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PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR MISSION ACTIVITIES AND FACILITY REINVESTMENT AT MILITARY OCEAN TERMINAL CONCORD, CALIFORNIA

November 2020

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FINDING OF NO SIGNIFICANT IMPACT FOR MISSION ACTIVITIES AND FACILITY REINVESTMENT AT MILITARY OCEAN TERMINAL CONCORD, CALIFORNIA

NOVEMBER 2020

Introduction: This Programmatic Environmental Assessment (PEA) was prepared to analyze the potential environmental and social impacts associated with the construction and demolition activities required to modernize terminal operations at Military Ocean Terminal Concord (MOTCO). The Proposed Action includes a series of renovation, demolition, and construction projects designed to modernize the support facilities and bring these facilities up to Department of Defense (DoD) standards. MOTCO is a United States (U.S.) Army (Army) Military Surface Deployment and Distribution Command (SDDC) munitions and general cargo trans-shipment facility located at a strategic site along Suisun Bay in north-central Contra Costa County, California. The installation is composed of an approximately 115-acre administrative complex and approximately 6,526-acre Tidal Area. For the purposes of the PEA, the administrative complex is referred to as the Inland Area, and the remaining portion of MOTCO is referred to as the Tidal Area.

MOTCO is designated as the DoD primary trans-shipment port for West Coast ammunition and general cargo movements and represents 72 percent of all DoD West Coast ammunition handling capability. MOTCO serves a vital role in current and future contingency operations in the Pacific Theatre. In order to remain mission capable, the installation must have safe and efficient facilities. The advanced age and poor or outdated condition of many of the installation's facilities and attendant systems create a need for renovation, replacement, or redevelopment based on three factors: 1) functional obsolescence, 2) operational safety or efficiency, and 3) resource conservation. The mission executed at MOTCO includes the loading and unloading of ammunition from vessels. Over the past several years, MOTCO has moved significant amounts of ammunition annually. This level of operations is expected to remain constant through the foreseeable future. The installation is configured to allow for a high level of flexibility in movement and staging of cargo when conducting loading and unloading operations. Currently, the majority of cargo movement to and from MOTCO is by train, and the remaining amount is by truck.

The PEA was prepared in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] § 4321 et seq.); the Council on Environmental Quality (CEQ) regulations that implement NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508); and AR 200-2, *Environmental Effects of Army Action*s, as promulgated in 32 CFR Part 651, and is consistent with the Army NEPA Analysis Guidance Manual and the Army Materiel Command Policy for Implementing the NEPA of 1969. As the internal draft PEA was circulated for review prior to the September 14, 2020 effective date of CEQ's updated NEPA regulations, CEQ's pre-2020 version of its NEPA regulations apply. This Finding of No Significant Impact (FNSI) is a document that briefly states why the Proposed Action would not significantly affect the environment and that an Environmental Impact Statement (EIS) will not be prepared.

Description of the Proposed Action: The Army's Proposed Action is to renovate, replace, and redevelop infrastructure and support facilities to meet current and future mission requirements at MOTCO. It includes activities and known projects that can be reasonably expected to occur on MOTCO through 2025. The proposed activities include demolishing foundations and internal revetments associated with the former R-Building area along Froid

Road; new utility construction in conjunction with new facilities; realignment and construction of new rail lines within existing railway footprints; construction of 12 new holding/transfer pads; new construction or renovation of several structures including a railcar inspection station, locomotive shed, Access Control Point (ACP) #2, emergency services training facility, and Anti-terrorism/Force Protection (AT/FP) improvements; and construction of a backup power generation system capable of supplying MOTCO's entire electrical distribution system during an emergency. Staging areas, fill material storage areas, and construction parking areas would also be part of the planned activities. The purpose of the Proposed Action is to modernize terminal operations at MOTCO with a series of renovation and construction projects designed to meet current and future projected mission requirements in a safe, cost effective, energy efficient, and environmentally preferable manner that would allow the installation to maximize munitions throughput and insure seamless munitions support for its customers. The Proposed Action is necessary to maximize efficiency at MOTCO to ensure that this vital West Coast port can continue to meet current and future mission requirements. Without the Proposed Action, the DoD's ability to perform its current and future contingency operations would be impacted.

Alternatives Considered: One Action Alternative (Preferred Alternative) and the No Action Alternative were evaluated. The Preferred Alternative would demolish the former R-Building; update and connect electrical, water, and wastewater lines; modernize Interchange Yard and repair rail line to connect to Union Pacific Railroad and add an interchange track; realign and construct new rail lines including rail lines from Transfer Pad A to Transfer Pad B, correct and reconnect rail curves, and construct a rail crossover; expand Class Yard 1; repair and expand the R-Building Area; repair the Rail Inspection Area along White Road; expand and construct Holding and Transfer Pads; update Lightning Protection Systems; construct a Locomotive Shed and Railcar Inspection Station; construct new ACP #2; construct an Emergency Services Training Facility; provide AT/FP improvements to Building 542; construct an emergency backup power generation system to independently support base operations; and add construction staging areas, fill material storage areas, and construction-related parking areas.

Under the No Action Alternative, the Army would not implement any of the renovation or construction projects. MOTCO would continue to fail to comply with DoD design and safety standards. The situation could result in destruction of stored munitions, damage to ships docked at the pier for loading and unloading ammunition, loss of lives, and destruction of buildings and facilities in the surrounding areas.

Anticipated Environmental Effects: Based on the information gathered and presented in the PEA, it has been determined that implementation of the Preferred Action Alternative would have no significant, direct, indirect, or foreseeable cumulative impacts on the environment. There would be minor, primarily localized, adverse impacts associated with implementation of the Preferred Alternative on soils, water resources, air quality, biological resources (vegetation and wildlife), transportation, and noise. The intensity of impacts was determined to be less than significant for all resources evaluated; however, all projects covered under the Preferred Alternative would comply with the MOTCO Integrated Natural Resources Management Plan and all environmental consultation or permitting would be completed during project design. In addition, the Preferred Alternative would comply with the MOTCO Integrated Cultural Resources Management Plan for potential impacts to significant cultural resources. All consultation and evaluation of potentially significant cultural resources would occur during project design.

In preparing the PEA, the Army consulted with the U.S. Fish and Wildlife Service (USFWS) regarding the potential for implementation of the Preferred Alternative to affect threatened and endangered species or critical habitat. In consultation with the USFWS, the Army determined that the Preferred Alternative would not adversely affect threatened and endangered species under the ESA and that the action would not result in the destruction or adverse modification of

designated critical habitat of any species. Since no in-water activity would occur with the Preferred Alternative, National Marine and Fisheries Service (NMFS) was not consulted.

Public and Agency Review Period: The Draft PEA and Draft FNSI will be made available to the general public and applicable government agencies for review and comment during the 30-day period that commences with publication of the Notice of Availability in the *East Bay Times* on 23 November 2020. The Draft PEA and Draft FNSI will be posted on the following website: https://www.sddc.army.mil/Pages/default.aspx. Copies of these documents will be available at the Concord Public Library, 2900 Salvio Street, Concord, California 94519, and the Bay Point Library, 205 Pacifica Avenue, Bay Point, California 94565. Copies of the Draft PEA and Draft FNSI will be sent directly to applicable agencies for their review.

Public and Agency Comments Received: Public and agency comments received on the Draft PEA will be addressed in the Final PEA.

Findings: On the basis of the findings of the PEA conducted in accordance with the requirements of NEPA; CEQ regulations that implement NEPA; and AR 200-2, *Environmental Effects of Army Action*s, as promulgated in 32 CFR Part 651, Army NEPA Analysis Guidance Manual; and Army Materiel Command Policy for Implementing the NEPA of 1969, and after careful review of the potential impacts of the Proposed Action or Alternatives, I have concluded that the implementation of the Proposed Action would not constitute a major Federal action significantly affecting the quality of the human or natural environments or generate significant controversy. Consequently, issuance of a FNSI is warranted and implementation of the Proposed Action does not require the preparation of an EIS.

Approved by:

_____ _____

LTC Luke R. Clover, Commanding Officer Date
MOTCO

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APPENDICES

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

AADT	annual average daily traffic
ACP	Access Control Point
AOB	Point Area of Benefit
APE	Area of Potential Effects
ARPA	Archaeological Resources Protection Act
ATCM	Airborne Toxic Control Measure
AT/FP	Anti-Terrorism / Force Protection
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practices
BRS	Barricaded Rail Sidings
CAA	Clean Air Act
CARB	California Air Resources Board
CARE	Community Action for Renewed Environment
CCCFPD	Contra Costa County Fire Protection District
CCWD	Contra Costa Water District
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO_2	Carbon dioxide
CWA	Clean Water Act
CY	cubic yards
dB	decibel
dBA	A-weighted decibel
DERP	Defense Environmental Restoration Program

DNL	day/night average noise level
DoD	Department of Defense
DODX	DoD-owned rail cars
DPS	distinct population segment
EA	Environmental Assessment
ECM	Environmental Compliance Manager
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EOD	explosive ordnance disposal
ES^2	Energy Security and Sustainability
ESA	Endangered Species Act
ESQD	Explosive Safety Quantity Distance
ESS	Explosives Safety Submission
ESUs	Evolutionarily Significant Units
FEMA	Federal Emergency Management Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FMPs	Fisheries Management Plans
FNSI	Finding of No Significant Impact
GHG	greenhouse gas
HAP	hazardous air pollutant
HAPC	Habitat Area of Particular Concern
HMMP	Hazardous Material Management Program
HWMP	Hazardous Waste Management Plan
IBD	Inhabited Building Distance
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Conservation
IRP	Installation Restoration Program
ISCP	Installation Spill Contingency Plan
LF	linear feet

LOS	level of service
LUC	land use controls
MBTA	Migratory Bird Treaty Act
MEC	munitions and explosives of concern
MLLW	mean lower low water
MMRP	Military Munitions Response Program
MMPA	Marine Mammal Protection Act
MOTCO	Military Ocean Terminal Concord
MRS	Munitions Response Sites
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFH	National Fish Hatchery
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
PEA	Programmatic Environmental Assessment
POL	petroleum, oil, and lubricants
POV	privately-owned vehicle
RCRA	Resource Conservation and Recovery Act
ROI	region of influence
RPMP	Real Property Master Plan

SDDC	Surface Deployment and Distribution Command
SFEI	San Francisco Estuary Institute
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SOP	Standard Operating Procedures
SPCC	Spill Prevention Control and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traditional Cultural Property
TMDL	total maximum daily load
TSCA	Toxic Substances Control Act
U.S.	United States
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
UXO	unexploded ordnance
VOC	volatile organic compound
VRP	visibility reducing particles

1 INTRODUCTION

1.1 INSTALLATION DESCRIPTION AND CURRENT SITUATION

Military Ocean Terminal Concord (MOTCO) is a Surface Deployment and Distribution Command (SDDC) munitions and cargo trans-shipment facility located on Suisun Bay in north-central Contra Costa County, California (Figure 1-1). This installation is the Army's primary west coast ammunition terminal and home to the SDDC's 834th Transportation Battalion.

MOTCO's infrastructure was initially constructed by the United States (U.S.) Navy (Navy) beginning in World War II. The U.S. Army (Army) first began operations at MOTCO in 1997. Under a Base Realignment and Closure process, MOTCO was transferred to the Army in 2008. Primary operational infrastructure includes four Piers (Piers 2, 3, 4, and Barge Pier), approximately 38 miles of rail lines, staging areas, and ammunition surveillance facilities. Installation support facilities include administration, fire, security, maintenance, and warehouse buildings as well as linear road and utility networks.

The installation is geographically and functionally divided into a 115-acre administrative complex, known as the Inland Area, and an approximately 6,526-acre Tidal Area, which includes approximately 2,045 acres[1] in offshore islands. Within the installation boundary, the Inland and Tidal areas are connected by a portion of Port Chicago Highway (Figure 1-2).

In general, upland habitats on the installation include developed, previously disturbed, and non-native annual grassland areas, such as the Los Medanos Hills. The aquatic habitats on MOTCO include various tidal and non-tidal wetlands, Suisun Bay deep channels and shoreline, creeks, and tidal flats including land on the offshore islands (Figure 1-3).

The Final MOTCO Integrated Natural Resources Management Plan (INRMP), completed in October 2017, identified a total of 930 acres of previously developed or disturbed areas, which include the entire 115-acre Inland Area and approximately 815 acres in the Tidal Area. The 930 acres of previously developed or disturbed lands, along with approximately 1,706 acres of non-native annual grasslands within MOTCO's Tidal Area, are defined as upland habitats, for a total of 2,636 acres of upland habitat. The remaining acreage on MOTCO is comprised of aquatic habitats, including approximately 3,100 acres of freshwater, estuarine, and marine environments (Army 2017a) (Figure 1-3).

[1] The acreages for the Tidal Area used in this report may not precisely match the acreages used in previous National Environmental Policy Act (NEPA) documents as a result of constant changes in the acreages of the islands and shoreline from erosion and accretion.

