

DRAFT FINDING OF NO SIGNIFICANT IMPACT (FNSI)
MASSACHUSETTS ARMY NATIONAL GUARD
PROPOSED CONSTRUCTION AND OPERATION OF A MULTI-PURPOSE MACHINE GUN
RANGE
CAMP EDWARDS, JOINT BASE CAPE COD
BARNSTABLE COUNTY, MASSACHUSETTS

1. Introduction

The Massachusetts Army National Guard (MAARNG) prepared an Environmental Assessment (EA) to identify and evaluate potential environmental effects from the proposed construction of a new Multi-Purpose Machine Gun (MPMG) Range at Camp Edwards, which is situated within Joint Base Cape Cod in Barnstable County, Massachusetts. This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA; 42 United States Code [USC] 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and 32 CFR 651 (Environmental Analysis of Army Actions, Final Rule, 29 March 2002). As set forth in Department of Defense (DoD) Directive 5105.77, *National Guard Bureau (NGB)*, the NGB is a joint activity of the DoD and as such must comply with the NEPA.

2. Description of the Proposed Action and Alternatives

Proposed Action. The Proposed Action includes the construction and operation of an eight lane MPMG Range with six lanes 800 meters long by 25 meters wide at the firing line and by 100 meters wide at a distance of 800 meters. The two middle lanes would extend an additional 700 meters to a distance of 1,500 meters long to accommodate the use of .50 caliber rifles. The range would include two primary components: (1) the physical range footprint, consisting of the firing positions, targetry, support structures, and associated facilities; and (2) the Surface Danger Zones (SDZs), the area where projectiles fired on the range would land based on the types of weapons and ammunition used.

The physical range footprint would consist of firing positions and lanes, targetry, and support structures. Construction activities would include up to 199.0 acres of disturbance and would require up to 170.5 acres of tree clearance to accommodate the range footprint, small arms range operations and control area facilities, utility extensions, access and maintenance road development, and firebreaks to reduce wildfire hazards from tracers and other ignition sources. Approximately 5,197 acres would be required for the MPMG Range to accommodate the SDZs associated with the proposed weapons and ammunition.

The MPMG Range would be available for all MAARNG units as well as other DoD organizations as scheduling permits. Under the Proposed Action, it is anticipated that Camp Edwards site usage could increase by up to 18.6 percent (or by up to 17,650 man-days) as a result of military personnel utilizing the MPMG Range.

The purpose of the Proposed Action is to provide the requisite range and training facilities at Camp Edwards to allow the MAARNG to efficiently attain small arms training and weapons qualifications requirements within Massachusetts. The MPMG Range would provide Soldiers and units the necessary modernized training capabilities to be effective in contemporary and future operating environments while meeting mission training objectives. The Proposed Action is needed to: 1) address shortfalls in required small arms training facilities and capabilities within Massachusetts, 2) allow multiple units to attain required weapons qualification levels simultaneously and efficiently, and 3) support the MAARNG's and other military users' Federal and State missions.

A MPMG Range does not currently exist within Massachusetts. To receive training on an MPMG Range and meet weapons qualifications standards and training requirements as set forth under Department of the Army (DA) Pamphlet (PAM) 350-38, *Standards in Weapons Training*, soldiers and units must travel to a nearby MPMG range, with the closest being Camp Ethan Allen in Jericho, Vermont, approximately 270

miles away. The need for travel causes the loss of critical training resources MAARNG units need and reduces the time available for conducting required training exercises at Camp Edwards. Implementation of the Proposed Action would support higher quality, mission-essential training activities at Camp Edwards, while limiting the need for out-of-state travel.

Alternatives Considered. NEPA, CEQ regulations, and 32 CFR 651 require all reasonable alternatives to be explored and objectively evaluated. Alternatives that are eliminated from detailed study must be identified along with a brief discussion of the reasons for eliminating them. For purposes of analysis, an alternative was considered “reasonable” only if it would enable the MAARNG to accomplish the primary mission of providing land, facilities, and resources at Camp Edwards and to meet the purpose of and need for the Proposed Action. “Unreasonable” alternatives would not enable the MAARNG to meet the purpose of and need for the Proposed Action.

The MAARNG considered but dismissed from further analysis the following unreasonable alternatives: 1) use a training site at another installation; 2) use an undisturbed area at Camp Edwards; 3) use a different existing range at Camp Edwards; 4) implement a standard-size MPMG range; and 5) use an alternate location 100 meters south of the Proposed Action.

The EA examines three alternatives in-depth, the Preferred Action Alternative, which would carry out the Proposed Action; the Reduced-Scale Alternative, which would carry out a modified, smaller version of the Proposed Action; and the No Action Alternative, which would not carry out the Proposed Action but is carried forward to provide a comparative baseline against which to analyze the effects of the Proposed Action, as required in CEQ Regulations (40 CFR Part 1502.14). Currently, Military Construction (MILCON) funding has not been appropriated for the implementation of the Preferred Action Alternative. At the time of programming the MPMG MILCON funding request, the MAARNG did not include a provision for the additional M2 lanes. As such, the additional features associated with this alternative (e.g., extension of the two middle lanes from 800 feet to 1,500 feet) are not currently funded. These additional features would need to be constructed at a later date.

3. Environmental Analysis

The potential environmental impacts associated with the Proposed Action are fully described in the EA. The EA identifies the environmental resources that could be affected by the Proposed Action, and determines the significance of the impacts, if any, to each of these resources. Based on the EA’s analysis, the MAARNG determined that the known and potential adverse impacts from the Proposed Action would be less than significant on land use and cover, air quality and climate, noise, soils, groundwater, biological resources, infrastructure, and hazardous and toxic materials and wastes. The implementation of Best Management Practices and Regulatory Compliance Measures specified in the EA, such as establishing a Noise Notification Protocol and implementing a 24-hour noise complaint point of contact, would further avoid or reduce less-than-significant impacts. Regional air quality may experience long-term beneficial impacts. The Proposed Action would have no effect on cultural resources.

4. Mitigation

Under the Preferred and Reduced-Scale Alternatives, no significant impacts would be anticipated; therefore, no mitigation measures are required.

5. Regulations

The Proposed Action would not violate NEPA, the CEQ Regulations, 32 CFR Part 651, or other Federal, state, or local environmental regulations.

6. Commitment to Implementation

The NGB and the MAARNG affirm their commitment to implement this EA in accordance with NEPA. Implementation is dependent on funding, and this project will be a Military Construction funded project. The

MAARNG and the NGB will ensure that adequate funds are provided to achieve the goals and objectives set forth in this EA.

7. Public Review and Comment

The final EA and draft FNSI will be made available for public review and comment for 30 days following publication of a public notice in the local newspaper *Cape Cod Times*. Copies of the final EA and draft FNSI will be available for public review online at <https://www.massnationalguard.org/ERC/publications.htm>.

The public may obtain information on the status and progress of the EA, as well as submit written comments on the EA during the 30-day public review period to: Keith J Driscoll, MAARNG, 2 Randolph Road, Hanscom Air Force Base, MA 01731 or via e-mail to Keith.J.Driscoll.nfg@mail.mil.

8. Draft Finding of No Significant Impact

After careful review of the EA, I have concluded that implementation of the Proposed Action would not generate significant controversy or have a significant impact on the quality of the human or natural environment. Per 32 CFR Part 651, the Final EA and draft FNSI will be made available for a 30-day public review and comment period. Once any public comments have been addressed and if a determination is made that the Proposed Action will have no significant impact, the FNSI will be signed and the action will be implemented. This analysis fulfills the requirements of NEPA and the CEQ Regulations. An Environmental Impact Statement will not be prepared, and the NGB is issuing this FNSI.

Date

Anthony Hammett
COL, EN
Chief, ARNG G9

Final

**Environmental Assessment for a
Multi-Purpose Machine Gun (MPMG) Range
at the Known Distance (KD) Range**

**Camp Edwards
Joint Base Cape Cod
Sandwich, Barnstable County, Massachusetts**

MILCON # 250194

Fiscal Year (FY) 2020 Project

Prepared For:

Massachusetts Army National Guard

Joint Force Headquarters

Hanscom Air Force Base, MA 01731



August 2020

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ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the potential environmental, socioeconomic, and cultural effects associated with the Massachusetts Army National Guard's (MAARNG) proposal to construct and operate a Multi-Purpose Machine Gun (MPMG) Range at Camp Edwards, which is situated within Joint Base Cape Cod (JBCC) in Barnstable County, Massachusetts. As required by the National Environmental Policy Act of 1969 (NEPA; 42 United States Code [USC] 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and 32 CFR Part 651 (Environmental Analysis of Army Actions, Final Rule, 29 March 2002), the potential effects of the Proposed Action and Alternatives are analyzed. This EA will facilitate the decision process by the MAARNG regarding the Proposed Action and its considered alternatives, and is organized as follows:

- **EXECUTIVE SUMMARY:** Describes the Proposed Action; summarizes environmental, cultural, and socioeconomic consequences; and compares potential effects associated with the three considered alternatives.
- **SECTION 1. PURPOSE AND NEED FOR THE PROPOSED ACTION:** Summarizes the purpose of and need for the Proposed Action, provides relevant background information, and describes the scope of the EA.
- **SECTION 2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES:** Describes the Proposed Action and presents alternatives for implementing the Proposed Action.
- **SECTION 3. AFFECTED ENVIRONMENT:** Describes the existing environmental, cultural, and socioeconomic setting of Camp Edwards.
- **SECTION 4. ENVIRONMENTAL CONSEQUENCES:** Identifies individual and cumulative potential environmental, cultural, and socioeconomic effects of implementing the Proposed Action and alternatives and identifies measures to reduce or avoid impacts.
- **SECTION 5. COMPARISON OF ALTERNATIVES AND CONCLUSIONS:** Compares the environmental effects of the considered alternatives and summarizes the significance of individual and expected cumulative effects of these alternatives.
- **SECTION 6. REFERENCES:** Provides bibliographical information for cited sources.
- **SECTION 7. GLOSSARY:** Defines terms used in the EA.
- **SECTION 8. LIST OF PREPARERS:** Identifies document preparers and their areas of expertise.
- **SECTION 9. AGENCIES AND INDIVIDUALS CONSULTED:** Lists agencies and individuals consulted during EA preparation.
- **APPENDICES:**

Appendix A: Agency Coordination and Native American Consultation

Appendix B: Section 7 Consultation and Biological Assessment

Appendix C: Memorandum of Understanding Between the U.S. Department of Defense and the U.S. Fish and Wildlife Service to Promote the Conservation of Migratory Birds

Appendix D: Final Noise Assessment for Proposed Multi-Purpose Machine Gun Range, Camp Edwards

Appendix E: Conservation and Management Permit (CMP) Application

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- ✓ **Funding Source:** MILCON# 250194
 - ✓ **Proponent:** Massachusetts Army National Guard
 - ✓ **Fiscal Year (FY):** 2020

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ENVIRONMENTAL ASSESSMENT

LEAD AGENCY: Army National Guard

COOPERATING AGENCIES: None

TITLE OF PROPOSED ACTION: Proposed Construction and Operation of a Multi-Purpose Machine Gun Range (MPMG), Camp Edwards

AFFECTED JURISDICTION: Sandwich, Barnstable County, Massachusetts

POINT OF CONTACT: Keith J. Driscoll, NEPA Manager, Massachusetts Army National Guard, Hanscom Air Force Base, MA 07131 (339) 202-3980

PROPOSERS: Massachusetts Army National Guard (MAARNG)

IMPLEMENTATION YEARS: FY 2020

REVIEWED BY:

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REVIEWED BY:

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DOCUMENT DESIGNATION: Environmental Assessment (EA)

ABSTRACT: The MAARNG proposes to construct and operate a Multi-Purpose Machine Gun (MPMG) Range at Camp Edwards, situated within Joint Base Cape Cod (JBCC) in Barnstable County, Massachusetts (Proposed Action). This Environmental Assessment (EA) addresses the potential environmental, socioeconomic, and cultural impacts of this proposal and its alternatives. The purpose of the Proposed Action is to provide the requisite range and training facilities at Camp Edwards to allow the MAARNG to efficiently attain small arms training and weapons qualifications requirements. The Proposed Action is needed to address shortfalls in required small arms training facilities and capabilities within Massachusetts, and support the MAARNG’s and other military users’ assigned Federal and State mission training objectives and requirements.

This EA evaluates the individual and cumulative effects of the Proposed Action and its reasonable alternatives with respect to the following criteria: land use and cover; air quality; noise; soils; groundwater; biological resources, including vegetation, wildlife, and special status species; cultural resources; infrastructure; and hazardous and toxic materials and wastes. This EA concludes there would be no significant adverse impact to the local environment or quality of life associated with implementation of the Proposed Action. The MAARNG would implement routine Regulatory Compliance Measures and Best Management Practices to address less-than-significant adverse environmental impacts.

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1 EXECUTIVE SUMMARY

2 This Environmental Assessment (EA) evaluates and analyzes the potential physical, environmental,
3 cultural, and socioeconomic effects of the Massachusetts Army National Guard's (MAARNG) proposal to
4 construct and operate a Multi-Purpose Machine Gun (MPMG) Range at Camp Edwards, which is situated
5 within Joint Base Cape Cod (JBCC) in Barnstable County, Massachusetts. The Camp Edwards Training
6 Site encompasses approximately 15,000 acres of the approximately 20,554-acre JBCC. Within the JBCC
7 are five military commands including: the MAARNG at Camp Edwards; the Massachusetts Air National
8 Guard (MA ANG) at Otis Air National Guard Base (ANGB); the 253rd Combat Communications Group
9 also at Otis ANGB; the U.S. Air Force (USAF) at the 6th Space Warning Squadron phased array radar site
10 at Cape Cod Air Force Station; and the U.S. Coast Guard (USCG) at Air Station Cape Cod. Camp Edwards
11 is owned by the Commonwealth of Massachusetts and leased to the Federal government, which has licensed
12 Camp Edwards to MAARNG. Camp Edwards contains the largest amount of land within JBCC. The
13 MPMG Range would be constructed within the area previously used as a 600-yard Known Distance (KD)
14 Range and is a programmed Fiscal Year (FY) 2020 Military Construction (MILCON) project.

15 This EA has been prepared under the provisions of, and in accordance with the National Environmental
16 Policy Act of 1969 (NEPA; 42 United States Code [USC] 4321 et seq.), the Council on Environmental
17 Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal
18 Regulations [CFR] 1500-1508), and 32 CFR 651 (Environmental Analysis of Army Actions, Final Rule,
19 29 March 2002). This EA will facilitate the decision-making process regarding the Proposed Action and its
20 alternatives considered by the MAARNG.

21 PROPOSED ACTION

22 The Proposed Action includes the construction and operation of an eight lane MPMG Range with six lanes
23 800 meters long by 25 meters wide at the firing line and by 100 meters wide at a distance of 800 meters.
24 The two middle lanes would extend an additional 700 meters to a distance of 1,500 meters long to
25 accommodate the use of .50 caliber rifles. The range would include two primary components: (1) the
26 physical range footprint, consisting of the firing positions, targetry, support structures, and associated
27 facilities; and (2) the Surface Danger Zones (SDZs), the area where projectiles fired on the range would
28 land based on the types of weapons and ammunition used.

29 The physical range footprint would consist of firing positions and lanes, targetry, and support structures.
30 Construction activities would include up to 199.0 acres of disturbance and would require up to 170.5 acres
31 of tree clearance to accommodate the range footprint, small arms range operations and control area
32 (SAROCA) facilities, utility extensions, access and maintenance road development, and firebreaks to
33 maintain or improve pitch pine and scrub oak (PPSO) and scrub oak shrubland (SOS) conditions while
34 reducing wildfire hazard from tracers and other ignition sources. Approximately 5,197 acres would be
35 required for the MPMG Range to accommodate the SDZs associated with the proposed weapons and
36 ammunition.

37 The MPMG Range would be available for all MAARNG units and it is anticipated that Camp Edwards site
38 usage could increase by up to 18.6 percent (or by up to 17,650 man-days) as a result of military personnel
39 utilizing the MPMG Range. Peak usage would occur from May through June, during the main annual
40 training cycle from March through November. Night training would occur approximately 1 to 2 days per
41 week, from sundown to 2:00 AM, for a total of 37 to 74 days during the annual training cycle.

42 PURPOSE AND NEED

43 The *purpose* of the Proposed Action is to provide the requisite range and training facilities at Camp Edwards
44 to allow the MAARNG to efficiently attain small arms training and weapons qualifications requirements
45 within Massachusetts. The MPMG Range would provide Soldiers and units the necessary modernized
46 training capabilities to be effective in contemporary and future operating environments while meeting
47 mission training objectives as defined in Training Circular (TC) 25-8, *Training Ranges*. The Proposed

48 Action is *needed* to: 1) address shortfalls in required small arms training facilities and capabilities within
49 Massachusetts, 2) allow multiple units to attain required weapons qualification levels simultaneously and
50 efficiently, and 3) support the MAARNG's and other military users' Federal and State missions.

51 An Army standard MPMG Range does not currently exist within Massachusetts. To receive training on an
52 MPMG Range and meet weapons qualifications standards and training requirements as set forth under
53 Department of the Army (DA) Pamphlet (PAM) 350-38, *Standards in Weapons Training* (STRAC),
54 soldiers and units must travel to a nearby MPMG range, with the closest being approximately 270 miles
55 away (Camp Ethan Allen in Jericho, Vermont). The need for travel causes the loss of critical training
56 resources MAARNG units need and reduces the time available for conducting required training exercises
57 at Camp Edwards. Implementation of the Proposed Action would support higher quality, mission-essential,
58 and increased training activities at JBCC, while limiting the need for out-of-state travel.

59 PUBLIC AND AGENCY INVOLVEMENT

60 The MAARNG invites public participation in decision-making on new proposals through the NEPA
61 process. Public participation with respect to decision-making on the Proposed Action is guided by 32 CFR
62 Part 651, which is the Army's regulation for implementing NEPA. Consideration of the views of and
63 information provided by all interested persons and stakeholders promotes open communication and enables
64 better decision-making.

65 The MAARNG, as the proponent of the Proposed Action, will publish and distribute the final EA and, if
66 found appropriate, the draft Finding of No Significant Impact (FNSI) for a 30-day public review and
67 comment period, as announced by a Notice of Availability (NOA) published in the *Cape Cod Times*. The
68 NOA will identify where copies will be made available (e.g., provided to local libraries, available online,
69 etc.) for public review and comment in accordance with the NEPA guidelines. If it is determined that
70 implementation of the Proposed Action would result in significant impacts, the MAARNG will either not
71 implement this action as proposed, or will publish in the Federal Register a Notice of Intent (NOI) to prepare
72 an EIS. Throughout this process, the public may obtain information on the status and progress of the EA
73 through the MAARNG Environmental and Readiness Center Public Affairs Office at 339-202-9341.

74 Agencies and local entities consulted for this EA include the U.S. Army Corps of Engineers (USACE) New
75 England District, U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency
76 (USEPA), U.S. Department of Agriculture-Natural Resources Conservation Service (NRCS),
77 Massachusetts Department of Environmental Protection (MassDEP), Massachusetts Department of
78 Conservation and Recreation (DCR), Massachusetts Historical Commission (MHC), Environmental
79 Management Commission (EMC), Cape Cod Commission, and Sandwich and Bourne town boards.

80 The MAARNG is also consulting and coordinating with federally recognized Native American tribes as
81 required under DoD Instruction (DoDI) 4710.02, *DoD Interactions with Federally Recognized Tribes*,
82 which implements the Annotated DoD American Indian and Alaska Native Policy; AR 200-1,
83 *Environmental Protection and Enhancement* (Department of the Army, 2007); NEPA; the National Historic
84 Preservation Act (NHPA); and the Native American Graves and Protection and Repatriation Act
85 (NAGPRA). Tribes were invited to participate in the EA and NHPA Section 106 processes as Sovereign
86 Nations per EO 13175, *Consultation and Coordination with Indian Tribal Governments*.

87 ALTERNATIVES

88 NEPA, CEQ regulations, and 32 CFR 651 require all reasonable alternatives to be explored and objectively
89 evaluated. Alternatives that are eliminated from detailed study must be identified along with a brief
90 discussion of the reasons for eliminating them. For purposes of analysis, an alternative was considered
91 "reasonable" only if it would enable the MAARNG to accomplish the primary mission of providing land,
92 facilities, and resources at Camp Edwards and to meet the purpose of and need for the Proposed Action.
93 "Unreasonable" alternatives would not enable the MAARNG to meet the purpose of and need for the
94 Proposed Action.

95 The MAARNG considered but dismissed from further analysis the following alternatives: 1) use a training
96 site at another installation; 2) use an undisturbed area at Camp Edwards; 3) use a different existing range at
97 Camp Edwards; 4) implement a standard-size MPMG range; and 5) use an alternate location 100 meters
98 south of the Proposed Action. These alternatives were eliminated from further consideration because they
99 did not meet one of more of the screening criteria. For more detailed information on the MAARNG's
100 screening criteria and the alternatives eliminated from further consideration, refer to **Section 2.3.1**.

101 Through application of the screening criteria, it became readily apparent to the MAARNG that locating the
102 MPMG Range at Camp Edwards was the only reasonable alternative. Once Camp Edwards was identified
103 as the only viable location, the MAARNG undertook a rigorous siting analysis to identify potential range
104 locations that could achieve the purpose and need for the Proposed Action, as well as best meet the
105 identified screening criteria.

106 This EA examines three alternatives in-depth, the Preferred Action Alternative, which would carry out the
107 Proposed Action; the Reduced-Scale Alternative, which would carry out a modified, smaller version of the
108 Proposed Action; and the No Action Alternative, which would not carry out the Proposed Action. The
109 alternatives are defined as follows:

- 110 • Preferred Action Alternative: Implement the Proposed Action by constructing and operating an
111 eight-lane MPMG Range. The MPMG range would train and test Soldiers on the skills necessary
112 to zero, detect, identify, engage, and defeat targets, and meet weapons qualifications standards and
113 training requirements as set forth under the DA PAM 350-38. Six lanes would be 800 meters long
114 by 25 meters wide at the firing line and 100 meters wide at a distance of 800 meters. The two
115 middle lanes would extend an additional 700 meters for a total distance of 1,500 meters to
116 accommodate .50 caliber rifle training. Currently, MILCON funding has not been appropriated for
117 the implementation of the Preferred Action Alternative. At the time of programming the MPMG
118 MILCON funding request, the MAARNG did not include a provision for the additional M2 lanes.
119 As such, the additional features associated with this alternative (e.g., extension of the two middle
120 lanes from 800 feet to 1,500 feet) are not currently funded. These additional features would need
121 to be constructed at a later date.
- 122 • Reduced-Scale Alternative: Implement the Proposed Action without the two extended middle lanes
123 for .50 caliber rifle training. All eight lanes would be constructed to a distance of 800 meters. This
124 is the approved MILCON project funded for FY 2020. This alternative would allow for the same
125 training capabilities as the Preferred Alternative with the exception of the M2 machine gun and the
126 M82 sniper rifle, which utilize .50 caliber ammunition.
- 127 • No Action Alternative: Continue with existing training and operations at Camp Edwards without
128 an MPMG range and continue to travel out-of-state to conduct this training.

129 **AFFECTED ENVIRONMENT**

130 Camp Edwards lies within the towns of Sandwich and Bourne. The local climate is defined as humid
131 continental. The predominant land cover is unimproved grounds, primarily used for training activities (e.g.,
132 assembly, tactical maneuvering, and small arms range firing), support and maintenance facilities, aviation
133 facilities, and environmental management. No surface water features or floodplains are present within or
134 near the Proposed Action area. The predominant source of groundwater is the Sagamore Lens of the Cape
135 Cod Aquifer, designated as a sole-source aquifer under the Safe Water Drinking Act. In 2015, the four
136 military agencies at JBCC signed a Memorandum of Agreement to implement the JBCC Groundwater
137 Protection Policy to enforce protections for the existing and future water supplies at the JBCC. The
138 groundwater beneath Camp Edwards provides up to three million gallons of clean drinking water daily to
139 Camp Edwards and the towns of Sandwich, Bourne, Falmouth, and Mashpee.

140 Camp Edwards is the largest intact area of relatively unfragmented forest remaining on Cape Cod and serves
141 as an important refuge for wildlife which require large ranges of interior forest habitat. The proposed
142 MPMG Range footprint is primarily comprised of disturbed land, immature pitch pine, pitch pine oak forest,
143 and pitch pine scrub oak. One Federally listed and 34 state-listed wildlife species have been documented at
144 Camp Edwards.

145 No archaeological or architectural resources occur within the Proposed Action area and the Proposed Action
146 area does not meet the criteria for an environmental justice community¹.

147 ENVIRONMENTAL CONSEQUENCES

148 The Proposed Action was evaluated to determine its potential direct or indirect impact(s) on the physical,
149 environmental, cultural, and socioeconomic aspects of Camp Edwards and the surrounding area. Technical
150 areas evaluated include: land use and cover; air quality; noise; soils; groundwater; biological resources,
151 including vegetation, wildlife, and special status species; cultural resources; infrastructure; and hazardous
152 and toxic materials and wastes (HTMW).

153 The Preferred Alternative, Reduced-Scale Alternative, and No Action Alternative would result in the
154 impacts identified throughout **Section 4** and summarized in **Table ES-1**. The MAARNG would incorporate
155 Regulatory Compliance Measures (RCMs) and Best Management Practices (BMPs) into the Proposed
156 Action to proactively minimize potential adverse environmental impacts. RCMs are compliance measures
157 that the MAARNG is required to conduct in accordance with applicable laws, regulations, and permit
158 conditions (e.g., Massachusetts Endangered Species Act [MESA] requirements), and BMPs are
159 environmentally sensitive construction practices the MAARNG would conduct in order to minimize or
160 avoid potential adverse environmental impacts (e.g., implementing dust control measures). No project-
161 specific mitigation measures would be required to reduce adverse impacts to less-than-significant levels.

162 CONCLUSIONS

163 The evaluation performed within this EA concludes there would be no significant adverse impact, either
164 individually or cumulatively, to the local environment or quality of life as a result of implementing the
165 Proposed Action. BMPs and RCMs specified in this EA, such as establishing a Noise Notification Protocol
166 and implementing a 24-hour noise complaint point of contact, would enable the MAARNG to avoid or
167 further minimize less-than-significant impacts on Camp Edwards and the surrounding area to the extent
168 practicable. Therefore, this EA's analysis determines that an EIS is unnecessary to support the
169 implementation of the Proposed Action, and that a FNSI is appropriate.

170 The Preferred Alternative was determined by the MAARNG to provide the best combination of land and
171 resources to sustain quality military training and to maintain and improve the units' readiness postures.
172 While the Reduced-Scale Alternative would carry out a modified version of the Proposed Action, it would
173 still meet the purpose of and need for the Proposed Action. The No Action Alternative would not fulfill
174 the purpose of and need for the Proposed Action. It would limit the capability of the MAARNG to carry
175 out its assigned mission to provide adequate training facilities, and would jeopardize the proficiency and
176 military readiness of the MAARNG and other military entities that require MPMG Range training. As
177 such, this EA recommends implementation of the Preferred Alternative.

¹ An environmental justice community is defined as having 25 percent or more residents identifying as a race other than white, or who have an income equal to or less than 65 percent of the Statewide median (MassDEP, 2019).

Table ES-1: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Land Use and Cover	<p><i>Long term, potentially significant adverse impact on future land use from a reduction in training use of Camp Edwards.</i></p>	<p>Long-term, <i>less-than-significant</i> adverse impacts on land cover from the clearing of 170.5 acres and permanent conversion of forested areas to maintained grasslands.</p> <p>Long-term, <i>beneficial</i> impact on land use by maximizing training value and use of Camp Edwards.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Long-term, <i>less-than-significant</i> adverse impacts on land cover from the clearing of 99.5 acres and permanent conversion of forested areas to maintained grasslands.</p> <p>Long-term, <i>beneficial</i> impact on land use by maximizing training value and use of Camp Edwards.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Air Quality	<p><i>Long-term, less-than-significant adverse impact on climate change from continued vehicle-generated GHG emissions.</i></p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on air quality from the clearing of 170.5 acres generating fugitive dust and exhaust emissions.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on air quality from increased emissions due to training and firing operations.</p> <p>Long-term, <i>beneficial</i> impacts on air quality from decreased emissions due to reduced out-of-State travel.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on air quality from the clearing of 99.5 acres generating fugitive dust and exhaust emissions.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on air quality from increased emissions due to training and firing operations.</p> <p>Long-term, <i>beneficial</i> impacts on air quality from decreased emissions due to reduced out-of-State travel.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Noise	<p>No impact.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on noise levels due to construction activities required for clearing 170.5 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on noise levels due to increased site usage and weapons firing.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on noise levels due to construction activities required for clearing 99.5 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on noise levels due to increased site usage and weapons firing.</p> <p>Impacts would be less than the Preferred Alternative.</p>

Table ES-1: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Soils	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on soils due to erosion, sedimentation, and compaction resulting from the disturbance of 199.0 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on soils from training activities.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on soils due to erosion, sedimentation, and compaction resulting from the disturbance of 128.0 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on soils from training activities.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Groundwater	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on groundwater from potential contaminant spills during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on groundwater from inadvertent release of contaminants during site maintenance and training operations.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on groundwater from potential contaminant spills during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on groundwater from inadvertent release of contaminants during site maintenance and training operations.</p> <p>Impacts would be less than the Preferred Alternative.</p>

Table ES-1: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Biological Resources	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on vegetation from temporary clearing for construction of the MPMG range.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on vegetation from the permanent loss of 170.5 acres of forested land.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on wildlife species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on wildlife species from potential habitat loss and training range operations.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on special status species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on special status species from potential habitat loss and training range operations.</p> <p>Long-term, <i>beneficial</i> impacts on migratory birds from enhanced habitat due to wildfire management practices.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on vegetation from temporary clearing for construction of the MPMG range.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on vegetation from the permanent loss of 99.5 acres of forested land.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on wildlife species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on wildlife species from potential habitat loss and training range operations.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on special status species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on special status species from potential habitat loss and training range operations.</p> <p>Long-term, <i>beneficial</i> impacts on migratory birds from enhanced habitat due to wildfire management practices.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Cultural Resources	No impact.	<i>No effect</i> on cultural resources.	<i>No effect</i> on cultural resources.

