

5.0 Mitigation Measures

Mitigation measures proposed for the MPMG Range Project are provided in **Table 5-1**. Each mitigation measure is provided under the applicable subject headings and includes if the proposed measure would be scheduled during the construction phase, the operations phase, or both. The responsible parties are identified and costs are provided, if applicable.

Mitigation funding for range MILCON projects is through the environmental budget of ARNG while facilities projects are through a combination of environmental (e.g., staff) and installation funding. Financial resources are budgeted through Federal (Army, NGB) funding. The Project has been designed to meet the long-term net benefit performance standard for rare species by providing for financial or in-kind contributions toward the development. MAARNG has developed a budget for the rare species mitigation of MPMG Range as described in **Section 3.8**. This budget has been proposed to include all management costs, including mechanical, fire, monitoring and research.

The estimated cost of construction of the MPMG Range is approximately \$7 Million. Many of the mitigation measures are proposed during the construction phase, the cost of which is included in this estimated cost of construction. Nonetheless, we have estimated a cost associated with each mitigation measure in **Table 5-1**. Each cost is a one-time expense unless otherwise identified.

The MAARNG will provide self-certification at the completion of the Project signed by an appropriate professional indicating all the mitigation measures proposed in the Single EIR (and summarized in **Table 5-1**) were incorporated. This table can be used as a tracking mechanism for certifying that these mitigation measures were performed.

Table 5-1: Summary of Mitigation Measures

Mitigation Measure	Schedule/Phase	Responsible Party	Estimated Cost of Mitigation
Rare Species (see Section 3.0)			
Management of existing habitat within Pine Barrens Mitigation Focal Areas in accordance with the CMP Application and the five management standards developed by MAARNG.	Operations	MAARNG	\$1,708,800 Table 3-4
Land transfer of 133 acres to be preserved in perpetuity as open space through the transfer to MassWildlife (Tract 5).	Operations	MAARNG	Administrative
Land transfer of 177 acres to be preserved with management of vegetation for rare species (FCRA).	Operations	MAARNG	Administrative
Management of Forest Canopy Reserve Area.	Operations	MAARNG	Administrative (See CMP Application)
Land transfer of 150 acres to be preserved and managed for grassland habitat (Grassland Mitigation Focal Area, Parcel H – Unit K).	Operations	MAARNG	Administrative
Management of the Grassland Mitigation Focal Area to optimize conditions for grassland species.	Operations	MAARNG	\$16,000 per acre per year
Implement NHESP-approved Turtle Protection Plan during the construction phase of the Project.	Construction	MAARNG	\$216,000
Provide construction staff with information and materials about presence of State-listed species and appropriate responses to any sightings.	Construction	MAARNG	\$5,000

Mitigation Measure	Schedule/ Phase	Responsible Party	Estimated Cost of Mitigation
Monitor Eastern Box Turtles and other species for a period (to be determined) after Project construction to assess effectiveness of mitigation measures.	Operations	MAARNG	\$100,000
Implement long term monitoring and management plan to maintain habitat quality within the pine barrens using the INRMP for guidance.	Operations	MAARNG	\$100,000
Development and implementation of Range Complex Master Plan	Operations	MAARNG	\$75,000
Development and implementation of site-wide INRMP	Operations	MAARNG	\$60,000
Implement conditions of the CMP to be issued by NHESP.	Construction Operations	MAARNG	TBD (See CMP Application)
Land Alteration (see Section 4.1)			
Implement methods to prevent soil from leaving the Project site either by wind, rainfall, or vehicles and equipment (e.g., construction entrance controls).	Construction	Contractor	\$15,000
Prepare detailed, site-specific Erosion and Sedimentation Control Plan to address all earth-disturbance aspects of the Project	Construction	Contractor	\$8,000
Install and monitor erosion-prevention measures such as silt fences and water breaks, sedimentation basins, filter fences, sediment berms, interceptor ditches, straw bales, rip-rap, and/or other sediment control structures; re-spreading of stockpiled topsoil.	Construction	Contractor	\$30,000
Conduct periodic visual inspections to verify that the Erosion and Sedimentation Control Plan is being followed and is working.	Construction	MAARNG	\$20,000
Plant and maintain native soil-stabilizing vegetation on the range where soils have been disturbed.	Construction	Contractor	\$500,000
Maintain native soil-stabilizing vegetation on the range.	Operations	MAARNG	\$10,000 annually
Water Resources (Groundwater) (see Section 4.2)			
Implement stormwater BMPs per design plans.	Operations	MAARNG	\$150,000
Maintain stormwater BMPs and vegetative cover.	Operations	MAARNG	\$5,000 annually
Coordinate with IAGWSP to ensure remediation programs will continue without interruption during construction.	Construction	MAARNG	\$1,000
Finalize MPMG Range OMMP and obtain approval from EMC.	Operations	MAARNG	\$10,000
Sample for baseline and regular soil and water sampling pursuant to the OMMP.	Operations	MAARNG	\$10,000 annually
Coordinate with IAGWSP, the EMC, and the MassDEP to identify locations and depths for monitoring wells. Cost assumes installation of three wells.	Construction	MAARNG	\$30,000
Perform annual review groundwater monitoring results. Work with EMC to review results and determine mitigation and changes in practices if needed.	Operations	MAARNG	\$3,000
Notify MassDEP if oil, hazardous material and/or UXO and MEC are identified or released during Project construction.	Construction	MAARNG	No cost
Maintain emergency response plan in the event contamination is encountered during Project construction.	Construction	Contractor	\$20,000
Utilize porto-potties throughout the construction phase as no latrines are allowed in this area.	Construction	Contractor	\$5,000
Utilize porto-potties throughout the operation phase as no latrines are allowed in this area. Purchase price not included.	Operations	MAARNG	\$1,000 annually
Prepare construction-related refueling plan and obtain approval from EMC.	Construction	MAARNG Contractor	\$5,000
Air Quality (see Section 4.3)			
Implement dust control plan.	Construction	Contractor	\$5,000