Figure 1-1. MOTCO Boundaries

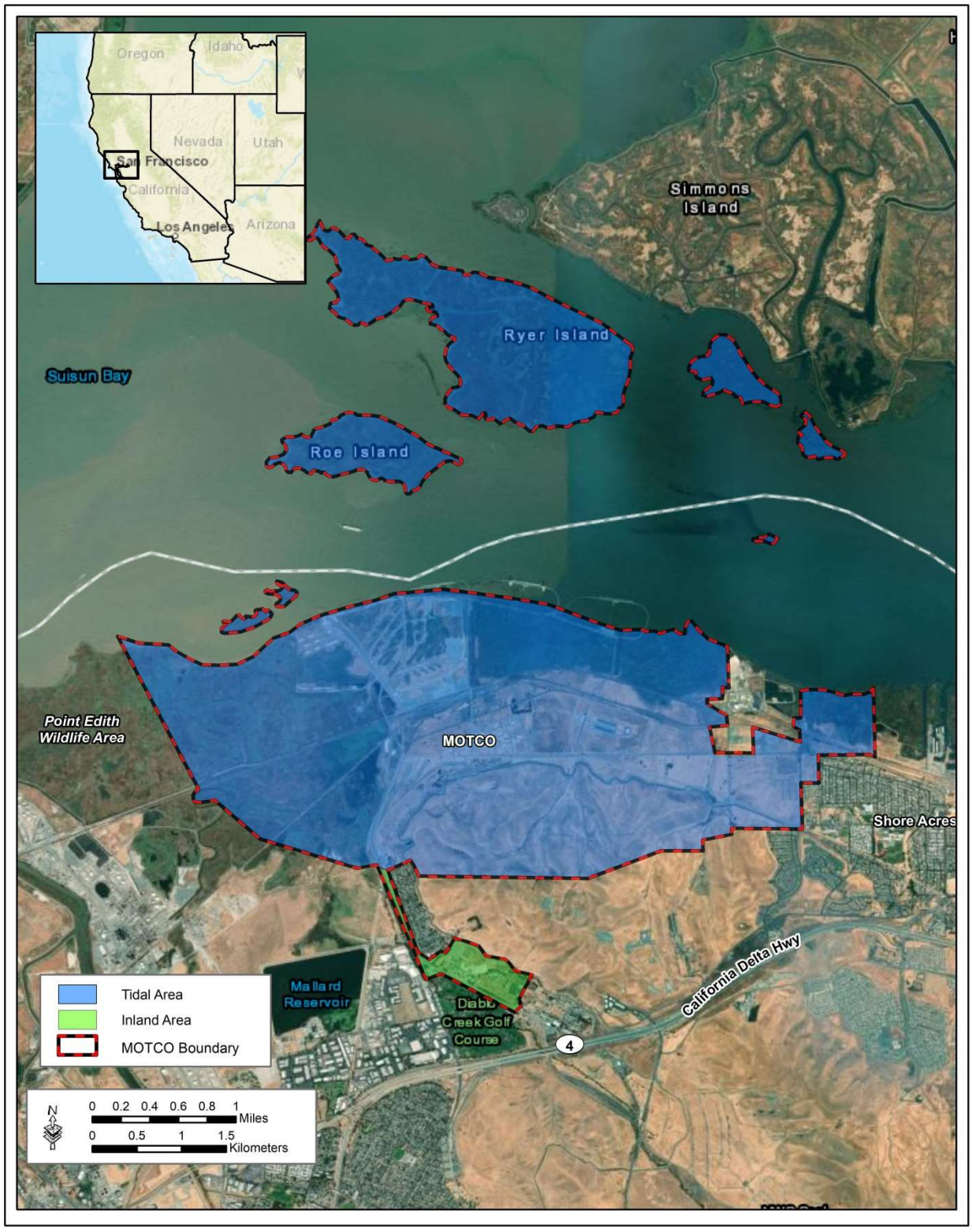

Figure 1-2. Inland Area and Tidal Area

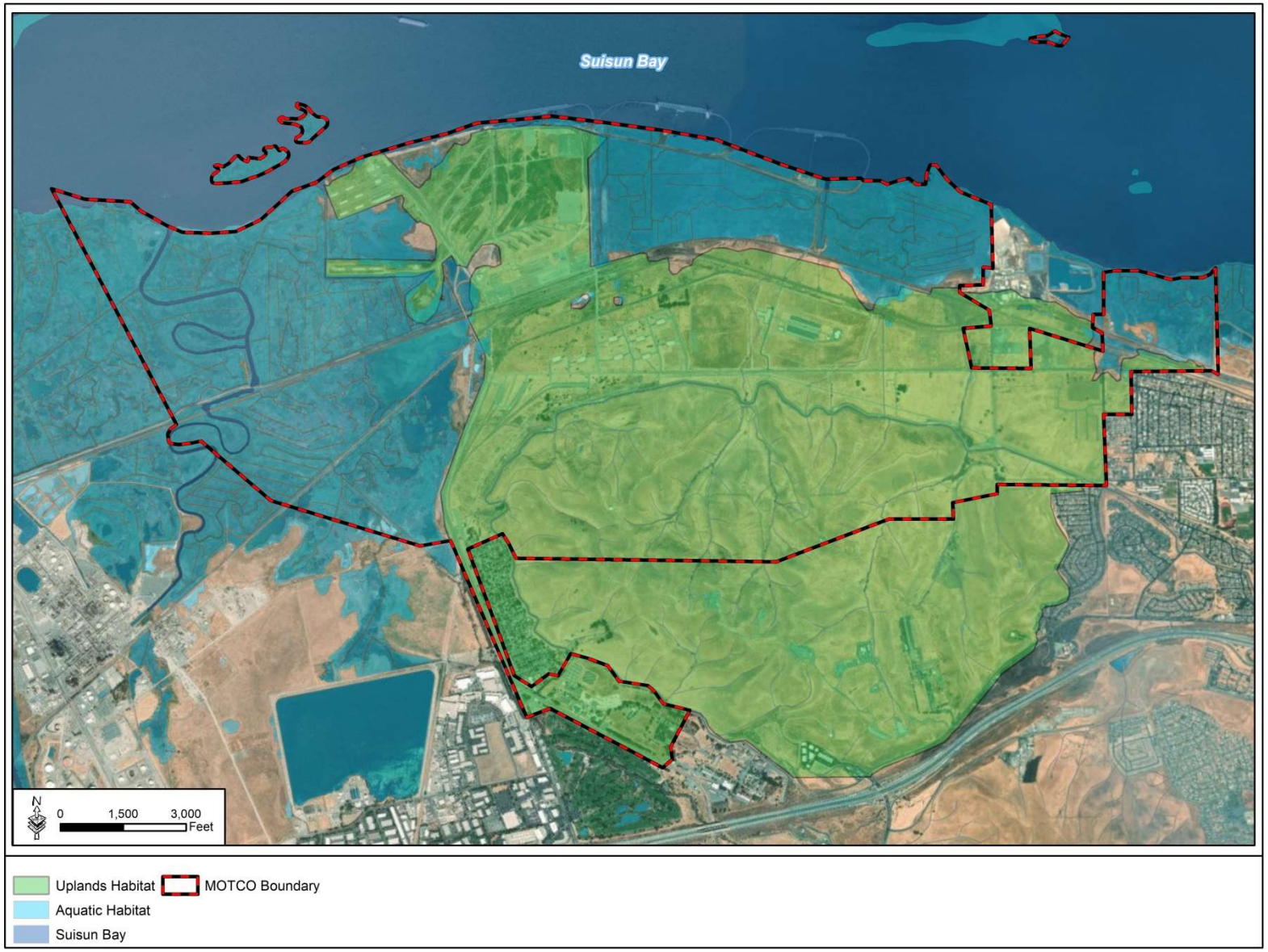

Figure 1-3. MOTCO Upland Habitat and Aquatic Habitat

Due to age, condition, and functional obsolescence, many of the facilities are now in need of major renovation, replacement, or redevelopment in order to meet mission requirements. This Programmatic Environmental Assessment (PEA) will programmatically describe the types of renovation, replacement, or redevelopment actions that can be reasonably expected to occur to infrastructure (including building, structures, and linear facilities such as utilities and rail) within the upland habitats on the installation through the year 2025 and the associated effects of these actions. Additionally, this PEA will provide an analysis of the effects associated with known specific projects. Projects planned beyond 2025 are briefly described as planned for, connected, cumulative, or similar actions for impact analysis purposes and will require additional National Environmental Policy Act (NEPA) documentation prior to construction.

Major elements of redevelopment include replacement of underground and aerial utilities, realignment of rail lines, demolition of outdated facilities not covered under previous NEPA documents, and new facility construction within the upland habitats. Most renovation, replacement, or redevelopment actions would occur within currently or previously disturbed areas, and other actions would necessitate the conversion of non-native grasslands, which were previous agricultural to developed land.

1.2 PURPOSE AND NEED

The Purpose of the Proposed Action is to modernize terminal operations at MOTCO with a series of renovation and construction projects designed to meet current and future projected mission requirements in a safe, cost effective, energy efficient, and environmentally preferable manner that would allow the installation to maximize munitions throughput and ensure seamless munitions support for its customers. These actions support the goals established in the Department of the Army's Facility Investment Strategy and the Army 2020 Plan to maintain mission readiness into the future.

The Need for the Proposed Action is to maximize efficiency and throughput at MOTCO to ensure that this vital West Coast port can continue to meet current and future mission requirements.

MOTCO serves a vital role in current and future contingency operations in the Pacific Theatre. In order to remain mission capable, the installation must have safe and efficient facilities. The advanced age and poor or outdated condition of many of the installation's facilities and attendant systems create a need for renovation, replacement, or redevelopment based on three factors: 1) functional obsolescence, 2) operational safety or efficiency, and 3) resource conservation. Many projects may satisfy deficiencies in more than one factor; examples include the following:

Functional Obsolescence. Rail lines installed in the 1940s were designed for 40- to 50-foot-long boxcars. Lightweight degraded rail and dilapidated nature of the Barricaded Rail Sidings (BRS) make many of the barricaded rail sidings unusable for modern 89-foot-long railcars.

Operational Safety/Efficiency. Functions like installation warehousing and storage facilities not associated with the mission are required by explosive safety regulations to be located outside Explosive Safety Quantity Distance (ESQD) arcs. Relocating these facilities from the

Tidal Area to areas outside the ESQD arcs and co-locating them near maintenance and administrative facilities improves both safety and efficiency.

Resource Conservation. Water lines connecting the installation's water storage tank to the water distribution system are known to be leaking and in need of significant repairs.

1.3 SCOPE AND TIERING

This PEA will provide decision makers with clear environmental direction and requirements as they plan, implement, and execute projects within the upland habitats on MOTCO. Furthermore, the PEA will provide an evaluative mechanism to assist in the assessment and implementation of future actions. The PEA will qualitatively and, when appropriate, quantitatively evaluate the environmental impacts of the alternatives by adding parameters for when, what level, and under what circumstances additional tiering and NEPA review should be triggered as planning concepts advance to specific projects and designs.

1.3.1 Relevant NEPA Documents

Previous NEPA documents related to the infrastructure improvements at MOTCO include the following:

Final Environmental Impact Statement for the Modernization and Repair of Piers 2 and 3 at Military Ocean Terminal Concord (February 2015) (*Pier 2/3 EIS*) and *Supplemental Environmental Assessment for Pier 2 Modernization and Repair Design Changes at Military Ocean Terminal Concord, CA* (April 2017) (*Pier 2 SEA*; Army 2015a). MOTCO is making substantial progress in the repair of Pier 3 and the modernization of Pier 2. Construction activities are scheduled for completion in 2020. The project also established construction staging areas, which will continue as designated staging areas for future projects.

Environmental Assessment for General Repair of Bridges, Roads, and Utilities at Military Ocean Terminal Concord, CA (June 2017) (*Roads and Bridges Environmental Assessment [EA]*; Army 2017b). The Roads and Bridges EA narrowly focuses on repairs to existing roads and bridges throughout the installation. It provides a project-level NEPA review of specific repairs expected to occur in the 2018 to 2022 time period. It also sets up a programmatic framework for NEPA review of longer-term road and bridge repairs occurring in 2022 or later. Spatially, the EA is limited to an area of 50 feet from either side of the existing edge of pavement or bridge.

Environmental Assessment for the Construction and Operation of a Modern Access Control Point (ACP) at Military Ocean Terminal Concord, CA (April 2017) (*ACP #5 EA*; Army 2017c). The ACP #5 project constructs an ACP and truck inspection area, converting 12.5 acres of upland habitat (non-native annual grasslands) on the installation into infrastructure and support facilities. ACP #5 is scheduled for completion in late 2020.

Draft Programmatic Environmental Assessment for Routine Maintenance (November 2018) (*Maintenance EA*; Army 2018). The *Maintenance EA* identifies a list of programmatic and routine repairs to waterfront facilities, rail track, minor road and pavement elements, utilities, and buildings.

Final Programmatic Environmental Assessment for the U.S. Army Materiel Command Building Demolition Program (March 2014) (*Building Demolition PEA*; Army 2014). The Building

Demolition PEA pertains to a program of the Army Materiel Command to remove unused and unneeded facilities from the Real Property Inventories of Army Materiel Command installations, including MOTCO.

