HERMISTON, OREGON 97838-9108

COMNAVREG NW
11320
Ser N80/ 4461
7 Nov 11

UMCD
11320
Ser

MEMORANDUM OF AGREEMENT
BETWEEN
COMMANDER, NAVY REGION NORTHWEST
AND
UMATILLA CHEMICAL DEPOT

Subj: WILDLAND FIRE SUPPRESSION

Ref: (a) DoD Instruction 4000.19 of 9 August 1995
(b) CNICINST 4000.1A of 1 March 2011
(c) CNICINST 3440.17
(d) 44 CFR, Part 151

1. Purpose. This agreement between Commander, Navy Region Northwest (COMNAVREG NW) and the Umatilla Chemical Depot (UMCD), is prepared in accordance with references (a) through (c) to secure for each the benefits of mutual aid in the protection of life, property and the environment from wildland fire incidents on the Naval Weapons Safety Training Facility Bombing Range in Boardman, Oregon (hereinafter referred to as the NWSTF) and the US Army UMCD in Hermiston, Oregon.

2. Background. NWSTF does not have an organic career fire department but has assigned six Naval Air Station Whidbey Island active duty Navy personnel who are trained and certified to the Wildland Fire Fighter II level in accordance with the National Wildfire Coordinating Group (NWCG) and maintain NWCG red card certification. These Navy personnel do not possess any additional firefighting, hazardous materials or EMS certifications. UMCD has DoD Fire & Emergency Services (F&ES) personnel on board their facility to provide for fire prevention and emergency response services.

3. Scope. This MOA applies specifically to wildland fire support at NWSTF and UMCD.

4. Period of Performance. MOA shall cover period from 1 November 2011 to 31 October 2017.

Subj: WILDLAND FIRE SUPPRESSION

5. Responsibilities.

a. NWSTF will:

(1) Dispatch available NWSTF firefighting equipment and personnel to the designated location within the UMCD upon request of a UMCD F&ES or Umatilla Operations Center representative, absent any competing F&ES requirements aboard NWSTF.

(2) Contact UMCD F&ES for assistance in wildland fire suppression support for incidents beyond NWSTF capabilities.

b. UMCD F&ES will:

(1) Dispatch available UMCD F&ES firefighting equipment and personnel to the designated location within NWSTF upon request of a NWSTF or COMNAVREG NW Dispatch Center representative, absent any competing F&ES requirements aboard UMCD.

(2) Contact COMNAVREG NW Regional Dispatch Center to request NWSTF assistance for wildland fire suppression support for any incident beyond UMCD F&ES capabilities.

6. Other Provisions.

a. Any dispatch of equipment and personnel pursuant to this agreement is subject to the following conditions:

(1) Requests for aid will specify the location to which the equipment and personnel are to be dispatched; however, the amount and type of equipment and number of personnel furnished will be determined by the responding organization.

(2) The responding organization will report to and be subject to the orders of the officer-in-charge of the requesting organization.

(3) The requesting organization will release the responding organization when the responding organization's services are no longer required, or when the responding organization is needed within its own fire protection area.

(4) All services provided by the parties are subject to the constraints of available resources (personnel, funds, and equipment).

(5) The Navy and Army expressly agree to comply with all applicable federal and state laws, rules and regulations while upon or within NWSTF or UMCD, or while undertaking action required by or related to this MOA.

(6) The parties hereto waive all claims against each party for compensation for any loss, damage, personal injury, or death occurring as a consequence of the performance of this agreement.

Subj: WILDLAND FIRE SUPPRESSION

(7) The personnel of both parties to this agreement are invited and encouraged, on a reciprocal basis, to visit each other's installation for guided familiarization tours consistent with local security requirements and to jointly conduct training drills.

(8) The respective Fire Chiefs or their designees are authorized and directed to meet and draft detailed plans and procedures of operation to implement this agreement. Such plans and procedures of operations shall become effective upon ratification by the signatory parties.