Mitigation Measure	Schedule/ Phase	Responsible Party	Estimated Cost of Mitigation
Use appropriate dust suppression methods during construction activities.	Construction	Contractor	\$100,000
Use appropriate dust suppression methods during dry weather training activities.	Construction	MAARNG	\$10,000 annually
Provide education and monitoring of the contractor by MAARNG requiring a speed of less than 15 miles per hour for land clearing equipment on unpaved surfaces.	Construction	MAARNG	\$1,000
Post 15 mile per hour signs relative to the MPMG Range construction.	Construction	MAARNG	\$10,000
Use low volatile organic compounds supplies and equipment.	Construction	Contractor	\$1,000
Repair and service vehicular and construction equipment to prevent excess emissions.	Construction	Contractor	\$30,000
Shut down heavy equipment when not needed.	Construction	Contractor	\$1,000
Clean excess soil from heavy equipment and trucks leaving the construction zone to prevent off-site transport.	Construction	Contractor	\$40,000
Notify Range Control and the MAARNG Environmental Office of air quality issues, if they arise.	Construction	MAARNG	\$1,000
Review participation in MassDEP's CACI and the MassDEP Diesel Retrofit Program.	Construction	MAARNG	\$3,000
Provide education and monitoring of the contractor by MAARNG regarding idling requirements.	Construction	MAARNG	\$1,000
Provide driver training, periodic inspections by site supervisors, and posting signage as methods of reducing idling.	Construction	Contractor	\$20,000
Post idling signs relative to 310 CMR 7.11 of the Air Pollution Control regulations.	Construction Operations	MAARNG	\$10,000
Review possible consultation with MassDEP to develop appropriate construction period diesel emission mitigation.	Construction	MAARNG	\$5,000
Brief contractor or Soldiers responsible for implementing Site activities on dust-reducing measures	Construction	MAARNG	\$5,000
Incorporate air-quality BMPs into construction contracts.	Construction	MAARNG	\$2,000
Greenhouse Gas (see Section 4.4)			
Phase construction to reduce the impact of tree removal and GHG emissions.	Construction	MAARNG	No Cost
Maintain a list of equipment with engines including USEPA tier emission limits.	Construction	Contractor	\$10,000
Incorporate conditions into construction contracts to include provisions for reducing air emissions and maintaining equipment lists.	Construction	MAARNG	\$3,000
Provide self-certification at the completion of construction signed by an appropriate professional indicating GHG mitigation measures utilized.	Construction	MAARNG	\$5,000
Preserve land within Camp Edwards that is presently forested to provide annual sequestration.	Operations	MAARNG	See Rare Species
Replanting and restore MPMG Range floor with native grasses.	Construction	MAARNG	See Land Alteration
Noise (see Section 4.5)			
Update the SONMP to include updated Camp Edwards specific Noise Complaint Protocols.	Operations	MAARNG	\$10,000
Contract with the USAPHC to complete a follow up Noise Study for the MPMG Range under full training (firing) conditions.	Operations	MAARNG	\$15,000
Consider recommendations made by USAPHC at the end of the study.	Operations	MAARNG	TBD
Prepare and submit a noise abatement plan.	Construction	Contractor	\$5,000
Implement noise notification protocol and noise complaint protocol to minimize adverse noise impacts.	Operations	MAARNG	\$2,000 annually
Provide public notification of upcoming training events, particularly the caliber activity.	Operations	MAARNG	\$2,000 annually