Table ES-1: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Infrastructure	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on traffic conditions from temporary construction congestion.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on traffic conditions from personal and military vehicles moving to and from the new MPMG Range.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on utilities from temporary utility interruptions during utility extensions and construction.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on traffic conditions from temporary construction congestion.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on traffic conditions from personal and military vehicles moving to and from the new MPMG Range.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on utilities from temporary utility interruptions during utility extensions and construction.</p> <p>Impacts would be less than the Preferred Alternative.</p>
HTMW	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts associated with the handling, storage, use, transportation, and disposal of HTMW during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts associated with the handling, storage, use, transportation, and disposal of HTMW during training operations and site maintenance.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts associated with handling, storage, use, transportation, and disposal of HTMW during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts associated with the handling, storage, use, transportation, and disposal of HTMW during training operations and site maintenance.</p> <p>Impacts would be less than the Preferred Alternative.</p>

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ACRONYMS AND ABBREVIATIONS

ACS	American Community Survey	FNSI	Finding of No Significant Impact
ANG	Air National Guard	FPPA	Farmland Protection Policy Act
ANGB.....	Air National Guard Base	FY	Fiscal Year
APE	Area of Potential Effect	GHG	greenhouse gas
AQCR.....	Air Quality Control Region	HTMW	Hazardous and Toxic Materials and Wastes
AR	Army Regulation	ICRMP.....	Integrated Cultural Resources Management Plan
ARNG I&E	ARNG Installation and Environment Directorate	IWFMP	Integrated Wildlife Fire Management Plan
ARRM	Army Range Requirement Module	IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
ARPA	Archaeological Resources Protection Act	INRMP	Integrated Natural Resources Management Plan
AT/FP	antiterrorism and force protection	JBCC	Joint Base Cape Cod
BCC	Birds of Conservation Concern	JLUS	Joint land Use Study
BGEPA.....	Bald and Golden Eagle Protection Act	KD	Known Distance
BMP.....	Best Management Practice	LF	linear feet
CAA.....	Clean Air Act	LUPZ	Land Use Planning Zone
CAC.....	Citizens Advisory Council	MAARNG ..	Massachusetts Army National Guard
CEQ	Council on Environmental Quality	MassDEP ..	Massachusetts Department of Environmental Protection
CFR	Code of Federal Regulations	MBTA	Migratory Bird Treaty Act
CMP.....	Conservation and Management Permit	MEC	munitions and explosives of concern
CO	carbon monoxide	MEPA	Massachusetts Environmental Policy Act
CWA.....	Clean Water Act	MESA	Massachusetts Endangered Species Act
CZM	Coastal Zone Management	MFR.....	Memorandum for Record
CZMA	Coastal Zone Management Act	MHC.....	Massachusetts Historical Commission
DA	Department of the Army	MILCON ..	Military Construction
DA PAM....	Department of the Army Pamphlet	MOA.....	Memorandum of Agreement
dB	Decibel	MOU.....	Memorandum of Understanding
DCR.....	Massachusetts Department of Conservation and Recreation	MPMG.....	Multi-Purpose Machine Gun
DFG	Massachusetts Department of Fish and Game	MSL.....	Mean sea level
DNL.....	Day-night Level	NAAQS	National Ambient Air Quality Standards
DoD	Department of Defense	NAGPRA...	Native American Graves Protection and Repatriation Act
DoDI.....	Department of Defense Instruction	NEPA.....	National Environmental Policy Act of 1969
E&S	Erosion and Sediment	NGB.....	National Guard Bureau
EA.....	Environmental Assessment	NGR.....	National Guard Regulations
ECOP.....	Environmental Condition of Property	NHESP	Massachusetts Natural Habitat and Endangered Species Program
EIS	Environmental Impact Statement	NHPA	National Historic Preservation Act
EMC	Environmental Management Commission	NLEB.....	northern long-eared bat
EO.....	Executive Order		
EPS	Environmental Performance Standard		
ESA	Endangered Species Act		
FEMA	Federal Emergency Management Agency		
FIRM	Flood Insurance Rate Map		

NOA Notice of Availability	USC U.S. Code
NOI Notice of Intent	USCG U.S. Coast Guard
NO _x nitrogen oxides	USEPA U.S. Environmental Protection Agency
NPDES National Pollutant Discharge Elimination System	USFWS U.S. Fish and Wildlife Service
NRCS Natural Resources Conservation Service	UXO Unexploded Ordnance
NRHP National Register of Historic Places	WOUS Waters of the U.S.
O ₃ ozone	
OMMP Operations, Maintenance, and Management Plan	
OSHA Occupational Safety and Health Administration	
OTR Ozone Transport Region	
Pb lead	
PM particulate matter	
PM ₁₀ particulate matter less than or equal to 10 micrometers	
PM _{2.5} particulate matter less than or equal to 2.5 micrometers	
ROI Region of Influence	
RTLA Range and Training Land Assessments	
SAAQS State Ambient Air Quality Standards	
SAC Scientific Advisory Council	
SAR Small Arms Range	
SAROCA ... Small Arms Range Operations Control Area	
SDZ Surface Danger Zone	
SHPO State Historic Preservation Office	
SIP State Implementation Plan	
SO ₂ sulfur dioxide	
SONMP Statewide Operational Noise Management Plan	
SOP Standard Operating Procedure	
SPCCP Spill Prevention Control and Countermeasure Plan	
SR/ES Registration/Emissions Statement	
STRAC Standards in Weapons Training	
SWDA Safe Water Drinking Act	
TC Training Circular	
TY Training Year	
U.S. United States	
UAS Unmanned Aircraft Systems	
UFC Unified Facilities Criteria	
USACE U.S. Army Corps of Engineers	
USAF U.S. Air Force	
USAPHC ... U.S. Army Public Health Center	

298

1. PURPOSE OF AND NEED FOR THE PROPOSED ACTION

299 1.1 Introduction

300 This Environmental Assessment (EA) evaluates the Massachusetts Army National Guard's (MAARNG)
301 proposal to construct and operate a Multi-Purpose Machine Gun (MPMG) Range at Joint Base Cape Cod
302 (JBCC) Camp Edwards on Cape Cod, Massachusetts (see **Figure 1-1**). The Proposed Action is intended to
303 meet current range requirements set forth in Training Circular (TC) 25-8, *Training Ranges*; to meet
304 qualification and pre-validation of deploying units; and to help support higher quality, mission-essential,
305 increased training activities for the MAARNG's and other military users' assigned training missions.

306 Camp Edwards encompasses approximately 15,000 acres of the approximately 20,554-acre JBCC (see
307 **Figure 1-2**). JBCC is situated within four towns, Bourne, Sandwich, Falmouth, and Mashpee, although
308 Camp Edwards lies only within the boundaries of Bourne and Sandwich (see **Figure 1-2**). Within the JBCC
309 there are five military commands including: the MAARNG at Camp Edwards; the Massachusetts Air
310 National Guard (MA ANG) at Otis Air National Guard Base (ANGB); the 253rd Combat Communications
311 Group also at Otis ANGB; the U.S. Air Force (USAF) at the 6th Space Warning Squadron phased array
312 radar site at Cape Cod Air Force Station; and the U.S. Coast Guard (USCG) at Air Station Cape Cod. Camp
313 Edwards is owned by the Commonwealth of Massachusetts and leased to the Federal government, which
314 has licensed Camp Edwards to MAARNG. Camp Edwards contains the largest amount of land at JBCC.

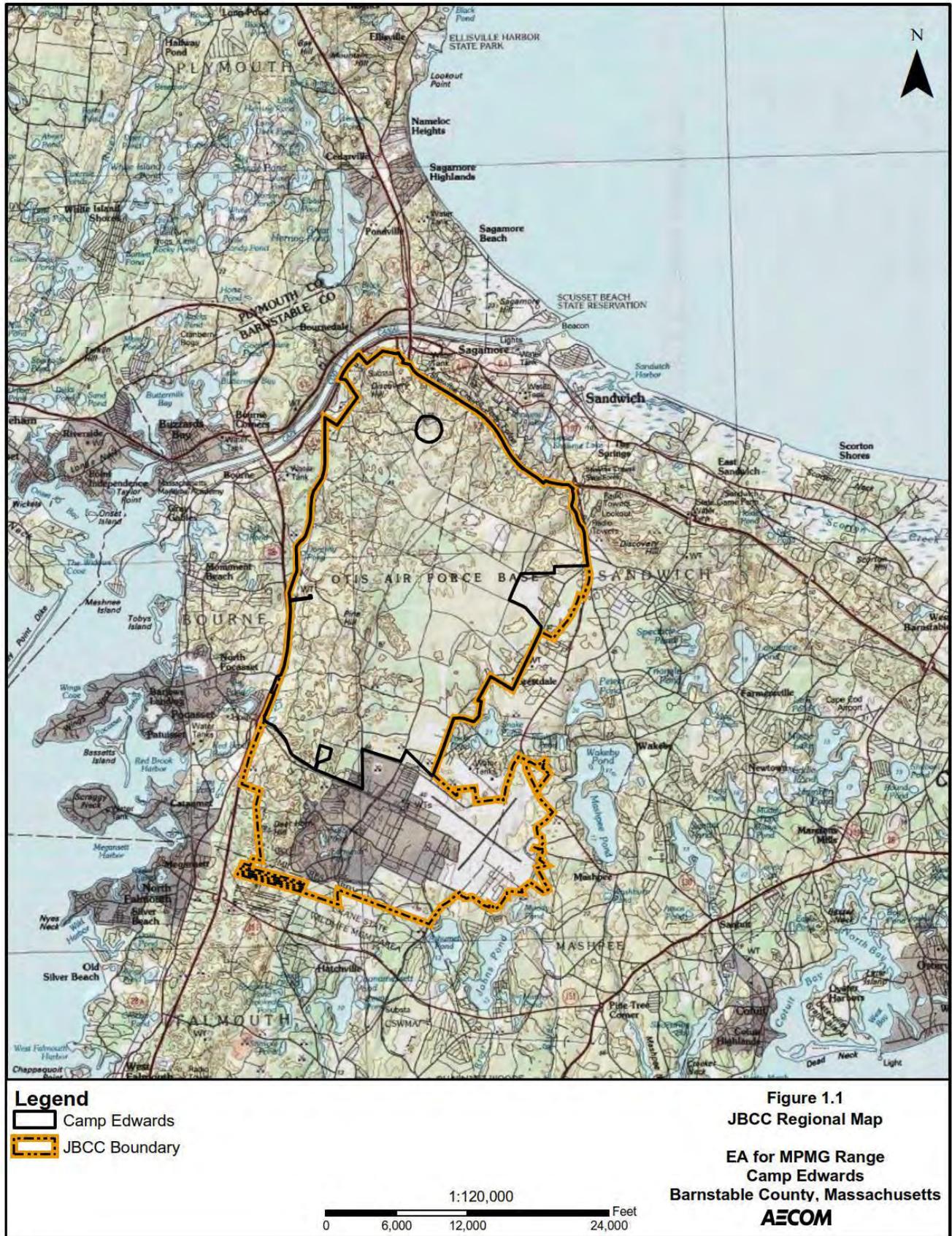
315 The MPMG Range would be constructed within the area previously used as a 600-yard Known Distance
316 (KD) Range. The 38.5-acre KD Range was used for range training activities from 1966 to 2004 and is
317 currently used for other training operations such as unmanned aircraft systems (UAS). Since 2006, the
318 MAARNG has been actively planning and redeveloping various ranges at Camp Edwards for live-fire
319 training exercises through the Small Arms Range (SAR) Improvement Plan which incorporates Best
320 Management Practices (BMPs) into any range development for pollution prevention and environmental
321 protection (MAARNG, 2012). The MPMG Range is a programmed Fiscal Year (FY) 2020 Military
322 Construction (MILCON) project and is part of the Camp Edwards SAR Improvement Plan.

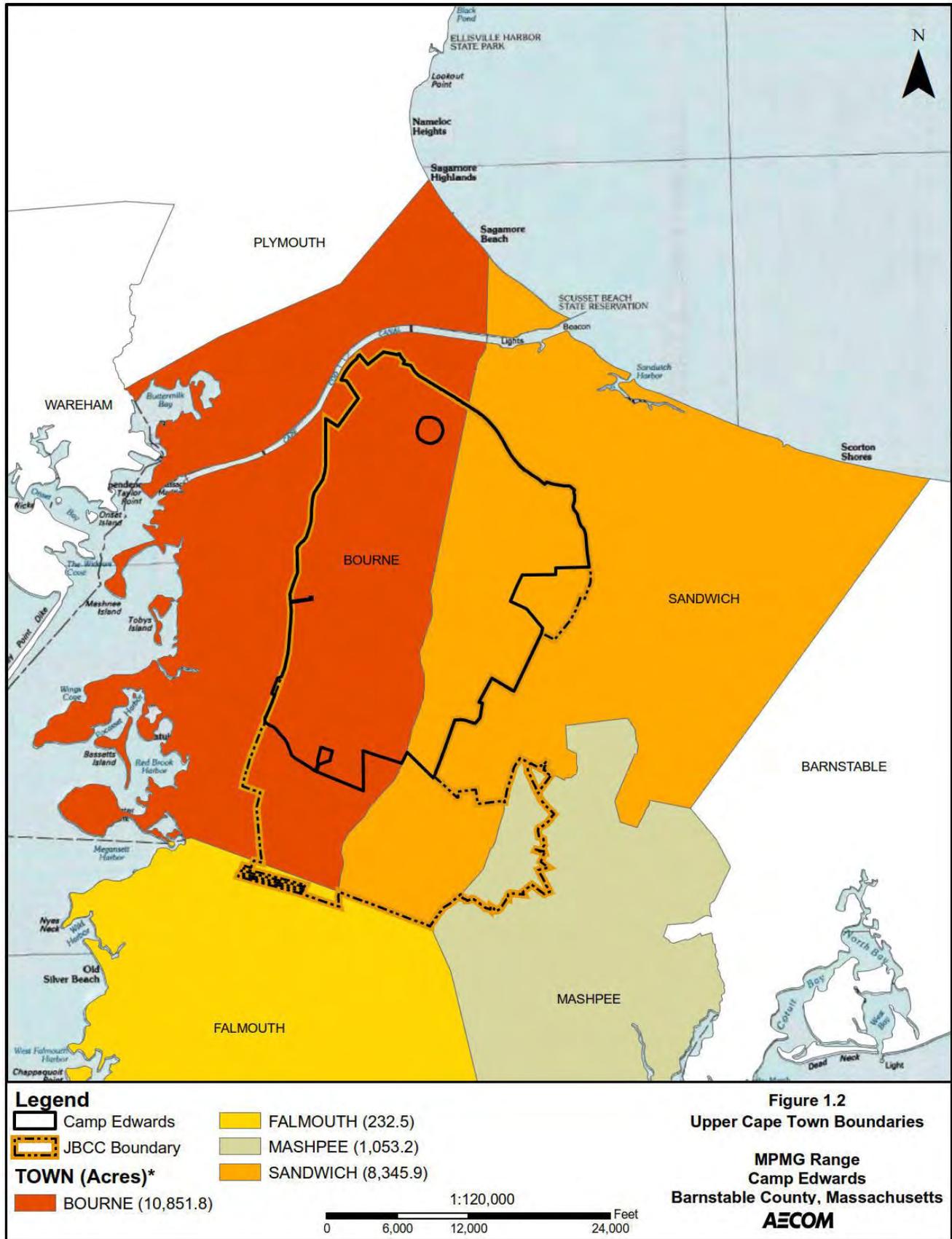
323 This EA has been prepared under the provisions of, and in accordance with the National Environmental
324 Policy Act of 1969 (NEPA; 42 United States Code [USC] 4321 et seq.), the Council on Environmental
325 Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal
326 Regulations [CFR] Parts 1500-1508), and 32 CFR 651 (Environmental Analysis of Army Actions, Final
327 Rule, 29 March 2002). This EA will facilitate the decision-making process regarding the Proposed Action
328 and its alternatives considered by the MAARNG.

329 1.2 Purpose and Need

330 1.2.1 Purpose of the Proposed Action

331 The *purpose* of the Proposed Action is to provide the requisite range and training facilities at Camp
332 Edwards to allow the MAARNG to efficiently attain small arms training and weapons qualifications
333 requirements within Massachusetts. The MPMG Range would provide Soldiers and units the necessary
334 modernized training capabilities to be effective in contemporary and future operating environments while
335 meeting mission training objectives as defined in TC 25-8. The Proposed Action would ensure the
336 MAARNG provides a complete, sustainable, and viable training facility for its Soldiers through the
337 continued use and development of live-fire ranges to meet the requirement that all Soldiers qualify with
338 their primary weapon systems annually.





339 1.2.2 Need for the Proposed Action

340 The Proposed Action is *needed* to: 1) address shortfalls in required small arms training facilities and
341 capabilities within Massachusetts, 2) allow multiple units to attain required weapons qualification levels
342 simultaneously and efficiently, and 3) support the MAARNG's and other military users' assigned mission
343 training objectives and requirements as defined in TC 25-8 (Department of the Army, 2016).

344 Camp Edwards' primary mission is to prepare Soldiers for combat missions overseas, as well as missions
345 to serve and protect the homeland stateside. Army Range Requirement Module (ARRM) data support the
346 need for an MPMG Range, which allows the MAARNG to be able to train with the M249 and M240 (5.56
347 mm and 7.62 mm) weapons systems. An Army standard MPMG Range does not currently exist within
348 Massachusetts. To receive training on an MPMG Range and meet weapons qualifications standards and
349 training requirements as set forth under Department of the Army (DA) Pamphlet (PAM) 350-38, *Standards*
350 *in Weapons Training* (STRAC), soldiers and units must travel to one of the following nearest MPMG ranges
351 (**Figure 1-3**): Fort Drum in Jefferson County, New York (370 miles away); Fort Dix in Ocean County, New
352 Jersey (over 300 miles away); or Camp Ethan Allen in Jericho, Vermont (270 miles away). The need for
353 travel causes the loss of critical training resources MAARNG units need, and reduces the time available for
354 conducting required training exercises at Camp Edwards. This travel time frequently violates TC 3-20.40,
355 *Training and Qualifications – Individual Weapons*, which establishes a reasonable travel distance as 100
356 miles. The aforementioned sites are located at substantially greater distances than this allowance. Without
357 the Proposed Action, the need to travel out-of-state for training requirements would continue, thereby
358 impacting troop morale, training time, and use of fiscal resources.

359 As Camp Edwards serves as the primary ARNG training site for Massachusetts, the Proposed Action is also
360 needed to ensure the continued and long-term viability of Camp Edwards as a training center capable of
361 providing the land and resources necessary to support the MAARNG and other military users' assigned
362 training missions. Implementation of the Proposed Action would support higher quality, mission-essential,
363 training activities at JBCC, while limiting the need for out-of-state travel.

364 1.3 Scope of the EA

365 This EA evaluates the potential direct, indirect, and cumulative physical, environmental, cultural, and
366 socioeconomic effects of implementing the Proposed Action (see **Section 2.2**) and reasonable alternatives
367 to that scenario (see **Section 2.3.2**). The MAARNG developed 12 screening criteria (see **Section 2.3.1**) to
368 identify range locations and designs that would meet the purpose of and need for the Proposed Action.
369 Alternatives were eliminated from further consideration if they did not meet one or more of the screening
370 criteria (see **Section 2.3.3**). In accordance with NEPA and CEQ Regulations, this EA considers the
371 following alternatives for implementing the Proposed Action

- 372 • **Preferred Action Alternative:** Implement the Proposed Action, as described in **Section 2.2**, by
373 constructing and operating an eight-lane MPMG Range. The MPMG range would train and test
374 Soldiers on the skills necessary to zero, detect, identify, engage, and defeat targets, and meet
375 weapons qualifications standards and training requirements as set forth under the DA PAM 350-38
376 Six lanes would be 800 meters long by 25 meters wide at the firing line and 100 meters wide at a
377 distance of 800 meters. The two middle lanes would extend an additional 700 meters for a total
378 distance of 1,500 meters to accommodate .50 caliber rifle training.
- 379 • **Reduced-Scale Alternative:** Implement the Proposed Action without the two extended middle lanes
380 for .50 caliber rifle training. All eight lanes would be constructed to a distance of 800 meters. This
381 is the approved MILCON project funded for FY 2020. This alternative would allow for the same
382 training capabilities as the Preferred Alternative with the exception of the M2 machine gun and the
383 M82 sniper rifle, which utilize .50 caliber ammunition.
- 384 • **No Action Alternative:** Continue with existing training and operations at Camp Edwards without
385 an MPMG range and continue to travel out-of-state to conduct this training.



386 Resource categories described in **Section 3** and evaluated in **Section 4** include: land use and cover; air
387 quality; noise; soils; groundwater; biological resources, including vegetation, wildlife, and special status
388 species; cultural resources; infrastructure; and hazardous and toxic materials and wastes (HTMW). This EA
389 also considers the cumulative effects of other past, present, and reasonably foreseeable actions within the
390 Proposed Action's Region of Influence (ROI). The ROI boundaries vary depending on the resource category
391 being analyzed as described in **Section 3**. Typically, the ROI will consist of the Proposed Action area,
392 Camp Edwards, JBCC, and possibly include the Towns of Bourne and Sandwich and Barnstable County.
393 That is, those areas within the immediate vicinity of the Proposed Action area that could be influenced by
394 or cause influence on the Proposed Action. Meaningful effects beyond this ROI would not be anticipated,
395 based on the nature and scope of the Proposed Action and the considered reasonable range of alternatives.

396 As specified under NEPA and CEQ regulations (40 CFR 1500-1508), a monetary cost-benefit analysis is
397 not required as part of the EA. The Proposed Action and its alternatives have been developed based on
398 military training needs and mission requirements. As such, no quantitative financial assessment has been
399 performed as part of this EA. However, economic factors that result in socioeconomic impacts to the ROI
400 are addressed in this document, as required under NEPA.

401 **1.4 Decision Making**

402 As described in 32 CFR Part 651.5, the NEPA process is intended to provide the Army's planners and
403 decision-makers with a meaningful review of environmental considerations associated with a given action.
404 The analysis set forth in this EA allows the decision-makers to carefully balance the protection of these
405 environmental resources while fulfilling the Army's essential roles, including national defense, and
406 MAARNG's mission to provide adequate training facilities in support of the military mission. Both
407 environmental staff and military personnel within the MAARNG were consulted and provided guidance on
408 the development of this EA.

409 Per amendments to 10 U.S. Code (USC) 10501, described in Department of Defense (DoD) Directive
410 5105.77, the National Guard Bureau (NGB) is a joint activity of the DoD. NGB serves as a channel of
411 communication and funding between the Army and State ARNG organizations in the 54 U.S. states,
412 territories, and the District of Columbia. The ARNG is a Directorate within NGB. The ARNG's Installation
413 and Environment Directorate (ARNG I&E) is the division within ARNG that is responsible for
414 environmental matters, including compliance with NEPA. As ARNG is the Federal decision-maker
415 concerning this Proposed Action, this is a Federal Proposed Action. The Federal decision-making on the
416 part of the ARNG includes selecting an alternative to implement, and identifying the actions that the
417 Government will commit to undertake to minimize environmental effects, as required under NEPA, CEQ
418 Regulations, and 32 CFR Part 651.

419 **1.5 Public and Agency Involvement**

420 The MAARNG invites public participation in decision-making on new proposals through the NEPA
421 process. Public participation with respect to decision-making on the Proposed Action is guided by 32 CFR
422 Part 651, which is the Army's regulation for implementing NEPA. Consideration of the views of and
423 information provided by all interested persons and stakeholders promotes open communication and enables
424 better decision-making. A record of public involvement, agency coordination and meetings, and Native
425 American consultation associated with this EA is provided in **Appendix A**. Refer to **Section 2.3** for
426 information regarding the additional public review required for the Proposed Action at Camp Edwards and
427 to **Section 9** for a complete list of agencies and individuals consulted in support of analyses conducted
428 during preparation of the EA.

429 1.5.1 Public Review

430 The MAARNG, as the proponent of the Proposed Action, will publish and distribute the final EA and, if
431 found appropriate, the draft Finding of No Significant Impact (FNSI) for a 30-day public review and
432 comment period, as announced by a Notice of Availability (NOA) published in the *Cape Cod Times*. The
433 NOA will identify where copies will be made available (e.g., local libraries and/or online) for public review
434 and comment in accordance with the NEPA guidelines. The MAARNG Public Affairs Office will be
435 responsible for reviewing notices for distribution within the local newspaper, and will be the primary
436 contact for local news media inquiries. The MAARNG's NEPA Manager will be responsible for receiving
437 comments submitted during the 30-day public comment period.

438 If it is determined that implementation of the Proposed Action would result in significant impacts, the
439 MAARNG will either not implement this action as proposed, or will publish in the Federal Register a Notice
440 of Intent (NOI) to prepare an EIS. Throughout this process, the public may obtain information on the status
441 and progress of the EA through the MAARNG Environmental and Readiness Center Public Affairs Office
442 at 339-202-9341.

443 1.5.2 Agency Coordination

444 Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) is a federally
445 mandated process for informing and coordinating with other governmental agencies regarding Federal
446 Proposed Actions. CEQ regulations require intergovernmental notifications prior to making any detailed
447 statement of environmental impacts. Through the IICEP process, the MAARNG notifies relevant Federal,
448 State, and local agencies and allows them sufficient time to make known their environmental concerns
449 specific to a Proposed Action. Comments and concerns submitted by these agencies during the IICEP
450 process are subsequently incorporated into the analysis of potential environmental impacts conducted as
451 part of the EA. This coordination fulfills requirements under Executive Order (EO) 12372,
452 *Intergovernmental Review of Federal Programs*, superseded by EO 12416, and subsequently supplemented
453 by EO 13132, which requires Federal agencies to cooperate with and consider State and local views in
454 implementing a Federal Proposed Action. It also constitutes the IICEP process for this EA.

455 Agencies and local entities consulted for this EA include the U.S. Army Corps of Engineers (USACE) New
456 England District, U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency
457 (USEPA), U.S. Department of Agriculture-Natural Resources Conservation Service (NRCS),
458 Massachusetts Department of Environmental Protection (MassDEP), Massachusetts Department of
459 Conservation and Recreation (DCR), Massachusetts Historical Commission (MHC), Cape Cod
460 Commission, and Sandwich and Bourne town boards.

461 The MAARNG is also consulting with the Environmental Management Commission (EMC) who oversees
462 compliance with and enforcement of the Environmental Performance Standards (EPS), which are standards
463 for protecting resources in the Upper Cape Water Supply Reserve, which is coterminous with a 15,000-acre
464 area in northern JBCC. The EMC comprises commissioners from the Massachusetts Department of Fish
465 and Game (DFG); the Massachusetts Department of Conservation and Recreation (DCR); and the
466 MassDEP. A Community Advisory Council (CAC) and Science Advisory Council (SAC) hold public
467 meetings and report to the EMC. The CAC consists of representatives from each of the surrounding towns,
468 base housing, the military, the Cape Cod Commission, the Upper Cape Regional Water Supply Cooperative,
469 and the Wampanoag Tribe, as well as other members appointed by the Governor. The SAC, appointed by
470 the governor, consists of scientists and engineers recognized for their expertise in the areas of public health,
471 water protection, wildlife habitat management, and land use management.

472 The MAARNG formally initiated MPMG project consultation with a presentation of the proposed action
473 at the EMC, CAC, and SAC meetings in June 2016. The EMC Environmental Officer has been afforded
474 the opportunity to provide comment on the proposed MPMG design at each of the 30%, 60%, and 90%
475 design stages to ensure compliance with the EPS's. Once the design is finalized and after the MEPA and

476 NEPA processes are completed, the MAARNG will send a letter to the EMC Environmental Officer in
477 accordance with Massachusetts General Law Chapter 47 the Acts of 2002 and its associated EPS,
478 specifically EPS 19, requesting approval of the range design and operations plan for the range (i.e.,
479 Operations, Maintenance, and Monitoring Plan). The Environmental Officer and the MAARNG would then
480 present this plan to the two advisory councils and would request the EMC to grant the Environmental
481 Officer the authority to approve the design and operations of the range. Finally, the Environmental Officer
482 would send a formal response to a MAARNG's request.

483 Agency consultation and correspondence have been incorporated into this EA, as appropriate. Copies of
484 relevant correspondence can be found in **Appendix A**.

485 **1.5.3 Native American Consultation/Coordination**

486 The MAARNG is consulting and coordinating with federally recognized Native American tribes as required
487 under DoD Instruction (DoDI) 4710.02, *DoD Interactions with Federally Recognized Tribes*, which
488 implements the Annotated DoD American Indian and Alaska Native Policy; Army Regulation (AR) 200-
489 1, *Environmental Protection and Enhancement*; NEPA; the National Historic Preservation Act (NHPA);
490 and the Native American Graves and Protection and Repatriation Act (NAGPRA). Tribes were invited to
491 participate in the EA and NHPA Section 106 processes as Sovereign Nations per EO 13175, *Consultation
492 and Coordination with Indian Tribal Governments*.

493 Based on the MAARNG's Integrated Cultural Resources Management Plan (ICRMP), Federally recognized
494 tribes that are historically affiliated with the Camp Edwards geographic region will be invited to consult on
495 all proposed undertakings with potential to affect properties of cultural, historical, or religious significance
496 to the tribes. These include the Wampanoag Tribe of Gay Head – Aquinnah, the Mashpee Wampanoag
497 Tribal Council, and the Stockbridge – Munsee Community Tribe of Mohican Indians of Wisconsin.
498 Consultation letters dated 7 August 2019 were sent to these tribes via certified mail. Consultation with the
499 Mashpee Wampanoag was also conducted through the EMC and the CAC, as these groups include
500 representatives of the Tribe. Correspondence with the tribes and any responses received are included in
501 **Appendix A**. A Memorandum for Record (MFR) summarizing the Native American consultation efforts
502 by the MAARNG is also included in **Appendix A**.

503 **1.6 Related NEPA, Environmental, and Other Documents and Processes**

504 Other NEPA and early planning level documents and studies were reviewed and/or used to support the
505 preparation of this EA. These documents include, but are not limited to:

- 506 • Statewide Operational Noise Management Plan (SONMP)
- 507 • Camp Edwards Standard Operating Procedures (SOPs)
- 508 • Final Environmental Impact Report for MAARNG Properties at MMR (MAARNG, 2001)
- 509 • Camp Edwards Site Consolidation Plan (MAARNG, 2005)
- 510 • Draft EA for the Small Arms Range Improvement Project (MAARNG, 2007)
- 511 • Final Integrated Cultural Resources Management Plan Revision for Site and Training Installations
512 of the Massachusetts Army National Guard, Fiscal Years 2009-2013 (MAARNG, 2009)
- 513 • Camp Edwards INRMP and EA (MAARNG, 2009)
- 514 • Environmental Condition of Property (ECOP) Pre-Construction Assessment Camp Edwards
515 MPMG Range Development (MAARNG, 2019)
- 516 • Installation Compatible Use Zone Study (MAARNG, 2015)

- 517 • Impact Area Groundwater Study Program: Final JBCC Training Areas Investigation Report
518 (TetraTech, Inc., 2018)
- 519 • Noise Assessment for Proposed Multi-Purpose Machine Gun Range, Camp Edwards (USAPHC,
520 2019)
- 521 Relevant NEPA and environmental documents are incorporated into this EA and recorded in **Section 6**,
522 **References**, as applicable.

523 **1.7 Regulatory Framework**

524 This EA has been prepared under the provisions of, and in accordance with NEPA, CEQ Regulations, and
525 32 CFR Part 651. The document has also been prepared as prescribed in the 2011 *ARNG NEPA Handbook*,
526 *Guidance on Preparing Environmental Documentation for Army National Guard Actions in Compliance*
527 *with the National Environmental Policy Act of 1969* (ARNG, 2011).

528 Regulations relevant to the resource areas analyzed in this EA include the Massachusetts Environmental
529 Policy Act (MEPA), Massachusetts Endangered Species Act (MESA), and Chapter 47 of the
530 Commonwealth of Massachusetts Acts of 2002, *An Act Relative to the Environmental Protection of the*
531 *Massachusetts Military Reservation*, and others. These regulations are included in discussions of the
532 resource areas (**Sections 3 and 4**), as appropriate.

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533 2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

534 2.1 Introduction

535 The Proposed Action is the construction and operation of an eight lane MPMG Range (**Figure 2-1**).
536 Implementation of the Proposed Action would allow the MAARNG to fulfill their mission by meeting
537 weapons qualifications standards and training requirements as set forth under TC 25-8, TC 25-1 (*Training*
538 *Land*), AR 350-19 (*The Army Sustainable Range Program*), and DA PAM 350-38. The following sections
539 provide a detailed description of the Proposed Action and the alternatives considered to meet the purpose
540 of and need for the Proposed Action. Development and evaluation of the alternatives and the screening
541 criteria used for alternative selection are presented in **Section 2.3**. The proposed MPMG Range is a FY
542 2020 MILCON project (Project # 250194).

543 2.2 Proposed Action

544 The Proposed Action includes the construction and operation of a MPMG Range. The proposed range is
545 identified in the Camp Edwards SAR Improvement Plan (MAARNG, 2012). The range would include two
546 primary components: (1) the physical range footprint, consisting of the firing positions, targetry, support
547 structures, and associated facilities; and (2) the Surface Danger Zones (SDZs), the area where projectiles
548 fired on the range would land based on the types of weapons and ammunition used.

549 ECOP assessments are required for all MILCON funded projects in accordance with AR 200-1 and the
550 2011 ARNG ECOP Handbook. ECOP investigations ensure protection of construction workers and
551 personnel, as well as avoidance of unforeseen cleanup costs and delays. An ECOP investigation was
552 initially conducted for the Proposed Action in 2015. Since then two updates have been completed and
553 approved by NGB, most recently in September 2019. The ECOP will require another update prior to
554 implementation of the Proposed Action.

555 Construction is anticipated to begin in FY 2020, and the range is anticipated to be operational in FY 2022.

556 2.2.1 Range Construction

557 The MPMG Range would be constructed in accordance with the USACE Range Design Guide for a MPMG
558 Range (US Army, 2017), TC 25-8, and TC 25-1. Construction activities would include up to 199.0 acres of
559 disturbance and would require up to 170.5 acres of tree clearance to accommodate the range footprint, small
560 arms range operations and control area (SAROCA) facilities, utility extensions, access and maintenance
561 road development, and firebreaks.

562 2.2.1.1 MPMG Range Components

563 The proposed range components are summarized in **Table 2-1**. The physical range footprint would consist
564 of firing positions and lanes, targetry, and support structures. Stationary Infantry Targets would be
565 emplaced at approximately 100-meter intervals from the firing position at 100, 200, and 300 meters from
566 the firing line. Moving Infantry Targets would be emplaced in the center lanes between 100 and 600 meters.
567 Widened Stationary Infantry Targets and Double Target Arms would be emplaced between 400 and 800
568 meters. Individual Movement Techniques would be emplaced between 800 and 900 meters. Stationary
569 Armor Targets would be emplaced between 1,000 and 1,500 meters from the firing line within the two
570 extended lanes.