(9) A party is not mandated to render assistance under this agreement but a party receiving a request for assistance should immediately inform the requesting party if assistance cannot be rendered.

7. Point(s) of Contact

a. NWSTF: Senior Military Member: (360) 286-1072

b. COMNAVREG NW F&ES Fire Prevention Division: (360) 396-2355.

c. COMNAVREG NW Regional Support Agreement Manager: (360) 396-1935.

d. UMCD F&ES: (541) 564-5210

e. COMNAVREG NW Regional Dispatch Center: (360) 396-3333

8. Effective Date.

a. This MOA is effective upon the affixation of all signatures and shall remain in force until modified or terminated by mutual consent of the parties. Each party shall conduct an annual review of this agreement to evaluate its effectiveness and determine the need for continuation or modification. Requests for modification or termination by either party shall be in writing, at least 30 days in advance of the proposed effective date.

b. Unilateral termination by either party shall be forwarded by written notice to the other party at least 30 days in advance of the proposed termination date, unless mutually agreeable.

Subj: WILDLAND FIRE SUPPRESSION

KRIS N. PERKINS, LTC CM
Commanding Officer
Umatilla Chemical Depot

Date: 17 NOV 11

DAVE SLUSHER
Comptroller
Commander, Navy Region Northwest

Date: 10/31/11

G. J. JOHNSTON, CAPT, USN
Commanding Officer
Naval Air Station Whidbey Island

Date: 24OCT11

A. P. VERHOFSTADT, P.E.
Executive Director
Commander, Navy Region Northwest

Date: 11/7/11

4

6.1 Appendix B: Firefighter Qualifications Description

Wildland firefighting positions follow the Incident Command System (ICS). ICS places one person, the incident commander, in charge of all incident activities. The organization may be expanded or contracted based on incident complexity. For moderate to highly complex incidents, some or all command and general staff positions (safety, information, liaison, plans, logistics, finance/administration, operations) may be activated. Regardless of organization size, ICS seeks to maintain a ratio of one supervisor per three to seven personnel (NWCG 1994).

In wildland fire, ICS has pre-identified incident complexity levels, Type 5 through Type 1, that correspond to the minimum organization required for management. With both incident complexity and position level, a lower type number indicates higher complexity. For example, an Incident Commander Type 4 (ICT4) is qualified to manage a more complex incident than an Incident Commander Type 5 (ICT5). Similarly, a Type 1 firefighter (FFT1) has more qualifications than a Type 2 firefighter (FFT2). Qualification requirements for each position are described in PMS 310-1 (NWCG 2006).

Table 1 describes some of the characteristics of very low and low complexity incidents (typical for NWSTF Boardman), and Table 2 describes the primary function and responsibilities of the ICS positions recommended for NWSTF Boardman (NWCG 2004).

Table 1: Characteristics of low and moderate complexity incidents

Incident Type	Complexity	Characteristics
5	Very low	▪ Resources vary from one to five firefighters ▪ Incident is normally contained rapidly during initial attack ▪ A written action plan is not required ▪ Command and General staff positions are not activated
4	Low	▪ Resources vary from a single firefighter to several single resources (staffed engines, helicopters, air tankers, for example) ▪ The incident is limited to one operational period in the control phase. Mop-up may extend into multiple periods ▪ A written plan is not required ▪ Command and General staff positions are not activated

Table 2: Primary function and responsibilities of ICS positions recommended for NWSTF Boardman

Position	Primary Function	Responsibilities
Incident Commander (IC)	Responsible for all incident activities.	• Ensure that safety receives priority consideration in the analysis of strategic alternatives, and in all incident activities. • Assess incident situation, both immediate and potential. • Conduct risk assessment for all strategic alternatives. • Maintain command and control of the incident management organization. • Ensure safety and welfare of all incident personnel and the public is maintained.
Single	Responsible for	• Review assignments with subordinates and assign work tasks.