Mitigation Measure	Schedule/ Phase	Responsible Party	Estimated Cost of Mitigation
Locate stationary equipment and material transportation routes as far away from sensitive receivers as possible.	Construction	Contractor	\$1,000
Operate equipment per manufacturer's recommendations	Construction	Contractor	\$1,000
Shut down noise-generating heavy equipment when not needed.	Construction	Contractor	\$5,000
Operate equipment in the quietest manner practicable (e.g., speed restrictions, retarder brake restrictions, engine speed restrictions, etc.)	Construction	Contractor	\$2,000
Notify Range Control and the MAARNG Environmental Office of noise issues, if they arise.	Construction	MAARNG	\$1,000
Brief contractor or Soldiers responsible for implementing Site activities on noise-reducing measures	Construction	MAARNG	\$5,000
Incorporate noise BMPs into construction contracts.	Construction	MAARNG	\$2,000
Biological Resources (see Section 4.6)			
Implement wildland fire management recommendations outlined in the INRMP and IWFMP as applicable.	Operations	MAARNG	\$400,000
Control fires that may result from the range during training.	Operations	MAARNG	\$250,000
Oil and Hazardous Material (see Section 4.7)			
Maintain Hazardous Waste Management Plan	Construction Operations	MAARNG	\$3,000 annually
Maintain an EMC-approved SPCC	Construction Operations	MAARNG	\$3,000 annually
Comply with EPS's regarding oil, hazardous materials and pollution prevention and continue to work with EMC.	Construction Operations	MAARNG	Included in above costs.
Ensure all MAARNG field staff members are trained in spill response.	Construction Operations	MAARNG	\$8,000 annually
Provide UXO safety and awareness training for all utility and construction personnel.	Construction	MAARNG	\$5,000
Ensure all OHW used or generated is handled and disposed of in compliance with State regulations and EPS.	Construction	Contractor	\$20,000
Ensure all OHW used or generated is handled and disposed of in compliance with State regulations and EPS.	Operations	MAARNG	\$20,000 annually
Solid Waste (see Section 4.8)			
Dispose of construction and demolition material off-Site in compliance with State regulations.	Construction	Contractor MAARNG	\$100,000
Perform a pre-demolition/renovation asbestos survey by a licensed asbestos inspector and post abatement visual inspections by a licensed asbestos project monitor of buildings and structures to be demolished at the KD Range.	Construction	Contractor	\$6,000
If ACM is identified in the asbestos survey at the KD Range, hire a DLS licensed asbestos abatement contractor to remove and dispose of any asbestos containing material(s) from the facility or facility component in accordance with 310 CMR 7.15, prior to conducting any demolition or renovation activities.	Construction	MAARNG	TBD
Develop specific recovery plans for the removal and proper disposition of spent projectiles, residues and solid waste associated with the weapons, ammunition, target systems, and/or their operation and maintenance. Recycle ammunition projectiles (copper) when harvested from the range during maintenance of the target and auxiliary berms.	Operations	MAARNG	\$15,000 annually
Environmental Performance Standards			
Implement BMPs to satisfy applicable regulatory requirements in association with the Project.	Construction Operations	MAARNG	Ongoing

Mitigation Measure	Schedule/ Phase	Responsible Party	Estimated Cost of Mitigation
Consult with applicable agencies with oversight of the training area before undertaking any actions that are subject to State and/or Federal regulatory requirements.	Construction Operations	MAARNG	Ongoing
Reduction of adverse impacts to the maximum extent feasible, including consideration for the design/redesign and/or relocation of the activity or encouraging only those activities that result in meeting the goal of overall projectile and/or projectile constituent containment.	Operations	MAARNG	Ongoing
Internal and external coordination of documentation for the Camp Edwards range management programs and other related Camp Edwards management programs Including: the Integrated Training Area Management Program (ITAM), Range Regulations, Camp Edwards Environmental Management System, Civilian Use Manual, and SOPs.	Operations	MAARNG	Ongoing
Prepare annual State of the Reservation Report including long-term range maintenance, monitoring and reporting of applicable parameters and analysis.	Operations	MAARNG	Already occurring