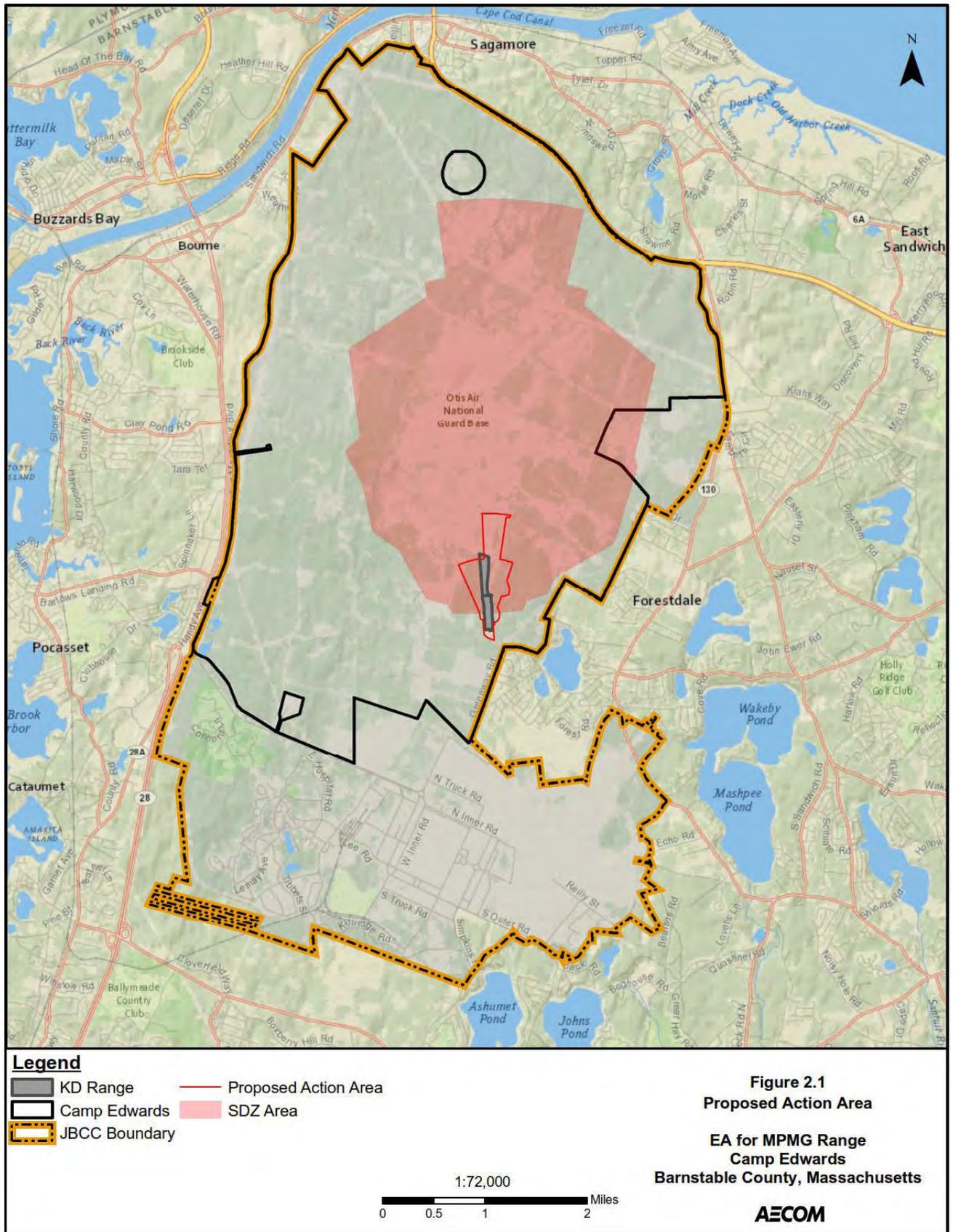


Table 2-1: Proposed MPMG Range Components

Component	Proposed Action
Range Area	<ul style="list-style-type: none"> • Six lanes (Lanes 1-4, 7, 8) <ul style="list-style-type: none"> – 800-meters long – Width of 25 meters at the firing line (each lane) – Width of 100 meters at 800 meters (each lane) • Two extended lanes (Lanes 5, 6) <ul style="list-style-type: none"> – 1,500-meters long – Width of 25 meters at firing line (each lane) – Width of 330 at 1,500 meters (each lane)
Targets	<ul style="list-style-type: none"> • Six lanes (Lanes 1-4, 7, 8) <ul style="list-style-type: none"> • 26 Double Target Arms • 18 Stationary Infantry Targets • 14 Widened Stationary Infantry Targets • 12 Moving Infantry Targets • Two extended lanes (Lanes 5, 6) <ul style="list-style-type: none"> • 4 Stationary Armor Targets • 4 Individual Movement Techniques
SAROCA	<ul style="list-style-type: none"> • Range Control Tower (657 SF) • Range Operations and Storage Facility (800 SF) • Ammunition Breakdown Building (185 SF) • Bleacher Enclosure (726 SF) • Range Classroom Building (800 SF) • Covered Mess Shelter (800 SF)

571

572 The Proposed Action would also include the construction of SAROCA facilities to support the overall
 573 control and operation of the range, training exercises, administrative services, and support facilities. The
 574 type of facilities and their basic functions are summarized below.

- 575 • **Range Control Tower** – The 657-SF range control tower would provide space for personnel
 576 conducting training exercises and accommodate required electronics and communications
 577 equipment. The range control tower would be 26 feet in height.
- 578 • **Range Operations and Storage Facility** – The 800-SF operations and storage facility would
 579 provide office space for range personnel and also functions as a storage area for range maintenance
 580 equipment, spare parts, tools, and supplies.
- 581 • **Ammunition Breakdown Building** – The 185-SF ammunition breakdown building would be used
 582 as an ammunition issue point for troops using the range. Troops would breakdown containerized
 583 small arms ammunition, load magazines, and issue for use in this building.
- 584 • **Bleacher Enclosure** – The 726-SF enclosure would protect troops from the weather and extreme
 585 elements before and after training events. It would also act as a troop staging area, a place for
 586 observing training events, and an assembly area for personnel during lightning events.
- 587 • **Range Classroom Building** – The 800-SF classroom provides a location for training units to
 588 conduct pre- and post-training briefs and reviews.
- 589 • **Covered Mess Shelter** – The 800-SF facility would provide an area for troop messing at the range
 590 site, including protection from the weather.

591 In addition to the main design features as described above, the following additional features and
 592 components would be constructed: antiterrorism and force protection (AT/FP) measures in accordance with

593 the DoD Unified Facilities Criteria (UFC) 4-010-01, *Antiterrorism Standards for Buildings*; range signage;
594 and fire detection and alarm systems.

595 **2.2.1.2 Utilities**

596 Electricity is supplied to Camp Edwards by Eversource. In order to accommodate the MPMG Range, an
597 aboveground power line (5 kV or 15 kV) with electrical and communication feeds would be connected
598 from the closest power source at the H Range, located on the Forestdale-Pocasset Road, and run east
599 approximately 0.5 mile to the MPMG Range. Tree clearing would not be anticipated for this connection as
600 the line would keep to the existing roadways when possible. Utility extensions to all of the targets from the
601 SAROCA would also be required, specifically electrical and telecommunication services. Buried electrical
602 wire would be placed in a conduit running the entire length of the range. Heating in the SAROCA facilities
603 would be provided by stationary electric heating units.

604 The MPMG Range would be available for limited night fire operations in accordance with existing Camp
605 Edwards Range Regulations. Lighting would be designed to minimize potential lighting interference in
606 adjacent off-range areas and contained within the confines of the MPMG Range. Additional light impact
607 reduction would be based on behavior controls in range use SOPs (e.g., lights off when range not in use).
608 Control of flood lighting would be via manual switching and would not be used during live-fire exercises.
609 The site would also require red night lighting that is used to provide low level lighting for night live-fire
610 exercises when the Soldiers are using night vision equipment. Temporary and permanent lighting for the
611 Proposed Action would also be designed and installed in a manner to reduce interference with wildlife
612 behaviors.

613 Portable toilet facilities would be provided as latrines are prohibited in accordance with EPS Standards 1.2.
614 Wastewater and sewage from MAARNG training activities at Camp Edwards is pumped from portable
615 toilet facilities and hauled off-base for disposal at licensed disposal facilities.

616 **2.2.1.3 Access and Maintenance Roads, Parking, and Fencing**

617 Access to the Proposed Action area would be provided through the existing Pocasset-Forestdale Road,
618 which would be re-surfaced with aggregate pavement. Within the MPMG Range, compacted gravel access
619 roads would be constructed every 100 meters and along the eastern and western exteriors of the limit of
620 construction as shown on **Figure 2-1** to access target emplacements and for installation and maintenance
621 operations. Sidewalks would be constructed of gravel and would connect the SAROCA facilities. A total
622 of 9,450 SF of new parking space, for both military owned and privately owned vehicles, would be
623 constructed. In addition, a total of 756 linear feet (LF) of fencing would be installed.

624 Access roads and impervious surfaces would be designed to meet site-specific engineering requirements to
625 support proper stormwater flow management. The proposed MPMG Range would include an onsite
626 stormwater management area to the south of the SAROCA. All stormwater measures would be designed to
627 meet Massachusetts Stormwater Standards.

628 **2.2.1.4 Firebreaks**

629 Firebreaks would be incorporated into the MPMG design and located along existing roads where feasible
630 and require up to 10.0 acres of clearing. MPMG design requires a maintenance road that encircles the
631 range. This road has been to firebreak planning standards. The firebreak planning standard is a 15-foot
632 gravel road with 30-feet of winter mowed grass/forb/low shrub and a 200-foot protective buffer on each
633 side with understory mowing and mechanical tree thinning at 20 to 40 foot spacing.

634 The overarching goal for the firebreaks is to maintain or improve PPSO and SOS conditions, while reducing
635 wildfire hazard from tracers and other ignition sources. Range use at Camp Edwards introduces significant
636 wildfire hazard into unmanaged and high-risk fuels conditions through the use of tracers and ammunition.

637 Tracers are forms of ammunition that include a small pyrotechnic charge which makes the trajectory of the
 638 ammunition visible. Other ignition sources are flares (used to illuminate the range temporarily at night) and
 639 simulators (used to mimic artillery or grenades from opposing forces). All ranges using tracers need to be
 640 surrounded with firebreaks and managed fuel conditions. Natural communities within the Camp Edwards,
 641 such as pitch pine and scrub oak communities, are fire-dependent systems shaped over thousands of years.
 642 With Euro-American influence, the natural fire regime has mostly been suppressed and replaced with
 643 infrequent human induced catastrophic fires creating a severe wildland urban interface. It is imperative that
 644 the MAARNG and the surrounding communities address and plan for wildland fire.

645 While firebreaks are a critical component of the MPMG Range, the development, operation, and
 646 maintenance of firebreaks are part of a Camp Edwards-wide firebreak and management plan and the
 647 Integrated Wildland Fire Management Plan (IWFMP). Therefore, information on firebreaks under the
 648 Proposed Action is only discussed in the context of tree clearing required for construction of the MPMG
 649 Range; firebreak maintenance and fire management are addressed under the existing IWFMP and therefore
 650 addressed in detail in the cumulative effects section (see **Section 4.13**).

651 **2.2.2 Military Training Operations and Usage**

652 A description of the proposed training operations and site usage from the Proposed Action is provided
 653 below. Range operations would be conducted in accordance with AR 385-63, *Range Safety*, DA PAM 385-
 654 63, *Range Safety*, National Guard Regulation (NGR) 385-63, *Range Safety*, Camp Edwards Range
 655 Regulations 350-1, *Training and Training Support*, AR 200-1, *Environmental Protection and*
 656 *Enhancement*, and the EPS.

657 **2.2.2.1 Military Missions**

658 The Proposed Action would not result in a change to the MAARNG military and training missions, although
 659 it would allow all MAARNG units to meet their mission training objectives without traveling to an out-of-
 660 state facility. The MAARNG has Federal and State missions. The Federal mission is to provide the best
 661 organized, well-trained, and well-equipped soldiers to support National Security Objectives and interests.
 662 The State mission is to provide the Governor of Massachusetts with trained, equipped, and organized units
 663 to assist civil authorities in the preservation of life and property in the event of a manmade or natural
 664 disaster. The State mission also includes the reinforcement of first responders with a follow-on force
 665 comprising large numbers of highly trained professionals.

666 Camp Edwards' primary mission is to prepare soldiers for combat missions overseas as well as to serve and
 667 protect the homeland stateside.

668 **2.2.2.2 Weapons and Ammunition**

669 The types of weapons and ammunition to be used at the proposed MPMG Range are listed in **Table 2-2**.

Table 2-2: Anticipated Weapons and Ammunition Usage at the MPMG Range

Weapon(s)	Ammunition
Machine Guns: M4, M16, M27, M249	5.56 x 45 mm ball
Machine Guns: M60, M240B, M24, MK48, M134	7.62 x 51 mm Ball
Machine Guns: M2, M82	.50 caliber ball
Shotgun	12 Gauge 00 Buckshot
Grenade Launcher: MK19	40 mm
Pistol: M1911	.45 caliber ball

Source: (URS, 2007)

Notes: Caliber – Bullet diameter in hundredths of an inch (US) or mm (metric)

Ball – General-purpose cartridge with primer, ball, full powder charge

670 2.2.2.3 Surface Danger Zones

671 An SDZ is a mathematically predicted area where a projectile will impact upon return to earth, either by
 672 direct fire or ricochet. The SDZ is the area extending from a firing point to a distance downrange based on
 673 the projectiles fired and weapon system used. The SDZ has specific dimensions for the expected caliber or
 674 the weapon being fired so that all projectile fragments are contained in this area. The standard dimensions
 675 for SDZs are found in DA PAM 385-63, *Range Safety*. The SDZ for a range must be contained within the
 676 controlled boundaries of a training site for the range to be considered buildable and usable without a special
 677 waiver from regulations. The MAARNG proposes to configure ranges to allow common SDZs as much as
 678 possible without causing training conflicts (i.e., to allow all ranges to be used simultaneously, to the
 679 maximum extent possible).

680 Under the Proposed Action, approximately 5,197 acres would be required for the MPMG Range to
 681 accommodate the SDZs associated with the proposed weapons and ammunition, identified in **Table 2-2**
 682 (**Figure 2-1**). The SDZs would be managed by the MAARNG in accordance with AR 385-63, *Range Safety*,
 683 DA PAM 385-63, *Range Safety*, and NGR 385-63, *Range Safety*. These regulations require that all SDZs
 684 fall within lands controlled by the ARNG. No land disturbance is proposed within the designated SDZ area.

685 2.2.2.4 Projected Site Use

686 The MPMG Range would be available for all MAARNG units.. The MAARNG units that would utilize the
 687 proposed MPMG Range would include, but are not limited to: 164th Transportation Battalion, 126th
 688 Support Battalion, 1st Battalion 181st Infantry Regiment, and 126th Aviation Regiment.

689 A total of 94,974 man-days of training occurred at Camp Edwards for military personnel in Training Year
 690 (TY) 2019. Under the Proposed Action, it is anticipated that Camp Edwards site usage could increase by
 691 up to 18.6 percent (or by up to 17,650 man-days) as a result of military personnel utilizing the MPMG
 692 Range. Peak usage would occur from May through June, during the main annual training cycle from March
 693 through November. Night training would occur approximately 1 to 2 days per week, from sundown to 2:00
 694 AM, for a total of 37 to 74 days during the annual training cycle. Projected site use under the Proposed
 695 Action in comparison to FY 2019 training use is provided in **Table 2-3**.

Table 2-3: Current and Projected Training Use at Camp Edwards

Area	Training Days/Events		Military Personnel (man-days)		Civilian Personnel (man-days)	
	TY 2019 Use	Proposed Action Use	TY 2019 Use	Proposed Action Use	TY 2019 Use	Proposed Action Use
Ranges	225	398	5,370	14,020	271	271
Training Areas	702	875	49,716	54,716	1,920	1,920
Training Support Areas	1,554	1,727	39,888	43,888	10,233	10,233
Total	2,481	3,000	94,974	112,624	12,424	12,424

Source: Camp Edwards State of the Reservation Report, Final Training Year (TY) 2019

696 2.3 Alternatives Considered

697 NEPA, CEQ regulations, and 32 CFR 651 require all reasonable alternatives to be explored and objectively
 698 evaluated. Alternatives that are eliminated from detailed study must be identified along with a brief
 699 discussion of the reasons for eliminating them. For purposes of analysis, an alternative was considered
 700 “reasonable” only if it would enable the MAARNG to accomplish the primary mission of providing land,
 701 facilities, and resources at Camp Edwards and to meet the purpose of and need for the Proposed Action.

702 “Unreasonable” alternatives would not enable the MAARNG to meet the purpose of and need for the
703 Proposed Action.

704 2.3.1 Alternatives Development (Screening Criteria)

705 The MAARNG developed and applied the following 13 criteria to screen and evaluate possible alternatives
706 for the Proposed Action. The MAARNG identified that a suitable site would meet the following
707 requirements:

- 708 1. **Sufficient Land Area:** The proposed range should have a sufficient amount of land to
709 accommodate the proposed range and its associated SDZs, in accordance with TC 25-8 and AR
710 385-63.
- 711 2. **Optimal Location:** The proposed range should be located within a MAARNG-controlled training
712 area in Massachusetts to avoid excessive travel times and costs for MAARNG.
- 713 3. **Land Use Compatibility:** The proposed range should be sited so as to minimize conflicts with
714 other existing ranges and training uses, thereby allowing multiple training ranges and facilities to
715 be utilized concurrently and maximizing training efficiency.
- 716 4. **Co-Located Impact Areas:** The proposed range should be sited in a way that maximizes the use
717 of existing impact areas with common SDZs. Such a layout would avoid the creation of new
718 impact areas, avoid consuming additional training land, and reduce the area of potential hazard
719 across Camp Edwards.
- 720 5. **Proximate to Existing Utilities:** The proposed range should be sited in close proximity to existing
721 utility services (i.e., electric, telecommunications) in order to minimize construction costs and the
722 need for new or extended utilities.
- 723 6. **Proximate to Existing Roads:** The proposed range should be sited in close proximity to existing
724 access roads in order to minimize construction costs and the need for new roads.
- 725 7. **Minimal Environmental Concerns:** The proposed range should be sited in an area with few
726 existing known environmental constraints (i.e., notably wetlands and other waters, wooded areas,
727 endangered or threatened species habitat, or cultural resources) to minimize potential effects on
728 existing onsite environmental concerns.
- 729 8. **Minimal Ground Disturbance:** The proposed range should be sited in previously disturbed areas
730 to minimize the need for new ground disturbance, and as such, minimize the potential for new and
731 additional impacts to onsite soils, water, biological, and cultural resources.
- 732 9. **Minimal Off-Site Disturbance:** The proposed range should be sited in a central location within a
733 MAARNG-controlled training area in order to minimize potential impacts (i.e., dust, noise,
734 lighting) to off-site areas, including residents and sensitive receptors.
- 735 10. **Meet Mission Requirements:** The proposed range should allow the MAARNG units to meet all
736 training and ARRM data requirements to fulfill the MAARNG mission.
- 737 11. **Regulatory and Planning Compliance:** The proposed range should be in compliance with
738 applicable regulations and planning documents developed for Camp Edwards and the surrounding
739 area.
- 740 12. **Maintain Training Capacity:** The proposed range should ensure no net loss in the capacity of the
741 MAARNG or Camp Edwards to support the military missions and conduct training operations.
742

743 Through application of the first two screening criteria and evaluation process provided in **Section 2.3.3.**, it
744 became readily apparent to the MAARNG that locating the MPMG Range at Camp Edwards was the only
745 alternative capable of meeting these screening criteria. Therefore, the subsequent screening criteria were
746 used to identify proposed project siting within Camp Edwards. Once Camp Edwards was identified as the

747 only viable location, the MAARNG undertook a rigorous siting analysis to identify potential range locations
748 that could achieve the purpose and need for the Proposed Action, as well as best meet the above screening
749 criteria. **Table 2-4** provides a summary of the alternatives considered and their abilities to meeting the
750 screening criteria.

751 **2.3.2 Evaluated Alternatives**

752 This EA evaluates the potential direct, indirect, and cumulative environmental, cultural, socioeconomic,
753 and physical effects of three alternatives to implementing the Proposed Action: the Preferred Alternative
754 (Proposed Action), the Reduced-Scale Alternative (MILCON-funded alternative), and the No Action
755 Alternative.

756 Currently, MILCON funding has not been appropriated for the implementation of the Preferred Action
757 Alternative (Proposed Action). At the time of programming the MPMG MILCON funding request, the
758 MAARNG did not include a provision for the additional M2 lanes. As such, the additional features
759 associated with this alternative (e.g., extension of the two middle lanes from 800 feet to 1,500 feet) are not
760 currently funded. These additional features would need to be constructed at a later date.

761 **2.3.2.1 Preferred Alternative (Proposed Action)**

762 The Preferred Alternative would carry out the Proposed Action as described in **Section 2.2** by constructing
763 an eight lane MPMG Range with six lanes 800 meters long by 25 meters wide at the firing line and by 100
764 meters wide at a distance of 800 meters (**Figure 2-2**). The two middle lanes would extend an additional 700
765 meters to a distance of 1,500 meters long to accommodate the use of .50 caliber rifles.

766 The construction of the Proposed Action would fulfill the assigned mission and training requirements to
767 have a machine gun range available within Massachusetts. The Preferred Alternative site is primarily
768 forested and undeveloped, with the exception of maintained land and structures at the KD Range. The
769 Preferred Alternative would require approximately 199.0 acres of land disturbance, including
770 approximately 170.5 acres of tree clearance to accommodate the range footprint and associated support
771 components.

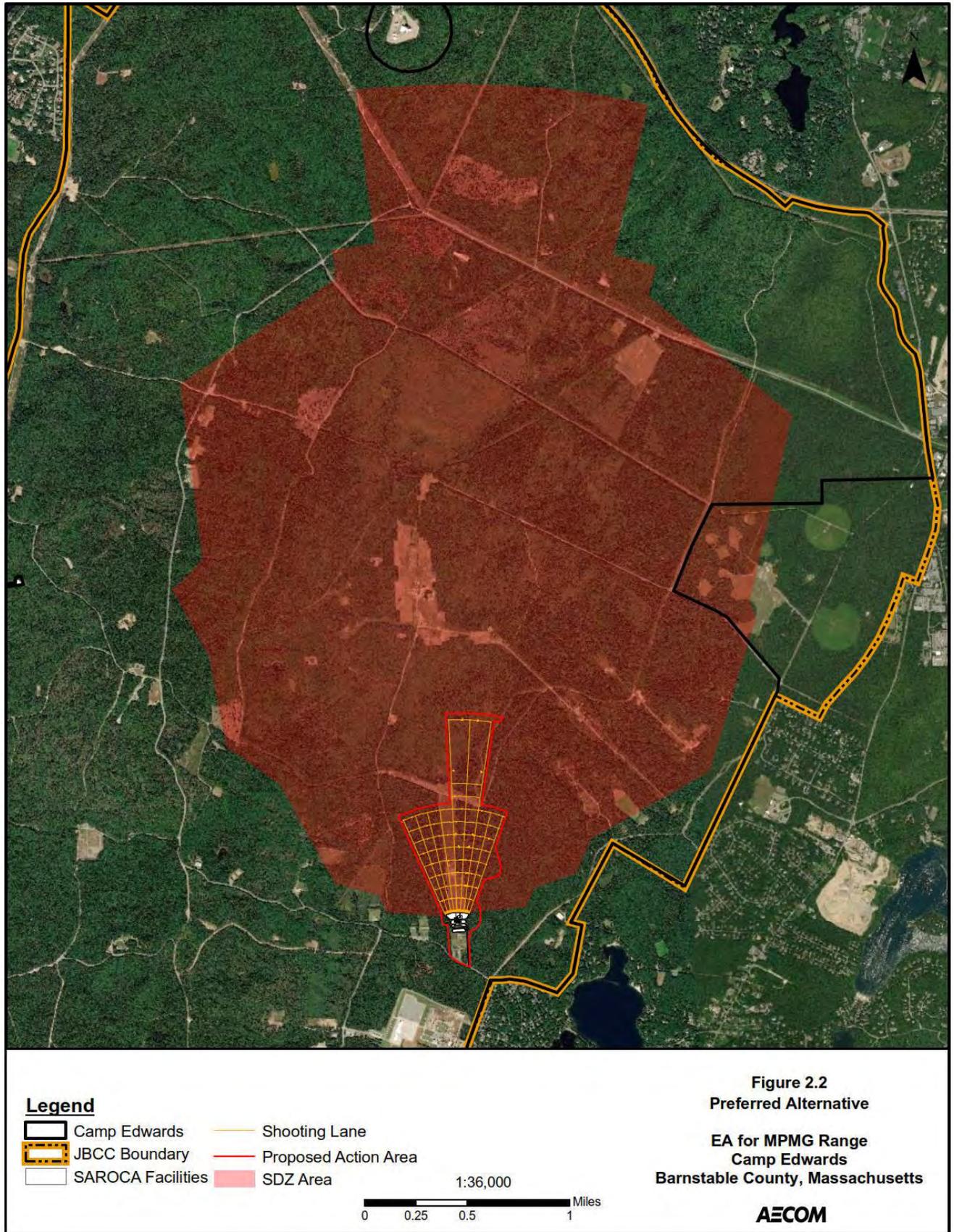
772 This is the MAARNG's Preferred Alternative because it best meets the screening criteria set forth in **Section**
773 **2.3.1**. It effectively provides the best combination of land and resources to sustain quality military training
774 and to maintain and improve MAARNG's readiness posture. This alternative provides many advantages
775 including:

- 776 • Located within an existing MAARNG facility, which would keep costs down and reduce travel
777 times.
- 778 • Provides ample space/acreage for the required facilities.
- 779 • Located in an area with minimal environmental constraints.
- 780 • Compatible with current and future land uses and other ranges.
- 781 • Located near existing infrastructure and available utility connections.
- 782 • Places noise-producing facilities further away from noise-sensitive areas within and adjacent to
783 Camp Edwards.
- 784 • Allows for the use of .50 caliber rifles.
- 785 • Complies with range requirements per TC 25-8, TC 25-1, and AR 350-19.

786

Table 2-4: Summary of Alternatives Eliminated from Further Consideration

Screening Criteria (Section 2.3.1)	Alternatives Carried forward and the Screening Criteria that would <u>NOT</u> be met		Alternatives Eliminated and the Screening Criteria that would <u>NOT</u> be met				
	Preferred Alternative (Section 2.3.2.1)	Reduced-Scale Alternative (Section 2.3.2.2)	Other Installation (Section 2.3.3.1)	Undisturbed Area at Camp Edwards (Section 2.3.3.2)	Different Existing Range (Section 2.3.3.3)	Standard-Size MPMG Range (Section 2.3.3.4)	Alternate Southern Location (Section 2.3.3.5)
1. Sufficient Land Area	--	--	✓	--	✓	✓	--
2. Optimal Location	--	--	✓	--	--	--	--
3. Land Use Compatibility	--	--	--	✓	✓	--	✓
4. Co-Located Impact Areas	--	--	--	✓	--	✓	--
5. Proximate to Existing Utilities	--	--	--	--	--	--	--
6. Proximate to Existing Roads	--	--	--	--	--	--	--
7. Minimal Environmental Concerns	--	--	--	✓	--	✓	✓
8. Minimal Ground Disturbance	--	--	--	✓	--	✓	✓
9. Minimal Off-Site Disturbance	--	--	--	--	--	✓	✓
10. Meet Mission Requirements	--	--	✓	--	--	--	--
11. Regulatory and Planning Compliance	--	--	--	--	--	✓	--
12. Maintain Training Capacity	--	--	✓	--	--	--	--
Reasonable Alternative?	Yes	Yes	No	No	No	No	No



787 2.3.2.2 *Reduced-Scale Alternative*

788 The Reduced-Scale Alternative would implement a modified version of the Proposed Action.
789 Approximately 128.0 acres of land would be disturbed during construction, including up to 99.5 acres of
790 tree clearance. All eight lanes would be constructed to a distance of 800 meters, allowing for similar usage
791 and advantages as the Preferred Alternative. However, under this alternative, Lanes 5 and 6 would not be
792 extended to 1,500 meters and therefore, would not be able to accommodate the use of the M2 machine gun,
793 the M82 sniper rifle, and their associated .50 caliber ammunition (**Figure 2-3**). All other range components
794 would be as described under the Proposed Action (**Section 2.2**). The Reduced-Scale Alternative is the
795 approved MILCON project-funded for FY 2020.

796 2.3.2.3 *No Action Alternative*

797 Under the No Action Alternative, the Proposed Action would not be implemented, and the existing training
798 activities and operations would continue at the installation. Units would continue to travel to either New
799 York, New Jersey, or Vermont for required training on the nearest MPMG Range as the facilities necessary
800 to accommodate the MAARNG would continue to be unavailable in the State. Camp Edwards' full training
801 potential would continue to be limited, causing MAARNG units to risk not meeting STRAC requirements,
802 and wasting resources on excessive travel time and costs. This alternative would limit the capability of the
803 MAARNG to carry out its assigned mission and would not meet the purpose of or need for the Proposed
804 Action.

805 While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, this
806 alternative was retained to provide a comparative baseline analysis as required under CEQ Regulations at
807 40 CFR Part 1502.14. The No Action Alternative reflects the status quo and serves as a benchmark against
808 which the effects of the Proposed Action can be evaluated.

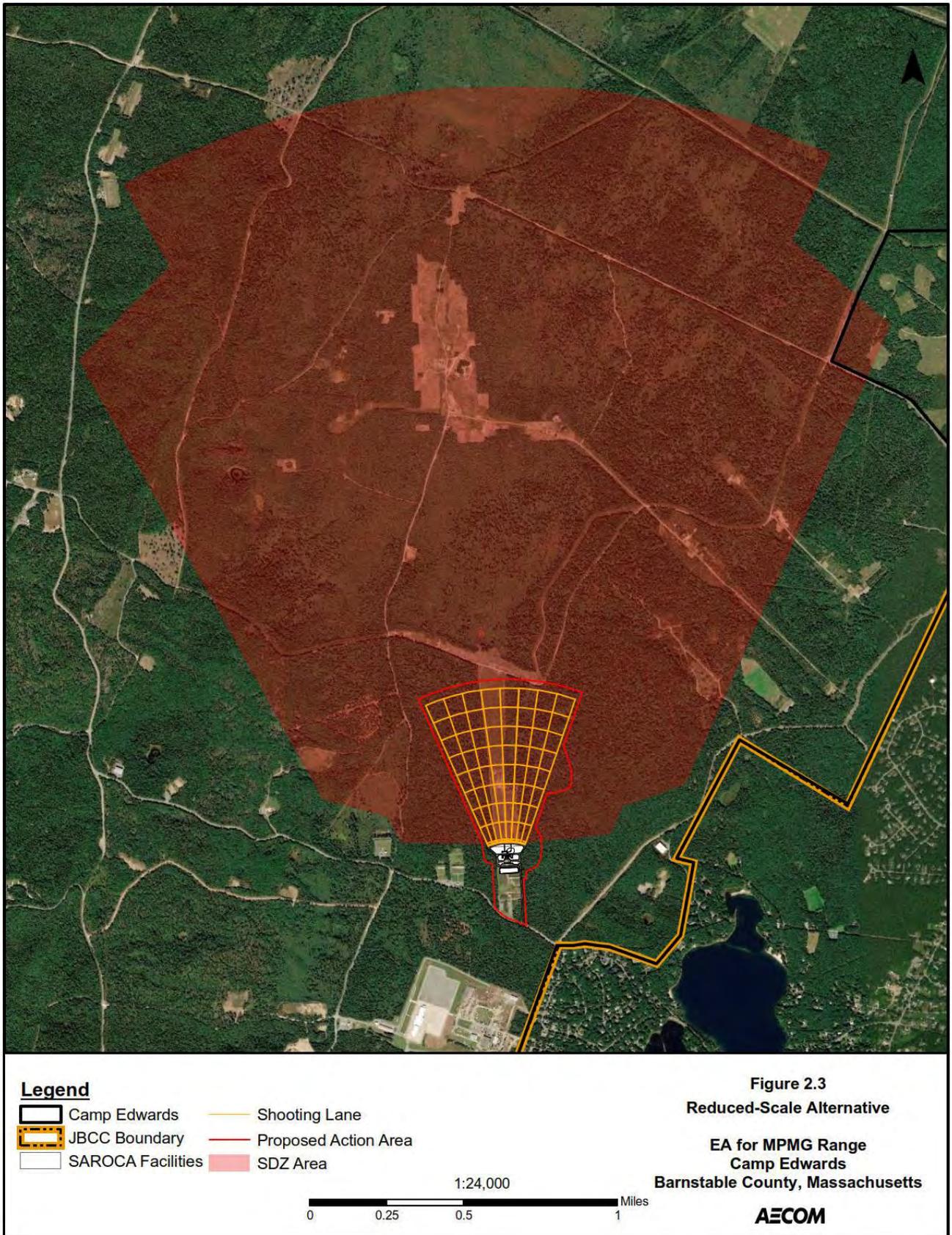
809 2.3.3 **Alternatives Eliminated from Further Consideration**

810 The MAARNG considered but dismissed from further analysis the following alternatives: 1) use a training
811 site at another installation; 2) use an undisturbed area at Camp Edwards; 3) use a different existing range at
812 Camp Edwards; 4) implement a standard-size MPMG range; and 5) use an alternate location 100 meters
813 south of the Proposed Action.

814 These alternatives were eliminated from further consideration because they did not meet one or more of the
815 screening criteria included in **Section 2.3.1. Table 2-4** provides a summary of the alternatives considered
816 and their abilities to meet the screening criteria; rationales for dismissing these alternatives are summarized
817 below.