1.4 RELEVANT STATUTES AND EXECUTIVE ORDERS

This PEA was prepared in accordance with NEPA (42 United States Code [U.S.C.] § 4321 et seq.); CEQ NEPA regulations (40 Code of Federal Regulations [CFR] Parts 1500–1508); and Army's NEPA regulations (32 CFR Part 651). As the internal draft EA was circulated for review prior to the September 14, 2020 effective date of CEQ's updated NEPA regulations, CEQ's pre-2020 version of its NEPA regulations apply. The Army has prepared this PEA concurrently with, and integrated with, environmental impact analyses and related surveys and studies required by the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C 470 et seq.), the Endangered Species Act of 1973 (ESA, 16 U.S.C 1531 et seq.), the Clean Water Act (CWA, 33 U.S.C 1251 et seq.), the Clean Air Act (CAA, 42 U.S.C 7401 et seq.), other applicable environmental review laws (and their implementing regulations), and Executive Orders (EOs).

1.5 DECISION TO BE MADE

The decision to be made by the Commanding Officer of MOTCO is to approve or disapprove the Proposed Action in consideration of potential environmental consequences and actions that protect, restore, and enhance the environment. This PEA is intended to assist in that decision-making by providing sufficient evidence and analysis for determining whether a Finding of No Significant Impact (FNSI) or an Environmental Impact Statement (EIS) should be prepared.

1.6 PUBLIC INVOLVEMENT

NEPA regulations require an early and open process for determining the scope of issues that should be addressed prior to implementation of a Proposed Action. During the initial planning process for this PEA, the Army sent scoping letters to the U.S. Fish and Wildlife Service (USFWS), National Park Service (NPS), California State Historic Preservation Officer (SHPO), and federally recognized Native American Tribes (Appendix A).

As part of Section 106 of the National Historic Preservation Act of 1966 (NHPA) initiation, scoping letters were also sent to federally recognized Native American Tribes seeking input on the proposed project (Appendix A). Consultation with the SHPO is still ongoing; however, the Army anticipates concurrence with their determination. Before the FNSI is signed and prior to initiation of construction projects included in the proposed action, Section 106 SHPO concurrence must be received.

This Draft PEA and Draft FNSI will be available to the general public and applicable government agencies for review and comment during the 30-day period that commenced with the Notice of Availability (NOA) published in the *East Bay Times* on 23 November 2020 (Appendix A). Copies of the Draft PEA and Draft FNSI will be available at the Concord Public Library, 2900 Salvio Street, Concord, California 94519, and the Bay Point Library, 205 Pacifica Avenue, Bay Point, California 94565. The Draft PEA and Draft FNSI can also be viewed at the following Army website: https://www.sddc.army.mil/Pages/default.aspx. Comments received on the draft documents during the 30-day review period will be incorporated into the Final PEA and Final FNSI.

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2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This section describes the Proposed Action and alternatives for modernizing infrastructure to support terminal operations at MOTCO to meet current and future projected mission requirements. It describes the types of activities and site-specific projects, where available, that can be reasonably expected to occur on the installation through 2025. The types of activities are described in broad terms, with details on specific projects included for those projects for which details are available at this time. As infrastructure needs are assessed and refined through the planning and design processes, specific project level NEPA evaluation will provide more detail. For the purposes of this PEA, analysis is limited to a description of anticipated impacts associated with major construction and mission activities. Common recurring maintenance actions are covered under the *Maintenance EA*, and while referred to in this PEA by reference, they are not discussed in detail. The rail line repairs correct deficiencies in accordance with inspection reports and Master Plan recommendations. The rail line repairs would 1) address safety requirements, 2) ensure long-term mission sustainment, and 3) improve mission efficacy. The utility repairs would ensure long-term adequate and reliable utility infrastructure.

2.1 PROPOSED ACTION

The Proposed Action is to renovate, replace, and redevelop infrastructure and support facilities to meet current and future mission requirements at MOTCO. It includes activities and known projects that can be reasonably expected to occur on MOTCO through 2025 (Figure 2-1). The intent of the Proposed Action is to provide the installation with safe, functional, and efficient facilities. The Proposed Action includes the following five types of actions:

- Demolition
- Utility construction and maintenance
- Realignment and addition of rail lines
- Expansion of holding and transfer pads
- Construction and renovation of individual buildings and structures
- Construction of an emergency backup power generation system to support base operations

There would be minor, primarily localized, adverse impacts associated with implementation of the Proposed Action on soils, water resources, air quality, biological resources (vegetation and wildlife), transportation, and noise. These impacts would be associated with project construction activities and may include the use of temporary platforms, access roads, and other construction-related items. However, all projects covered under the Proposed Action would comply with the MOTCO Integrated Natural Resources Management Plan and all environmental consultation or permitting would be completed during project design. In addition, the Proposed Action would comply with the MOTCO Integrated Cultural Resources Management Plan for potential impacts to significant cultural resources. All consultation and evaluation of potentially significant cultural resources would occur during project design.

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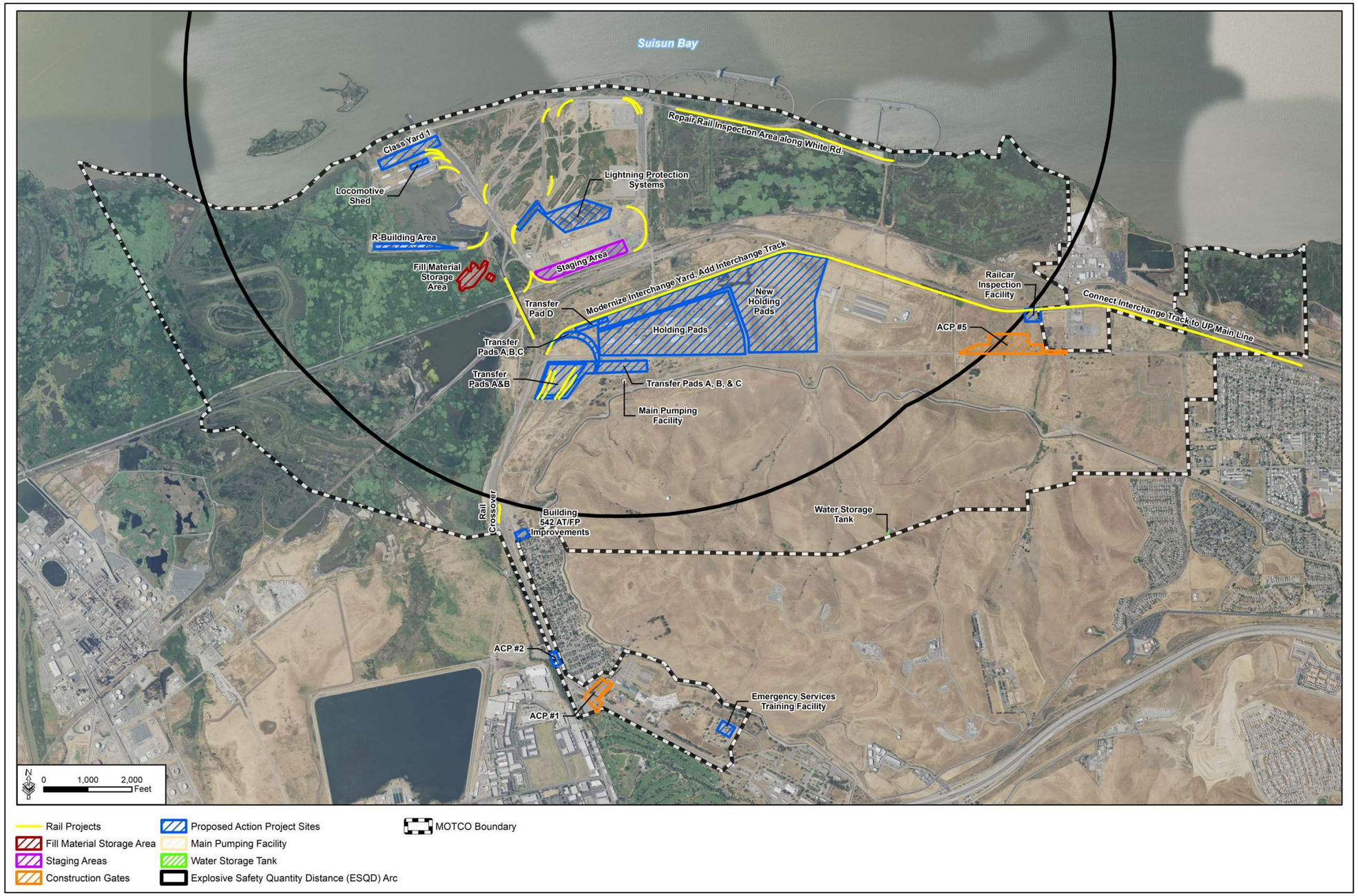

Figure 2-1. Proposed Action Project Sites

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2.1.1 Demolition

The demolitions included in this PEA are not covered under the *Building Demolition PEA* and are needed to prepare for redevelopment associated with modernizing terminal operations at MOTCO. MOTCO proposes to demolish foundations and internal revetments associated with the former R-Building area along Froid Road. This facility is located within an active operational area. This action would assist the installation in meeting Army policies set forth in the Department of the Army's Facility Investment Strategy and the Army 2020 Plan. Any demolitions not covered under previous SHPO consultation would be consulted on prior to demolition.

2.1.2 Utility Construction and Maintenance

New utility construction would be needed in conjunction with new facilities and would be limited to connections to existing electrical, communication, water, and wastewater systems.

Repair and replacement of utilities that occur within 50 feet on either side of a named roadway are covered by the *Roads and Bridges EA*, and recurring maintenance of utilities is included in the *Maintenance EA*. This PEA sets mitigation and guidelines for renovation or replacement of any utilities (electrical, water, wastewater, and communications) found outside of those established road corridors. This includes water lines going to and from the installation's main pumping facility in Building 506, the water storage tank located on TV Hill, and large-scale replacement or upgrade of exterior lighting or substations. Parameters are established for when electrical lines should be buried and when boring is preferable to trenching.

2.1.3 Realignment and Addition of Rail Lines

There are approximately 42.5 miles of rail lines located within MOTCO, and some of those lines suffer from functional deficiencies or even obsolescence. Rail lines that previously supported individual operations buildings and the barricaded rail siding area have tracks that are undersized, in poor condition, or have curves that are too sharp to support modern 89-foot railcars. The installation proposes to redevelop the area and tracks associated with the former R-Buildings to eliminate these operational shortfalls. Additional rail lines would be added, primarily within or adjacent to existing rail footprints, to support the expansion and reconfiguration of the Transfer and Holding Pad areas north and south of Port Chicago Highway. Most of the rail projects are within upland habitats; however, many sections of track cross or parallel aquatic habitats. The specific impacts to aquatic habitat for each project included in the Proposed Action would be evaluated and avoided or minimized to the extent practicable during the design processes. Separate, site-specific NEPA evaluation would address mitigation and permitting needs, if any, for each project.

The rail projects will require the use of new railroad ties. Railroad ties, also known as crossties or sleepers, are the primary support for the rails. They anchor the track, providing the base over which the trains pass. Railroad ties have historically been made of treated wood (today it is creosote); however, currently ties made of concrete or plastics/composites are also available. The choice of tie materials depends on the location, amount and type of use, and cost. Around the world, many heavy use areas have transitioned to concrete railroad ties, which have longer life expectancies but also significantly higher costs in this region. However, creosote-treated

wood railroad ties remain the preferred choice in most cases due to lower cost and a 30- to 40-year life expectancy.

Specific projects include the following:

1) **Modernize Interchange Yard—Repair Rail Line to Connect to Union Pacific.** This project would repair approximately 16,000 linear feet (LF) of existing, closed track; construct up to three new at-grade crossings; and construct one rail connection (approximately 700 LF) to the existing Union Pacific main line (Figure 2-2). The improvements would allow a safer and more efficient way to receive ammunition from commercial rail systems. The majority of the project area occurs in upland habitats; however, any impacts to aquatic habitat would be evaluated in project-specific NEPA documentation for the project. All consultation and evaluation of potentially significant cultural resources would occur during project design.

Figure 2-2. Modernize Interchange Yard—Connect to Union Pacific Rail Line

2) **Modernize Interchange Yard—Add Interchange Track.** This project would increase safety and efficiency of the rail system at MOTCO. The project includes constructing approximately 7,800 LF of new track for the Main Interchange with two new turnouts (Figure 2-3). The new rail would be entirely on previously disturbed lands and is not anticipated to impact sensitive habitats or wetlands. The project design would avoid and minimize impacts to aquatic resources and sensitive habitat to the maximum extent practicable. Any impacts to sensitive habitats or wetlands not identified at this time would be evaluated during project design and the necessary permits would be obtained. All consultation and evaluation of potentially significant cultural resources would occur during project design.