Resource Boss- Engine (ENGB)	supervising and directing a fire suppression module.	• Review current and predicted weather conditions and brief subordinates on expected fire behavior. • Ensure adequate communications with supervisor and subordinates. • Set up a backup chain of command to function when boss is absent. • Keep supervisor informed of progress and any changes. • Inform supervisor of problems with assigned resources. • Brief subordinates on safety items including escape routes and safety zones. • Obtain necessary equipment and supplies. • Provide for their welfare. • Monitor work progress.
Advanced Firefighter/ Squad Boss (FFT1)	Working leader of a small group (<7)	• Understand exactly what the supervisor wants • Ensure that personnel have proper safety equipment and tools and know how to care for and use them. • Look after the safety of assigned personnel.
Firefighter (FFT2)	Basic resource used in the control and extinguishment of wildland fires	• Perform manual and semi-skilled labor as assigned. • Ensure that objectives and instructions are understood. • Perform all work in a safe manner. • Keep personal clothing and equipment in serviceable condition. • Report accidents or injuries to supervisor. • Report hazardous conditions to supervisor.

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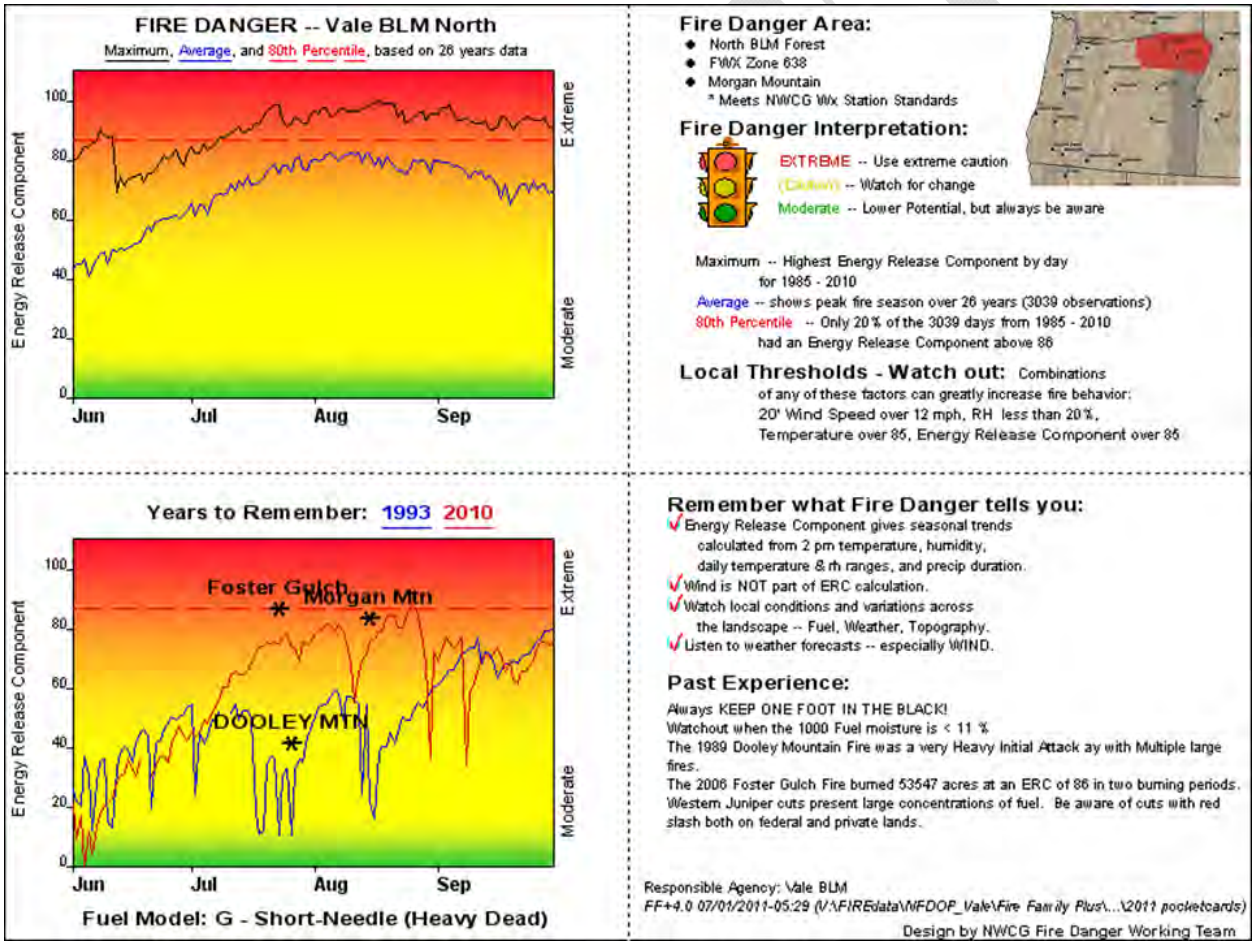
6.1 Appendix C: Fire Danger Rating Card