818 2.3.3.1 *Use of Other Installation*

819 The MAARNG considered acquiring a completely new training site outside of JBCC for the construction
820 and operation of the proposed MPMG Range. This alternative was examined but eliminated due to the fact
821 that recent DoD initiatives are eliminating and/or consolidating many installations throughout the U.S;
822 therefore, other sufficient land area is not available. Further, conducting training at a range outside of JBCC
823 would still incur travel costs and time, affecting MAARNG efficiency and potentially degrading training
824 capacity. As sufficient land area is available at Camp Edwards, the MAARNG determined that, in
825 accordance with DoD directives and vision, establishment of a new training site at a different installation
826 was neither feasible nor necessary. This alternative does not meet Screening Criteria #1, #2, #10, and #12,
827 as outlined in **Table 2-4**, and was therefore dismissed from further evaluation.



828 **2.3.3.2 Use of Undisturbed Area at Camp Edwards**

829 Constructing and operating the MPMG range within an undisturbed portion of Camp Edwards was
830 considered. However, this alternative was eliminated due to the fact that it would require substantial ground
831 disturbance and likely present more environmental concerns, such as impacts on rare species habitat and
832 fragmentation, compared to siting the range at the already cleared KD Range. In addition, any available
833 undisturbed land would be restricted by the existing ranges at Camp Edwards and potentially conflict with
834 existing land use and training, as well as current SDZs and impact areas. This alternative does not meet
835 Screening Criteria #3, #4, #7, and #8 as shown in **Table 2-4**, and was therefore dismissed from further
836 evaluation.

837 **2.3.3.3 Use of a Different Existing Range at Camp Edwards**

838 The MAARNG considered siting the proposed MPMG Range on a different existing range at Camp
839 Edwards. However, siting options were limited for the proposed range given the large amount of land this
840 range requires, including the SDZs. During the range siting process, alternative range configurations were
841 evaluated but were eliminated due to various land constraints and existing usage at other ranges. In some
842 instances, in order to utilize a different existing range, the existing range would have to be dismantled and
843 replaced elsewhere on the base resulting in additional substantial costs. This alternative does not meet
844 Screening Criteria #1 and #3 as shown in **Table 2-4**, and was therefore dismissed from further evaluation.

845 **2.3.3.4 Standard-Size MPMG Range**

846 The standard-size MPMG range per TC 25-8 comprises 10 lanes, requiring more suitable land, which is
847 already a limited resource at Camp Edwards. The standard-size range would require more ground
848 disturbance which may result in substantial environmental impacts, particularly from clearing of rare
849 species habitat. In addition, a larger range would increase noise impacts on adjacent sensitive receptors.
850 The SDZs for this alternative would not comply with AR 385-63 and AR 25-30, as they would be located
851 partially off-base. This alternative does not meet Screening Criteria #1, #4, #7, #8, and #9 as shown in
852 **Table 2-4**, and was therefore dismissed from further evaluation.

853 **2.3.3.5 Alternate Southern Location**

854 An alternate southern location was considered for the proposed MPMG Range. Specifically, the alternate
855 location would shift the entire MPMG Range (as proposed under the Preferred Alternative) south
856 approximately 100 meters. This location would site the range approximately 100 meters north of the
857 existing firing line at the KD Range. While this alternative would fulfill the assigned missions, it would be
858 sited closer to the Camp Edwards and JBCC boundaries, resulting in greater impacts to off-site areas and
859 adjacent uses and more ground disturbance. This alternative does not meet Screening Criteria #3, #7, #8,
860 #9, and #11 as shown in **Table 2-4**, and was therefore dismissed from further evaluation.

861 **2.4 Alternatives Impacts - Comparison Matrix**

862 This EA evaluates the potential direct, indirect, and cumulative environmental, cultural, socioeconomic,
863 and physical effects of three alternatives to implementing the Proposed Action. A comparison of the
864 environmental consequences of these alternatives is provided in **Table 2-5**.

Table 2-5: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Land Use and Cover	<p>Long term, potentially significant adverse impact on future land use from a reduction in training use of Camp Edwards.</p>	<p>Long-term, <u>less-than-significant</u> adverse impacts on land cover from the clearing of 170.5 acres and permanent conversion of forested areas to maintained grasslands.</p> <p>Long-term, <u>beneficial</u> impact on land use by maximizing training value and use of Camp Edwards.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Long-term, <u>less-than-significant</u> adverse impacts on land cover from the clearing of 99.5 acres and permanent conversion of forested areas to maintained grasslands.</p> <p>Long-term, <u>beneficial</u> impact on land use by maximizing training value and use of Camp Edwards.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Air Quality	<p>Long-term, <u>less-than-significant</u> adverse impact on climate change from continued vehicle-generated GHG emissions.</p>	<p>Short-term, <u>less-than-significant</u> adverse impacts on air quality from the clearing of 170.5 acres generating fugitive dust and exhaust emissions.</p> <p>Long-term, <u>less-than-significant</u> adverse impact on air quality from increased emissions due to training and firing operations.</p> <p>Long-term, <u>beneficial</u> impacts on air quality from decreased emissions due to reduced out-of-State travel.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <u>less-than-significant</u> adverse impacts on air quality from the clearing of 99.5 acres generating fugitive dust and exhaust emissions.</p> <p>Long-term, <u>less-than-significant</u> adverse impact on air quality from increased emissions due to training and firing operations.</p> <p>Long-term, <u>beneficial</u> impacts on air quality from decreased emissions due to reduced out-of-State travel.</p> <p>Impacts would be less than the Preferred Alternative.</p>

Table 2-5: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Noise	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on noise levels due to construction activities required for clearing 170.5 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on noise levels due to increased site usage and weapons firing.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on noise levels due to construction activities required for clearing 99.5 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on noise levels due to increased site usage and weapons firing.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Soils	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on soils due to erosion, sedimentation, and compaction resulting from the disturbance of 199.0 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on soils from training activities.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on soils due to erosion, sedimentation, and compaction resulting from the disturbance of 128.0 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on soils from training activities.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Groundwater	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on groundwater from potential contaminant spills during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on groundwater from inadvertent release of contaminants during site maintenance and training operations.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on groundwater from potential contaminant spills during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on groundwater from inadvertent release of contaminants during site maintenance and training operations.</p> <p>Impacts would be less than the Preferred Alternative.</p>

Table 2-5: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Biological Resources	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on vegetation from temporary clearing for construction of the MPMG range.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on vegetation from the permanent loss of 170.5 acres of forested land.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on wildlife species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on wildlife species from potential habitat loss and training range operations.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on special status species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on special status species from potential habitat loss and training range operations.</p> <p>Long-term, <i>beneficial</i> impacts on migratory birds from enhanced habitat due to wildfire management practices.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on vegetation from temporary clearing for construction of the MPMG range.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on vegetation from the permanent loss of 99.5 acres of forested land.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on wildlife species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on wildlife species from potential habitat loss and training range operations.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on special status species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on special status species from potential habitat loss and training range operations.</p> <p>Long-term, <i>beneficial</i> impacts on migratory birds from enhanced habitat due to wildfire management practices.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Cultural Resources	No impact.	<i>No effect</i> on cultural resources.	<i>No effect</i> on cultural resources.

Table 2-5: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Infrastructure	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on traffic conditions from temporary construction congestion.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on traffic conditions from personal and military vehicles moving to and from the new MPMG Range.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on utilities from temporary utility interruptions during utility extensions and construction.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on traffic conditions from temporary construction congestion.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on traffic conditions from personal and military vehicles moving to and from the new MPMG Range.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on utilities from temporary utility interruptions during utility extensions and construction.</p> <p>Impacts would be less than the Preferred Alternative.</p>
HTMW	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts associated with the handling, storage, use, transportation, and disposal of HTMW during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts associated with the handling, storage, use, transportation, and disposal of HTMW during training operations and site maintenance.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts associated with handling, storage, use, transportation, and disposal of HTMW during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts associated with the handling, storage, use, transportation, and disposal of HTMW during training operations and site maintenance.</p> <p>Impacts would be less than the Preferred Alternative.</p>

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865

3. AFFECTED ENVIRONMENT

866 Per 40 CFR Part 1501.7(a)(3), the CEQ recommends agencies identify and eliminate from detailed study
867 any issues that are not significant or that have been covered in another environmental review, narrowing
868 the discussion to a brief presentation of why they will not have a significant effect on the human
869 environment, or providing a reference to their coverage elsewhere. Therefore, this section specifically
870 describes current baseline conditions within and in the vicinity of the proposed MPMG Range and
871 associated SDZs, as appropriate, at Camp Edwards in Barnstable County, with emphasis on those resources
872 that would be potentially affected by the implementation of the Proposed Action or its alternatives. **Section**
873 **4**, Environmental Consequences, identifies potential direct, indirect, and cumulative effects of the project
874 alternatives on each of the issue areas presented in this section. Regulations relevant to resource areas
875 analyzed in this EA are included in **Sections 3** and **4**, as appropriate.

876 The MAARNG determined the Proposed Action would have no adverse impact on the following resources:
877 geology and topography; surface waters, wetlands, floodplains, and coastal resources; socioeconomic
878 conditions, including health and safety, recreation, and protection of children; and environmental justice.
879 The following sections discuss the reasons for eliminating these issues from further analysis in the EA.

880 **Geology and Topography**

881 The geology of Camp Edwards is composed primarily of Pleistocene Age sandstones, with sandstone
882 deposits of Holocene age present along major drainage channels overlying Proterozoic-age schist, gneiss,
883 and granite bedrock. Surficial glacial sediments deposited during the retreat of the Wisconsin glaciation
884 underlie western Cape Cod. No geologic hazards or active significant faults are known to occur within the
885 Proposed Action area's subsurface geology. Topography within Camp Edwards ranges from 250 feet above
886 mean seal level (MSL) at the northern end of the installation to 50 feet above MSL at its southern end.
887 Large glacial deposits dominate the northern and western portion of Camp Edwards with high topographic
888 relief of rolling hills and deep kettle holes; slopes range from 0 to 15 percent (MAARNG, 2009). In contrast,
889 the southern portion has low elevations and little topographic relief. Topographic conditions surrounding
890 the proposed MPMG Range are relatively flat.

891 No geologic hazards are apparent in the Proposed Action area and no mineral resources would be
892 anticipated. Topographic conditions surrounding the Proposed Action area are relatively flat and would not
893 be altered. Therefore, the Proposed Action would have no impact on local geology and topography; these
894 resources are dismissed from further analysis in the EA.

895 **Surface Waters, Wetlands, Floodplains, and Coastal Resources**

896 Surface water resources consist of lakes, rivers, and streams. Surface water resources are sparse on Camp
897 Edwards. No large lakes, rivers, or streams exist on the property, only small palustrine (i.e., marshy)
898 wetlands and ponds. No surface waters are present at or near the proposed MPMG Range. Similarly, no
899 wetlands occur in or surrounding the Proposed Action area. Further, no 100-year floodplains, which are
900 areas with a 1 percent chance of flooding each year (FEMA, 2019).

901 The JBCC is located within the Coastal Zone, as identified by the Massachusetts Office of Coastal Zone
902 Management (CZM), which includes all of Cape Cod. In 1972, the U.S. Congress passed the Coastal Zone
903 Management Act (CZMA), which establishes a national policy to "preserve, protect, develop, and where
904 possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding
905 generations." The CZMA requires a Federal Consistency Determination to evaluate a Federal action's
906 compliance with the CZMA. DoD activities subject to CZM review include the location, design,
907 acquisition, construction, or disposal of new or enlarged defense installations; establishment of impact,
908 compatibility, or restricted use zones; and erosion control structures. As the development of the MPMG
909 Range does not fall within any of these activities, the Proposed Action is not subject to CZM review and
910 does not require a Federal Consistency Determination.

911 As no surface waters, wetlands, or floodplains occur within the Proposed Action area, and the Proposed
912 Action is not subject to CZM review, the Proposed Action would have no effect on these resources. Further,
913 the proposed MPMG Range would have an onsite stormwater management area and all stormwater
914 measures would be designed to meet Massachusetts Stormwater Standards. Therefore, these resources were
915 dismissed from further analysis in this EA.

916 **Socioeconomics**

917 Overall usage at Camp Edwards could increase up to 18.6 percent; however, the Proposed Action would
918 not impact the overall long-term socioeconomic conditions of the region. An increase in local housing
919 would not be anticipated as the proposed range training would not require Soldiers to remain at or in the
920 vicinity of Camp Edwards for extended periods. Additional demand could be placed on police and fire
921 protection services, as well as for medical services, should an accident occur during training activities;
922 however, medical and emergency service providers would have the capacity to meet these demands.
923 Construction of the Preferred Alternative would generate temporary jobs to support the construction
924 workforce and benefit the local economy by generating income, taxes, and revenue due to project-related
925 spending and expenditure of wages. These effects would only occur over the course of the construction
926 period, however; thus, benefits would have minimal effect in the context of the regional economy and no
927 long-term changes would be expected. Socioeconomic conditions would not change in the long-term with
928 implementation of the Proposed Action. In addition, no recreational areas occur within the Proposed Action
929 area and the proposed range would not be accessible to the public or children. Therefore, these resources
930 are dismissed from detailed analysis in this EA.

931 **Environmental Justice**

932 In accordance with EO 12898, Federal Actions to Address Environmental Justice in Minority Populations
933 and Low-Income Populations, the disproportionate placement of adverse environmental, economic, social,
934 or health effects from Federal proposed actions and policies on minority and low-income populations must
935 be avoided. A minority population exists where the percentage of minorities in an affected area either
936 exceeds 50 percent or is meaningfully greater than in the general population of the large surrounding area.
937 The Massachusetts Executive Office of Energy and Environmental Affairs identifies environmental justice
938 communities in the State as having 25 percent or more residents identifying as a race other than white, or
939 who have an income equal to or less than 65 percent of the Statewide median (MassDEP, 2019). The US
940 Census Bureau defines a “poverty area” as a census tract where 20 percent or more of the residents have
941 incomes below the poverty threshold, and an “extreme poverty area” as one with 40 percent or more below
942 the poverty level.

943 Census data indicate that neither the Town of Sandwich nor the Town of Bourne contain minority
944 populations exceeding 25 percent. The poverty rates for the Towns of Bourne and Sandwich, Barnstable
945 County, Massachusetts, and the U.S. were all below 20 percent (US Census Bureau, 2015). Therefore, no
946 specific concentrations of minority or low-income populations are located in the vicinity of the Proposed
947 Action area, and the Proposed Action would not occur in an environmental justice area of concern. Low-
948 income and minority populations would not be particularly or disproportionately affected by the Proposed
949 Action. Therefore, consideration of environmental justice is dismissed from detailed analysis in this EA.

950 **3.1 Location Description**

951 JBCC is located in southeastern Massachusetts on Cape Cod within four towns (Bourne, Sandwich,
952 Falmouth, and Mashpee) in Barnstable County, approximately 50 miles southeast of Boston (see **Figure 1-**
953 **1**). JBCC is divided into two major sections: 1) the southern 5,000-acre Cantonment Area comprising of
954 administrative buildings, barracks, aircraft and vehicle maintenance shops, housing, and runways; and 2)
955 the northern 15,000-acre, largely wooded area comprising trails, paved roads, training areas and ranges,
956 and the Central Impact Area. This area is designated as the Upper Cape Water Supply Reserve created for

957 the permanent protection of water supply, wildlife, and for compatible military training. Within the JBCC
958 there are five military commands including: the MAARNG at Camp Edwards; the MA ANG at Otis ANGB;
959 the 253rd Combat Communications Group also at Otis ANGB; the USAF at the 6th Space Warning
960 Squadron phased array radar site at Cape Cod Air Force Station; and the USCG at Air Station Cape Cod.
961 The MAARNG contains the largest amount of land at JBCC.

962 Camp Edwards encompasses approximately 15,000 acres of the approximately 20,554-acre JBCC (see
963 **Figure 1-1**). Camp Edwards is situated within the boundaries of Bourne and Sandwich (see **Figure 1-2**),
964 and is bound by U.S. Route 6, State Route 28, and State Route 130 to the north, west, and east, respectively.
965 The Proposed Action area is situated within Camp Edwards, immediately south of the Central Impact Area,
966 in the area previously used as a KD Range. The 38.5-acre KD Range was used for range training activities
967 from 1966 to 2004 and is currently used for other training operations such as UAS.

968 The local climate is defined as humid continental. The neighboring Atlantic Ocean has a moderating
969 influence on the temperature extremes of winter and summer. Winds of 30 miles per hour may be expected
970 on an average of at least one day per month. Gale force winds can be common and more severe in winter.
971 Average daily temperatures range from 29.6 °F in February to 70.4 °F in July. Mean annual rainfall and
972 snow melt water ranges from 45 to 48 inches. The average net recharge to groundwater of this annual
973 rainfall is 27 inches per year. Occasional tropical storms that affect Barnstable County may produce 24-
974 hour rainfall events of five to six inches. Average annual snowfall is 24 inches.

975 **3.2 Land Use and Cover**

976 The term “land use” refers to real property classifications that indicate either natural conditions or the types
977 of human activity occurring within a specified area. Land use can generally be separated into two primary
978 categories: natural and human modified. Natural land cover includes woodlands, rangeland, grasslands, and
979 other open or undeveloped areas. Human-modified land use includes residential, commercial, industrial,
980 communications and utilities, agricultural, institutional, recreational, and generally other areas developed
981 from a natural land cover condition. Land use is regulated by management plans, policies, regulations, and
982 ordinances (i.e., zoning) that determine the type and extent of uses allowable in specific areas and protect
983 specially designated or environmentally sensitive areas.

984 Military training lands can be defined using the following land use categories: improved, semi-improved,
985 and unimproved grounds. Improved grounds are developed areas that have either an impervious surface
986 (e.g., sidewalks, buildings) or landscape plantings that require intensive maintenance and upkeep. Semi-
987 improved grounds are where periodic grading or maintenance is performed for operational reasons (e.g.,
988 landing zones, wildlife food plots). Unimproved grounds receive little to no grounds maintenance (e.g.,
989 streams, wetlands, forests).

990 Camp Edwards is comprised of approximately 582 acres (4 percent) of improved grounds, 675 acres (5
991 percent) of semi-improved grounds, and 13,311 acres (91 percent) of unimproved grounds. The land use of
992 Camp Edwards consists of training activities (e.g., assembly, tactical maneuvering, and small arms range
993 firing), support and maintenance facilities, aviation facilities, and environmental management. There are
994 six active small arms ranges on Camp Edwards, which the MAARNG uses for weapons familiarization,
995 weapons zeroing, and qualification.

996 The Proposed Action area occurs on State-owned land leased to the Federal government that is licensed
997 back to the MAARNG. The area consists of approximately 139.3 acres of unimproved grounds dominated
998 by pine barrens, 37.4 acres of semi-improved ground where open areas are mowed to maintain grasslands,
999 and 22.0 acres of improved grounds.

1000 Camp Edwards is not subject to the requirements of local zoning ordinances as State-owned lands and
1001 military installations are not subject to local zoning or building permit codes. The activities within Camp
1002 Edwards are managed through the EPS's that guide both military and civilian users in the protection of

1003 Camp Edwards' natural and cultural resources and the groundwater beneath the Reserve during conduct of
1004 compatible military training and civilian use activities, such as hunting.

1005 Incompatible development of land close to military installations can adversely affect the ability of an
1006 installation to carry out its mission, public safety, and economic viability of a community if military
1007 operations and missions must relocate due to incompatible urban encroachment. For this reason, JBCC and
1008 Camp Edwards, in partnership with other governmental agencies and non-governmental organizations,
1009 have taken measures to restrict encroachment in lands adjacent to the installation. The Joint Land Use Study
1010 (JLUS) was funded by the DoD Office of Economic Adjustment and prepared by the Cape Cod Commission
1011 in 2012 to coordinate land-use planning effort between military installations and the surrounding
1012 communities (DoD Office of Economic Adjustment, 2005). The MAARNG is also required to develop
1013 Range Operations, Maintenance, and Management Plans (OMMP) for each range. Currently all OMMPs
1014 are being integrated into one plan.

1015 **3.3 Air Quality**

1016 In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is
1017 measured by the concentration of criteria pollutants in the atmosphere. The air quality in a region is a result
1018 of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also
1019 surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions.
1020 The ROI for air quality includes the Towns of Bourne and Sandwich in addition to the JBCC.

1021 **3.3.1 Federal Air Quality Regulations**

1022 The ambient air quality in an area can be characterized in terms of whether it complies with the primary
1023 and secondary National Ambient Air Quality Standards (NAAQS). The CAA, as amended, requires the
1024 USEPA to set NAAQS for pollutants considered harmful to public health and the environment. NAAQS
1025 are provided for six principal pollutants, called “criteria pollutants” as listed under Section 108 of the CAA:
1026 carbon monoxide (CO); lead (Pb); nitrogen oxides (NO_x); ozone (O₃); particulate matter (PM), divided into
1027 two size classes of (1) aerodynamic size less than or equal to 10 micrometers (PM₁₀), and (2) aerodynamic
1028 size less than or equal to 2.5 micrometers (PM_{2.5}); and sulfur dioxide (SO₂). The General Conformity Rule
1029 (40 CFR Part 51, Subpart W) requires Federal agencies to prepare written Conformity Determinations for
1030 Federal actions in or affecting NAAQS in nonattainment and maintenance areas, except when the action is
1031 covered under the Transportation Conformity Rule or when the action is exempted because the total
1032 increase in emissions is insignificant, or *de minimus*. NAAQS promulgated by the USEPA are defined as
1033 the maximum acceptable concentrations, both annual and short-term standards that may be reached. The
1034 short-term standards may not be exceeded. The allowable times per year a short-term standard may not be
1035 exceeded varies depending on the pollutant and averaging period of standard. Most NAAQS cannot be
1036 exceeded more than once per year.

1037 According to the USEPA, air quality within Barnstable County and the ROI is in “attainment” for all
1038 NAAQS, though the area is treated as moderate non-attainment for ozone given its location within the
1039 Ozone Transport Region (OTR) designated by Section 176A of the CAA, with 1990 amendments (USEPA,
1040 2019). However, for General Conformity purposes, non-attainment designations due solely to being part of
1041 the OTR are not applicable. Therefore, the procedural requirements of the General Conformity Provision
1042 of the CAA do not apply to the Proposed Action and no Conformity Determination is required.

1043 **3.3.2 State Air Quality Regulations**

1044 The CAA gives the authority to States to establish air quality rules and regulations. The Commonwealth of
1045 Massachusetts has adopted the NAAQS and promulgated additional State Ambient Air Quality Standards
1046 (SAAQS) for criteria pollutants. The primary regulatory authority for air quality in Massachusetts is the

1047 MassDEP – Air and Climate Division. Massachusetts has also developed a State Implementation Plan (SIP)
1048 to enforce the CAA. The Massachusetts Air Pollution Control Regulations (310 Code of Massachusetts
1049 Regulations [CMR] 6.00-7.00) outline emission limits necessary to attain ambient air quality standards for
1050 fugitive emissions, dust and particulates.

1051 Camp Edwards is part of the Metropolitan Providence Intrastate Air Quality Control Region (AQCR 120)
1052 which was designated a serious non-attainment area for the 1-hour ozone and 8-hour ozone (1997)
1053 standards; those standards have since been revoked by USEPA. With the exception of CO, for which several
1054 areas of Massachusetts are unclassified, Massachusetts is in attainment for SO₂, PM_{2.5}, PM₁₀, NO₂, and Pb.
1055 The Metropolitan Providence Intrastate AQCR 120 is classified as attainment for all criteria pollutants
1056 except for the one-hour ozone standard which has been revoked as previously noted.

1057 All activity at Camp Edwards must meet the EPS Air Quality Performance Standards which include,
1058 compliance with both the SIP for Air Quality and the Federal CAA, and air sampling if required by
1059 regulation of the activity. In addition, projects under the review of MEPA are required to conduct an
1060 analysis of impacts on greenhouse gas (GHG) emissions, in accordance with the MEPA Greenhouse Gas
1061 Emissions Policy and Protocol established in 2007.

1062 3.3.3 Air Quality - Existing Conditions

1063 Stationary source emissions at Camp Edwards are generally associated with installation wide natural
1064 gas/propane fired heating units, fuel transfer operations, as well as the operation of diesel-fired emergency
1065 generators located at essential facilities within the cantonment area. Based on current facilities and
1066 operations, Camp Edwards is considered a “minor source” of air emissions and is required to complete a
1067 Source Registration/Emissions Statement on a triennial basis in accordance with Massachusetts Code of
1068 Regulation 310 CMR 7.12.

1069 Muzzle blast from small arms fire releases lead air emissions, although these emissions are expected to be
1070 a minor source of inhalation exposure limited to range users. Likewise, the detonation of unexploded
1071 ordnances associated with range clearance and clean-up activities release measurable amounts of emissions
1072 into the air. Emissions from these events are captured and reported in an annual Toxic Release Inventory
1073 report required under the Superfund Amendments and Reauthorization Act (SARA) Section 313. Camp
1074 Edwards does not require an air quality control permit for stationary sources because of the number of
1075 ARNG facilities base-wide.

1076 Mobile sources, such as vehicles, equipment, and personally owned vehicles are present as well. Air
1077 pollution from fugitive dust may result from vehicles traveling on unpaved roads and troop training
1078 activities. These mobile sources are regulated in Massachusetts in accordance with the vehicle emissions
1079 regulations of 310 CMR 60.000.

1080 In addition, Camp Edwards implements a prescribed burn program that requires an air quality control
1081 permit. The MassDEP Southeast Regional Office renewed the Camp Edwards prescribed burn permit
1082 (#4F02008) on 20 August 2018.

1083 3.3.4 Sensitive Receptors

1084 Sensitive receptors for air quality assessments include, but are not limited to, asthmatics, children, and the
1085 elderly, as well as specific facilities, such as long-term health care facilities, rehabilitation centers,
1086 convalescent centers, retirement homes, residences, schools, playgrounds, and childcare centers.

1087 Residential neighborhoods are present within the vicinity of the Proposed Action area. Over 100 houses are
1088 present in the neighborhood immediately adjacent to the JBCC eastern boundary. The closest residences
1089 are approximately 0.2 mile from the southeastern corner of the proposed MPMG Range (**Figure 2-2**). Other
1090 than residential areas, no other sensitive receptors occur within 1.0 mile of the proposed MPMG Range.

1091 **3.4 Noise**

1092 Noise is generally defined as unwanted sound. It can be any sound that is undesirable because it interferes
 1093 with communications or other human activities, is intense enough to affect hearing, or is otherwise
 1094 annoying. Noise may be intermittent or continuous, steady, or impulsive. Human response to noise varies,
 1095 depending on the type of the noise, distance from the noise source, sensitivity, and time of day.

1096 **3.4.1 Noise Regulations**

1097 Land use guidelines identified by the Federal Interagency Committee on Urban Noise are used to determine
 1098 compatible levels of noise exposure for land use planning and control (FICUN, 1980). Chapter 14 of AR
 1099 200-1 implements Federal regulations associated with environmental noise from Army activities across
 1100 different noise zones, which are established based on average day-night levels (DNL) of noise over 104
 1101 days. The decibel (dB) is the accepted unit of measurement for noise level and uses a logarithmic scale. Per
 1102 AR 200-1, noise-sensitive land uses, such as housing, schools, and medical facilities are acceptable within
 1103 the Land Use Planning Zone (LUPZ) and Noise Zone I; noise-sensitive land uses are not recommended in
 1104 Noise Zone II, and not compatible in Noise Zone III. **Table 3-1** includes the noise limits for small arms use
 1105 within the noise zones and compatibility with noise-sensitive uses.

Table 3-1: Land Use Planning Guidelines

Noise Zone	Noise-Sensitive Land Use	Noise Limits Small Arms Peak (dB)
Land Use Planning Zone (LUPZ)	Generally Compatible	n/a
Zone I	Generally Compatible	< 87
Zone II	Generally Not Compatible	87 – 104
Zone III	Not Compatible	> 104

1106 Source: AR 200-1
 1107 dB = decibel

1108
 1109 The MassDEP has established a Noise Level Policy for implementing the Massachusetts Noise Control
 1110 Regulations defined in 310 CMR 7.10. The policy specifies that a new noise source proposed in an area
 1111 that is not likely to be developed for residential use because of development constraints, or proposed in a
 1112 commercial or industrial area with no sensitive receptors, may not be required to mitigate its noise impact.
 1113 However, a new noise source proposed in an area with current or proposed noise-sensitive receptors could
 1114 be required to mitigate its noise impact in these areas. Public safety agencies (i.e., fire and police) and civil
 1115 and national defense activities are exempt from these State regulations.

1116 The MAARNG published a SONMP in December 2007 that provides a strategy for noise management at
 1117 MAARNG facilities, including Camp Edwards. The plan includes a description of noise environments,
 1118 including levels from small arms and aircraft training activities, and procedures for noise management.

1119 **3.4.2 Existing Noise Conditions**

1120 The ambient noise environment around JBCC is affected mainly by small arms training, helicopter and
 1121 aircraft activity originating from the airfield on Air Station Cape Cod, and automobile traffic. The existing
 1122 noise environment is characteristic of an active military installation, dominated by live-fire training ranges
 1123 and helicopter traffic. Existing noise contours for small arm ranges are illustrated in **Figure 3-1**. Areas off-
 1124 Post generally experience noise levels in Zone I or less from range operations, which are considered
 1125 compatible with residential and other noise sensitive land uses. There are two small areas where the Zone

1126 II contours fall outside the JBCC boundary, including one small area that includes an existing residential
1127 area.

1128 Noise-sensitive receptors are individuals or groups that are more susceptible to adverse effects of high noise
1129 levels. These typically include children and the elderly, as well as specific facilities, such as long-term
1130 health care facilities, retirement homes, residences, and childcare centers. Sensitive noise receptors are
1131 present in the vicinity of the Proposed Action area and are the same as those listed for air quality (**Section**
1132 **3.3.4**).

1133 3.5 Soils

1134 The term soil, in general, refers to unconsolidated materials overlying bedrock or other parent material.
1135 Soils typically are described in terms of their complex type, slope, physical characteristics, and relative
1136 compatibility or constraining properties with regard to particular construction activities and types of land
1137 use.

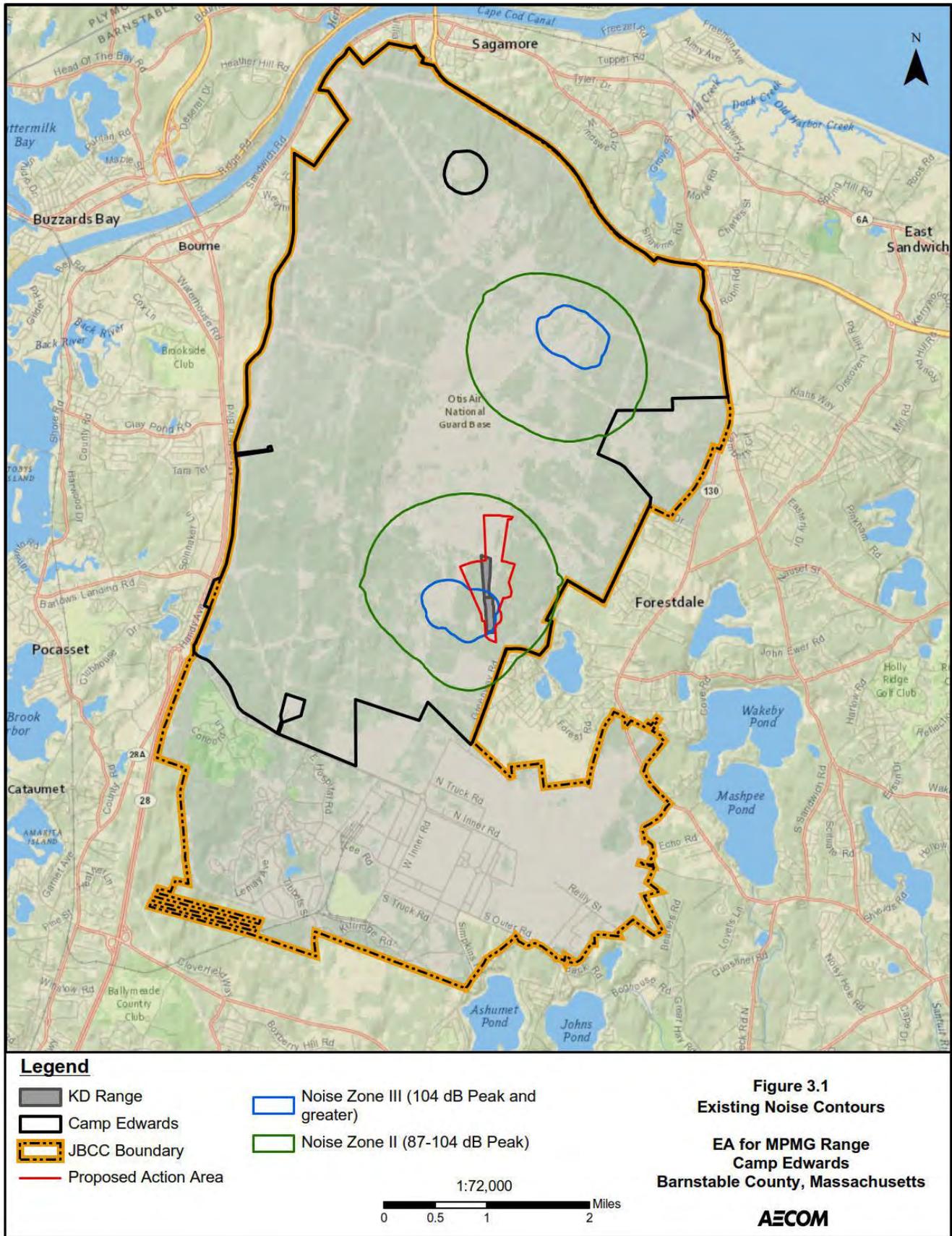
1138 Soils at Camp Edwards are generally sand or sandy loam with a high susceptibility to erosion. Five soil
1139 types occur within the proposed MPMG Range as provided in **Table 3-2**. The primary soils present in and
1140 around the Proposed Action area include the Merrimac sandy loam, with slopes of 0 to 3 percent. Enfield
1141 silt loam, 0 to 3 percent slopes, are present in the area underlying the proposed 1,500-meter lanes (**Figure**
1142 **3-3**). Soils at the site are well-drained and have a low frequency of flooding and ponding. As previously
1143 mentioned, topographic conditions surrounding the Proposed Action area are relatively flat (**Figure 3-2**).
1144 None of the soils are designated as hydric. Primary soil management concerns for these soil types center
1145 around erosion.