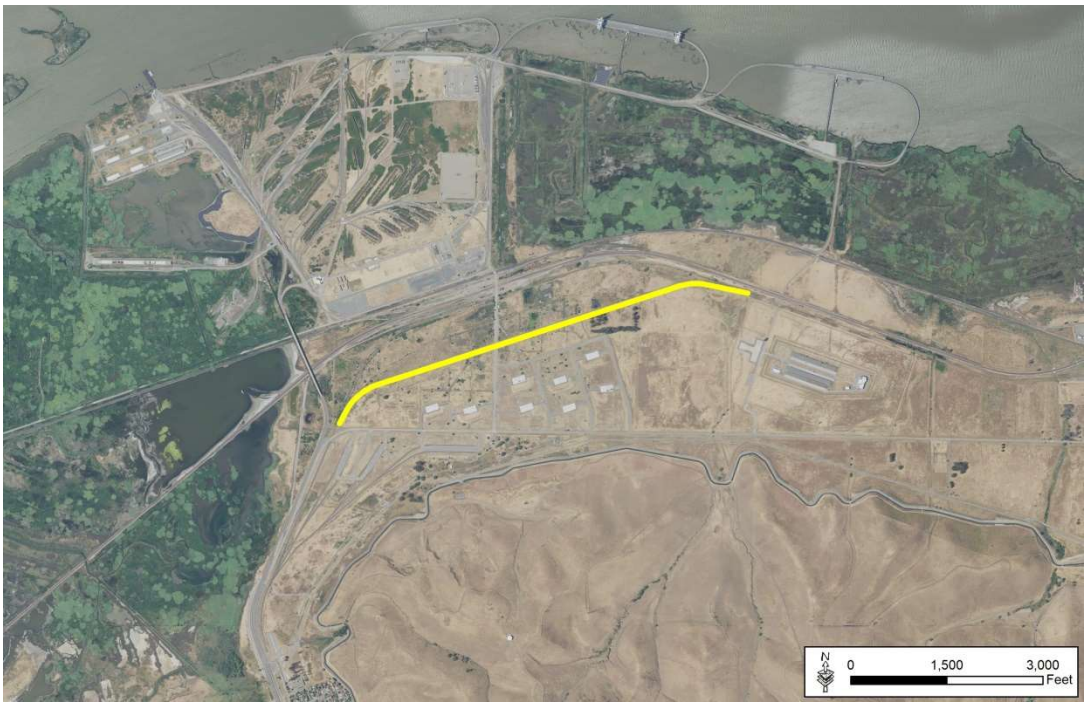

Figure 2-3. Modernize Interchange Yard—Add Interchange Track

3) **Extend Rail from Transfer Pad A to Transfer Pad B.** Both projects would be in the central Tidal Area and would increase efficiency of rail operations on the installation. The project would involve approximately 2,000 LF of new track, improving connectivity with interchange track (Figure 2-4). Based on survey work done during the design charrette, the new rail would be entirely on previously disturbed lands and would not impact sensitive habitats or wetlands. All consultation and evaluation of potentially significant cultural resources would occur during project design.

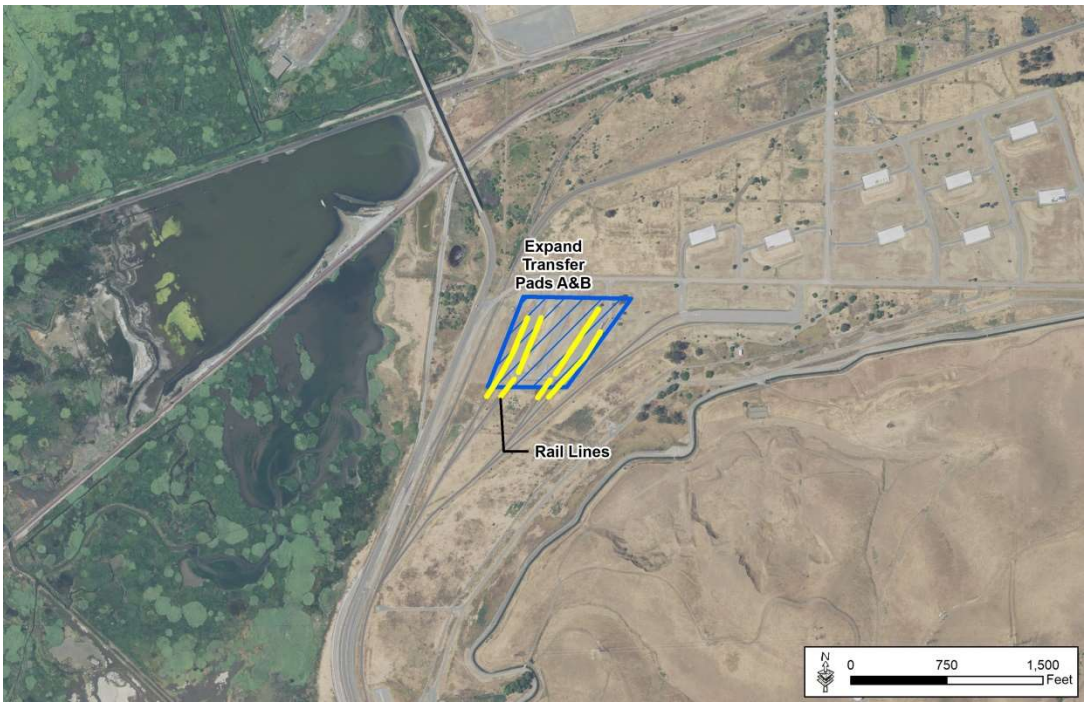

Figure 2-4. Extend Rail from Transfer Pad A to Transfer Pad B

4) **Rail Curve Repair.** Rail curves would be repaired to increase safety and efficiency of the rail system at MOTCO (Figure 2-5). The repairs would involve realignment and replacement of approximately 18,000 LF of existing track at approximately 20 different rail curves. Modern locomotives and railcars cannot transit the existing curves without risk of derailment. The recommended findings from the design charrette would eliminate direct impact to the wetlands on the curves turning out of the R-Buildings area and westernmost Union Pacific rail connection (Figures 2-6 and 2-7). These particular rail curve improvements are mandated by the Union Pacific Railroad Corporation, who will not continue to deliver cargo to MOTCO unless the rail curves are improved. Based on current conceptual designs, environmental permits will likely not be required for realignment of the rail curves included in the current charrette designs. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

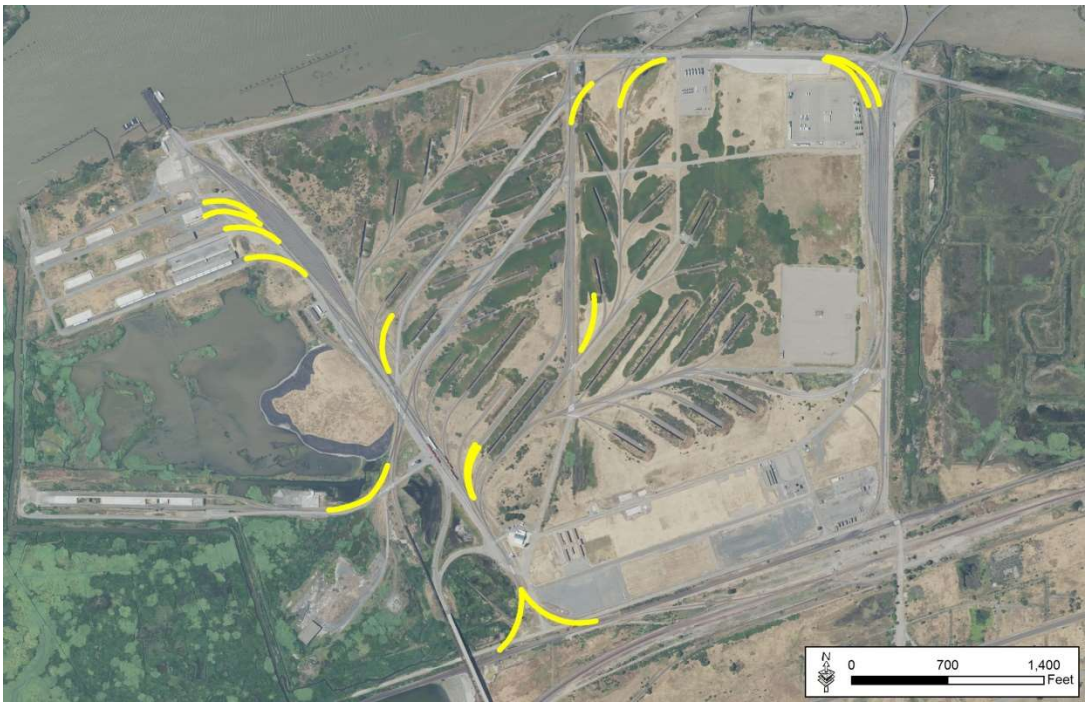

Figure 2-5. Rail Curve Repair Locations

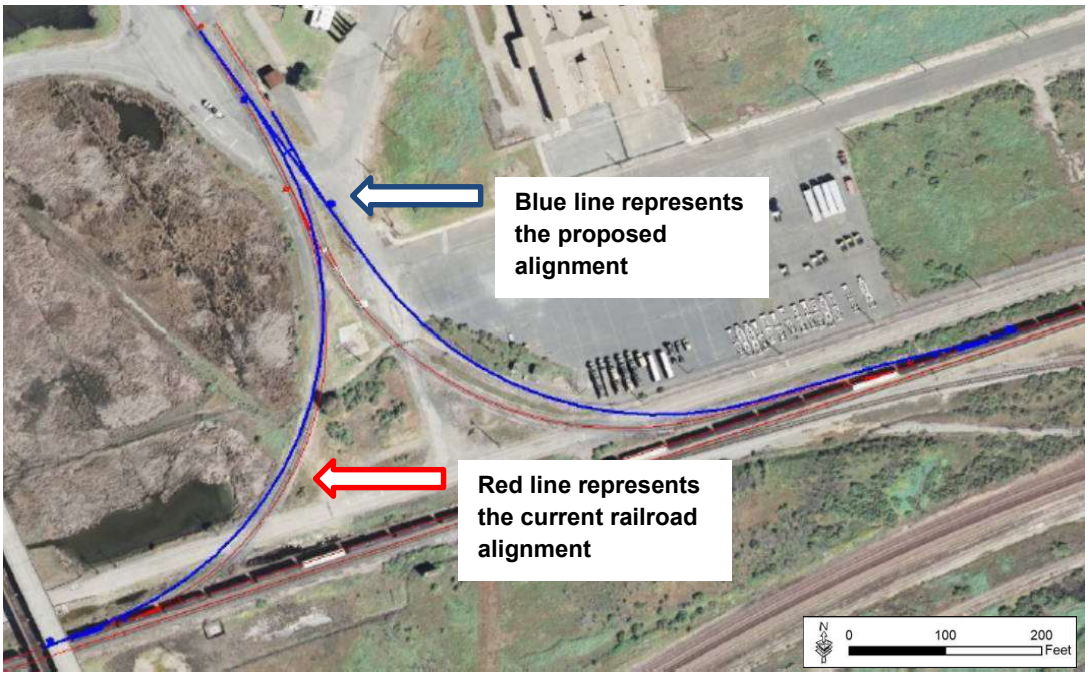

Figure 2-6. Rail Curve—Westernmost Union Pacific Connection

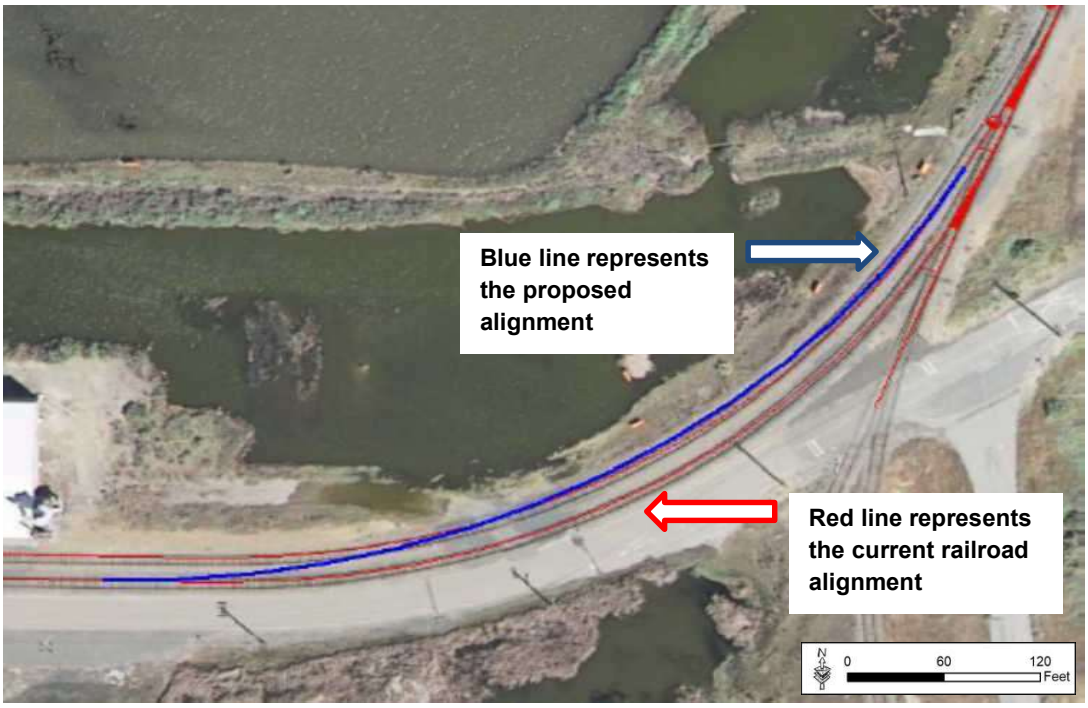

Figure 2-7. Rail Curve to R-Buildings

Additional informal consultations with resource agency and conservation district would still occur as final designs are developed. All the rail curve realignments would be entirely on previously disturbed lands and are not anticipated to directly impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

5) **Expand Class Yard 1.** This project would reconfigure and add railroad track to the Class Yard 1 in order to increase rail yard efficiency and safety (Figure 2-8). The project would add approximately 3,000 LF of total track and would include modifications or additions to the tracks at the entrance to the yard and the addition of siding tracks on the east and west sides of the yard. Based on previous survey work, the new and reconfigured rail line would be entirely on previously disturbed lands and is not anticipated to impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources will occur during project design.