The Fire Danger PocketCard communicates information on fire danger to firefighters. The PocketCard describes seasonal changes in fire danger and gives firefighters a general indicator of the potential for the fuels to support extreme fire behavior. The PocketCard does NOT provide site specific fire behavior predictions. Daily fire danger indices, including the Burning Index (BI), are read as part of the weather forecast broadcast by the BLM Vale District Office.

PocketCards are updated annually to include the previous year's data. Updated cards are available at: http://fam.nwcg.gov/fam-web/pocketcards/pocketcards.htm#



Information contained on PocketCard and utility:

Section	Interpretation	Utility
Fire Danger (Chart)	▪ Title indicates area (Boise BLM) and fuel model (fuel model A, grass) that PocketCard applies to ▪ Chart graphs BI versus day ▪ Chart illustrates maximum and average daily values and plots 80th percentile BI ▪ Color background distinguishes extreme and moderate fire danger potential.	Firefighters can determine how the day's BI compares to the historical average and maximum
Years to Remember (Chart)	▪ Plots BI versus day ▪ Labels days with large fire occurrence ▪ Color background distinguishes extreme and moderate fire danger potential.	Firefighters can see the indices and time of year that have allowed large fire growth in the past.
Fire Danger Area	▪ Summarizes fuel model, fire weather zone, and weather stations used to create PocketCard	Firefighters can verify that they are looking at the appropriate card.
Fire Danger Interpretation	▪ Describes color background for charts ▪ Describes thresholds for maximum, average, and 80th percentile fire danger	Helps firefighters understand information contained on charts
Local thresholds	▪ Describes combinations of temperature, wind speed, relative humidity, and BI that greatly increase fire behavior	Gives firefighters thresholds for extreme fire behavior potential.
What fire danger tells you	▪ Explains components of BI ▪ Describes additional factors contributing to extreme fire behavior	Allows interpretation by inexperienced firefighters
Past experience	▪ Describes factors that have contributed to large fire growth in the past ▪ Gives large fire dates and acreages	Reminds firefighters of locally significant weather factors. In combination with 'Years to remember' chart, illustrates the potential for large fire growth under the right conditions.

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6.1 Appendix D: Fire Report Form

This form is the same as that used by the National Interagency Coordination Center and the Geographic Area Coordination Centers for tracking wildland fire activity on federal land. The common causes listed below the table are the same as those used and tracked in the Interagency (USDA Forest Service and USDOI Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and US Fish and Wildlife Service) wildland fire statistics database.