1146 Past soil contamination at the KD Range is further discussed in **Section 3.12**.

1147 **Table 3-2: Soil Map Units Occurring in Proposed Action Area**

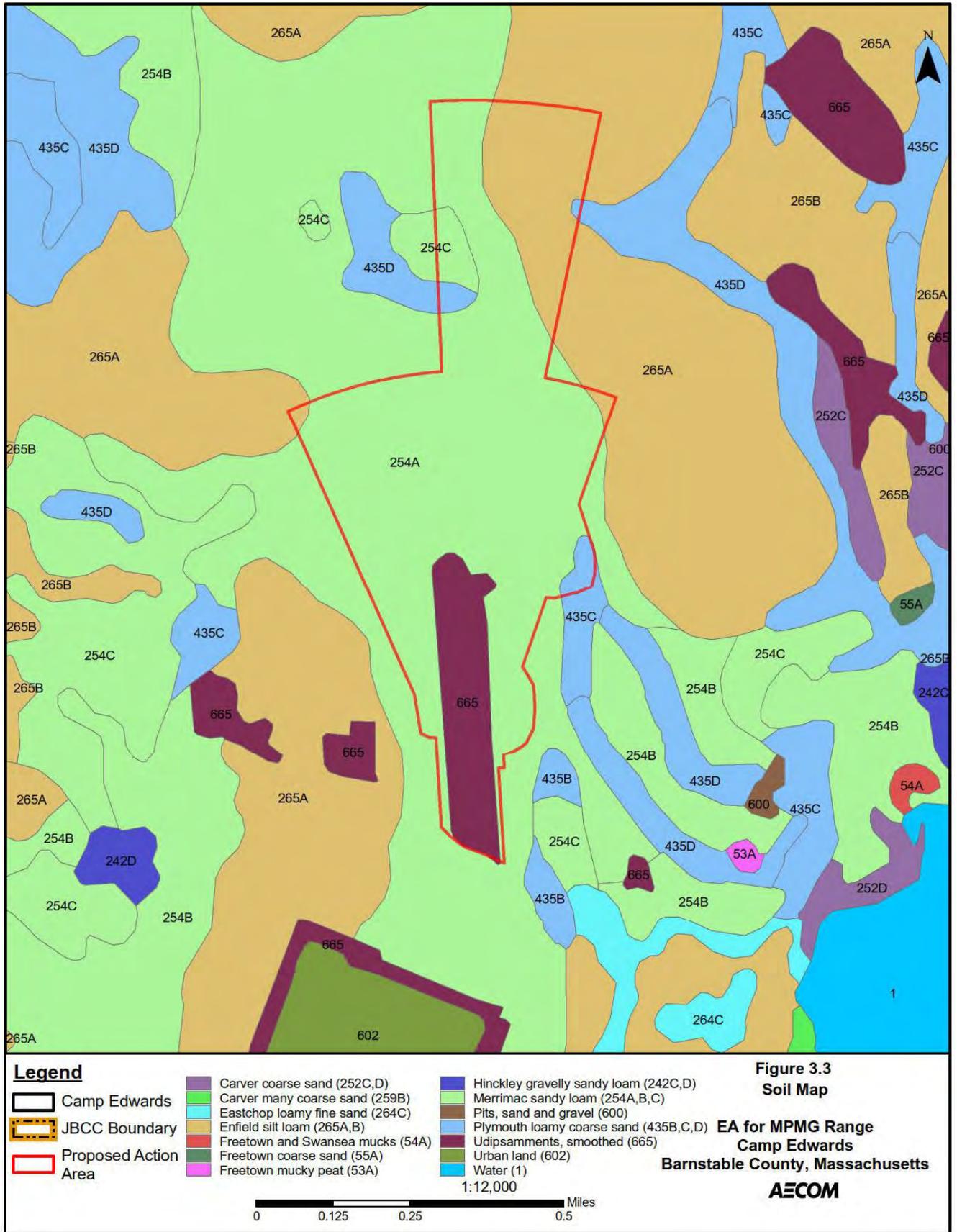
Map Unit Symbol	Map Unit Name	Prime Farmland	Comments
254A	Merrimac fine sandy loam, 0 to 3% slopes	Prime Farmland	Well Drained
254B	Merrimac fine sandy loam, 3 to 8% slopes	Prime Farmland	Well Drained
254C	Merrimac fine sandy loam, 8 to 15% slopes	Statewide Important	Well Drained
265A	Enfield silt loam, 0 to 3% slopes	Prime Farmland	Well Drained
435B	Plymouth loamy coarse sand, 3 to 8% slopes	None	Somewhat Excessively Drained
435C	Plymouth loamy coarse sand, 8 to 15% slopes	None	Somewhat Excessively Drained
435D	Plymouth loamy coarse sand, 15 to 35 % slopes	None	Somewhat Excessively Drained
665	Udipsammments, smoothed (soils on outwash plains altered by human activities)	None	Excessively Drained

Source: (NRCS, 2017)





1148



1149 The Farmland Protection Policy Act (FPPA) (7 USC 4208[b]) was adopted in 1981 is intended to minimize
1150 the impact that any Federal programs would have on the unnecessary and irreversible conversion of
1151 farmland to nonagricultural uses. For the purpose of FPPA, farmland includes Prime Farmland, Unique
1152 Farmland, and Land of Statewide Importance. Farmland subject to FPPA requirements does not have to be
1153 currently used for cropland and can be forest land, pastureland, cropland, or other land, but not water or
1154 urban built-up land.

1155 While the majority of the MPMG Range is identified as containing Prime Farmlands and Farmland of
1156 Statewide Importance, the subject property is exempt from the FPPA in accordance with Section 1547(b)
1157 of this Act which exempts acquisition or use of farmland for national defense purposes. Further, the location
1158 of this range within the Impact Area and its past use as an active range make the site inappropriate for
1159 agricultural uses.

1160 3.6 Groundwater

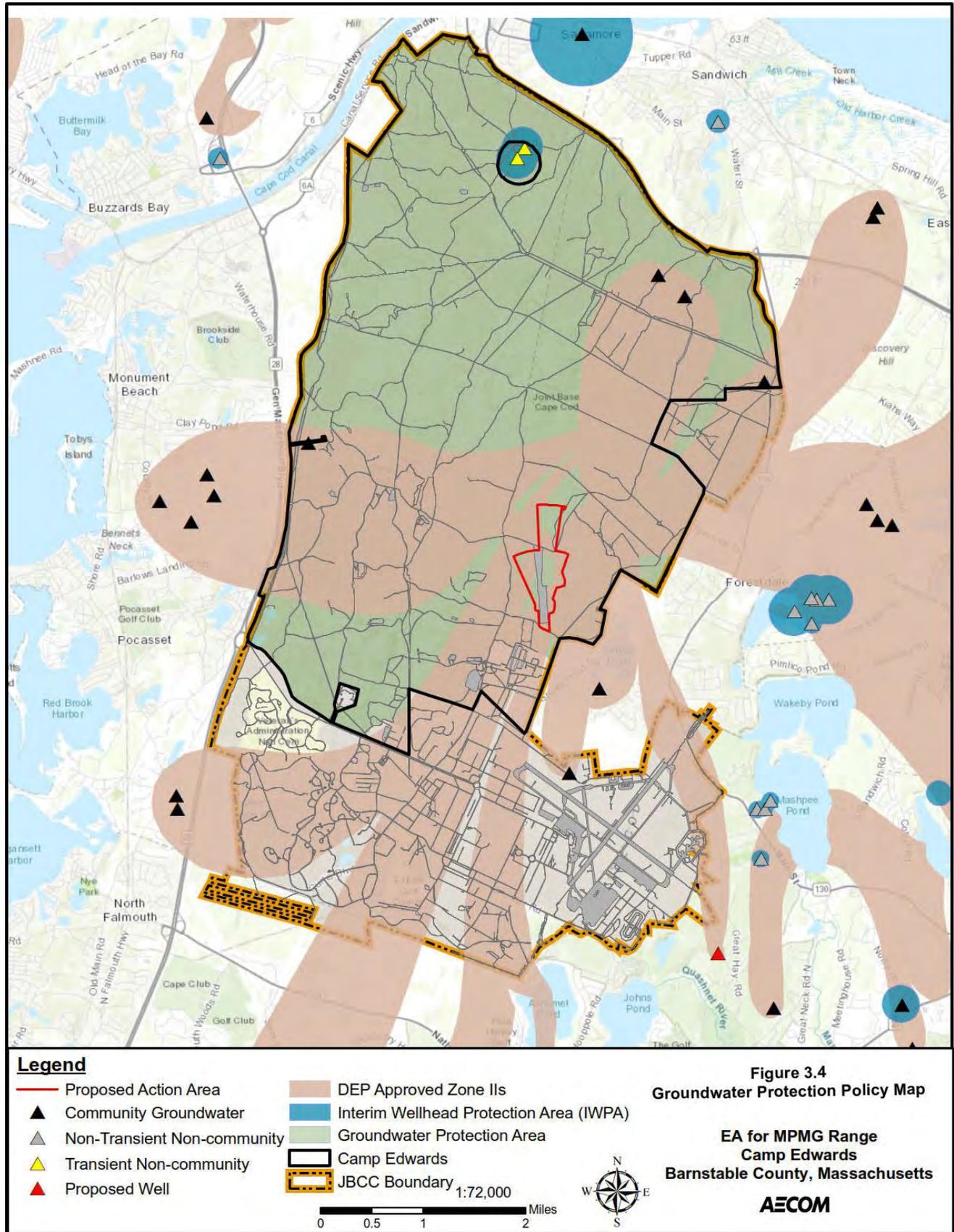
1161 Groundwater is plentiful in and around Camp Edwards. The predominant source of groundwater is the
1162 Sagamore Lens of the Cape Cod Aquifer, designated as a sole-source aquifer under the Safe Water Drinking
1163 Act (SWDA). The water table is encountered at an average depth of 45 to 50 feet below ground surface.
1164 Groundwater at Camp Edwards has been classified as GW-1, water that might contribute to a Current
1165 Drinking Water Source Area or a Potential Drinking Water Source Area; and GW-3, groundwater resources
1166 that are considered a potential source of discharge to surface waters, in accordance with the Massachusetts
1167 Contingency Plan (310 CMR 40.0932). In addition, portions of Camp Edwards, including the proposed
1168 MPMG Range, lie within multiple Zone II areas, defined as the area of an aquifer that contributes water to
1169 a well under severe pumping and recharge conditions, as approved by MassDEP's Division of Water Supply
1170 pursuant to 310 CMR 22.00 (**Figure 3-4**).

1171 In 2019, the four military agencies at JBCC signed a Memorandum of Agreement (MOA) to implement the
1172 JBCC Groundwater Protection Policy to enforce protections for the existing and future water supplies at
1173 the JBCC. The groundwater beneath Camp Edwards provides up to 3 million gallons of clean drinking
1174 water daily to Camp Edwards and the towns of Sandwich, Bourne, Falmouth, and Mashpee.

1175 Due to JBCC's historical usage as a military training area, the installation is subject to groundwater
1176 contamination. Certain explosive related compounds have been detected in soils at a few training sites on
1177 Camp Edwards, including the KD Range. However, a Human Health Risk Screening was conducted to
1178 identify any analytes that warranted further evaluation, and no analytes were found that exceeded
1179 screening criteria (USEPA, 2019). To date, no response actions have been needed to address groundwater
1180 contamination at the KD Range. Further information on existing environmental contamination site is
1181 provided in **Section 3.12**.

1182 3.7 Biological Resources

1183 Biological resources include native or naturalized plants and wildlife and the habitats in which they occur.
1184 Special status biological resources are defined as plant and wildlife species that are Federally listed under
1185 the Endangered Species Act (ESA) and State-listed rare species protected under the MESA and its
1186 implementing regulations (321 CMR 10.00). MESA prevents a loss or take of State-listed rare species. The
1187 Massachusetts Natural Heritage and Endangered Species Program (NHESP) manages the State-listed
1188 species and implements the MESA regulations. Migratory birds, as listed in 50 CFR Part 10.13, are
1189 ecologically and economically important to recreational activities, including bird watching, studying,
1190 feeding, and hunting, that are practiced by many Americans. In 2001, EO 13186, *Responsibilities of Federal
1191 Agencies to Protect Migratory Birds*, was issued to focus attention of Federal agencies on the environmental
1192 effects to migratory bird species and, where feasible, implement policies and programs that support the
1193 conservation and protection of migratory birds.



1194 Biological resources of Camp Edwards were analyzed in detail in the 2009 Camp Edwards Integrated
1195 Natural Resources Management Plan (INRMP). The reader is referred to that document for further
1196 information. Preparation of an updated INRMP is currently underway.

1197 3.7.1 Vegetation

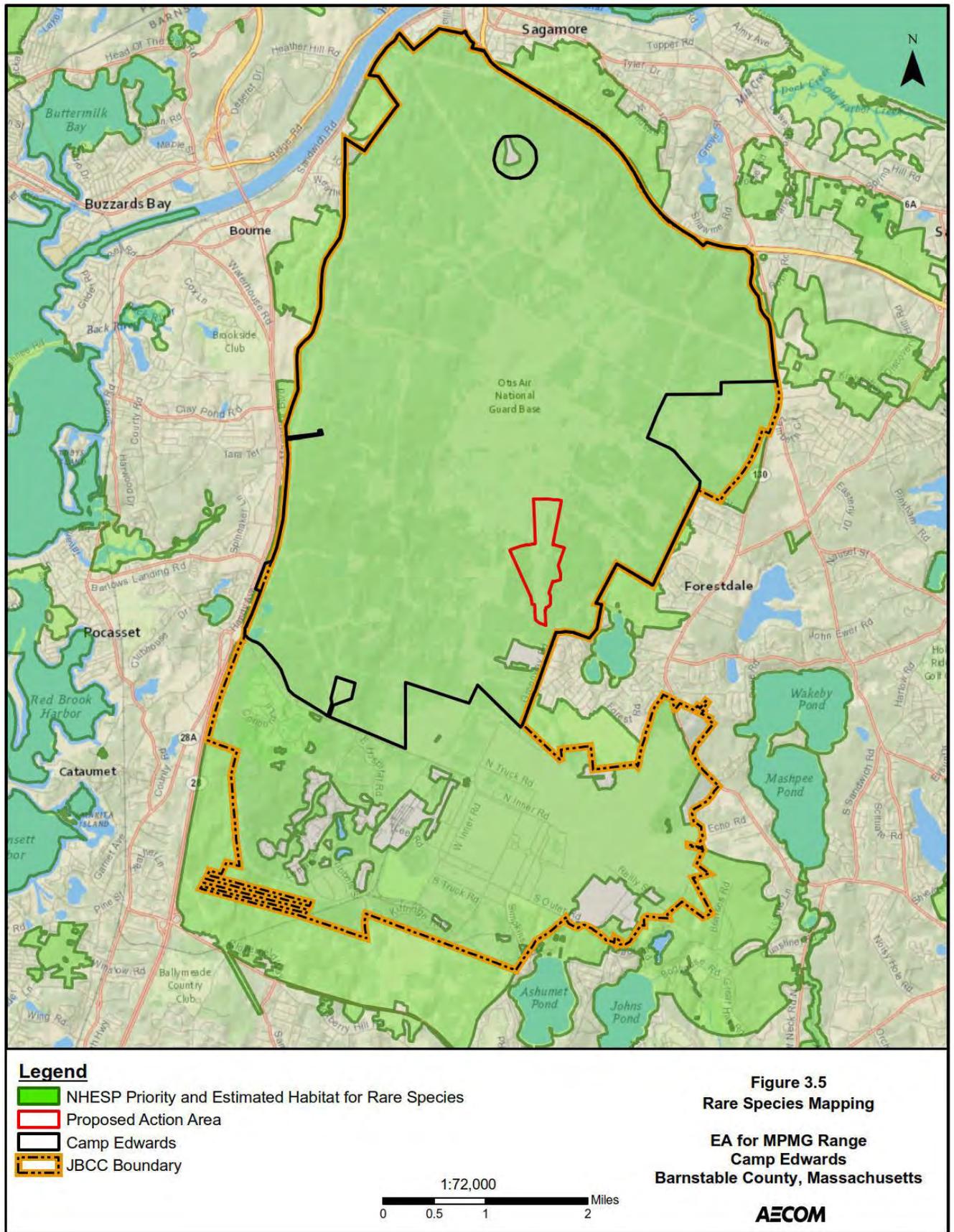
1198 The biological and ecological significance of Camp Edwards is extremely high. Camp Edwards is the
1199 largest intact area of relatively unfragmented forest remaining on Cape Cod and serves as an important
1200 refuge for wildlife which require large ranges of interior forest habitat. There are a few small wetlands and
1201 ponds within this otherwise dry habitat that provide an important source of water for wildlife. The majority
1202 of the JBCC is within a Significant Natural Resource Area as identified and mapped by the Cape Cod
1203 Commission due to the presence of mapped rare species habitat (**Figure 3-5**) in addition to existing and
1204 potential water supplies.

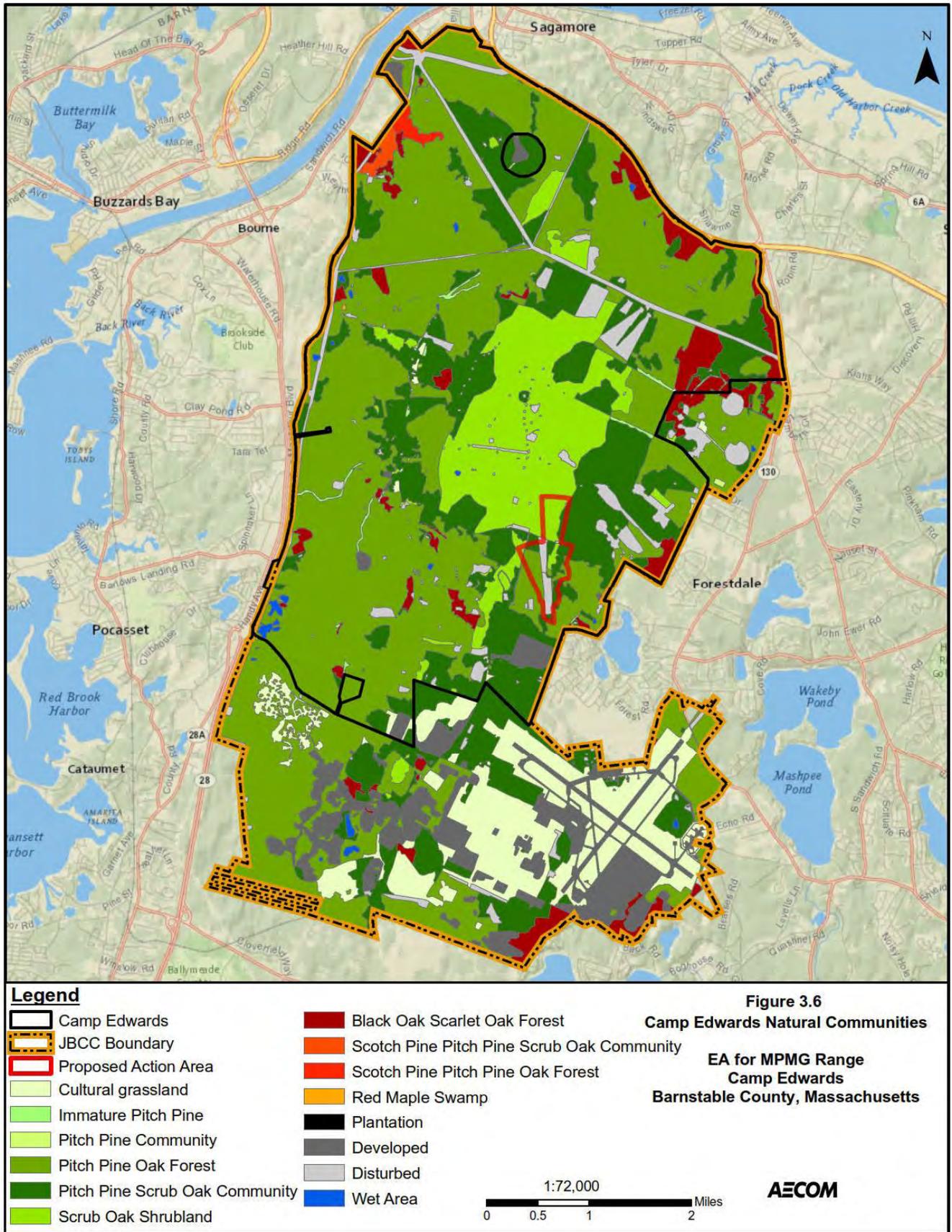
1205 The plant communities of Camp Edwards are dominated by cover types generally classified as mid- to late-
1206 successional forest with occasional early successional disturbed areas. Many of the plant communities at
1207 Camp Edwards have been influenced by several different disturbance types, including fire, ice storms, frost,
1208 drought, insect outbreaks, hurricanes, tropical storms, historic logging and grazing, and military use. A total
1209 of 13 natural communities and two altered land types are found at Camp Edward as shown on (**Figure 3-
1210 6**). Plant community types include: Black Oak-Scarlet Oak Forest, Pitch Pine-Scrub Oak Community,
1211 Cultural Grassland, Plantation, Red Maple Swamp, Scotch Pine-Pitch Pine-Oak Forest, Immature Pitch
1212 Pine, Scotch Pine-Pitch Pine-Scrub Oak, Non-Mapped Vegetation Community, Scrub Oak Shrubland, Pitch
1213 Pine Community, Wetlands, and Pitch Pine-Oak Forest. Two of these natural communities are ranked as
1214 “Imperiled in Massachusetts” by NHESP including the Pitch Pine-Scrub Oak Community and the Scrub
1215 Oak Shrubland. Much of Camp Edwards consists of Pitch Pine-Scrub Oak, making it one of the largest
1216 remaining habitats of this type in northeastern U.S. The Black Oak-Scarlet Oak Forest is ranked by NHESP
1217 as “Vulnerable in Massachusetts/Apparently Secure in Massachusetts”, which indicates a wide range of
1218 uncertainty regarding this community.

1219 The proposed MPMG Range footprint is primarily comprised of disturbed land, immature pitch pine, pitch
1220 pine oak forest, and pitch pine scrub oak. Common vegetation includes: black oak (*Quercus velutina*), pitch
1221 pine (*Pinus rigida*), black huckleberry (*Gaylussacia baccata*) shrubs, and Pennsylvania sedge (*Carex
1222 pennsylvanica*) (MAARNG, 2009). Rare species habitat associated with the pine and scrub oak barrens and
1223 the large unfragmented sections of forest are present around the Proposed Action area (**Figure 3-6**).

1224 3.7.2 Wildlife

1225 Extensive surveys have been conducted to inventory the fauna of Camp Edwards. The Range and Training
1226 Land Assessment (RTLA) program inventories and monitors natural resource conditions and manages and
1227 analyzes natural resource information. Annual RTLA surveys have monitored the long-term trends in bird
1228 and small mammal populations since 1993, while other projects have surveyed faunal populations for 1 to
1229 8 years. According to the 2009 INRMP, in total, 28 species of mammals, 105 species of birds, 11 species
1230 of amphibians, 12 species of reptiles, 528 species of macrolepidoptera (butterflies, insects), and 46 species
1231 of odonates (dragonflies) have been documented at Camp Edwards. This list is constantly being updated
1232 based on recent surveys. Common species that may occur at or near the Proposed Action area include:
1233 American toad (*Bufo americanus*), pine warbler (*Dendroica pinus*), blue jay (*Cyanocitta cristata*), white-
1234 tailed deer (*Odocoileus virginianus*), groundhog (*Marmota monax*), and red fox (*Vulpes vulpes*). As no
1235 surface waters are present in the Proposed Action area, no fish or aquatic species are expected to occur. The
1236 reader is referred to the 2009 INRMP for the full list of fish and wildlife at Camp Edwards.





1237 **3.7.3 Special Status Species**

1238 Special status species include any species which is listed, or proposed for listing, as threatened or
1239 endangered by the USFWS under the provisions of the ESA; any species designated by the USFWS as a
1240 "candidate", "listing", or "sensitive" species; any species which is listed and protected by State statute in a
1241 category implying potential endangerment or extinction; any species covered by the Migratory Bird
1242 Treaty Act (MBTA); and any species covered by the Bald and Golden Eagle Protection Act (BGEPA) and
1243 the State eagle rule (68A-16.002, FAC).

1244 **3.7.3.1 Federally Listed Species**

1245 Federally listed species are protected under the ESA, administered by the USFWS. This Act protects listed
1246 species against killing, harming, harassing, or any action that may damage their habitat. An endangered
1247 species is "in danger of extinction throughout all or a significant portion of its range," and a threatened
1248 species "is likely to become an endangered species within the foreseeable future." The USFWS also
1249 maintains a list of species considered to be candidates for possible listing under the ESA. Although
1250 "candidate species" receive no statutory protection under the ESA, the USFWS has attempted to advise
1251 government agencies, industry, and the public that these species are at risk and might warrant protection
1252 under the ESA. Federally listed species with the potential to occur in the Proposed Action area include the
1253 Federally threatened northern long-eared bat (NLEB; *Myotis septentrionalis*), the federally endangered
1254 American chaffseed (*Schwalbea Americana*), and the federally endangered sandplain gerardia (*Agalinis*
1255 *acuta*) (USFWS, 2017).

1256 The NLEB is typically found in cavities or crevices of live and dead trees during the summer. During the
1257 winter, the NLEB hibernates in caves and mines. Based on intensive acoustic and mist netting efforts on
1258 and around Camp Edwards, the majority of NLEB roosting occurs off-post. The installation likely provides
1259 foraging habitat away from roost sites with activity primarily associated with small water features within
1260 larger topographic depressions near or generally connected to larger kettle hole ponds. Foraging habitat
1261 tends to occur in much more oak-dominated forest stands. A single potential hibernaculum has been
1262 identified on Camp Edwards in a large, metal groundwater treatment facility approximately 0.3 mile east
1263 of the Proposed Action area. A single, male NLEB was documented roosting in the building during surveys
1264 conducted in 2016, suggesting potential use as a hibernaculum despite failure to confirm overwinter use
1265 through acoustic and visual surveys. As no hibernacula or maternity roosts occur within the Proposed
1266 Action area, NLEB presence is expected to be limited

1267 The American chaffseed is typically found in fire-maintained longleaf pine flatwoods and savannas
1268 (USFWS, 2020). The species has not been historically detected in the Proposed Action area, nor during
1269 recent surveys. Conditions within the Proposed Action area are generally unsuitable.

1270 The sandplain gerardia primarily occupies sandplain grassland habitats. The species has not been observed
1271 on JBCC although there are suitable locations nearby to the north and south of the base and similar
1272 conditions on the base, including managed sandplain grasslands, mowed roadsides, and mowed lawn areas.
1273 The MAARNG assists MADFW with annual surveys of the sandplain gerardia. The species has not been
1274 observed in the Proposed Action area nor has it been found during any survey efforts.

1275 Section 7 consultation with USFWS was initiated on 14 April 2020; no response has been received to date.
1276 Correspondence with USFWS and an associated Biological Assessment providing detailed species
1277 discussion are included in **Appendix B**.

1278 **3.7.3.2 State-Listed Species**

1279 The MAARNG is required to comply with MESA and its implementing regulations to protect State-listed
 1280 species. The NHESP manages the State-listed species and the MESA regulations. State-listed species at
 1281 Camp Edwards are categorized in four broad groups:

- 1282 1. Species that require large unfragmented sections of forest, such as the eastern box turtle (*Terrapene*
 1283 *carolina*).
- 1284 2. Species that are pine and scrub oak barrens specialists, such as most moths.
- 1285 3. Species that occur in wetland areas, such as Torrey's beak sedge (*Rhynchospora torreyana*).
- 1286 4. Species that require grasslands, such as the upland sandpiper (*Bartramia longicauda*).

1287 A total of 34 state-listed species have been documented at Camp Edwards (**Table 3-3**). Correspondence
 1288 received from the NHESP on 16 August 2019 noted that the Proposed Action area is located within suitable
 1289 habitat for all 34 species, as well as the papillose nut sedge (*Scleria pauciflora*), which has not been
 1290 documented, and the Federally listed NLEB (**Appendix A**). The grasslands of Camp Edwards and Otis
 1291 ANGB Cantonment Area are designated as Priority Habitat in accordance with MESA for four State-listed
 1292 rare bird species: upland sandpiper (*Bartramia longicauda*), grasshopper sparrow (*Ammodramus*
 1293 *savannarum*), vesper sparrow (*Poocetes gramineus*), and northern harrier (*Circus cyaneus*). Grassland
 1294 habitat is considered regionally rare and obligate habitat for these species. Suitable grassland habitat is
 1295 present within the Proposed Action area.

Table 3-3: State-Listed Threatened and Endangered Species Previously Documented at Camp Edwards

Scientific Name	Common Name	State Status
Birds		
<i>Ammodramus savannarum</i>	Grasshopper sparrow	T
<i>Bartramia longicauda</i>	Upland sandpiper	E
<i>Circus cyaneus</i>	Northern harrier	T
<i>Poocetes gramineus</i>	Vesper sparrow	T
<i>Caprimulgus vociferus</i>	Eastern whip-poor-will	SC
Reptiles and Amphibians		
<i>Scaphiopus holbrookii</i>	Eastern spadefoot	T
<i>Terrapene carolina</i>	Eastern box turtle	SC
Odonates		
<i>Enallagma recurvatum</i>	Pine barrens bluet	T
Moths		
<i>Abagrotis nefascia</i>	Coastal heathland cutworm	SC
<i>Acrionicta albarufa</i>	Barrens daggermoth	T
<i>Callophrys irus</i>	Frosted elfin	SC
<i>Catocala herodias gerhardi</i>	Gerhard's underwing moth	SC
<i>Chaetagnalea cerata</i>	Waxed sallow moth	SC
<i>Cicinnus melsheimeri</i>	Melsheimer's sack bearer	T
<i>Cingilia catenaria</i>	Chain dot geometer	SC
<i>Cyenia inopinatus</i>	Unexpected cyenia	T
<i>Euchlaena madusaria</i>	Sandplain euchlaena	SC
<i>Dargida rubripennis</i>	Pink streak	T
<i>Hemaris gracilis</i>	Slender clearwing sphinx	SC

Table 3-3: State-Listed Threatened and Endangered Species Previously Documented at Camp Edwards

Scientific Name	Common Name	State Status
<i>Hemileuca maia</i>	Barrens buckmoth	SC
<i>Lycia ypsilon</i>	Pine barrens lycia	T
<i>Metarranthis pilosaria</i>	Coastal swamp metarranthis	SC
<i>Papaipema sulphurata</i>	Water-willow stem borer	T
<i>Psectraglaea carnosa</i>	Pink sallow moth	SC
<i>Speranza exonerata</i>	Pine barrens speranza	SC
<i>Zale lunifera</i>	Pine barrens zale	SC
Beetles		
<i>Cincindela purpurea</i>	Purple tiger beetle	SC
Crustacean		
<i>Eulimnadia agassizii</i>	Agassiz's clam shrimp	E
Plants		
<i>Rhynchospora torreyana</i>	Torrey's beak sedge	E
<i>Triosteum perfoliatum</i>	Broad tinker's weed	E
<i>Ophioglossum pusillum</i>	Adder's tongue fern	T
<i>Eleocharis ovata</i>	Ovate spike-sedge	E
<i>Malaxis bayardii</i>	Bayard's green adder's mouth	E
<i>Juncus debilis</i>	Weak rush	E

Notes:

E = Endangered, T = Threatened, SC = Special Concern

1296
1297**1298 3.7.3.3 Migratory Birds and Eagles**

1299 The MBTA provides the USFWS regulatory authority to protect birds that migrate and prohibits any "take"
1300 of these species, except as permitted by the USFWS. The MAARNG is responsible under the MBTA, 50
1301 CFR Part 21, and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, to promote,
1302 support, and contribute to the conservation of migratory birds. Migratory birds are ecologically and
1303 economically important to recreational activities, including bird watching, studying, feeding, and hunting
1304 and include species with at least some populations breeding in the continental U.S. and/or Canada. Per 50
1305 CFR Part 21.15, *Authorization of Take Incidental to Military Readiness Activities*, the DoD is authorized
1306 to incidentally take migratory birds in the course of military readiness activities, but with limitations. The
1307 primary threat to migratory birds from military readiness activities is wildfire; other threats, such as noise
1308 and human presence, are lesser concerns as evidence on-site suggests habituation to these activities would
1309 be anticipated to occur. As such, military readiness activities must be implemented in a manner to avoid or
1310 minimize impacts on migratory birds, as practicable. The MAARNG must confer and cooperate with the
1311 USFWS to develop and implement appropriate conservation measures for actions that, determined through
1312 the NEPA process, may result in a significant adverse effect on a population of migratory bird species.