Figure 2-8. Expansions to Class Yard 1

6) **Construct Rail Crossover.** This project, located in the central Tidal Area, would increase efficiency of rail operations on the installation (Figure 2-9). This project would improve MOTCO's ability to process two deliveries of unit trains within a constrained timeframe. This project would involve construction of approximately 1,100 feet of rail line to allow trains to switch track lines. The site is almost entirely on existing rail line and would be entirely on previously disturbed lands and would not impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

Figure 2-9. Construct Rail Crossover

7) **Reconnect Rail Curve.** This project is also in the central Tidal Area. It would increase efficiency of rail operations on the installation (Figure 2-10). Together, construction of the Rail Crossover (above) and this Reconnect Rail Curve project would involve approximately 2,000 LF of new track and would improve MOTCO's ability to process two deliveries of unit trains within a constrained timeframe. Based on survey work done during the design charrette, the new rail line would be entirely on previously disturbed lands and is not anticipated to impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

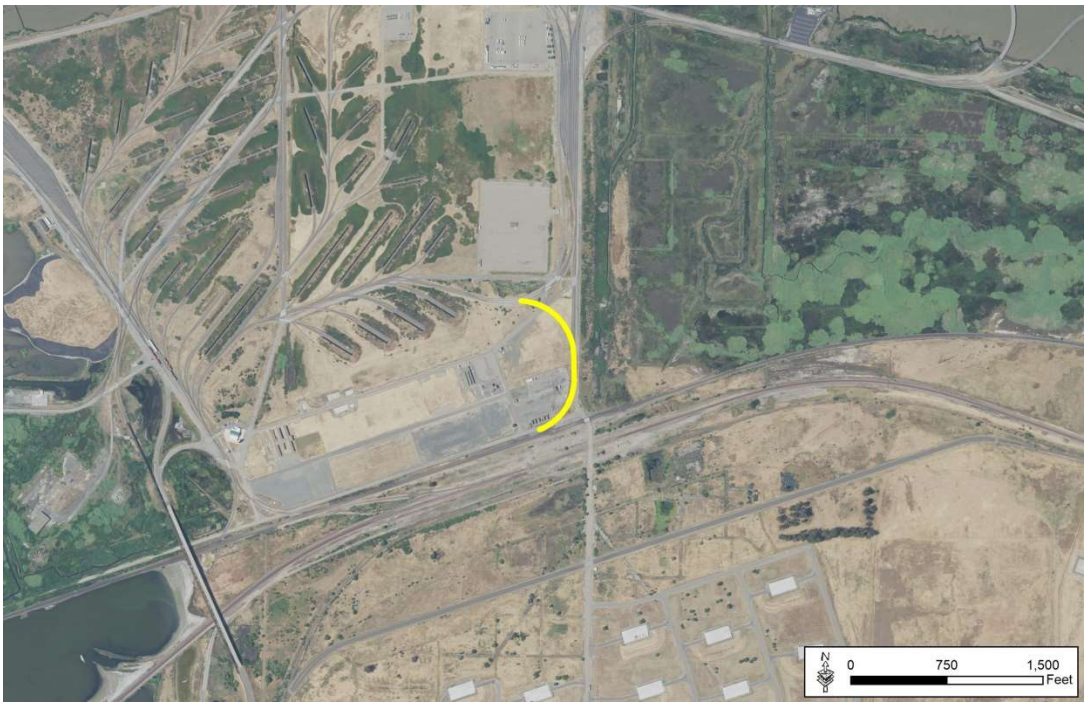

Figure 2-10. Reconnect Rail Curve

8) **Repair and Expand R-Building Area.** This project would improve and increase the holding capacity of the R-Building area (Figure 2-11). The project would include the construction of new track to maximize storage capacity of the R-Building holding yard, adding approximately 11,000 LF of yard track with appropriate crossover connections to allow unencumbered locomotive access to the end of the yard, while making site adjustments to account for surrounding wetlands. Revetments and old building foundations within the R-building area would be demolished, as described in Section 2.1.1, to provide space for the 11,000 LF of new track. The rail yard would remain within the current lightning protection system. Based on survey work done during the design charrette, the new rail line would be entirely on previously disturbed lands and is not anticipated to impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

Figure 2-11. Repairs and Expansion to R-Building Area

9) **Repair Rail Inspection Area along White Road.** This project would include building up areas along the track in the vicinity of Pier 3 and Pier 4 and installing drainage features to prevent standing water near and across the track (Figure 2-12). The rail improvements would be entirely on previously disturbed lands and are not anticipated to impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

Figure 2-12. Repairs to Rail Inspection Area along White Road

2.1.4 Expand Holding Pads and Transfer Pads

This project would involve the construction of 12 new holding pads (Figure 2-13). Each pad would be approximately 4,000 square feet (SF) and include lightning protection systems, associated area lighting, utilities, berms, and fencing. The project would include approximately 18,000 LF of new paved circulation roadways. The holding pads would be located in upland habitats east and north of the existing holding pads that are north of Port Chicago Highway. This reconfiguration and expansion would redevelop an area previously used as a borrow pit and would convert approximately 130 acres of previously impacted non-native grasslands to developed land.

Actions related to the transfer pads would include expansion of the existing Transfer Pad A, to approximately 140,000 SF new pad. Transfer Pad B would be expanded by approximately 76,000 SF, and an approximately 140,000 SF new Transfer Pad D would be constructed. Transfer pads would have rail access sidings and connections to the rail interchange system. Each transfer pad would include a lightning protection system, lighting, utilities, berms, and new paved circulation roadways.

This project would increase safety and efficiency of the ammunition handling operations at MOTCO. Additionally, expansion and reconfiguration of transfer pads would give the installation more operational flexibility and increase cargo processing speed.

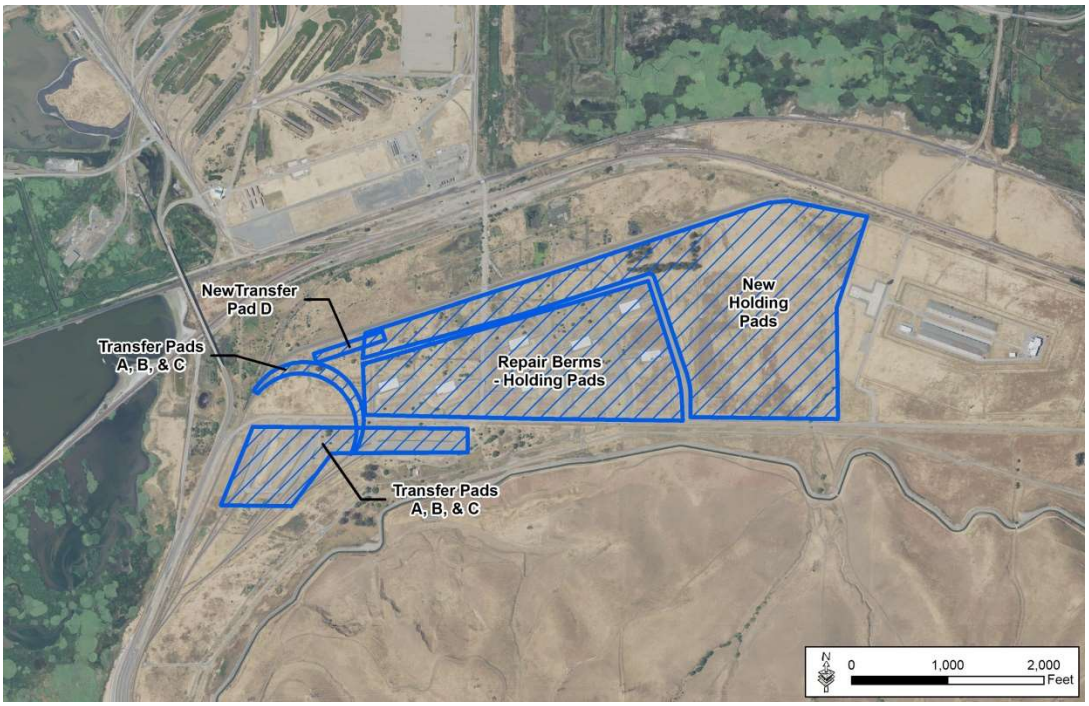

Figure 2-13. Holding and Transfer Pad Expansions

2.1.5 New Construction or Major Renovation of Individual Buildings and Structures

As noted previously, due to age, condition, and functional obsolescence, many facilities on MOTCO need to be renovated or replaced in order to meet mission requirements. In some cases, the most efficient option is replacement given the condition, function, or location of the existing building or structure. In other cases, a facility can be renovated to eliminate its deficiencies or to modernize it. Planned construction or renovation projects include the following:

1) **Lightning Protection Systems for Rail Barricade Sidings.** Lightning protection systems would be installed on four barricaded rail sidings (Figure 2-14). The location of these systems would be entirely on previously disturbed lands and would not impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

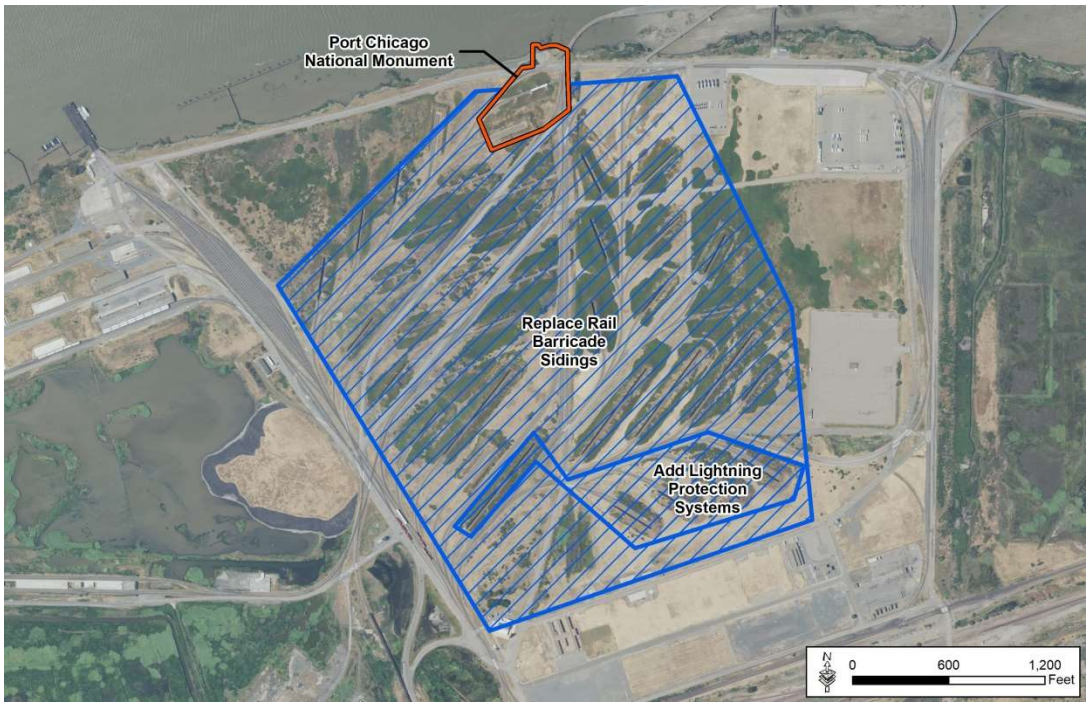

Figure 2-14. Lightning Protection Systems for Rail Barricade Sidings

2) **Locomotive Shed.** A new locomotive shed would allow the installation's locomotives and track repair equipment to be protected from inclement weather and provide a location for mobile fueling that meets current safety and environmental protection standards (Figure 2-15). This project would provide up to approximately 8,000 SF of building cover for rail and locomotive storage. It would be sited in previously disturbed areas on or near existing track and would not impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

Figure 2-15. New Locomotive Shed

3) **Railcar Inspection Station.** The new Railcar Inspection Station would provide a secure, covered facility to inspect railcars coming onto the installation (Figure 2-16). The railcar inspection facility, which would provide up to 5,000 SF of covered area, is a system consisting of a small guard building, an inspection pit, a catwalk/pedestrian bridge system that allows personnel to walk over and observe trains moving onto the installation, and all associated security and lighting support. As with the locomotive shed, it would be sited in previously disturbed areas on or near existing track and would not impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

Figure 2-16. Railcar Inspection Station

4) **ACP #2.** A replacement for ACP #2 would allow safer access to the Tidal Area of MOTCO. The new ACP #2 would consist of a permanent gate house, guard booth, and overwatch that meet current engineering and security standards (Figure 2-17). Gate traffic would use ACP #3 as an alternative entrance with temporary access control structures until construction is complete. The project would be built within the same footprint as the existing ACP #2, with minor changes to road geometry that would not impact sensitive habitats or wetlands. If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

Figure 2-17. ACP #2 Replacement

5) **Emergency Services Training Facility.** The project, to be sited near the Inland Fire Station, would provide a steel fire training building and a burn pit for training in fire and other emergency responses. The facility would impact approximately 2 acres of previously disturbed land within the Inland Area (Figure 2-18). If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

Figure 2-18. Emergency Services Training Facility New Construction

6) **Building 542 Anti-terrorism/Force Protection (AT/FP) Improvements.** Building 542 does not meet current AT/FP requirements. Improvements would include interior hardening, parking, and landscaping changes but would not change the existing footprint of the building (Figure 2-19). If during design, additional temporary or permanent impacts to wetlands or other sensitive habitats are identified, these effects would be addressed in a project-specific NEPA evaluation. All consultation and evaluation of potentially significant cultural resources would occur during project design.