Unit Name: Naval Weapons System Training Facility Boardman
Agency: U.S. Navy

Date	Wildland fire Activity				Year to Date					
		New		Uncontrolled	Lightning		Human		Total	
	Cause	Fires	Acres	Fires	Fires	Acres	Fires	Acres	Fires	Acres

Common fire causes:

00. Military mission
01. Lightning
02. Equipment use (non-military)
03. Smoking
04. Campfire
05. Debris burning
06. Railroad
07. Arson
08. Children (playing with matches, for example)
09. Miscellaneous

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6.2 Appendix E: NAS Whidbey Island Integrated Cultural Resources Management Plan (ICRMP), Inadvertent Discovery SOP (Draft)

6.3 Standard Operating Procedure 3: Accidental Discovery of Archaeological Sites or Burials

Although implementation of this ICRMP will facilitate inventory of archaeological resources on NWSTF Boardman, the potential exists for accidental discovery of archaeological sites, even in inventoried areas. Survey techniques, though effective, cannot locate every site. Additional sites may lie amid dense vegetation or other obstructions. This SOP outlines procedures to be followed in case of accidental discovery.

6.3.1 Who is Responsible for Inadvertent Discoveries of Archaeological Resources?

The NAS Whidbey Island CRM is responsible for ensuring that accidental discoveries of archaeological materials are managed properly. The CRM must ensure that personnel involved in undertakings on NWSTF Boardman are aware of procedures to be followed in the event of accidental discovery.

6.3.2 Who are the Participants?

When archaeological materials are discovered during an undertaking, the participants are the personnel involved in the undertaking, the CRM, and the SHPO. Native American entities may also be contacted.

6.3.3 Procedures

1. Upon discovery of archaeological materials, personnel will report the finding of artifacts to the NAS Whidbey Island CRM and cease ground-disturbing operations in the area. The CRM may be contacted at:

   Lawrence Moore
   1115 W. Lexington Street
   Oak Harbor, WA 98278
   Phone: 360-257-6780
   E-mail: lawrence.moore1@navy.mil

2. The CRM will inspect the area but in most cases will not be able to assess whether the site reflects cultural or merely natural formations. If this occurs, the preferred alternative will be to move ground-disturbing operations to another location and include the area in future archaeological inventory.

3. If operations cannot be moved to avoid the site, NWSTF Boardman will either consult with the NAVFAC Northwest archaeological staff and request a brief on-site visit or enlist the services of a contract archeologist. Meanwhile, ground-disturbing activities will remain suspended. The SHPO will be notified. The consulting archeologist will determine if remains are archaeological artifacts.

4. If the site is determined to be naturally occurring, then no further investigation is necessary, and operations will continue. If the site is determined to be cultural, then the area will be treated as potentially eligible for the NRHP. That is, it will be protected as a significant cultural resource until a determination can be made of its NRHP eligibility. *Note:* The

consulting archeologist will file an Oregon Archaeological Site Form and may be able to make an immediate determination of eligibility if the site is clearly ineligible for the NRHP. SHPO must concur with determinations of eligibility.

5. If evaluation determines that the site is not eligible for inclusion in the NRHP, ground-disturbing activities may continue. If evaluation determines that the site is eligible for the National Register, the site will be protected or mitigated.

6.3.4 Human Remains

Upon the inadvertent discovery of human remains, the NAS Whidbey Island Cultural Resources Manager will be notified. The NAS Whidbey Island Cultural Resources Manager and the Construction Manager will stop work immediately if the contractor has not already done so. The area around the discovery will be flagged off to ensure no further disturbance. No photography of the remains will be allowed.

Naval Criminal Investigative Service (NCIS) will determine whether the discovery it is a crime scene. If the discovery is a crime scene, NCIS and the Coroner will proceed with the investigation. The Construction Manager will consult with NCIS and the Coroner to determine when and how near construction activities can resume near the find location. Work in the discovery location will not proceed until the crime scene investigation is complete and NCIS provides approval for the resumption of work to the Construction Manager.

6.3.5 Native American Human Remains

If the discovery site is not a crime scene and contains Native American burials, funerary items, or other objects of cultural patrimony, then NAS Whidbey Island will consult with Native American entities per NAGPRA as described below in section 6.5.

6.3.6 Non Native American Human Remains

If the discovery site is not a crime scene and NAGPRA does not apply, then the NAS Whidbey Island CRM will proceed in accordance with OPNAVINST 11170.2A (Appendix X).