1313 EO 13186 requires each Federal agency to develop a Memorandum of Understanding (MOU) with the
1314 USFWS that promotes the conservation of migratory birds. The MOU between DoD and USFWS outlines
1315 a collaborative approach to promote the conservation of migratory bird populations. This MOU specifically
1316 pertains to actions that are not classified as military readiness activities and places emphasis on migratory
1317 bird species of concern, which are species that may experience greater degrees of impacts from direct or
1318 indirect disturbances. A copy of this MOU is included in **Appendix C**. A query of the Information for
1319 Planning and Conservation database identified 26 birds of conservation concern (BCC) species with

1320 potential to occur within the Proposed Action area. **Table 3-4** summarizes species presence and suitable
1321 habitat abundance within Camp Edwards and the Proposed Action area. Suitable habitat is only available
1322 in the Proposed Action area for five of these species: black-billed cuckoo (*Coccyzus erythrophthalmus*),
1323 Canada warbler (*Cardellina canadensis*), Eastern whip-poor-will (*Antrostomus vociferous*), long-eared
1324 owl (*Asio otus*), and prairie warbler (*Dendroica discolor*). Several of these species have been shown to
1325 benefit from the expansion of fuels management and prescribed burning for pine barrens habitat
1326 improvement and wildfire risk reduction; they include the eastern whip-poor-will, prairie warbler, and
1327 black-billed cuckoos.

1328 In addition, surveys of migratory species have shown statistically significant increasing trends of certain
1329 species at Camp Edwards due to positive responses to prescribed burning activities, such as timber
1330 harvesting and other fuels management actions. The primary migratory bird assemblage at Camp Edwards
1331 associates with pine barrens and responds well to moderate to high levels of disturbance and habitat
1332 management. Species such as ovenbird (*Seiurus aurocapilla*), Eastern towhee (*Pipilo erythrophthalmus*),
1333 and pine warbler (*Setophaga pinus*) have very high levels of occupancy and are either resilient to or benefit
1334 from the habitat impacts from prescribed burning and mechanical treatments. Of those species found to
1335 have significant population trends (n=26) at Camp Edwards, those with negative trends are primarily
1336 cosmopolitan (e.g., house finch [*Haemorhous mexicanus*], American crow [*Corvus brachyrhynchos*]), or
1337 severely declining regionally as to be beyond the buffering ability of isolated conservation efforts (e.g.,
1338 Northern bobwhite [*Colinus virginianus*]).

1339 The bald eagle (*Haliaeetus leucocephalus*) was delisted from the ESA in 2007, but remains protected by
1340 the MBTA, the BGEPA, and the State eagle rule (68A-16.002, FAC). The USFWS established National
1341 Bald Eagle Management Guidelines as a tool for landowners and developers to avoid disturbing bald eagles
1342 (USFWS, 2007). Bald eagles nest in mature canopy trees along the edges of forested habitat, often within
1343 2 miles of their preferred foraging habitat, which includes large expanses of shallow water, such as inland
1344 lakes and river systems. While bald eagles utilize areas at and around the Bourne Landfill, adjacent to Camp
1345 Edwards, none have been observed on the installation and no suitable foraging conditions exist. Preferred
1346 nesting habitat is absent as well. As no water bodies are present within the Proposed Action area, bald
1347 eagles are not expected to occur.

Table 3-4: Birds of Conservation Concern with Potential Occurrence

Species	General Status		Habitat Presence (Y/N)	
	Upper Cape Cod	Camp Edwards	On Base	Project Area
American oystercatcher (<i>Haematopus palliatus</i>)	Low density; coastal	None	No	No
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Uncommon	Uncommon	Marginal	No
Black-billed cuckoo (<i>Coccyzus erythrophthalmus</i>)	Low density breeding	Low density breeding	Yes	Yes
Bobolink (<i>Dolichonyx oryzivorus</i>)	Uncommon; post breeding dispersal	None	Yes	No
Canada warbler (<i>Cardellina canadensis</i>)	Uncommon migrant	None	Yes	No
Dunlin (<i>Calidris alpina arcticola</i>)	Low density; coastal migrant	None	No	No
Eastern whip-poor-will (<i>Antrostomus vociferous</i>)	Common	Common (responds favorably to fire management)	Yes	Yes
Evening grosbeak (<i>Coccothraustes vespertinus</i>)	Very rare, irruptive	None	No	No
Least tern (<i>Sterna antillarum</i>)	Common; coastal	None	No	No
Lesser yellowlegs (<i>Tringa flavipes</i>)	Common migrant	Not recorded; possible migrant	Yes	No
Long-eared owl (<i>Asio otus</i>)	Very rare	Very rare (single record)	Yes	Yes
Nelson's sparrow (<i>Ammocramus nelson</i>)	Uncommon	None	No	No
Prairie warbler (<i>Dendroica discolor</i>)	Common	Common (responds favorably to fire management)	Yes	Yes
Prothonotary warbler (<i>Protonotaria citrea</i>)	Uncommon migrant	None	Yes	No
Purple sandpiper (<i>Calidris maritima</i>)	Low density wintering	None	No	No
Red-throated loon (<i>Gavia stellate</i>)	Moderate density	Occasional flyover	No	No
Ruddy turnstone (<i>Arenaria interpres morinella</i>)	Common; coastal	None	No	No
Rusty blackbird (<i>Euphagus carolinus</i>)	Low density migrant; irregular wintering	None	Yes	No
Saltmarsh sparrow (<i>Ammospiza caudacuta</i>)	Common; coastal saltmarsh	None	No	No

Table 3-4: Birds of Conservation Concern with Potential Occurrence

Species	General Status		Habitat Presence (Y/N)	
	Upper Cape Cod	Camp Edwards	On Base	Project Area
Seaside sparrow (<i>Ammodramus maritimus</i>)	Very rare; coastal saltmarsh	None	No	No
Semipalmated sandpiper (<i>Calidris pusilla</i>)	Common; coastal	None	No	No
Short-billed dowitcher (<i>Limnodromus griseus</i>)	Common; coastal	None	No	No
Snowy owl (<i>Bubo scandiacus</i>)	Uncommon/irregular wintering; primarily coastal	Uncommon/irregular wintering (JBCC airfield only)	Yes	No
Whimbrel (<i>Numenius phaeopus</i>)	Low density; coastal	None	No	No
Willet (<i>Tringa semipalmata</i>)	Common; coastal	None	No	No
Wood thrush (<i>Hylocichla mustelina</i>)	Uncommon	Uncommon (single record)	Yes	No

1348 3.8 Cultural Resources

1349 Cultural resources are historic properties as defined by the NHPA, cultural items as defined by the
 1350 NAGPRA, archaeological resources as defined by the Archaeological Resources Protection Act (ARPA),
 1351 sacred sites as defined by EO 13007 to which access is afforded under the American Indian Religious
 1352 Freedom Act, and collections and associated records as defined by 36 CFR 79. NEPA requires consideration
 1353 of “important historic, cultural, and natural aspects of our natural heritage.” Consideration of cultural
 1354 resources under NEPA includes the necessity to independently comply with the applicable procedures and
 1355 requirements of other Federal and State laws, regulations, EOs, presidential memoranda, and ARNG
 1356 guidance.

1357 The NHPA of 1966, as amended (Public Law 89-665; 54 USC §300101 et seq.), establishes the policy of
 1358 the Federal government to provide leadership in the preservation of historic properties and administer
 1359 Federally owned or controlled historic properties. Section 106 of the NHPA (54 USC §306108) requires
 1360 Federal agencies to consider the effect an undertaking may have on historic properties; its implementing
 1361 regulations, 36 CFR Part 800, describe the procedures for identifying and evaluating historic properties;
 1362 assessing the effects of Federal actions on historic properties; and consulting to avoid, reduce, or minimize
 1363 adverse effects. As part of the Section 106 process, agencies are required to consult with the State Historic
 1364 Preservation Office (SHPO). The Section 106 process requires each undertaking to define an Area of
 1365 Potential Effect (APE). An APE is “the geographic area or areas within which an undertaking may directly
 1366 or indirectly cause changes in the character or use of historic properties, if any properties exist...[and the
 1367 APE] is influenced by the scale and nature of an undertaking and may be different for different kinds of
 1368 effects caused by the undertaking” (36 CFR Part 800.16[d]). The Proposed Action is an undertaking as
 1369 defined by 36 CFR Part 800.3, and the MAARNG is required to comply with Section 106 of the NHPA.

1370 The MAARNG has been managing cultural resources at Camp Edwards for several years under the ICRMP,
1371 last revised in 2009. Preparation of an updated ICRMP is currently underway. The MAARNG initiated
1372 consultation with MHC (the SHPO) in a letter dated 7 August 2019 (**Appendix A**). On 9 January 2020, the
1373 MAARNG contacted MHC by phone to inquire about the consultation request. MHC confirmed they would
1374 not be responding to the consultation and indicated this action falls under 36 CFR 800.3(c)(4), *Failure of*
1375 *the SHPO/THPO to respond*. An MFR summarizing the Section 106 consultation efforts by the MAARNG
1376 is included in **Appendix A**.

1377 **3.8.1 Archaeological and Architectural Resources**

1378 Historic properties on Camp Edwards include historic buildings and structures. Previous archaeological
1379 surveys of Camp Edwards identified 69 historic sites. Of these, 46 sites have been found to be ineligible
1380 for listing in the National Register of Historic Places (NRHP), while 23 sites required further evaluation.
1381 None of these sites are within the footprint of the proposed MPMG Range. An architectural survey of Camp
1382 Edwards has also been completed; no buildings, structures, or potential historic districts occur within the
1383 Proposed Action area.

1384 The existing KD Range and Proposed Action area are in locations assessed with low archaeological
1385 sensitivity (Goodfellow 2003). At the request of the MAARNG, Public Archaeological Laboratory, Inc.
1386 conducted an intensive (locational) archaeological survey of the KD Range in 2016 as part of planning
1387 efforts for the range expansion (Heitert and Fahey 2016). The survey consisted of the excavation of 94
1388 shovel test pits across 103 acres flanking the east and west sides of the existing range. No artifacts were
1389 collected, nor cultural features identified as part of the survey.

1390 **3.8.2 Native American Consultation**

1391 Federally recognized tribes that are historically affiliated with the Camp Edwards geographic region have
1392 been invited to consult on the Proposed Action. These include the Wampanoag Tribe of Gay Head –
1393 Aquinnah, the Mashpee Wampanoag Tribal Council, and the Stockbridge – Munsee Community Tribe of
1394 Mohican Indians of Wisconsin. Correspondence with these tribes is included in **Appendix A**, as well as an
1395 MFR summarizing the Native American consultation efforts by the MAARNG. As of 11 February 2020,
1396 no responses have been received. Tribes will be notified again when the final EA and draft FNSI is
1397 published for review.

1398 **3.9 Infrastructure**

1399 Existing infrastructure in the Proposed Action area include range buildings and a range tower at the KD
1400 Range, as well as existing target berms, concrete walls, and target supports. Electricity is supplied to the
1401 Proposed Action area by Eversource via overhead wires. There are no sewer or water services available in
1402 the Proposed Action area. Wastewater from JBCC is treated at a facility on base. The MA ANG 102nd
1403 Intelligence Wing maintains and operates base-wide services such as the drinking water supply, the
1404 wastewater treatment plant, roads, and electrical power.

1405 Camp Edwards has an extensive transportation system including 120 miles of roads, a railroad access point,
1406 and an ARNG aviation facility with associated access points throughout the training area. Railroad access
1407 from the Bourne-Falmouth railroad line has historically served to transport large tracked vehicles (e.g.,
1408 tanks and APCs) and other equipment that is typically too large for transporting on existing public roads to
1409 Camp Edwards.

1410 **Table 3-5** categorizes the road system on Camp Edwards based on road condition (paved, improved,
1411 unimproved).

1412

Table 3-5: Road System of Camp Edwards

Road Condition	Miles	Percent Total
Paved	26.3	21.7%
Improved	23.1	2.5%
Unimproved	70.4	54.6%
Total	119.8	100.0%

1413

1414 The transportation systems outside of the installation that serve Camp Edwards are in good condition and
 1415 provide adequate access. Camp Edwards is bound by U.S. Highway 6 and State Highways 28 and 130 to
 1416 the north, west, and east, respectively. State Highway 28 provides access to Camp Edwards via the Bourne
 1417 Gate, which is the most frequented gate, while State Highway 130 provides access to the Sandwich Gate.
 1418 The Falmouth Gate is accessible via State Highway 151. Local highways are located on the east and west
 1419 of Camp Edwards with the main access to Camp Edwards from MacArthur Boulevard to the west. This is
 1420 a State-controlled four lane divided highway which leads north to the Bourne Bridge where it connects to
 1421 State Highway 25 and State Highway 495.

1422 Dirt roads are present to the north of the KD Range and access is provided through the existing paved
 1423 Pocasset-Forestdale Road. The existing KD Range has paved parking and dirt access and maintenance
 1424 roads. No other roads are present within the Proposed Action area aside from the existing roads in the KD
 1425 Range.

1426 **3.10 Hazardous and Toxic Materials and Wastes**

1427 HTMW are generally defined as materials or substances that pose a risk (through either physical or chemical
 1428 reactions) to human health or the environment. Regulated hazardous substances are identified by OSHA
 1429 through a number of Federal laws and regulations. The most comprehensive list is contained in 40 CFR
 1430 Part 302, and identifies quantities of these substances that, when released to the environment, require
 1431 notification to a Federal government agency. Hazardous wastes, defined in 40 CFR Part 261.3, are generally
 1432 discarded materials (solids or liquids) not otherwise excluded by 40 CFR Part 261.4 that exhibit a hazardous
 1433 characteristic (i.e., ignitable, corrosive, reactive, or toxic), or are specifically identified within 40 CFR Part
 1434 261. Petroleum products are specifically exempted from 40 CFR Part 302, but some are also generally
 1435 considered hazardous substances due to their physical characteristics (especially fuel products), and their
 1436 ability to impair natural resources.

1437 State wide, the Massachusetts Contingency Plan (310 CMR 40.00) provides State-specific cleanup
 1438 protocol, documentation, and standards for activities that may cause, contribute to, or exacerbate a release
 1439 or threat of hazardous materials. The Contingency Plan also contains a list of hazardous materials, including
 1440 oils, and their reportable quantities and reportable concentrations. In addition, state-specific hazardous
 1441 waste regulations (310 CMR 30.00) manage the generation, storage, collection, transport, treatment,
 1442 disposal, use, and recycling of hazardous waste.

1443 The JBCC's use as a military training area has resulted in potential and confirmed contamination at the
 1444 installation, resulting from munitions, firefighting activities, chemical/fuel spills, legacy landfills, and
 1445 sewage treatment facilities (Cape Cod Commission, 2020). Past operations and waste disposal practices
 1446 have resulted in subsurface contamination in areas near the Impact Area, where the existing KD Range is
 1447 located. Contaminants include fly ash, bottom ash, waste solvents, waste fuels, herbicides, and transformer
 1448 oil. Additionally, seven groundwater plumes in the Impact Area are undergoing extraction and treatment.
 1449 The nearest plume, located on L Range, is approximately 0.5 mile to the east of the KD Range. The plume
 1450 is being remediated and is unlikely to affect conditions at the KD Range. Long-term groundwater

1451 monitoring and operation and maintenance of treatment systems are expected to continue until groundwater
1452 cleanup levels are met.

1453 The ECOP Pre-Construction Assessment (PCA) of the KD Range found evidence of potential
1454 contamination, specifically from munitions and explosives of concern (MEC) discovered in the surface and
1455 potentially existing in the subsurface (MAARNG, 2019). In addition, known propellant and explosive
1456 compounds and heavy metals, including lead, resulting from past range activities were previously identified
1457 in the soil. Although targeted soil remediation has been performed, there is a possibility that additional
1458 contamination is still present.

1459 No stationary sources of HTMW occur within the Proposed Action area, although the area is accessed
1460 occasionally by military and civilian vehicles, which could act as mobile sources. Examples of hazardous
1461 materials often associated with vehicles include antifreeze, motor oil, brake fluid, hydraulic oil, grease,
1462 battery acid, fuel oil, diesel fuel, and other fuels for vehicle maintenance

1463

4. ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

1465 This section describes the potential direct, indirect, and cumulative effects of implementing the Proposed
1466 Action and alternatives, as well as Regulatory Compliance Measures (RCMs) and Best Management
1467 Practices (BMPs) the MAARNG would incorporate into the Proposed Action to proactively minimize
1468 potential adverse environmental impacts. In addition, mitigation measures are recommended, if applicable,
1469 for potential adverse impacts that would not be sufficiently reduced through these incorporated measures.
1470 As used in this section, these terms are defined as follows:

- 1471 • RCMs are compliance measures that the MAARNG is required to conduct in accordance with
1472 applicable laws, regulations, and permit conditions (e.g., Section 7 consultation, net benefit under
1473 MESA, CMP requirements).
- 1474 • BMPs are environmentally sensitive construction practices the MAARNG would conduct in order
1475 to minimize or avoid potential adverse environmental impacts (e.g., conducting construction
1476 activities outside the NLEB maternity season, implementing dust controls, installation of silt
1477 curtains)
- 1478 • Mitigation measures are project-specific requirements not routinely implemented by the MAARNG
1479 necessary to reduce identified potentially significant adverse impacts, despite implementation of
1480 RCMs and BMPs, to less-than-significant levels.

1481 The MAARNG considers RCMs and BMPs integral to implementation of the Preferred Alternative and are
1482 not considered separate from the Proposed Action. For more information on RCMs and BMPs, refer to
1483 **Section 4.13**. Based on the following analysis, no project-specific mitigation measures would be required
1484 to reduce adverse impacts to less-than-significant levels as a result of the Proposed Action.

4.2 Land Use and Cover

1486 The Proposed Action was evaluated against the following significance criteria to determine if it would result
1487 in a significant impact on land use or cover:

- 1488 • Conflict with, divide, or substantially change existing on- or off-base land use or land cover
- 1489 • Conflict with the goals and objectives of the installation's Real Property Master Plan (RPMP).
- 1490 • Limit the capability of the MAARNG to carry out its assigned mission to provide adequate
1491 training facilities at Camp Edwards

4.2.1 Preferred Action Alternative

1493 Under the Preferred Alternative, long-term, *less-than-significant* adverse impacts to land cover are
1494 anticipated from the clearing of up to 170.5 acres, resulting in the permanent conversion of forest
1495 (unimproved grounds) to maintained grassland (semi-improved grounds). Up to 9,450 SF of impervious
1496 surfaces (aggregate pavement) would be created for the parking area, in addition to impervious surfaces for
1497 the interior roadways, walkways, and stormwater management system. The amount of clearing proposed
1498 would be relatively small in comparison to the abundant forest cover existing within Camp Edwards.
1499 MAARNG would minimize clearing and earthwork to the maximum extent possible to minimize
1500 disturbance.

1501 Implementation of the Preferred Alternative would result in long-term, *beneficial* impacts from improving
1502 the training use, capability, and value of the training land. The Preferred Alternative would facilitate and
1503 enhance existing training activities at Camp Edwards by increasing the utility of the Proposed Action area;
1504 site usage of the former KD Range would increase by 100 percent. Land use would be similar in nature to

1505 existing conditions. Further, the Preferred Alternative was sited to maximize the training value and use of
1506 the installation with minimal use conflicts. Implementation of the Preferred Alternative is not anticipated
1507 to conflict with on- or off-base land uses or zoning. In addition, the proposed MPMG is identified within
1508 the installation's current RPMP (September 2017), and the design and location are consistent with the goals
1509 and objectives of the RPMP.

1510 4.2.2 Reduced-Scale Alternative

1511 Under the Reduced-Scale Alternative, impacts on land use and land cover would be similar as those under
1512 the Preferred Action Alternative (**Section 4.2.1**). Since the Reduced-Scale Alternative would require less
1513 land clearing (99.5 acres) and land conversion, long-term, *less-than-significant* adverse impacts on land
1514 cover would be slightly less than impacts under the Preferred Action Alternative. The Reduced-Scale
1515 Alternative would also result in long-term, *beneficial* impacts from improving the utility and value of the
1516 site as a training facility for the MAARNG.

1517 4.2.3 No Action Alternative

1518 Under the No Action Alternative, existing land use and cover would not change, and current installation
1519 operations would continue. Minimal use of the KD Range would continue (i.e., UAS training) as there is
1520 presently no active live-fire training at this range. The MAARNG units would continue to travel out-of-
1521 State to meet weapons qualifications standards and training requirements. Further, this alternative would
1522 limit the capability of the MAARNG to carry out its assigned mission to provide adequate training facilities
1523 at Camp Edwards. Failure to provide the required training facilities would reduce the use of, and potential
1524 to enhance, training at Camp Edwards, resulting in a long-term, *potentially significant* adverse impact to
1525 future land use.

1526 4.3 Air Quality

1527 The Proposed Action was evaluated against the following significance criteria to determine if it would result
1528 in a significant impact on air quality:

- 1529 • Cause an exceedance of the NAAQS and/or require a conformity analysis
- 1530 • Substantially increase greenhouse gas emissions or airborne fugitive dust
- 1531 • Increase health risks for nearby sensitive receptors

1532 4.3.1 Preferred Alternative

1533 Construction of the Preferred Alternative would result in short-term, *less-than-significant* adverse impacts
1534 on the existing air quality from air emissions. Air emissions, including fugitive dust and exhaust emissions,
1535 would be generated from construction equipment and vehicles. NO_x and PM are the pollutants of greatest
1536 concern with respect to construction activities and are generated by equipment engines, demolition,
1537 excavation, grading, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust.
1538 Impacts would be localized to the construction site and immediate surroundings, and last for the duration
1539 of construction (approximately 8 months). While there are residential areas located approximately 0.2 mile
1540 from the proposed MPMG Range, air emissions would be limited by the time and duration of construction
1541 activities. Any dust generated by equipment and construction activities would fall rapidly within a short
1542 distance from the construction site. The surrounding heavily wooded area would also limit the distance that
1543 fugitive dust would travel.

1544 Construction emissions would be further reduced through implementation of the following BMPs:

- 1545 • Use appropriate dust suppression methods during on-site construction activities, and if
1546 necessary, during dry weather training activities (i.e., available methods include application
1547 of water [fresh water only], soil stabilizers, or vegetation; use of enclosures, covers, silt

- 1548 fences, or wheel washers; and suspension of earth-movement or disturbance activities during
1549 high wind conditions);
- 1550 • Require a speed of less than 15 miles per hour for land clearing equipment on unpaved
1551 surfaces;
 - 1552 • Use low volatile organic compounds supplies and equipment;
 - 1553 • Repair and service vehicular and construction equipment to prevent excess emissions;
 - 1554 • Shut down heavy equipment when not needed;
 - 1555 • Clean excess soil from heavy equipment and trucks leaving the construction zone to prevent
1556 off-site transport; and,
 - 1557 • Brief dust-reducing measures to the contractor or Soldiers responsible for implementing these
1558 activities.
- 1559

1560 The MAARNG's on-site manager would be responsible for bringing air quality issues, if they arise, to
1561 Range Control or the MAARNG Environmental Affairs Office for resolution. In addition, any construction
1562 or demolition of a building requires notification to the MassDEP before start of work in accordance with
1563 310 CMR 7.09 designed to protect public health and the environment by ensuring that the release of dust
1564 or other potentially hazardous air pollutants to the ambient air would be prevented. Compliance with these
1565 requirements would ensure air quality effects are minimized throughout the construction period.

1566 Long-term, *less-than-significant* adverse operational air quality impacts are expected within the immediate
1567 vicinity of the proposed MPMG Range from training and firing operations. Increased vehicular activity
1568 during training events and routine maintenance operations (i.e., mowing) would generate air emissions as
1569 well. To minimize operational impacts, the BMPs noted above would be implemented during training
1570 activities as applicable. Overall, air emissions generated from the Preferred Alternative would be *de*
1571 *minimis*, and would not result in a significant or long-term adverse increase of criteria pollutants at the
1572 JBCC or the surrounding area.

1573 Per EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, Federal
1574 agencies are required to implement sustainable practices and technologies, increase energy efficiency, and
1575 reduce greenhouse gas emissions. A GHG assessment was prepared in accordance with the MEPA
1576 Greenhouse Gas Emissions Policy and Protocol to determine estimated CO₂ emissions generated from the
1577 Proposed Action (MAARNG, 2020). Findings indicate both short- and long-term, *less-than-significant*
1578 adverse impacts on climate change from an increase in GHG emissions. While construction and land
1579 clearing activities would increase emissions, these activities would be temporary and only last for the
1580 duration of construction. Long-term emissions would be generated from training activities, although total
1581 emissions are estimated at only 3.0 US tons of CO₂.

1582 Conversely, the Preferred Alternative would result in long-term, *beneficial* impacts from a reduction in
1583 vehicle-related emissions. Travel associated with personal and military owned vehicles would decrease
1584 significantly under the Preferred Alternative because the need to travel to out-of-State facilities to meet
1585 weapons qualifications standards and training requirements would be reduced, resulting in a long-term
1586 reduction in transportation related CO₂ emissions (i.e., over 82 percent reduction from baseline conditions)
1587 (MAARNG, 2020). As Camp Edwards currently provides carbon sequestration on an annual basis through
1588 maintenance of forest land, emissions from the Preferred Alternative would not be substantial. Construction
1589 of the Preferred Alternative would represent only 1.3 percent of the carbon sequestered in the forests at
1590 Camp Edwards. As such, the release of CO₂ from the Proposed Action would be alleviated in 3.5 years
1591 based on just the annual sequestration of GHG provided by the forested land at Camp Edwards (MAARNG,
1592 2020).

1593 4.3.2 Reduced-Scale Alternative

1594 Impacts on air quality under the Reduced-Scale Alternative would be similar to those under the Preferred
1595 Alternative (**Section 4.3.1**). Construction of the Reduced-Scale Alternative would result in short-term, *less-*

1596 *than-significant* adverse impacts on air quality from the use of construction equipment and vehicles.
1597 Operation of the MPMG Range would result in short- and long-term, *less-than-significant* adverse impacts
1598 as construction activities, land clearing, and training activities would generate emissions in the Proposed
1599 Action area. However, as there would be less land clearing under the Reduced-Scale Alternative, the
1600 resulting short- and long-term air quality impacts would be less than those anticipated from the Preferred
1601 Action Alternative. The reduction in localized GHG emissions from the absence of out-of-state travel would
1602 also result in a slight *benefit* on overall vehicle GHG emissions.

1603 Implementation of BMPs would minimize air quality impacts to the extent practicable under the Reduced-
1604 Scale Alternative.

1605 **4.3.3 No Action Alternative**

1606 Under the No Action Alternative, the MPMG Range would not be developed and current conditions at
1607 Camp Edwards would persist. Units would continue to travel to either New York, New Jersey, or Vermont
1608 for required training on the nearest MPMG Range as the facilities necessary to accommodate the MAARNG
1609 would continue to be unavailable in the State. As such, the No Action Alternative would have a long-term,
1610 *less-than-significant* adverse impact on vehicle GHG emissions. Current out-of-state travel results in the
1611 generation of 724 US tons of CO₂ emissions annually, whereas implementation of the Proposed Action
1612 would reduce this amount of vehicle emissions by 82 percent (MAARNG, 2020).

1613 **4.4 Noise**

1614 The Proposed Action was evaluated against the following significance criteria to determine if it would result
1615 in a significant impact on the noise environment:

- 1616 • Create a Zone III (>104 dB) boundary that extends off-base during favorable weather conditions
- 1617 • Include routine activities that result in a Zone II that extends off-base
- 1618 • Substantially increase noise resulting from traffic
- 1619 • Result in substantial disruptions to nearby sensitive receptors

1620 **4.4.1 Preferred Alternative**

1621 Under the Preferred Alternative, short-term, *less-than-significant* adverse effects to the local noise
1622 environment would occur from construction activities. Noise generating sources during land conversion
1623 activities would be associated primarily with standard construction and maintenance equipment. Peak noise
1624 levels would be intermittent and varied based on the equipment used. Construction contractors commuting
1625 to and from the work site or delivering materials would increase noise levels as well. Typically, peak noise
1626 levels within 50 feet of active construction areas and material transportation routes would be considered
1627 “striking” or “very loud,” comparable to peak crowd noise at an indoor sports arena. At approximately 200
1628 feet, peak noise levels would be loud, approximately comparable to a garbage disposal or vacuum cleaner
1629 at 10 feet. At 0.25 mile, construction noise levels would generally be quiet enough to be considered
1630 insignificant, although transient noise levels may be noticeable at times. Increased noise levels from
1631 construction could directly affect the areas adjacent to the proposed range, including the residential area
1632 located approximately 0.2 mile from the Proposed Action area. Construction noise would be temporary,
1633 however, and further dampened by the surrounding heavily wooded forests. Further, the following BMPs
1634 would be implemented by the MAARNG as appropriate to limit noise impacts during land conversion
1635 activities:

- 1636 • Stationary equipment and material transportation routes would be located as far away from
1637 sensitive receptors as possible.
- 1638 • Equipment would be operated per manufacturer’s recommendations, and noise-generating heavy
1639 equipment would be shut down when not needed.

- 1640
- 1641
- 1642
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- 1644
- Construction personnel would be directed to operate equipment in the quietest manner practicable (e.g., speed restrictions, retarder brake restrictions, engine speed restrictions, etc.).
 - Noise-reducing measures would be briefed to the contractor or Soldiers responsible for implementing these activities.

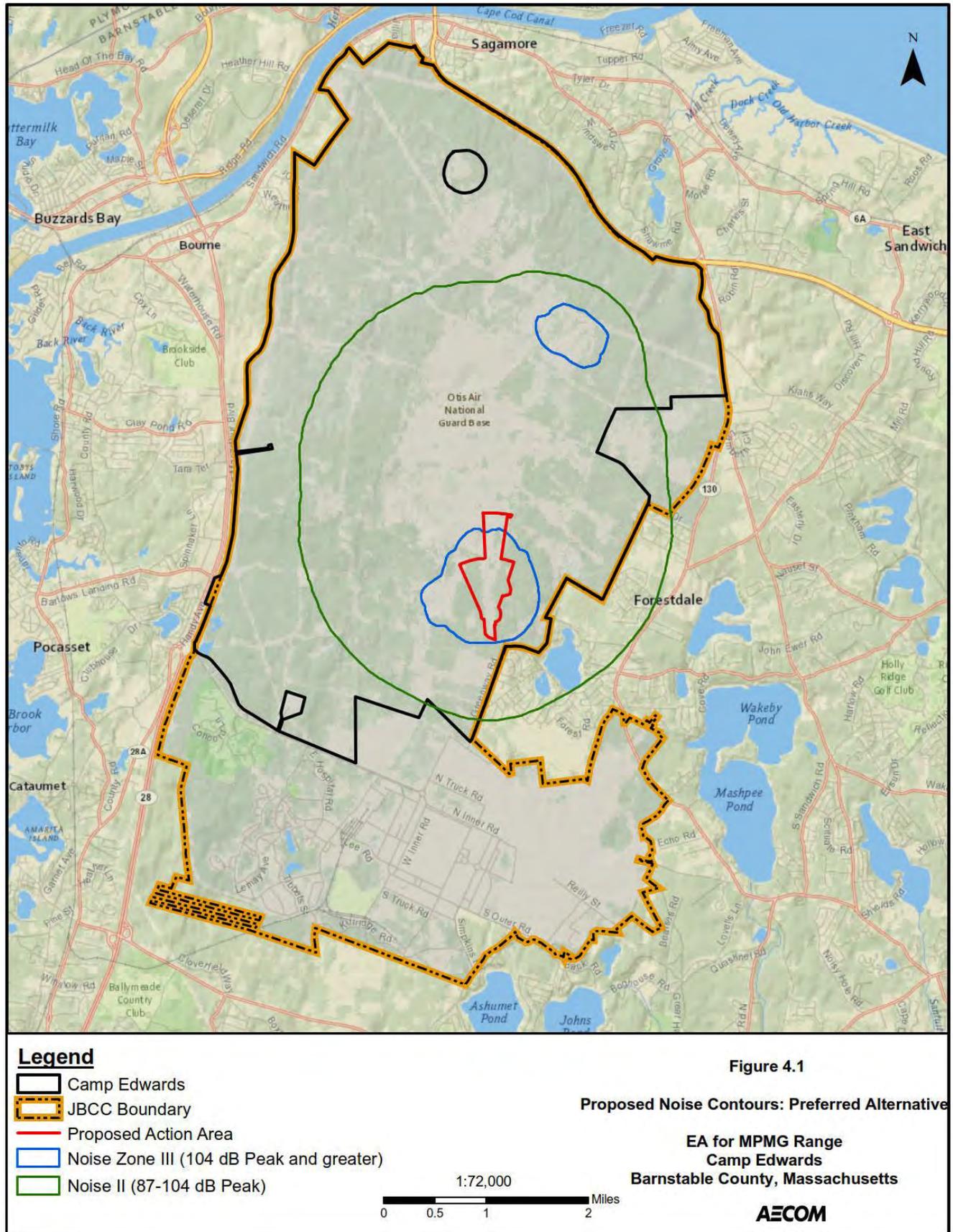
1645 The MAARNG's on-site construction manager would be responsible to bring noise issues, if they arise, to
1646 the Range Control or the MAARNG Environmental Affairs Office for resolution. In addition, these BMPs
1647 would be incorporated into construction contracts as necessary.