Figure 2-19. AT/FP Improvements to Building 542

2.1.6 Construction of an Emergency Backup Power Generation System to Support Base Operations

MOTCO remains the only strategic seaport for shipping ammunition to the Pacific region and is the only port capable of safely storing and moving ammunition on the West Coast. Therefore, it is critical for mission operations to continue despite disruptions in the power grid. Constructing a backup power generation system would allow for islanded base operations to continue during an emergency. The proposed emergency backup power generation system includes the following:

1) **Diesel Generators.** Five diesel reciprocating engine backup generators located close to the primary substation, providing resilience to the entire installation.
2) **Power house enclosures.** Housing used to protect the generators and designed in a manner to suppress operational noise to less than 85 dB.
3) **Underground feeder and controls/switchgear.** Connects generators to the point of common coupling with the substation and 1200 Amp switchgear.
4) **Storage tanks.** Six 12,000-gallon above-ground diesel storage tanks.

2.1.7 Supporting Actions

Supporting actions include development and use of staging areas, fill material storage areas, and construction-related traffic and parking (Figure 2-20 through 2-23; see also Figure 2-1).

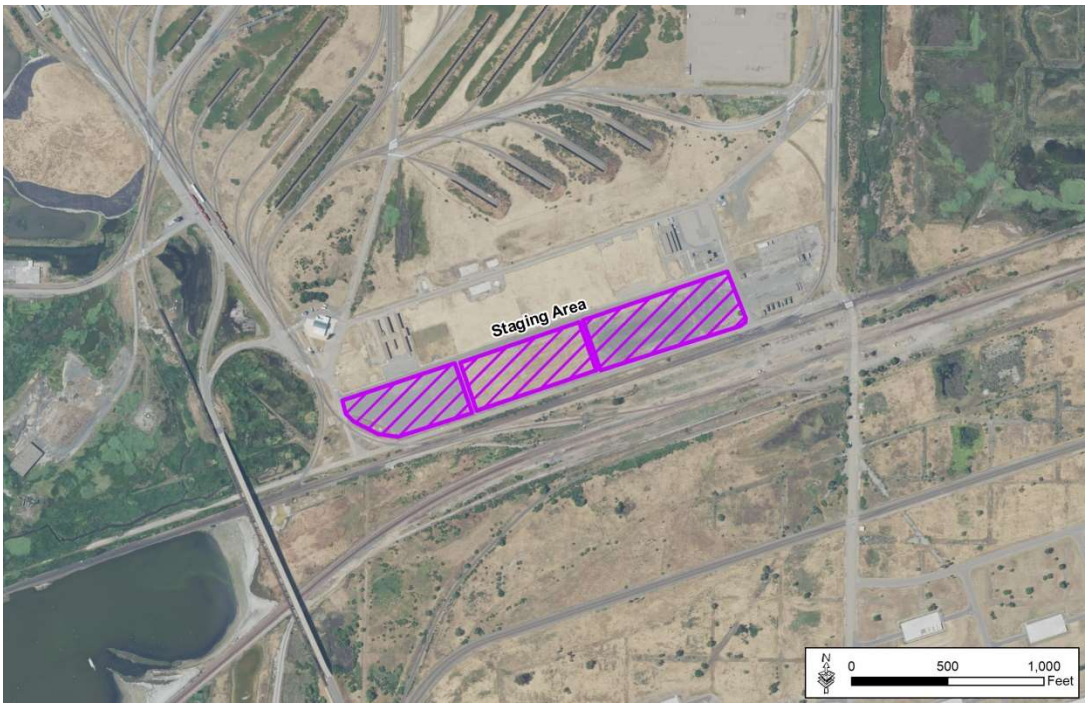

Figure 2-20. Staging Areas

Figure 2-21. Fill Material Storage Areas

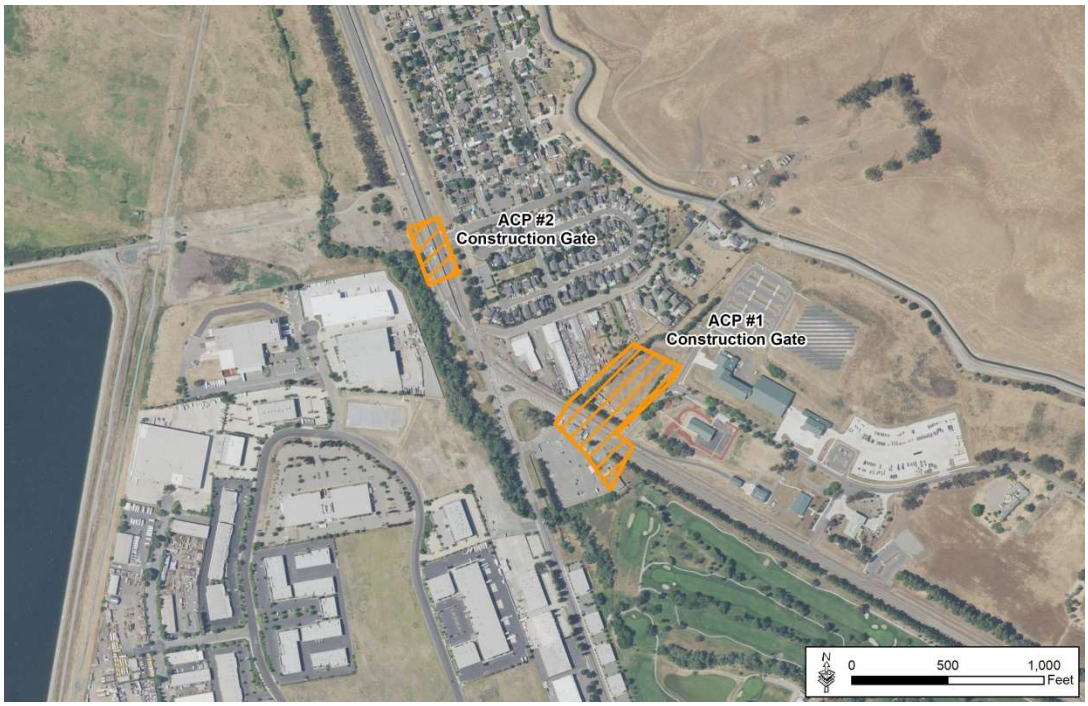

Figure 2-22. Construction Gates

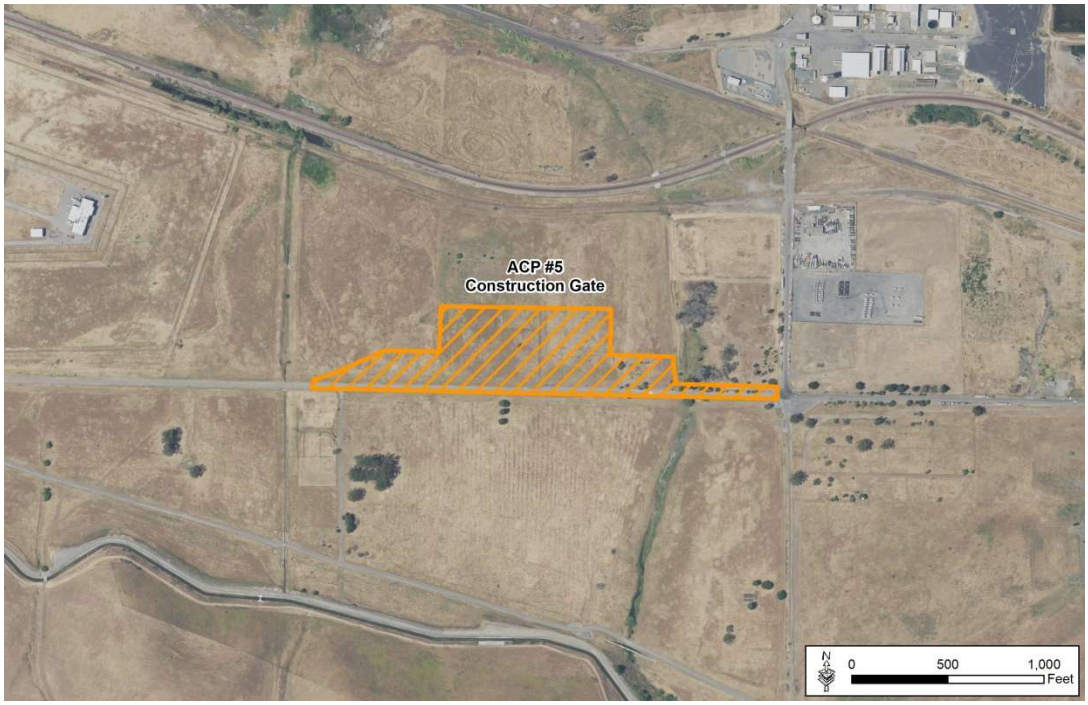

Figure 2-23. Construction Gates

1) **Staging Areas.** Staging areas are laydown areas for temporary storage of equipment and supplies including short-term placement of asphalt millings and base materials. Proposed staging areas would include currently paved surfaces, concrete pads, and previously disturbed vegetated areas that have been routinely used for staging for a number of other actions. The three staging areas proposed for use for any aspect of the Proposed Action are located south of Shaner Road between Shaner Road and the existing rail lines within upland habitats. The total combined area of these staging areas is 33 acres. An additional staging area may be added in the vicinity of ACP #5 to support construction activities associated with the Railcar Inspection Station. The use of staging areas for implementation of projects would be determined on a case-by-case basis for each project, depending on needs and efficiency of project execution and de-confliction with other concurrent activities or use of staging areas. Any additional staging areas would be designed to avoid and minimize effects to sensitive habitat and aquatic resources to the maximum extent practicable. All consultation and evaluation of potentially significant cultural resources in these areas would occur during project design.

2) **Fill Material Storage Areas.** Any materials removed from project areas that are deemed suitable for reuse at a later date would be transported to one or both of two sites identified at MOTCO that are appropriate for receiving such materials. Only materials determined free of contaminants would be stored in these areas.

3) **Construction-related Traffic and Parking.** Tidal Area construction traffic would use ACP #5, located in the eastern portion of the Tidal Area at the intersection of Port Chicago Highway and Nichols Road, or ACP #2, located at the southern end of Taylor Boulevard, depending on the project site, vehicle size, timing, and operational status of the gates. Construction vehicles for Inland Area projects would access the area through ACP #1, off Taylor Boulevard at Kinne Boulevard. Larger projects with more than 20 workers would be directed to use a consolidated parking location, with workers transported to and from the work site in transport vans or buses at the start and end of the workday and for offsite lunch breaks, as needed.

2.2 SCREENING CRITERIA

Screening criteria were developed to identify viable alternatives that meet the purpose and need for the Proposed Action. In addition to satisfying the functional obsolescence, operational safety and efficiency, or resource conservation, as shown in Table 2-1, an alternative was considered viable only if it removed or relocated facilities with non-ammunition functions outside of inhabited building distance ESQD arcs. Another screening criterion is that no new real estate would have to be acquired by fee title or lease/easement.

2.3 ALTERNATIVES ELIMINATED FROM FURTHER STUDY

Two alternatives were eliminated from further study.

2.3.1 Renovation with No New Construction

One alternative would be renovation of all facilities for reuse rather than demolishing and redeveloping them. This alternative was eliminated from further consideration because it is not always operationally efficient or economically feasible to recapitalize and reconfigure facilities that have significant structural and/or functional deficiencies. In addition, renovation would not remove or relocate facilities with non-ammunition related functions that are currently within ESQDs arcs. Therefore, this PEA does not evaluate this alternative in detail.

2.3.2 Actions Requiring Real Estate Boundary Changes

Because of the high level of coordination, lengthy development time, and high cost, this PEA will not include any actions that require the installation to acquire land or other real property interests in order to execute the Proposed Action.

2.4 ALTERNATIVES CONSIDERED

In accordance with CEQ regulations (40 CFR Section 1502.14) and 32 CFR 561, a reasonable range of alternatives for implementing the Proposed Action would be considered. For this PEA, only the Proposed Action (Preferred Alternative) and the No Action Alternative are carried forward for analysis. The activities included in the Proposed Action are all described above. These activities are summarized in Table 2-1, which also identifies how each activity meets the Need for the Proposed Action.

2.4.1 No Action Alternative

CEQ regulations require analysis of a No Action Alternative in order to provide a benchmark, enabling decision makers to compare the magnitude of the potential environmental effects caused by the other alternatives considered to implement the Proposed Action. The No Action Alternative is not required to be reasonable, nor does it need to meet the Purpose and Need described in Section 1.2. Under the No Action Alternative, the repair, redevelopment, and construction projects proposed in this PEA would not be undertaken.

Although the No Action Alternative does not satisfy the Purpose of and Need for redevelopment, repair, and maintenance of installation facilities, it is included in the environmental analysis to provide a baseline for comparison with the Proposed Action and is analyzed in the PEA in accordance with CEQ regulations for implementing NEPA.

While this alternative would eliminate unavoidable adverse, short- and long-term impacts associated with the Proposed Action, the No Action Alternative would result in ongoing maintenance costs for outdated and unsafe facilities, failure to meet the goals of the Department of the Army's Facility Investment Strategy and the Army 2020 Plan, and failure to maintain mission readiness into the future.

Table 2-1. Activities Proposed Under Proposed Action

Proposed Action Components	Factors Creating Need for Repair or Redevelopment		
	Functional Obsolescence	Operational Safety/Efficiency	Resource Conservation
Demolition Related to Projects Not Covered in Previous NEPA	X		
Construct and Maintain Utilities Related to Projects	X		
Modernize Interchange Yard – Repair Rail Line to Connect to Union Pacific		X	
Modernize Interchange Yard - Add Interchange Track		X	
Extend Rail from Transfer Pad A to Transfer Pad B		X	
Repair Rail Curves	X	X	
Expand Class Yard 1		X	
Construct Rail Crossover	X	X	
Reconnect Rail Curve		X	
Repair and Expand R-Building Area		X	
Repair Rail Inspection Area along White Road		X	
Expand Holding and Transfer Pads		X	
Lightning Protection Systems	X	X	
Construct Locomotive Shed		X	
Railcar Inspection Station		X	
Construct New ACP #2	X	X	
Construct Emergency Services Training Facility		X	
AT/FP Improvements to Building 542	X	X	
Construct five diesel reciprocating engines		X	
Construct six 12,000-gallon diesel storage tanks		X	
Construct/add construction staging areas		X	X
Construct/add fill material storage areas		X	X
Construction-related traffic and parking		X	X

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3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

NEPA and associated regulations promulgated in 40 CFR Parts 1500-1508 and 32 CFR 651 require the Army to perform an EA to discuss impacts of certain projects in proportion to their significance and present only enough discussion of other than significant issues to show why more study is not warranted. In the affected environment discussion in this section, the general conditions and nature of the environment potentially affected by the Proposed Action is discussed. The region of influence (or area of potential effects [APE]) includes all areas potentially affected, directly or indirectly, by the Proposed Action. Depending on the resource analyzed, the region of influence varies in size and ranges from the project footprint to a regional area. For example, the region of influence could be limited to a project site when analyzing soil effects, or the area could be regional in nature and include all of Contra Costa County when considering air quality effects. These relevant baseline conditions establish the environmental settings against which the evaluations of potential environmental impacts are presented in the environmental consequences discussions.

Impacts (consequence or effect) can be either beneficial or adverse and can be either directly related to the action or indirectly caused by the action. Direct effects are caused by the action and occur at the same time and place (40 CFR § 1508.8[a]). Indirect effects are caused by the action and are later in time or further removed in distance but are still reasonably foreseeable (40 CFR § 1508.8[b]). As discussed in this section, the Proposed Action or No Action Alternative may create temporary (lasting the duration of the project), short-term (up to 3 years), long-term (3 to 10 years following construction), or permanent effects.

Whether an impact is significant depends on the context in which the impact occurs and the intensity of the impact (40 CFR § 1508.27). The context refers to the setting in which the impact occurs and may include society as a whole, the affected region, the affected interests, and the locality. Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis, the intensity of impacts would be classified as negligible, minor, moderate, or major. The intensity thresholds are defined as follows:

- Negligible: A resource would not be affected, or the impacts would be at or below the level of detection, and changes would not be of any measurable or perceptible consequence.
- Minor: Impacts on a resource would be detectable, although the impacts would be localized, small, and of little consequence to the sustainability of the resource. Mitigation measures, if needed to offset adverse impacts, would be simple and achievable.
- Moderate: Impacts on a resource would be readily detectable, long-term, localized, and measurable. Mitigation measures, if needed to offset adverse impacts, would be extensive and likely achievable.

- Major: Impacts on a resource would be obvious and long-term, and would have substantial consequences on a regional scale. Mitigation measures to offset the adverse impacts would be required and extensive, and success of the mitigation measures would not be guaranteed.

The following discussions describe and, where possible, quantify the potential impacts of the Proposed Action and No Action Alternative on the resources within or near the project area. Potential impacts are quantified wherever possible and discussed at a level of detail necessary to determine the significance of the impacts. Where appropriate, the implementation of Best Management Practices (BMPs) and Standard Operating Procedures (SOPs) that minimize potential environmental impacts, and any additional practical mitigation to minimize impacts, are identified; these BMPs and SOPs are summarized in Section 5. Cumulative effects of the Proposed Action when considering past, present, and foreseeable future actions, are presented in Section 4.

3.1 EARTH RESOURCES

3.1.1 Existing Conditions

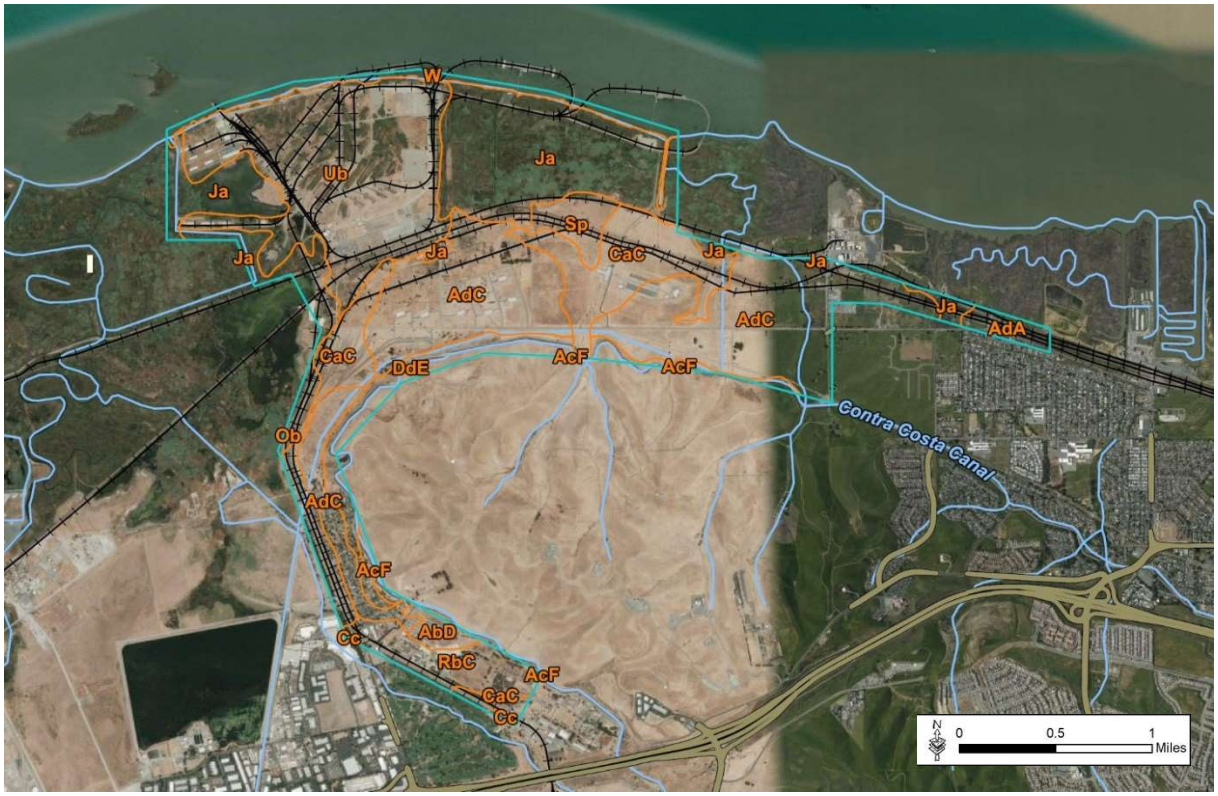
3.1.1.1 Topography and Soils

Figure 3-1 depicts the topography and common place names for the 115-acre Inland Area and 6,526-acre Tidal Area. The Inland Area has been disturbed by various developments over the years, but the overall physical geography has not been overly altered. However, the marsh areas of the Tidal Area have been extensively altered by diking and filling since the 1800s. Most of the Tidal Area facilities are built on fill deposited in the marsh during the original 1940s Navy construction. The Tidal Area lies on the southern edge of Suisun Bay, incorporating approximately 5 miles of shoreline. Extending from the tidal marsh-upland edge are the Los Medanos Hills that form most of the eastern boundary of MOTCO, rising up to 626 feet above mean sea level (Army 2017a).

Non-marine sedimentary rocks compose the northern slope of the Los Medanos Hills and the lowermost reaches of the Inland Area. Surficial deposits of sandstone are unconformably underlain by a basement complex of sedimentary, igneous, and metamorphic rocks that form most of the northern half of the coastal hills and lie beneath Suisun Bay (Army 2017a).

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) has mapped 12 soil types at MOTCO in the vicinity of Proposed Action project sites (Table 3-1). Figure 3-2 depicts the distribution of these soils relative to the areas of potential development being analyzed under the Proposed Action in this PEA.

Figure 3-1. Topography and Common Place Names at MOTCO



Source: NRCS 2019

Figure 3-2. Soils near the Proposed Action Project Sites

Table 3-1. Soils in the Vicinity of Proposed Action Project Sites

Map Unit Symbol	Soil	Acres
AbD	Altamont clay, 9 to 15 percent slopes	24.1
AcF	Altamont-Fontana complex, 30 to 50 percent slopes	35.0
AdA	Antioch loam, 0 to 2 percent slopes	28.0
AdC	Antioch loam, 2 to 9 percent slopes	679.2
CaC	Capay clay, 1 to 15 percent slopes	293.1
Cc	Clear Lake clay, 0 to 15 percent slopes	3.8
DdE	Diablo clay, 15 to 30 percent slopes	110.2
Ja	Joice muck	440.9
Ob	Omni silty clay	83.3
RbC	Rincon clay loam, 2 to 9 percent slopes	97.3
Sp	Sycamore silty clay loam, clay substratum	49.0
Ub	Urban land	509.3

Source: NRCS 2019

In general, the Tidal Area is composed of muck soils of the Joice-Reyes association. These soils are very deep and poorly drained and consist of silty clays and saline mucks. The soils formed in salt water marshes from hydrophytic plant material and fine-textured mineral alluvium from mixed parent rocks. The Joice mucks form uniform wetlands that are subject to salt water inundation, most commonly at high tide. Because these soils have poor drainage, they are also subject to freshwater flooding and ponding following heavy rainfall and surface runoff from the adjacent inlands (Army 2017a). The area mapped by the NRCS as Urban Land consists of natural soils altered extensively by grading and filling (NRCS 2019).

The Inland Area is composed primarily of soils belonging to the Altamont Diablo-Fontana association. These soils are found to be moderately deep to deep and formed in material weathered from soft fine-grained sandstones and shales. On bare soils, runoff is medium to high (depending on degree of slope) and erosion hazard is moderate to high (Army 2017a).

3.1.1.2 Seismic Conditions and Related Natural Hazards

MOTCO lies within one of the most seismically active regions of the U.S. Based on estimates from geologists, the system of faults in Contra Costa County has a probable earthquake magnitude of between 5.0 and 8.5 (Contra Costa County 2005). The Concord-Green Valley Fault Zone, which trends north-northwest and south-southeast through the Concord area, is approximately 1.8 miles west of the nearest Proposed Action project location, the ACP #2 replacement. In addition to bodily injury and property damage, seismic activity associated with faults can cause geologic hazards such as liquefaction and landslides. Liquefaction is a specialized form of ground failure caused by earthquake ground motion. It is a “quicksand” condition occurring in water-saturated, unconsolidated, relatively clay-free sands and silts caused by hydraulic pressure (from ground motion) forcing apart soil particles and forcing them into quicksand-like liquid suspension. In the process, normally firm, but wet, ground materials take on the characteristics of liquids. Catastrophic ground failures may result from liquefaction that pose a major threat to the safety of engineered structures. Major landslides, settling and

tilting of buildings on level ground, and failure of water retaining structures have all been observed as a result of this type of ground failure.