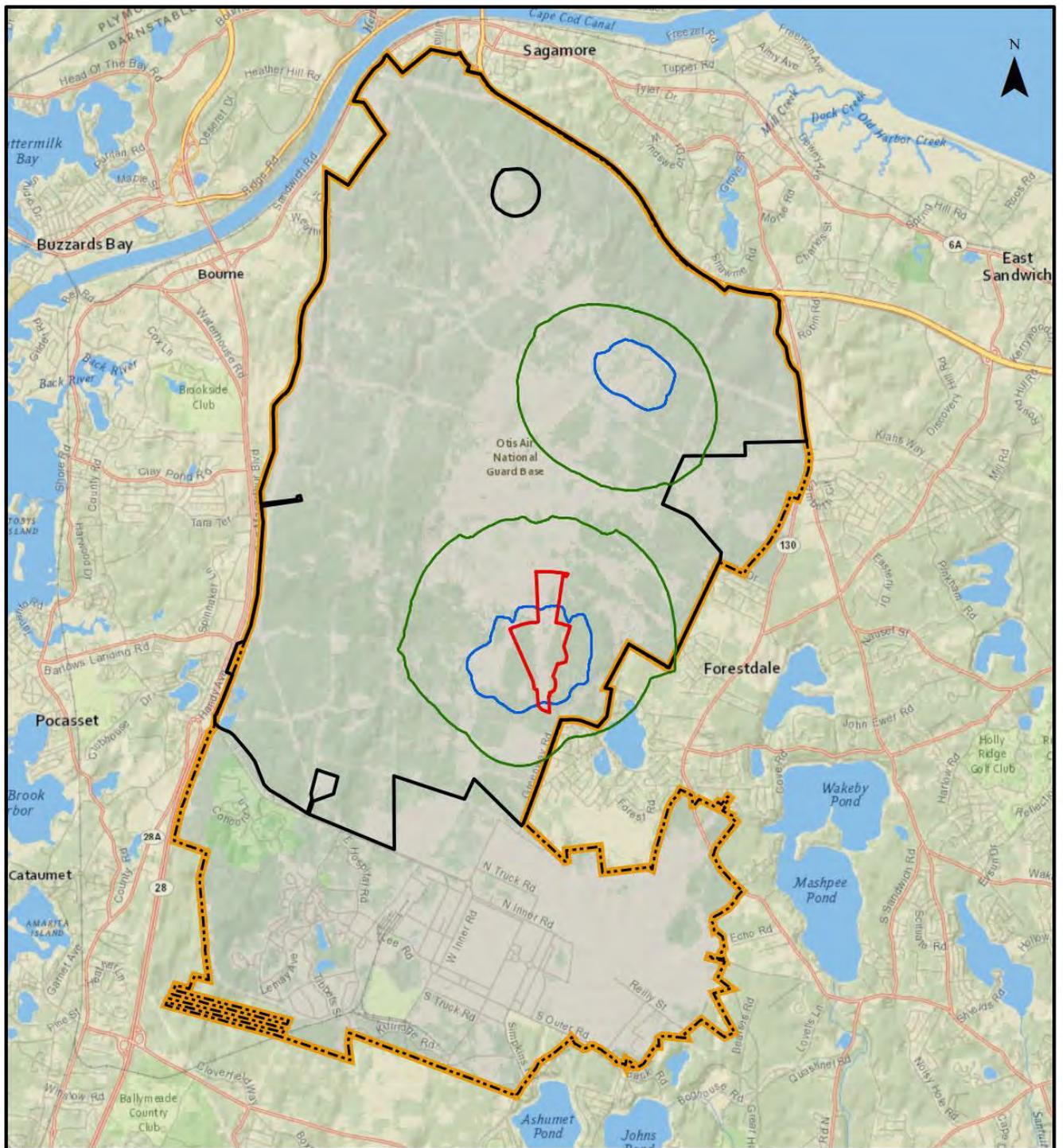
1648 Long-term, *less-than-significant* adverse operational noise impacts are anticipated due to increased site use
1649 and firing operations from training activities on the MPMG Range. While site usage would increase by 100
1650 percent as no weapons training is currently occurring at the KD Range, overall Camp Edwards site usage
1651 would only increase by approximately 18.6 percent under the Preferred Alternative. The U.S. Army Public
1652 Health Center (USAPHC) performed a Noise Assessment for the proposed MPMG Range in May 2019
1653 (**Appendix D**). Under the Preferred Alternative, Zone III remains within the JBCC boundary, while Zone
1654 II extends less than approximately 0.5 mile beyond the nearest eastern boundary of JBCC, where there are
1655 multiple residential neighborhoods as well as an elementary school; however, these sensitive receptors are
1656 located approximately 1.5 miles from the Proposed Action area (**Figure 4-1**). Potential noise impacts on
1657 the surrounding communities and property owners can vary based on weather conditions due to differences
1658 in sound propagation. Citizens within these areas may find the activity noticeable and distinct, and there is
1659 a moderate risk of the MAARNG receiving noise-related complaints. However, peak noise levels above
1660 130 dB, subjectively defined as very loud or possibly startling, would not extend beyond the JBCC
1661 boundary.

1662 The MAARNG would minimize noise impacts partly through design. As a result of previous noise studies,
1663 the location of the MPMG Range was shifted to the north to reduce the Zone II location within the adjacent
1664 residential areas. In addition, with implementation of training activities in accordance with Camp Edwards
1665 Range Regulations and the MAARNG SONMP, the Preferred Alternative would not result in significant
1666 long-term noise impacts. The MAARNG would provide public notification of upcoming training events,
1667 particularly for .50 caliber activity. A Noise Notification Protocol would be established in the SONMP
1668 accordingly. In addition, because there is no specific Camp Edwards noise complaint procedure identified
1669 in the MAARNG SONMP, the MAARNG would update the SONMP to include a 24-hour noise complaint
1670 point of contact. Additional noise testing would be performed by the USAPHC once the range is constructed
1671 and the MPMG is under full training (weapons firing) conditions in order to determine the actual Zone II
1672 locations. Following this testing, pending USAPHC recommendation, additional minimization measures,
1673 such as constructing noise barriers, would be considered if necessary.

1674 **4.4.2 Reduced-Scale Alternative**

1675 The Reduced-Scale Alternative would result in short- and long-term, *less-than-significant* adverse
1676 impacts on the noise environment, similar to the Preferred Alternative (**Section 4.4.1**). As the Reduced-
1677 Scale Alternative would require less clearing and construction than the Preferred Alternative, its short-
1678 term noise impact would be slightly less. Similarly, operational noise impacts would be less under the
1679 Reduced-Scale Alternative because the M2 machine gun and the M82 sniper rifle, which utilize .50
1680 caliber ammunition, would not be fired on the range. The USAPHC assessment found that under the
1681 Reduced-Scale Alternative, Zone III would remain within the JBCC boundary, while Zone II would
1682 extend slightly beyond the eastern boundary, although not as far as under the Preferred Alternative
1683 (**Figure 4-2**). The MAARNG would implement the same BMPs and minimization measures to reduce
1684 noise impacts under the Reduced-Scale Alternative to the extent practicable.



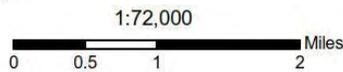


Legend

- Camp Edwards
- JBCC Boundary
- Proposed Action Area
- Noise Zone III (104 dB Peak and greater)
- Noise II (87-104 dB Peak)

Figure 4.2
Proposed Noise Contours: Reduced-Scale Alternative

EA for MPMG Range
Camp Edwards
Barnstable County, Massachusetts



AECOM

1685 4.4.3 No Action Alternative

1686 Under the No Action Alternative, the MPMG Range would not be developed; thus, no noise impacts would
1687 occur at Camp Edwards. Current conditions at Camp Edwards would persist.

1688 4.5 Soils

1689 The Proposed Action was evaluated against the following significance criteria to determine if it would result
1690 in a significant impact on soils:

- 1691 • Substantially increase potential occurrences of erosion or sedimentation
- 1692 • Subject new areas to training activities that would result in substantial changes to soils (i.e.,
1693 impact area for explosions)

1694 4.5.1 Preferred Alternative

1695 Construction of the Preferred Alternative would result in short-term, *less-than-significant* adverse impacts
1696 on soils from land disturbing activities on a total of 199.0 acres. The disturbed surface soil would be
1697 susceptible to compaction as well as erosion by wind and surface runoff. However, due to the flat
1698 topography of the site and predominantly sandy soils, sedimentation would be minimal. Project activities
1699 that result in soil disturbance (e.g., clearing, grading, or excavating) of one-acre or more require a National
1700 Pollutant Discharge Elimination System (NPDES) permit from USEPA if water is discharged to a WOUS.
1701 However, as there are no wetlands or surface waters in or near the proposed MPMG Range site, a NPDES
1702 Construction General Permit is not required.

1703 The MAARNG would prepare a site-specific Erosion and Sediment (E&S) Control Plan to address all earth-
1704 disturbance aspects of the Proposed Action. The E&S Control Plan would incorporate BMPs, including
1705 specific guidelines and engineering controls to address anticipated erosion and sedimentation impacts.
1706 BMPs include but are not limited to the following:

- 1707 • Install and monitor erosion-prevention measures such as silt fences and water breaks,
1708 sedimentation basins, filter fences, sediment berms, interceptor ditches, straw bales, rip-rap,
1709 and/or other sediment control structures; re-spreading of stockpiled topsoil; and
1710 seeding/revegetation of areas temporarily cleared of vegetation.
- 1711 • Plant and maintain native soil-stabilizing vegetation on the range where soils have been disturbed.
- 1712 • Comply with the EPS general performance standards for pollution prevention and management of
1713 the Camp Edwards training ranges.
- 1714 • Ensure all MAARNG field staff members are trained in spill response.

1715 Implementation of the E&S Control Plan would ensure soil impacts are minimized to the extent practicable.
1716 Adherence to the E&S Control Plan would also ensure the MAARNG follow State and Federal water
1717 quality standards to minimize the potential for erosion and sedimentation.

1718 Operation of the Preferred Alternative would result in direct long-term, *less-than-significant* adverse soil
1719 erosion impacts as a result of military training operations and equipment and vehicle use. Operational
1720 impacts would be minimized through the implementation of the above-listed BMPs.

1721 4.5.2 Reduced-Scale Alternative

1722 Under the Reduced-Scale Alternative, approximately 128.0 acres of land would be disturbed from
1723 construction activities. While the amount of clearing and ground disturbance for the Reduced-Scale
1724 Alternative would be less than required under the Preferred Alternative, it would still result in short-term,
1725 *less-than-significant* adverse impacts on soils. Clearing and construction activities would disturb soils and
1726 cause erosion and sedimentation. While impacts on soils under the Reduced-Scale Alternative would be
1727 similar to impacts under the Preferred Alternative (**Section 4.5.1**), the magnitude would be slightly less due

1728 to less clearing and a smaller range size. The MAARNG would implement the BMPs listed above and
1729 follow the E&S Control Plan to minimize soil impacts under the Reduced-Scale Alternative.

1730 **4.5.3 No Action Alternative**

1731 Under the No Action Alternative, the MPMG Range would not be developed; thus, no impacts on soils
1732 would occur at Camp Edwards. Current conditions at Camp Edwards would persist.

1733 **4.6 Groundwater**

1734 The Proposed Action was evaluated against the following significance criteria to determine if it would result
1735 in a significant impact on groundwater:

- 1736 • Substantially alter the quantity or quality of groundwater
- 1737 • Threaten or damage unique hydrologic characteristics
- 1738 • Violate established laws or regulations that have been adopted to protect or manage water
1739 resources

1740 **4.6.1 Preferred Alternative**

1741 Construction of the Preferred Alternative would result in short-term, *less-than-significant* adverse impacts
1742 on groundwater. During land conversion activities, the use of construction equipment and materials could
1743 inadvertently release contaminants or toxic materials (e.g., fuel and other petroleum products) into
1744 groundwater. Similarly, site maintenance and training operations could lead to the inadvertent release of
1745 contaminants, creating a long-term, *less-than-significant* adverse impact on groundwater. **Section 4.12**
1746 discusses potential pollution (i.e., from chemicals, fuels, etc.) impacts attributable to the Preferred
1747 Alternative and identifies BMPs that would minimize impacts to the extent practicable.

1748 In addition to BMPs, adherence to regulatory requirements would also minimize impacts on groundwater.
1749 The MAARNG is also required to conduct periodic visual inspections to verify that the E&S Control Plan
1750 is being followed and is working to ensure compliance with State and Federal standards with regard to
1751 groundwater impacts. Long-term groundwater protection during training operations would also be
1752 accomplished by maintaining vegetative cover, implementing stormwater management measures, and
1753 complying with the Camp Edwards pollution prevention plan.

1754 **4.6.2 Reduced-Scale Alternative**

1755 Impacts on groundwater from the Reduced-Scale Alternative would be similar to impacts from the Preferred
1756 Alternative (**Section 4.6.1**). Under the Reduced-Scale Alternative, impacts would occur from potential
1757 inadvertent release of contaminants during construction activities. However, as the Reduced-Scale
1758 Alternative is smaller in size and requires less clearing than the Preferred Alternative, it would have slightly
1759 less potential for inadvertent release and impacts on groundwater. Adverse short- and long-term impacts on
1760 groundwater would be *less-than-significant*.

1761 **4.6.3 No Action Alternative**

1762 Under the No Action Alternative, the MPMG Range would not be developed; thus, no impacts on
1763 groundwater would occur at Camp Edwards. Current conditions at Camp Edwards would persist.

1764 **4.7 Biological Resources**

1765 The Proposed Action was evaluated against the following significance criteria to determine if it would result
1766 in a significant impact on biological resources:

- 1767 • Convert or degrade existing rare habitats not currently managed in a conservation plan
- 1768 • Convert or degrade a substantial amount of existing habitat
- 1769 • Result in substantial mortality of wildlife
- 1770 • Adversely affect populations of Federally or State threatened or endangered species

1771 4.7.1 Preferred Alternative

1772 Under the Preferred Alternative, short-term and long-term, *less-than-significant adverse* impacts on
 1773 vegetation, wildlife, and special status species would be anticipated.

1774 4.7.1.1 Vegetation

1775 A short- and long-term, *less-than-significant adverse* impacts on vegetation would occur during land cover
 1776 conversion required under the Preferred Alternative, due to the removal of existing vegetation. Under the
 1777 Preferred Alternative, a total of approximately 170.5 acres of existing forest would be cleared and
 1778 permanently converted to maintained grassland. As shown in **Figure 3-3**, the MPMG Range primarily
 1779 comprises pine barrens and grasslands which are abundant at the installation. As such, the total amount of
 1780 clearing would be negligible in relation to the overall vegetation composition at Camp Edwards and JBCC.
 1781 Additionally, large scale restoration of these habitats is being conducted across the installation. Rare species
 1782 protection programs are already underway in consultation with NHESP. Native species would be used when
 1783 revegetating the cleared areas where targets and support structures are not proposed. Invasive plant
 1784 management would be conducted consistent with current installation practices and include spot treatment
 1785 to avoid overspray. The MAARNG has also prepared a Conservation and Management Permit (CMP)
 1786 application to address potential impacts resulting from the loss of pine barrens habitat (**Appendix E**). The
 1787 NHESP has 30 days to review the CMP application and would not be able to issue the CMP until the MEPA
 1788 process has been fully completed.

1789 4.7.1.2 Wildlife

1790 Wildlife in the Proposed Action area would sustain direct and indirect, short- and long-term, *less-than-*
 1791 *significant adverse* impacts associated with construction of the Preferred Alternative and required land
 1792 clearing activities. Wildlife would experience increased noise, vibrations, and human presence, as well as
 1793 temporary or permanent displacement due to the loss of habitat. Operation and maintenance of the Preferred
 1794 Alternative would result in long-term, *less-than-significant adverse* impacts as well. Firing operations and
 1795 human presence during training events would disturb nearby wildlife. Given the relatively small area of
 1796 disturbance compared to available undeveloped land within Camp Edwards, and that the Proposed Action
 1797 area was previously used for live-fire training and is adjacent to the existing Central Impact Area, impacts
 1798 on wildlife would not be significant. In addition, individuals would be expected to vacate the immediate
 1799 areas during these activities if they are able, although some less-mobile individuals (i.e., small mammals,
 1800 reptiles, amphibians) could potentially suffer loss of life during land disturbing activities.

1801 4.7.1.3 Special Status Species

1802 As discussed in **Section 3.7**, one Federally listed species and 34 State-listed species have been documented
 1803 at Camp Edwards. No Federally designated critical habitat is present. The Preferred Alternative would
 1804 result in short- and long-term, *less-than-significant adverse* impacts on special status species.

1805 The Federally threatened NLEB may have potential occurrence in the Proposed Action area; as such,
 1806 construction activities could disturb nearby roosting bats or destroy trees that could potentially serve as
 1807 maternal and night roosts, as well as pupping habitat for the NLEB. While marginal suitable habitat would
 1808 be removed, there is no indication from extensive acoustic surveys that any roosting or notable foraging
 1809 activity occurs in the Proposed Action area or the vicinity; NLEB presence is expected to be limited. While
 1810 Camp Edwards does not formally implement tree clearing restrictions regarding NLEB maternity season,

1811 the installation would avoid tree clearing, when feasible, from April to July to further minimize potential
1812 impacts during the maternity season. Primary clearing activities would occur predominantly in the inactive
1813 season for bats or, at minimum, after breeding season when juveniles would be fully flighted; therefore, the
1814 project *may affect, but is unlikely to adversely affect* NLEB.

1815 While the American chaffseed has potential occurrence within the Proposed Action area, conditions are
1816 generally unsuitable and the species has not been detected historically in the past 20 years nor during
1817 intensive frost bottom rare plant surveys conducted annually in the vicinity of the Proposed Action area.
1818 Although no suitable habitat is currently present, the proposed MPMG Range could potentially reintroduce
1819 more favorable conditions for the species; therefore, the project *may affect, but is unlikely to adversely*
1820 *affect* American Chaffseed. As no suitable habitat exists within the Proposed Action area for the sandplain
1821 gerardia and the species has not been documented, the Preferred Alternative would have *no effect* on the
1822 sandplain gerardia. Section 7 consultation with USFWS was initiated on 14 April 2020; no response has
1823 been received to date. Correspondence with USFWS and an associated Biological Assessment providing
1824 detailed species discussion are included in **Appendix B**.

1825 Large-scale habitat restoration at Camp Edwards and established avoidance procedures currently ensure
1826 minimal impacts on State-listed species from routine military activities. In addition, implementation of
1827 RCMs and BMPs would further minimize impacts (**Section 4.7.4**). During the consultation process, the
1828 MAARNG received correspondence from the NHESP on 16 August 2019 in which the NHESP noted the
1829 Proposed Action area is located within suitable habitat for all of the 34 State-listed species documented at
1830 Camp Edwards. The MAARNG would address rare species habitat concerns during the project design phase
1831 to minimize or avoid impacts to the extent practicable, as recommended by the NHESP. In addition, the
1832 MAARNG would adhere to the requirements described in the CMP, such as long-term habitat management
1833 and monitoring, to avoid or minimize impacts to the extent practicable (**Appendix E**). The CMP would
1834 provide a framework for protection of rare species during MAARNG activities at Camp Edwards.

1835 In addition, to achieve net benefit² for State-listed species in accordance with MESA, the MAARNG would
1836 implement RCMs, including adherence to vegetation and wildland fire management recommendations
1837 outlined in the INRMP and IFWMP, as applicable; designing and installing temporary and permanent
1838 lighting so as not to interfere with State-listed moth species; conducting surveys of the Proposed Action
1839 area to locate any Eastern box turtle individuals for tracking throughout the life of the project; and
1840 coordinating with the NHESP to ensure measures are implemented to avoid and minimize take.

1841 Of the 26 BCC species listed, only 5 have potential presence within the Proposed Action area. Land
1842 disturbing activities could have direct impacts on these species and other ground nesting birds during the
1843 breeding season due to potential stressors, such as the use of heavy machinery, vegetation removal, and
1844 increased noise. Indirect impacts on migratory birds could also result from the permanent or temporary loss
1845 of habitat. However, given the comparatively limited amount of vegetation removal and abundance of
1846 habitat on JBCC, as well as the geographical range of the migratory bird species, potential short- and long-
1847 term adverse impacts would be *less-than-significant*. Individual birds would be anticipated to leave the
1848 Proposed Action area during land clearance activities. Further, the MAARNG actively manages its property
1849 for the benefit of wildlife, including migratory birds. To minimize potential impacts associated with
1850 vegetation removal specifically in the Proposed Action area, land clearing activities would be scheduled to
1851 occur, to the extent feasible, outside of or late in the breeding season.

1852 Operation of the Preferred Alternative would result in long-term, *less-than-significant* adverse impacts on
1853 migratory birds from land management operations (e.g., periodic mowing) and training activities. Proposed
1854 training activities could have the potential to injure or kill migratory birds, but the likelihood of birds being
1855 struck during operational activities is considered low and would be incidental. Window collisions with the

² Per 321 CMR 10.00, a net benefit means an action, or set of actions, that contributes, on its own or in the context of other actions, significantly to the long-term conservation of a State-listed species and that the conservation contribution to the impacted State-listed species exceeds the harm caused by a proposed project or activity.

1856 new range control tower would be unlikely as well, as window surfaces would comprise less reflective
1857 glass. In addition, long-term, *beneficial* effects on migratory birds would be expected from wildland fire
1858 management activities implemented to reduce wildfire hazard from tracers and other ignition sources.
1859 Several BCC species have been shown to benefit from the expansion of fuels management and prescribed
1860 burning for pine barrens habitat management. Recent statistically significant increasing trends at Camp
1861 Edwards can be attributed to prescribed burning activities. BCC species on Camp Edwards have been
1862 observed to habituate to range noise and activity while benefiting from more open habitat conditions
1863 provided by the ranges and prescribed burning that occurs nearby. The Proposed Action would overall
1864 benefit the majority of migratory birds species at Camp Edwards, especially those of regional conservation
1865 concern.

1866 To minimize potential impacts to migratory birds and special status species, operational activities would be
1867 conducted in accordance with the 2009 INRMP and the MOU between the DoD and USFWS (see
1868 **Appendix C**). In the unlikely event that proposed training activities start a fire from the use of tracers,
1869 flares, or simulators, the fire would be extinguished in accordance with existing range management rules
1870 before it reaches adjacent natural areas.

1871 While bald eagles have the potential to occur at Camp Edwards, they have not been observed in recent
1872 surveys. Further, bald eagles prefer nesting near large waterbodies and none are present within the Proposed
1873 Action area. Therefore, they are not likely to nest within or in the vicinity of the proposed MPMG Range.
1874 *No impacts* on bald eagles are anticipated under the Preferred Action Alternative.

1875 In addition to Federally and State-listed species and BCC, the MAARNG also considered effects of the
1876 Preferred Alternative on the monarch butterfly (*Danaus plexippus*), little brown bat (*Myotis lucifugus*), and
1877 spotted turtle (*Clemmys guttata*), which are scheduled for listing determinations in the next few years. The
1878 Preferred Alternative is likely to result in *beneficial* impacts to the monarch butterfly, little brown bat as
1879 typical range management provides for diverse grass/forb mix including milkweed, particularly at edges
1880 and low spots. The MAARNG would implement a system for marking no-mow small areas for killdeer
1881 nests and milkweed patches. The Preferred Alternative would also improve foraging habitat surrounding
1882 the expanded range for the little brown bat. The MAARNG also determined the Preferred Alternative
1883 would benefit the New England cottontail rabbit, a species of concern, by increasing pine barrens habitat
1884 improvement. The net impact for the species would be beneficial despite some direct loss of habitat in the
1885 range area. Finally, no effect to the spotted turtle is expected as no suitable habitat (i.e., shallow swamps)
1886 occurs within or in the vicinity of the Proposed Action area.

1887 **4.7.2 Reduced-Scale Alternative**

1888 Under the Reduced-Scale Alternative, impacts on biological resources would be similar to the Preferred
1889 Action Alternative (see **Section 4.7.1**), although the magnitude of impacts would be slightly less due to less
1890 land disturbance and tree clearance. The Reduced-Scale Alternative would result in short- and long-term,
1891 *less-than-significant* adverse impacts on vegetation, wildlife species, and special-status species from
1892 construction and operational disturbance, in addition to *beneficial* effects on migratory birds.
1893 Implementation of construction BMPs and RCMs would further minimize impacts on biological resources.

1894 **4.7.3 No Action Alternative**

1895 Under the No Action Alternative, the MPMG Range would not be developed; thus, no biological impacts
1896 would occur at Camp Edwards. Current conditions at Camp Edwards would persist.

1897 **4.8 Cultural Resources**

1898 The Proposed Action was evaluated against the following significance criteria to determine if it would result
1899 in a significant impact on cultural resources:

- 1900
- 1901
- 1902
- 1903
- Degrade, or cause neglect of, an archaeological site, NRHP-listed or eligible resource, or cemetery
 - Degrade, or decrease access to, cultural resources of value to Federally recognized Native American tribes

1904 **4.8.1 Preferred Alternative**

1905 The Preferred Alternative is anticipated to have *no effect* on historic, archaeological, or recorded tribal
 1906 resources, as no historic structures or archaeological sites have been identified in the Proposed Action area.
 1907 The MAARNG consulted with the MHC in a letter dated 7 August 2019. Given the SHPO's failure to
 1908 respond within 30 days of the consultation request, the MAARNG may proceed to next step of the
 1909 consultation process based on its finding of *no effect*. An MFR summarizing Section 106 consultation
 1910 efforts is provided in **Appendix A**.

1911 Native American consultation for this EA was initiated by the MAARNG in accordance with NEPA,
 1912 NHPA, DoDI 4710.02, and AR 200-1. No sacred, religious, cultural, or traditional resources have been
 1913 identified by the Native American Indian tribes that would be affected by the Preferred Alternative. A list
 1914 of tribes contacted, copies of correspondence letters, and MFR of tribal correspondence are included in
 1915 **Appendix A**.

1916 The Proposed Action area abuts and expands into the Central Impact Area and has been determined to have
 1917 low archaeological sensitivity. Therefore, the Preferred Alternative has low or no potential to affect
 1918 archaeological resources. Should archaeological materials or human remains be inadvertently discovered
 1919 during ground disturbing activities, all work shall cease immediately and the MAARNG ICRMP SOP
 1920 Number 5 would be followed.

1921 **4.8.2 Reduced-Scale Alternative**

1922 Under the Reduced-Scale Alternative, there would be *no effect* on historic structures, archaeological
 1923 resources, or recorded tribal resources, same as the Preferred Action Alternative (see **Section 4.8.1**) No
 1924 cultural or historic resources occur within the Proposed Action area. Should archaeological materials or
 1925 human remains be inadvertently discovered during ground disturbing activities, all work shall cease
 1926 immediately and the proper authorities would be notified.

1927 **4.8.3 No Action Alternative**

1928 Under the No Action Alternative, the MPMG Range would not be developed; thus, no impacts on cultural
 1929 resources would occur at Camp Edwards. Current conditions at Camp Edwards would persist.

1930 **4.9 Infrastructure**

1931 The Proposed Action was evaluated against the following significance criteria to determine if it would result
 1932 in a significant impact on area infrastructure or transportation:

- 1933
- 1934
- 1935
- 1936
- Increase traffic such that it exceeds the capacity of local roadways
 - Restrict civilian airspace use outside the scope of any existing agreements with the FAA
 - Alter utilities such that demand exceeds supply or capacity, or would cause substantial alterations to existing utility systems

1937 **4.9.1 Preferred Alternative**

1938 Short-term, *less-than-significant* adverse impacts on traffic may occur during construction of the Preferred
 1939 Alternative. The transport of construction equipment and construction vehicles could temporarily increase
 1940 local traffic congestion. However, given the isolated location of the Proposed Action area within Camp

1941 Edwards, construction traffic is not anticipated to result in a noticeable effect. Further, no traffic detours or
1942 road closings are planned. Range operations could result in long-term, *less-than-significant* adverse traffic
1943 impacts from units transporting vehicles and other equipment to the MPMG Range; however, these impacts
1944 are not anticipated to be significant given the proposed training would only occur sporadically throughout
1945 the training year. Further, the surrounding area is relatively rural and lightly traversed; traffic congestion is
1946 generally not a concern.

1947 Short-term, *less-than-significant* adverse impacts on utilities may occur during construction of the Preferred
1948 Alternative. The new MPMG Range project would require utility extensions for electricity and
1949 telecommunications services from existing nearby infrastructure. Potential service disruptions are likely to
1950 occur during utility connections. However, these disruptions would be temporary and avoided to the extent
1951 practicable. In the long term, wastewater and sewage would continue to be pumped from portable toilet
1952 facilities and hauled off base for disposal at licensed disposal facilities or discharged through the normal
1953 operation of existing septic systems. Required utilities for operating the Preferred Alternative would not
1954 exceed the existing supply or capacity at Camp Edwards.

1955 **4.9.2 Reduced-Scale Alternative**

1956 Implementation of the Reduced-Scale Alternative would result in similar impacts on infrastructure and
1957 transportation as the Preferred Action Alternative (see **Section 4.11.1**). The Reduced-Scale Alternative
1958 would cause short- and long-term, *less-than-significant* adverse impacts on traffic conditions from the
1959 movement of construction and military vehicles; and short-term, *less-than-significant* adverse impacts on
1960 utility services from utility extensions. However, as this alternative is smaller and requires less land
1961 clearing, the construction phase may be shorter, thereby further reducing impacts.

1962 **4.9.3 No Action Alternative**

1963 Under the No Action Alternative, the MPMG Range would not be developed; thus, no impacts on
1964 infrastructure would occur at Camp Edwards. Current conditions at Camp Edwards would persist.

1965 **4.10 Hazards and Toxic Materials/Wastes (HTMW)**

1966 The Proposed Action was evaluated against the following significance criteria to determine if it would result
1967 in a significant impact on HTMW:

- 1968 • Substantially increase generation of, or exposure of the public to, hazardous substances
- 1969 • Substantially increase the presence of hazardous substances in the environment (i.e.,
1970 contamination)
- 1971 • Substantially restrict the use of property due to hazardous waste, materials, or potential site
1972 remediation requirements

1973 **4.10.1 Preferred Alternative**

1974 Under the Preferred Alternative, short- and long-term, *less-than-significant* adverse impacts associated with
1975 HTMW would be anticipated due to minor land conversion activities, as well as maintenance and training
1976 operations. The Preferred Alternative would produce minor increases in handling, storage, use,
1977 transportation, and disposal of HTMW, resulting from vehicle and equipment during vegetation removal
1978 activities and site maintenance. These proposed activities would have potential contamination sources (e.g.,
1979 diesel fuel, oil, antifreeze, and lubricants). Even without major release events, multiple minor releases could
1980 have potential effects to the environment at the proposed firing point locations. Releases over a long period
1981 of time could potentially lead to soil and/or groundwater contamination, and thus could require some form
1982 of remediation. Implementation of the Preferred Alternative would not substantially affect the installation's
1983 hazardous materials storage and handling procedures and hazardous waste disposal processes.

1984 All HTMW that would be used or generated would be handled and disposed of in compliance with Federal
1985 and State requirements, as well as the EPS to minimize potential impacts to the maximum extent feasible.
1986 The MAARNG maintains a Hazardous Waste Management Plan, as well as an installation-specific Spill
1987 Prevention Control and Countermeasure Plan (SPCCP). This plan identifies potential sources of pollution,
1988 BMPs to limit this potential, procedures to respond to pollution events, and procedures to handle hazardous
1989 materials. The MAARNG would also comply with EPS 19, *Range Performance Standards*, which requires
1990 efforts to minimize harmful impacts to the Reserve.

1991 In addition, in the event that unexploded ordinance (UXO) or MEC are encountered during construction,
1992 an on-call UXO/MEC expert would be contacted immediately for safe handling and removal. This expert
1993 would handle all aspects of the removal process to include regulator notification, implementation of safety
1994 measures, and removal of such items. The MAARNG would contract an on-call UXO/MEC expert for the
1995 duration of the construction phase.

1996 **4.10.2 Reduced-Scale Alternative**

1997 Under the Reduced-Scale Alternative, potential HTMW impacts would be similar to those described under
1998 the Preferred Alternative (see **Section 4.12.1**). The Reduced-Scale Alternative would result in short- and
1999 long-term, *less-than-significant* adverse impacts on HTMW from construction activities and long-term
2000 maintenance and range activities. However, as the Reduced-Scale Alternative would occur on a smaller site
2001 and require less construction efforts, the resulting HTMW impact would likely be less than impacts under
2002 the Preferred Alternative.

2003 **4.10.3 No Action Alternative**

2004 Under the No Action Alternative, the MPMG Range would not be developed; thus, no impacts on HTMW
2005 would occur at Camp Edwards. Current conditions at Camp Edwards would persist.

2006 **4.11 Best Management Practices and Regulatory Compliance Measures**

2007 Per established protocols, procedures, and requirements, the MAARNG would implement RCMs and
2008 BMPs to proactively minimize potential adverse environmental impacts in association with the Proposed
2009 Action. These measures are included as components of the Proposed Action, as appropriate, and are
2010 applicable regulatory obligations and sensitive construction practices that the MAARNG regularly
2011 implements as part of their activities, as appropriate, across Massachusetts. These are different from
2012 “mitigation measures,” which are defined as project-specific requirements (not routinely implemented by
2013 the MAARNG) necessary to reduce potentially significant adverse environmental impacts to less-than-
2014 significant levels. Under the Preferred and Reduced-Scale Alternatives, no significant impacts would be
2015 anticipated; therefore, no mitigation measures are required to reduce potentially significant adverse
2016 impacts.

2017 **4.11.1 Best Management Practices**

2018 **Land Use and Cover.** The MAARNG would minimize clearing and earthwork to the extent possible to
2019 minimize land disturbance while still providing adequate space to conduct the required training activities.

2020 **Air Quality.** The MAARNG would ensure dust control associated with land clearing activities and
2021 proposed training activities are conducted in accordance with MassDEP – Air and Climate Division
2022 guidelines and EPS Air Quality Performance Standard 8 (which requires compliance with the SIP and the
2023 CAA). To minimize the potential for adverse air quality impacts, the MAARNG would implement the
2024 following typical dust control BMPs, such as the application of water, soil stabilizers, or vegetation; use of
2025 enclosures, covers, silt fences, or wheel washers; and suspension of earth-movement activities during high
2026 wind conditions. Equipment would be shut down when it is not in use. Construction equipment would be

2027 repaired and serviced in accordance with the regular maintenance schedule recommended for each
2028 individual equipment type, and cleaned of excess soil before leaving the construction zone to prevent off-
2029 site transport. These dust-reducing measures would be briefed to the contractor or Soldiers responsible for
2030 implementing these activities. The MAARNG's on-site manager would be responsible for bringing air
2031 quality issues, if they arise, to Range Control or the MAARNG Environmental Affairs Office for resolution.

2032 **Noise.** The following standard BMPs would be implemented by the MAARNG, as appropriate, to limit
2033 noise impacts during construction: 1) Stationary equipment and material transportation routes would be
2034 located as far away from sensitive receivers as possible; (2) Equipment would be operated per
2035 manufacturer's recommendations, and noise-generating heavy equipment would be shut down when not
2036 needed; and, (3) Construction personnel would be directed to operate equipment in the quietest manner
2037 practicable (e.g., speed restrictions, retarder brake restrictions, engine speed restrictions, etc.). Noise-
2038 reducing measures would be briefed to the contractor or Soldiers responsible for implementing these
2039 activities. The MAARNG's on-site construction manager would be responsible to bring noise issues, if they
2040 arise, to the Range Control or the MAARNG Environmental Affairs Office for resolution. A Noise
2041 Notification Protocol would be established in the SONMP to provide public notification of upcoming
2042 training events, particularly the .50 caliber activity. Additional noise testing would be performed by the
2043 USAPHC once the range is constructed and the MPMG is under full training (weapons firing) conditions
2044 in order to determine the actual Zone II locations. Following this testing, pending USAPHC
2045 recommendation, additional minimization measures, such as constructing noise barriers, would be
2046 considered if necessary. .

2047 **Soils.** The MAARNG would prepare a detailed, site-specific E&S Control Plan to address all earth-
2048 disturbance aspects of the Proposed Action. The E&S Control Plan would include standard BMPs, such as
2049 specific guidelines and engineering controls to address anticipated erosion and resultant sedimentation
2050 impacts from establishing and operating the proposed MPMG Range. Control measures include: (1) Install
2051 and monitor erosion-prevention measures such as silt fences and water breaks, sedimentation basins, filter
2052 fences, sediment berms, interceptor ditches, straw bales, rip-rap, and/or other sediment control structures;
2053 re-spreading of stockpiled topsoil; and seeding/revegetation of areas temporarily cleared of vegetation; and
2054 (2) Plant and maintain native soil-stabilizing vegetation on the range where soils have been disturbed. The
2055 MAARNG would comply with the EPS general performance standards for pollution prevention and ensure
2056 all MAARNG field staff members are trained in spill response.

2057 **Groundwater.** The MAARNG would conduct periodic visual inspections to verify that the E&S Control
2058 Plan is being followed and is working. Long-term groundwater protection during training operations would
2059 be accomplished by implementing stormwater BMPs, maintaining vegetative cover, and implementing the
2060 applicable EPS.

2061 **Biological Resources.** The MAARNG would limit ground disturbing activities during the establishment of
2062 the proposed MPMG Range to the extent feasible. Native plant species would be used when revegetating
2063 the firing points. Invasive plant management would be conducted consistent with current installation
2064 practices and include spot treatment to avoid overspray. Long-term land management and training
2065 operations would be conducted in accordance with the INRMP and other applicable management plans for
2066 Camp Edwards.

2067 **Cultural Resources.** Should archaeological materials or human remains be inadvertently discovered during
2068 construction activities, all work would cease immediately and the MAARNG ICRMP SOP would be
2069 followed.

2070 **HTMW.** During construction and operation of the proposed MPMG Range, all HTMW that would be used
2071 or generated would be handled and disposed of in compliance with the MAARNG HWMP and SPCCP. In
2072 the event that unexploded ordinance (UXO) or MEC are encountered during construction, an on-call
2073 UXO/MEC expert would be contacted immediately for safe handling and removal. This expert would
2074 handle all aspects of the removal process to include regulator notification, implementation of safety
2075 measures, and removal of such items.

2076 4.11.2 Resource Compliance Measures

2077 **Biological Resources.** While impacts on biological resources would remain at *less-than-significant* levels,
2078 implementation of project-specific mitigation measures is required in compliance with MESA to achieve
2079 net beneficial effects on State-listed species. The MAARNG would minimize tree impacts from May
2080 through July to avoid impacts during the NLEB and bird breeding season. In addition, the MAARNG would
2081 implement the mitigation measures described in the CMP (**Appendix E**) and coordinate with the NHESP
2082 to ensure measures are implemented to avoid and minimize take of State-listed species. Further, permanent
2083 and temporary lighting for the MPMG Range would be designed and installed in a manner that would not
2084 to interfere with State-listed moth species. Surveys of the Proposed Action area would be conducted to
2085 locate any Eastern box turtle individuals for tracking throughout the life of the project.

2086 4.12 Cumulative Effects

2087 As defined by CEQ regulations in 40 CFR Part 1508.7, cumulative impacts are those that “result from the
2088 incremental impact of the Proposed Action when added to other past, present and reasonably foreseeable
2089 future actions, without regard to the agency (Federal or non-Federal) or individual who undertakes such
2090 other actions.” A cumulative impact analysis captures the effects that result from a proposed action in
2091 combination with the effects of other actions in the same ROI. Because of extensive influences both within
2092 and outside a proposed action area, cumulative effects are the most difficult to analyze. NEPA requires
2093 analysis of cumulative environmental effects on resources that may often be manifested only at the
2094 cumulative level, such as traffic congestion, air quality, noise, biological resources, cultural resources,
2095 socioeconomic conditions, utility system capacities, and others.

2096 Proposed short-term and long-term development projects for Camp Edwards are addressed in the Camp
2097 Edwards Master Plan. These represent the scope of known, defined development activities currently
2098 planned for Camp Edwards over the foreseeable future. NEPA analysis for these projects is being conducted
2099 separately. The MAARNG also researched regional plans and contacted several local entities (**see Section**
2100 **9**) to identify past, present, and reasonably foreseeable future actions within the ROI. Actions considered
2101 for cumulative analysis under the Proposed Action include:

- 2102 • **Firebreaks and Fire Management** – Strategic firebreaks are proposed to be constructed along the
2103 exterior of the MPMG Range in accordance with the Camp Edwards INRMP and IWFMP to reduce
2104 the risk of wildfire hazard from tracers and other ignition sources during training activities, and assist
2105 in managing the fighting of fires. Firebreak and fuels management involves the alteration of fuels to
2106 reduce the likelihood of a fire starting or to reduce its effects if one does start. These techniques may
2107 improve access for fire apparatus, increase water resources available on-site, adjust target placement,
2108 and provide buffer or safety zones. Direct and indirect fire management measures include protective
2109 buffers, prescribed fire, habitat management through range development, new or improved firebreaks,
2110 and ordnance remediation. Approximately 10.0 acres of clearing for firebreaks would occur under the
2111 Proposed Action; however, firebreaks and fire management are a separately funded MILCON project.
- 2112 • **Cape Cod Bridge Project** – A new bridge over the Cape Cod Canal is proposed, along with new
2113 roadway systems connecting to existing roadways and an existing bridge (Bourne Bridge). This project
2114 is currently in the public meeting stage where design schemes are being introduced and comments
2115 taken. The Massachusetts Department of Transportation has acknowledged the proximity to Camp
2116 Edwards and the JBCC and have determined that no work would occur within the boundaries of the
2117 JBCC relative to this project.

2118 4.12.1 Cumulative Effects of the Preferred Alternative

2119 Implementation of the Preferred Alternative would not be expected to cumulatively significantly adversely
2120 impact any resource area discussed within this EA. While clearing for the Preferred Alternative and
2121 firebreaks under the IWFMP would result in a net loss in vegetation on JBCC, cumulative impacts would

2122 be *less-than-significant* with adherence to RCMs, BMPs, and installation-specific management plans.
2123 Further, fire management would improve the health of fire-dependent habitats, such as pitch pine and scrub
2124 oak, contributing to future success of these communities. As such, the Preferred Alternative would not
2125 noticeably contribute to any degradation in natural resources, regionally or locally.

2126 The Preferred Alternative and other reasonably foreseeable future projects would result in cumulative *net*
2127 *positive* impacts to the local socioeconomic environment, through the creation of temporary construction
2128 jobs. In addition, cumulative construction efforts would likely produce short-term, *less-than-significant*
2129 adverse cumulative impacts to the human environment through increases in local area traffic, air quality
2130 emissions, and noise in the immediate vicinity of the Proposed Action area. Regional cumulative impacts
2131 are not likely because impacts would be localized to areas immediately adjacent to Camp Edwards.

2132 While the area immediately surrounding the Proposed Action area is experiencing commercial and
2133 residential growth, these local developments as well as the Preferred Alternative are consistent with
2134 development plans and policies. Population projections indicate that the Towns of Sandwich and Bourne
2135 will experience a net increase in total population (1.3 percent) between 2010 and 2035. Barnstable County
2136 and the State will experience slightly higher growth at 4.1 percent and 6.0 percent, respectively, while the
2137 U.S. as a whole is projected to have approximately double the growth (11.5 percent). As such, there will
2138 continue to be slow measured growth in the ROI.

2139 **4.12.2 Cumulative Effects of the Reduced-Scale Alternative**

2140 Incremental impacts of the Reduced-Scale Alternative when considered with impacts of other reasonably
2141 foreseeable future projects would result in similar cumulative effects as the Preferred Alternative. The
2142 magnitude of cumulative effects would be slightly less given the smaller range size and reduced amount of
2143 required clearing. Overall implementation of the Reduced-Scale Alternative would not be expected to
2144 cumulatively significantly impact any resource area discussed within this EA.

2145 **4.12.3 Cumulative Effects of the No Action Alternative**

2146 Under the No Action Alternative, the MPMG Range would not be constructed and the MAARNG's full
2147 training potential would continue to be limited. There would be no Proposed Action-related changes and,
2148 consequently, no incremental impacts on the resource areas from the No Action Alternative; therefore, no
2149 cumulative impacts would occur.

2150 **4.12.4 Inter-relationship of Cumulative Effects**

2151 The region will likely continue to experience increased growth and development in the future. This slow
2152 measured rate of development could lead to cumulative effects to the proposed project's ROI, but the
2153 Proposed Action would not be considered a significant contributor to these impacts. The majority of the
2154 recently constructed and planned projects within the ROI pertain to improving, growing, and maintaining
2155 local industry. Larger planned projects within the region would comply with the Cape Cod Commission's
2156 regional land use plans and policies, and would not facilitate degradation or strain on existing infrastructure
2157 or cultural and natural resources. Rather, proposed regional projects would be more likely to result in
2158 positive cumulative effects to regional socioeconomics.

2159 Changes under the Proposed Action would not be anticipated to cause significant adverse cumulative
2160 impacts to the environment within the region. Coordination between the MAARNG and regional planning
2161 and community representatives would serve to minimize any potential land use conflicts in the future.
2162 Implementation of land use and resource management plans would continue to serve to control the extent
2163 of environmental impacts, and proper planning would ensure that future socioeconomic conditions
2164 maintain a good quality of life for residents in the area. Implementation of RCMs and BMPs would
2165 minimize or eliminate potential cumulative degradation of the natural ecosystem.

2166 **5. COMPARISON OF ALTERNATIVES AND CONCLUSIONS**

2167 **5.1 Comparison of the Environmental Consequences of the Alternatives**

2168 This EA has evaluated the potential environmental, socioeconomic, and cultural effects of the MAARNG's
2169 proposal to establish the MPMG Range as detailed in **Section 2.2**. Three alternatives were evaluated:
2170 Preferred Alternative, Reduced-Scale Alternative, and No Action Alternative. A comparison of the
2171 environmental consequences of these alternatives is provided in **Table 5-1**.

2172 **5.2 Conclusions**

2173 The evaluation performed within this EA concludes there would be no significant adverse impact, either
2174 individually or cumulatively, to the local environment or quality of life as a result of implementing the
2175 Proposed Action. The RCMs and BMPs specified in this EA would enable the MAARNG to avoid or further
2176 minimize *less-than-significant* impacts on Camp Edwards and the surrounding area to the extent
2177 practicable. Therefore, this EA's analysis determines that an EIS is unnecessary to support the
2178 implementation of the Proposed Action, and that a FNSI is appropriate.

2179 The Preferred Alternative was determined by the MAARNG to provide the best combination of land and
2180 resources to sustain quality military training and to maintain and improve the units' readiness postures.
2181 While the Reduced-Scale Alternative would carry out a modified version of the Proposed Action, it would
2182 still meet the purpose of and need for the Proposed Action. The No Action Alternative would not fulfill the
2183 purpose of and need for the Proposed Action. It would limit the capability of the MAARNG to carry out its
2184 assigned mission to provide adequate training facilities, and would jeopardize the proficiency and military
2185 readiness of the MAARNG and other military entities that require MPMG Range training. As such, this EA
2186 recommends implementation of the Preferred Alternative or Reduced-Scale Alternative.

Table 5-1: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Land Use and Cover	<p><i>Long term, potentially significant adverse impact on future land use from a reduction in training use of Camp Edwards.</i></p>	<p>Long-term, <i>less-than-significant</i> adverse impacts on land cover from the clearing of 170.5 acres and permanent conversion of forested areas to maintained grasslands.</p> <p>Long-term, <i>beneficial</i> impact on land use by maximizing training value and use of Camp Edwards.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Long-term, <i>less-than-significant</i> adverse impacts on land cover from the clearing of 99.5 acres and permanent conversion of forested areas to maintained grasslands.</p> <p>Long-term, <i>beneficial</i> impact on land use by maximizing training value and use of Camp Edwards.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Air Quality	<p><i>Long-term, less-than-significant adverse impact on climate change from continued vehicle-generated GHG emissions.</i></p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on air quality from the clearing of 170.5 acres generating fugitive dust and exhaust emissions.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on air quality from increased emissions due to training and firing operations.</p> <p>Long-term, <i>beneficial</i> impacts on air quality from decreased emissions due to reduced out-of-State travel.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on air quality from the clearing of 99.5 acres generating fugitive dust and exhaust emissions.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on air quality from increased emissions due to training and firing operations.</p> <p>Long-term, <i>beneficial</i> impacts on air quality from decreased emissions due to reduced out-of-State travel.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Noise	<p>No impact.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on noise levels due to construction activities required for clearing 170.5 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on noise levels due to increased site usage and weapons firing.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on noise levels due to construction activities required for clearing 99.5 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on noise levels due to increased site usage and weapons firing.</p> <p>Impacts would be less than the Preferred Alternative.</p>

Table 5-1: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Soils	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on soils due to erosion, sedimentation, and compaction resulting from the disturbance of 199.0 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on soils from training activities.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on soils due to erosion, sedimentation, and compaction resulting from the disturbance of 128.0 acres of land.</p> <p>Long-term, <i>less-than-significant</i> adverse impact on soils from training activities.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Groundwater	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on groundwater from potential contaminant spills during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on groundwater from inadvertent release of contaminants during site maintenance and training operations.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on groundwater from potential contaminant spills during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on groundwater from inadvertent release of contaminants during site maintenance and training operations.</p> <p>Impacts would be less than the Preferred Alternative.</p>

Table 5-1: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Biological Resources	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on vegetation from temporary clearing for construction of the MPMG range.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on vegetation from the permanent loss of 170.5 acres of forested land.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on wildlife species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on wildlife species from potential habitat loss and training range operations.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on special status species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on special status species from potential habitat loss and training range operations.</p> <p>Long-term, <i>beneficial</i> impacts on migratory birds from enhanced habitat due to wildfire management practices.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on vegetation from temporary clearing for construction of the MPMG range.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on vegetation from the permanent loss of 99.5 acres of forested land.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on wildlife species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on wildlife species from potential habitat loss and training range operations.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on special status species from temporary displacement and disturbance during construction activities.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on special status species from potential habitat loss and training range operations.</p> <p>Long-term, <i>beneficial</i> impacts on migratory birds from enhanced habitat due to wildfire management practices.</p> <p>Impacts would be less than the Preferred Alternative.</p>
Cultural Resources	No impact.	<i>No effect</i> on cultural resources.	<i>No effect</i> on cultural resources.

Table 5-1: Alternative Comparison Matrix

Technical Resource Area	No Action Alternative	Preferred Alternative (Proposed Action)	Reduced-Scale Alternative
Infrastructure	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts on traffic conditions from temporary construction congestion.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on traffic conditions from personal and military vehicles moving to and from the new MPMG Range.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on utilities from temporary utility interruptions during utility extensions and construction.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts on traffic conditions from temporary construction congestion.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts on traffic conditions from personal and military vehicles moving to and from the new MPMG Range.</p> <p>Short-term, <i>less-than-significant</i> adverse impacts on utilities from temporary utility interruptions during utility extensions and construction.</p> <p>Impacts would be less than the Preferred Alternative.</p>
HTMW	No impact.	<p>Short-term, <i>less-than-significant</i> adverse impacts associated with the handling, storage, use, transportation, and disposal of HTMW during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts associated with the handling, storage, use, transportation, and disposal of HTMW during training operations and site maintenance.</p> <p>Impacts would be greater than the Reduced-Scale Alternative.</p>	<p>Short-term, <i>less-than-significant</i> adverse impacts associated with handling, storage, use, transportation, and disposal of HTMW during construction.</p> <p>Long-term, <i>less-than-significant</i> adverse impacts associated with the handling, storage, use, transportation, and disposal of HTMW during training operations and site maintenance.</p> <p>Impacts would be less than the Preferred Alternative.</p>

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7. GLOSSARY

Ambient: The environment as it exists around people, plants, and structures.

National Ambient Air Quality Standards: Those standards established according to the Clean Air Act (CAA) to protect health and welfare (AR 200-1).

Aquifer: An underground geological formation containing usable amounts of groundwater which can supply wells and springs.

Attainment Area: Region that meets the National Ambient Air Quality Standard (NAAQS) for a criteria pollutant under the CAA.

Best Management Practices (BMPs): Environmentally sensitive construction practices the MAARNG would implement in order to minimize or avoid potential adverse environmental impacts.

Biodiversity: Biological diversity in an environment as indicated by numbers of different species of plants and animals

Central Impact Area: The 330-acre Central Impact Area located within the Impact Area; primary target area for artillery, mortar and other firing activities from the 1900s until 1997.

Commercial land use: land use that includes private and public businesses (retail, wholesale, etc.), institutions (schools, churches, etc.), health services (hospitals, clinics, etc.) and military buildings and installations.

Compaction: The packing of soil together into a firmer, denser mass, generally caused by the pressure of great weight.

Contaminants: Any physical, chemical, biological or radiological substances that have an adverse effect on air, water or soil.

Council on Environmental Quality (CEQ): An Executive Office of the President composed of three members appointed by the President, subject to approval by the Senate. Each member shall be exceptionally qualified to analyze and interpret environmental trends; to appraise programs and activities of the Federal Government. Members are to be conscious of and responsive to the scientific, economic, social, aesthetic, and cultural needs of the Nation; and to formulate and recommend national policies to promote the improvement of the quality of the environment.

Criteria Pollutants: The CAA of 1970 required the USEPA to set air quality standards for common and widespread pollutants in order to protect human health and welfare. There are six "criteria pollutants": ozone (O₃), carbon monoxide (CO), sulfur dioxide (SO₂), lead (Pb), nitrogen dioxide (NO₂), and particulate matter.

Cultural Resources: Cultural resources are historic properties as defined by the NHPA, cultural items as defined by the Native American Graves Protection and Repatriation

Act (NAGPRA), archaeological resources as defined by the Archaeological Resources Protection Act, sacred sites as defined by EO 13007 to which access is afforded under the American Indian Religious Freedom Act, and collections and associated records as defined by 36 CFR 79.

Cumulative Impact: The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

dBA: "A-weighted" non-impulse noise measurement in decibels, weighted to match human hearing frequency response.

Decibel (dB): A unit of measurement of sound pressure level.

Direct Impact: A direct impact is caused by a Proposed Action, and occurs at the same time and place.

Elevation: Raising a building and placing it on a higher foundation so the first or lowest floor is above flood levels.

Emission: A release of a pollutant.

Endangered Species: Any species which is in danger of extinction throughout all or a significant portion of its range.

Environmental Assessment (EA): An EA is a publication that provides sufficient evidence and analysis to show whether a proposed system will adversely affect the environment or be environmentally controversial.

Erosion: The wearing away of the land surface by detachment and movement of soil and rock fragments through the action of moving water and other geological agents.

Farmland: Cropland, pastures, meadows, and planted woodland.

Fauna: Animal life, especially the animal characteristics of a region, period, or special environment.

Field (verb): to deploy weapons for use.

Floodplain: The relatively flat area or lowlands adjoining a river, stream, ocean, lake, or other body of water that is susceptible to being inundated by floodwaters.

FNSI: Finding of No Significant Impact, a NEPA document.

Fugitive Dust: Particles light enough to be suspended in air which are not caught in a capture or filtering system. For this document, this refers to particles put in the air by moving vehicles and air movement over disturbed soils at construction sites.

Geology: Science which deals with the physical history of the earth, the rocks of which it is composed, and physical changes in the earth.

Groundwater: Water found below the ground surface. Groundwater may be geologic in origin and as pristine as it was when it was entrapped by the surrounding rock or it may be subject to daily or seasonal effects depending on the local hydrologic cycle. Groundwater may be pumped from wells and used for drinking water, irrigation and other purposes. It is recharged by precipitation or irrigation water soaking into the ground. Thus, any contaminant in precipitation or irrigation water may be carried into groundwater.

Hazardous Substance: Hazardous materials are defined within several laws and regulations to have certain meanings. For this document, a hazardous material is any one of the following:

Any substance designated pursuant to section 311 (b)(2) (A) of the Clean Water Act.

Any element, compound, mixture, solution or substance designated pursuant to Section 102 of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

Any hazardous as defined under the Resource Conservation and Recovery Act (RCRA).

Any toxic pollutant listed under TSCA.

Any hazardous air pollutant listed under Section 112 of CAA.

Any imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action pursuant to Subsection 7 of TSCA.

The term does not include: 1) Petroleum, including crude oil or any thereof, which is not otherwise specifically listed or designated as a hazardous substance in a above. 2) Natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). c. A list of hazardous substances is found in 40 CFR 302.4.

Hazardous Waste: A solid waste, which when improperly treated, stored, transported or disposed of poses a substantial hazard to human health or the environment. Hazardous wastes are identified in 40 CFR 261.3 or applicable foreign law, rule, or regulation (see also solid waste).

Impact Area: The 2,200-acre Impact Area located in the center of the Upper Cape Water Supply Reserve/Camp Edwards Training Site where small arms range firing is focused.

Intensity: This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action.

Listed Species: Any plant or animal designated as a State or Federal threatened, endangered, special concern, or candidate species.

Mitigation: Project-specific requirements not routinely implemented by the MAARNG necessary to reduce identified potentially significant adverse impacts to less-than-significant levels.

Mobile Sources: Vehicles, aircraft, watercraft, construction equipment, and other equipment that use internal combustion engines for energy sources.

Monitoring: A process of inspecting and recording the progress of mitigation measures implemented.

National Ambient Air Quality Standards (NAAQS): Nationwide standards set up by the USEPA for widespread air pollutants, as required by Section 109 of the CAA. Currently, six pollutants are regulated by primary and secondary NAAQS: carbon monoxide (CO), lead, (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter, and sulfur dioxide (SO₂).

National Environmental Policy Act (NEPA): U.S. statute that requires all Federal agencies to consider the potential effects of Proposed Actions on the human and natural environment.

Nonattainment Area: An area that has been designated by the EPA or the appropriate State air quality agency as exceeding one or more national or State ambient air quality standards.

Particulates or Particulate Matter: Fine liquid or solid particles such as dust, smoke, mist, fumes or smog found in air.

Pollutant: A substance introduced into the environment that adversely affects the usefulness of a resource.

Potable Water: Water which is suitable for drinking.

Prime Farmland: A special category of highly productive cropland that is recognized and described by the U.S. Department of Agriculture's Soil Conservation Service (now the Natural Resources Conservation Service) and receives special protection under the Surface Mining Law.

Regulatory Compliance Measures: Compliance measures that the MAARNG is required to conduct in accordance with applicable laws, regulations, and permit conditions.

Remediation: A long-term action that reduces or eliminates a threat to the environment.

ROI: An often-used term for describing the affected area for socioeconomics, as well as broadly for other technical resource areas, is —Region of Influence or ROI. (from ARNG Handbook)

Sedimentation: Deposition of eroded material in an alternate location by dispersing agents such as water or wind.

Sensitive Receptors: Include, but are not limited to, asthmatics, children, and the elderly, as well as specific facilities, such as long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, and childcare centers.

Short-Term Impacts: Direct or indirect impacts resulting from an action in the near term. In this context, short-term does not refer to any rigid time period and is determined on a case-by-case basis in terms of the environmental consequences of the Proposed Action.

Significant Impact: According to 40 CFR 1508.27, "significance" as used in NEPA requires consideration of both context and intensity.

Context. The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the Proposed Action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.

Soil: The mixture of altered mineral and organic material at the earth's surface that supports plant life.

Solid Waste: Any discarded material that is not excluded by section 261.4(a) or that is not excluded by variance granted under sections 260.30 and 260.31.

Special-concern: any plant or animal species which has been documented as suffering a decline that can cause an adverse response

State-listed: species that are listed by the Massachusetts Division of Fisheries and Wildlife as being either threatened, endangered, or of special concern, and protected under the Mass.

Threatened species: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Topography: The relief features or surface configuration of an area.

Toxic Material/Waste: A harmful substance that includes elements, compounds, mixtures, and materials of complex composition.

Watershed: The region draining into a particular stream, river, or entire river system.

Wetlands: Areas that are regularly saturated by surface or groundwater and, thus, are characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions. Examples include swamps, bogs, fens, marshes and estuaries.

Wildlife Habitat: Set of living communities in which a wildlife population lives.

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8. LIST OF PREPARERS

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 9 Jonathan Bourne Drive
 Pocasset, MA 02559

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Jennifer Warf	NEPA analysis and oversight	M.S. Environmental Studies B.A. Zoology	18
Charlene Wu	Preparation of EA sections	M.S. Environmental Management B.S. Environmental Science and Policy	7
Jeremy Lessard	Map Preparation, GIS	B.S. Environmental Science	4
James P. Cowan, INCE Bd. Cert.	Acoustic and Noise Control	B.S. Mathematics M.S. Acoustic	34
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Vijay Apte	Greenhouse Gas Assessment	B.S. Civil Engineering M.S. Environmental Engineering	30

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9. AGENCIES AND INDIVIDUALS CONSULTED

Copies of all correspondence, including sample data request letters and responses, are included in **Appendix A**. Each of the agencies and individuals listed below have received a copy of the EA for the opportunity to review and comment.

FEDERAL AGENCIES

United States Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742-2751
Attn: Col. William M. Conde, District
Engineer, Commander

United States Department of Agriculture
Natural Resources Conservation Service
(NRCS)
451 West Street
Amherst, MA 01002-2953
Attn: Nicole Viars, Acting State
Conservationist

United States Environmental Protection Agency
Region 1
5 Post Office Square - Suite 100
Boston, MA 02109-3912
Attn: Deborah Szaro, Regional Administrator

United States Fish & Wildlife Service
Office of the Regional Director
300 Westgate Center Drive
Hadley, MA 01035-9589
Attn: Wendi Weber, Regional Director

STATE AGENCIES

Massachusetts Department of Environmental
Protection
One Winter Street
Boston, MA 02108
Attn: Martin Suuberg, Commissioner

Massachusetts Department of Environmental
Protection
Division of Waterways & Wetlands
One Winter Street
Boston, MA 02108

Attn: Stephanie Moura, Division Director

Massachusetts Natural Heritage and
Endangered Species Program
MassWildlife
1 Rabbit Hill Road
Westborough, MA 01581
Attn: Eve Schluter, NHESP Assistant Director

Massachusetts Department of Conservation and
Recreation
Planning and Engineering
251 Causeway Street, Suite 600
Boston, MA 02114-2104
Attn: Leo Roy, Commissioner

Massachusetts Department of Conservation and
Recreation
Division of Water Supply Protection
251 Causeway Street, Suite 600
Boston, MA 02114-2104
Attn: John Scannell, Director

Massachusetts Historical Commission
State Historic Preservation Officer
220 Morrissey Boulevard
Boston, MA 02125
Attn: Brona Simon, Executive Director

Executive Office of Energy and Environmental
Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114-2524
Attn: Katie Theoharides, Executive Secretary

Cape Cod Conservation District
303 Main Street
W. Yarmouth, MA 02673

Department of Natural Resources Conservation
University of Massachusetts, Amherst

205 Holdsworth Way
Amherst, MA 01003-9285

Environmental Management Commission
Building 3468, Beam Street
Camp Edwards, MA 02542-5003
Attn: Leonard Pinaud

LOCAL CONTACTS

Town of Bourne
24 Perry Avenue
Buzzards Bay, MA 02532
Attn: Thomas Guerino, Town Administrator

Town of Mashpee
16 Great Neck Road North
Mashpee, MA 02649
Attn: Rodney C. Collins, Town Manager

Town of Sandwich
130 Main Street
Sandwich, MA 02563
Attn: George Dunham, Town Manager

Town of Falmouth
59 Town Hall Square
Falmouth, MA 02540
Attn: Julian Suso, Town Manager

TRIBAL CONTACTS

Wampanoag Tribe of Gay Head (Aquinnah)
20 Black Brook Road
Aquinnah, MA 02535
Attn: Bettina Washington, Tribe Historic
Preservation Officer

Mashpee Wampanoag Tribe
P.O. Box 1048
483 Great Neck Road South
Mashpee, MA 02649
Attn: David Weeden, Tribal Historic
Preservation Officer

Stockbridge - Munsee Tribe of Mohican,
Wisconsin
W13447 Camp 14 Road
Bowler, WI 54416
Attn: Sherry White, Tribal Historic
Preservation Manager/NAGPRA

REGIONAL AGENCIES

Cape Cod Commission
P.O. Box 226
Barnstable, MA 02630
Attn: Kristy Senatori, Executive Director
Attn: Jonathan Idman, Chief Regulatory Officer