The California Geological Survey has recently mapped liquefaction and earthquake-induced landslide zones for the eastern portion of MOTCO (California Geological Survey 2019). Marsh areas of the Tidal Area are mapped as liquefaction zones, primarily areas with Joice muck soils. Previous mapping by the U.S. Geological Survey (USGS) designates filled marsh areas of MOTCO as a zone with "very-high" susceptibility to liquefaction (USGS 2006a). Earthquake-induced landslide zones are confined to areas in the Los Medanos Hills, south of the Contra Costa Canal, outside project areas considered in the Proposed Action (California Geological Survey 2019).

Inundation due to tsunamis is also a hazard in the Bay Area, particularly from earthquake-generated Pacific Ocean tsunamis that can enter San Francisco Bay through the Golden Gate. A 1-in-200-year tsunami at the Golden Gate would create a 20-foot runup; however, the runup of water would be negligible by the time the tsunami reached the Carquinez Strait (Ritter and Dupre 1972). MOTCO is situated on Suisun Bay approximately 10 miles east of the entrance to Carquinez Strait. In a composite model of tsunamis generated by large-magnitude historical and hypothetical earthquakes from local and Pacific Rim sources, inundation reaches near negligible levels near the Benicia-Martinez Bridge, approximately three miles west of the western boundary of MOTCO (California Emergency Management Agency et al. 2009).

3.1.1.3 Mineral Resources

Approximately 65 percent of the Tidal Area (including all seven offshore islands) is under split estate rather than fee simple ownership. For these split estate lands, the surface estate is federally owned and the subsurface mineral estate is privately owned (MOTCO 2011a). Only one mineral estate, an active natural gas field on Ryer Island, is currently under development. None of the Inland Area is under split estate.

3.1.2 Environmental Consequences

3.1.2.1 Proposed Action

All sets of projects under the Proposed Action have the potential to affect soils through increased local potential for erosion and contamination from soil disturbance. Since disturbances would be in excess of one acre, National Pollutant Discharge Elimination System (NPDES) permits would be required. The Army would obtain the required NPDES permits, including development of site-specific Storm Water Pollution Prevention Plans (SWPPPs) and use of BMPs. The SWPPP addresses petroleum, oil, lubricants, and hazardous materials at the construction site to reduce the potential for soil contamination and address any spills or breaches in the protective systems. BMPs would include measures to reduce soil transport from construction sites and management measures that reduce the potential for soil contamination. BMPs typically include temporary erosion control measures such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other groundcover. These measures are summarized in Table 5-1.

All design and construction would adhere to California seismic standards to minimize hazards associated with earthquakes and fault rupture.

Only small portions of the Realignment and Addition of Rail Lines project and the Railcar Inspection Station are within areas of split estate for mineral resources (MOTCO 2011a). Future requests for lease agreements for mineral exploration, development, and production and surface access for such purposes to privately owned mineral estate underlying MOTCO lands would be subject to a number of requirements, including Department of Defense (DoD)/Army safety and security requirements, California regulatory requirements, and NEPA.

Demolition

Demolition of foundations and internal revetments associated with the former R-Building area would result in minor alterations to surface topography. Existing soils are substantially altered from natural soil profiles because of historical construction activities; surficial natural soil profiles are minimal or do not exist in the project area. During demolition, erosion potential would be minimized through adherence to construction NPDES permit requirements.

Utility Construction and Maintenance

Renovation or replacement of electrical, water, wastewater, and communications utilities would require soil disturbance through boring and trenching, primarily in areas where natural soils have already been substantially altered. Parameters are established for when electrical lines should be buried and when boring is preferable to trenching. These activities would take place in accordance with BMPs to avoid soil erosion and contamination (see Table 5-1).

Realignment and Addition of Rail Lines

The set of projects under the Realignment and Addition of Rail Lines project of the Proposed Action consists of construction and repair of rail lines, primarily within or adjacent to existing rail footprints. Grading and filling would be necessary for these projects, though natural soil profiles have already been altered in these areas because of historic construction activities. These activities would take place in accordance with BMPs to avoid soil erosion and contamination (see Table 5-1).

Types of railroad ties used during construction could be concrete, plastics/composites, or creosote-treated wood. Presently, the proportion of each type of railroad tie is unknown, but would depend on functional and environmental considerations as well as cost. Creosote-treated railroad ties, desirable because of their relatively low cost and long life expectancy, have the potential to leach contaminants into soil. In general, railroad ties installed for new or realigned rail lines would be set in track ballast, typically made from crushed stone recycled from removal of existing tracks at MOTCO or acquired from a commercial supplier. Creosote-treated ties would be handled during staging and construction in a manner that minimizes contact with soil.

Expand Holding Pads and Transfer Pads

Construction and expansion of holding and transfer pads, including associated roadways and rail sidings, would require approximately 130 acres of soil disturbance, primarily within previously impacted lands. Minor changes to topography would occur in areas that would be graded for new construction. Additional NEPA documentation will be prepared for the

expansion of holding pads and transfer pads during project design; this would include a calculation of the performance objectives and proposed stormwater runoff control mechanisms (e.g., pond/bio-swale, detention basin) to avoid soil erosion from runoff.

New Construction or Major Renovation of Individual Buildings and Structures

Minor changes to topography could occur in areas that would be graded for new construction. During construction, erosion potential would be minimized through adherence to construction NPDES permit requirements.

Structures built for this project would adhere to seismic standards to minimize hazards associated with earthquakes and fault rupture.

Construction of an Emergency Backup Power Generation System

Minor changes to topography could occur in the area that would be the designated site for the generators, housing, and storage tanks. During construction, erosion potential would be minimized through adherence to construction NPDES permit requirements.

Supporting Actions

Staging areas would be developed from currently paved surfaces, concrete pads, and previously disturbed vegetated areas. The staging areas, construction equipment, and temporary storage of construction materials and material from the demolition would not adversely impact soil profiles. Application of BMPs and runoff controls would avoid erosion or contamination of soils.

The fill material storage area would be prepared for use prior to storage with appropriate runoff controls to avoid erosion or contamination of soils. Only materials determined free of contaminants would be stored in the area.

3.1.2.2 No Action Alternative

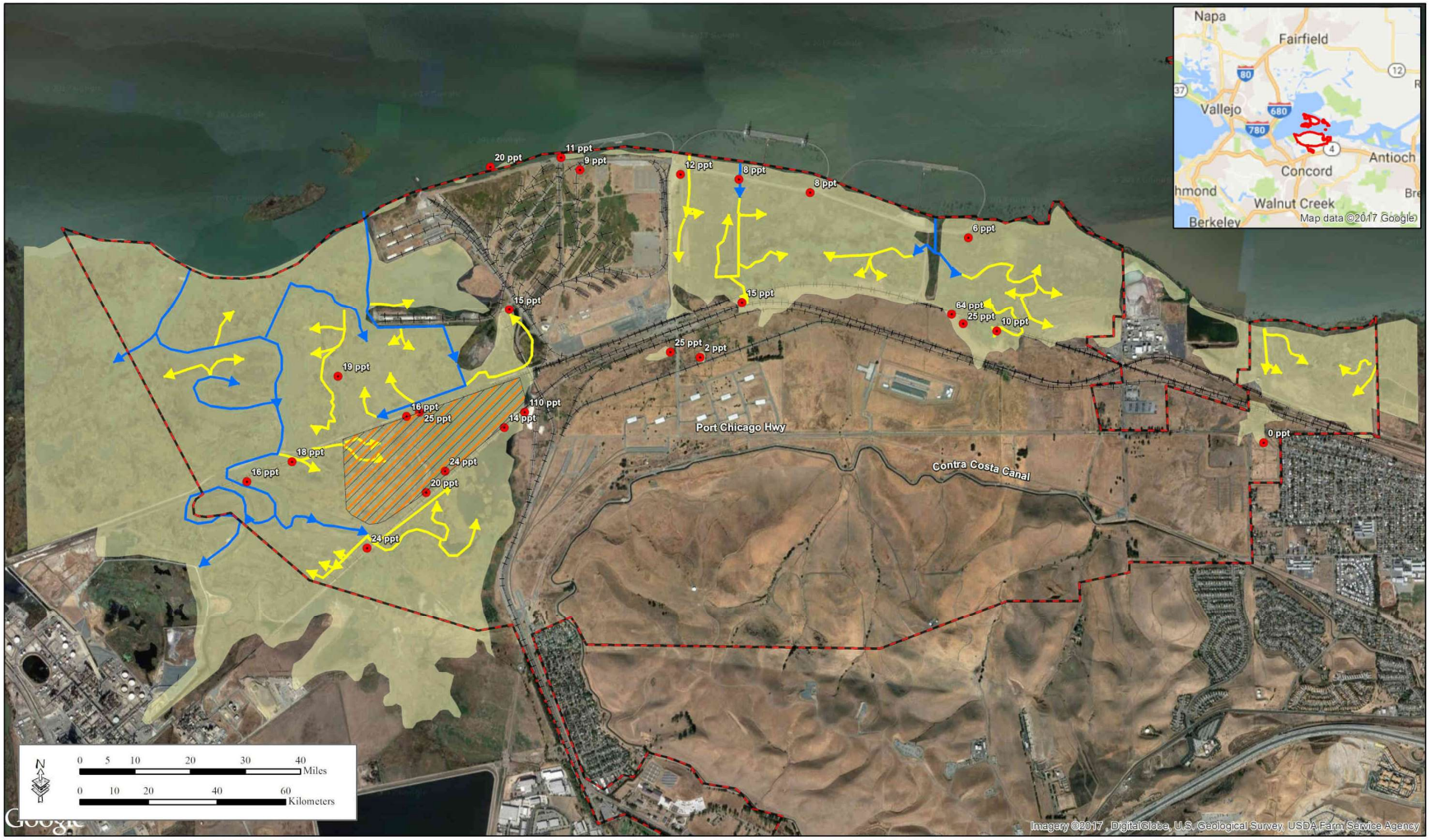
Under the No Action Alternative, demolition, repairs, construction, modernization, and maintenance associated with projects under the Proposed Action would not occur. Soils would remain in their current state, as described in Section 3.1.1, except for minor changes from ongoing projects and maintenance activities.

3.2 WATER RESOURCES

3.2.1 Existing Conditions

3.2.1.1 Surface Water

The majority of the MOTCO Tidal Area is adjacent to Suisun Bay, and, as such, surface water within the Tidal Area is predominantly brackish. In general, any area within the Tidal Area that is less than 9 feet above mean sea level is subject to tidal flooding. The sloughs and ditches found within the salt marshes in the Tidal Area are also brackish. Brackish water from Suisun Bay inundates the tidal marshes during high tides via a network of natural and man-made channels (Figure 3-3). Extensive ditching and associated berms have resulted in muted tidal



Source: Army 2017a

Figure 3-3. Tidal Circulation within Salt Marshes at MOTCO

inundation in most MOTCO marshes. In addition, much of the natural drainage pattern and tidal influence have been altered by the construction of roadways, rail lines, and the Contra Costa Canal, which traverse the Tidal Area.

Suisun Bay is listed by the CWA Section 303(d) as an impaired waterbody. A waterbody is considered impaired when one or more designated uses are not attained. The Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards. The chemicals on the TMDL list for Suisun Bay are chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, dioxin, furan compounds, mercury, polychlorinated biphenyls (PCBs), and selenium. These chemicals are not normally associated with activities at MOTCO.

Some freshwater features are also present within the Tidal Area at MOTCO. These features flow northward via natural creeks, man-made ditches, canals, and sloughs into Suisun Bay. Much of the surface water flow must also pass through numerous culverts, tide gates, and water control structures present throughout the Tidal Area.

MOTCO holds a General Permit for Discharges of Storm Water Associated with Industrial Activities (General Permit No. CAS000001, effective 1 July 2015; renewed 1 July 2020) and has prepared an installation-wide SWPPP (July 2015) for MOTCO to address compliance with the General Permit. The installation-wide SWPPP addresses individual NPDES permit requirements for ongoing activities at MOTCO. The objectives of the SWPPP are to:

- Identify and evaluate pollutant sources associated with industrial activities that may affect the quality of stormwater discharges and authorized non-stormwater discharges from the facility;
- Identify and describe the minimum BMPs and any advanced BMPs implemented to reduce or prevent pollutants in industrial stormwater discharges and authorized non-stormwater discharges; and
- Identify and describe conditions or circumstances, which may require future revisions to be made to the SWPPP (MOTCO 2015).

3.2.1.2 Groundwater

Groundwater in the vicinity of MOTCO is used for drinking water, irrigation, and industrial processing. Coastal groundwater in the area is often degraded through saltwater intrusion. MOTCO does not operate or maintain groundwater wells for potable or industrial use. Water supplies at MOTCO are provided by private utilities in the area that pump water into storage reservoirs within the installation boundary.

3.2.1.3 Wetlands

Wetlands within the Tidal Area at MOTCO are predominantly brackish because of their connections to Suisun Bay. There are small areas of palustrine wetlands, which only receive freshwater inflow; however, because of the saline soils and poor drainage, these wetlands often support brackish vegetation species. The National Wetland Inventory maps for MOTCO indicate that approximately 3,175 acres of potential wetlands occur on the entire installation,

including 404 acres of estuarine subtidal wetlands, 2,687 acres of intertidal estuarine wetlands, and 84 acres of palustrine wetlands (Figure 3-4).

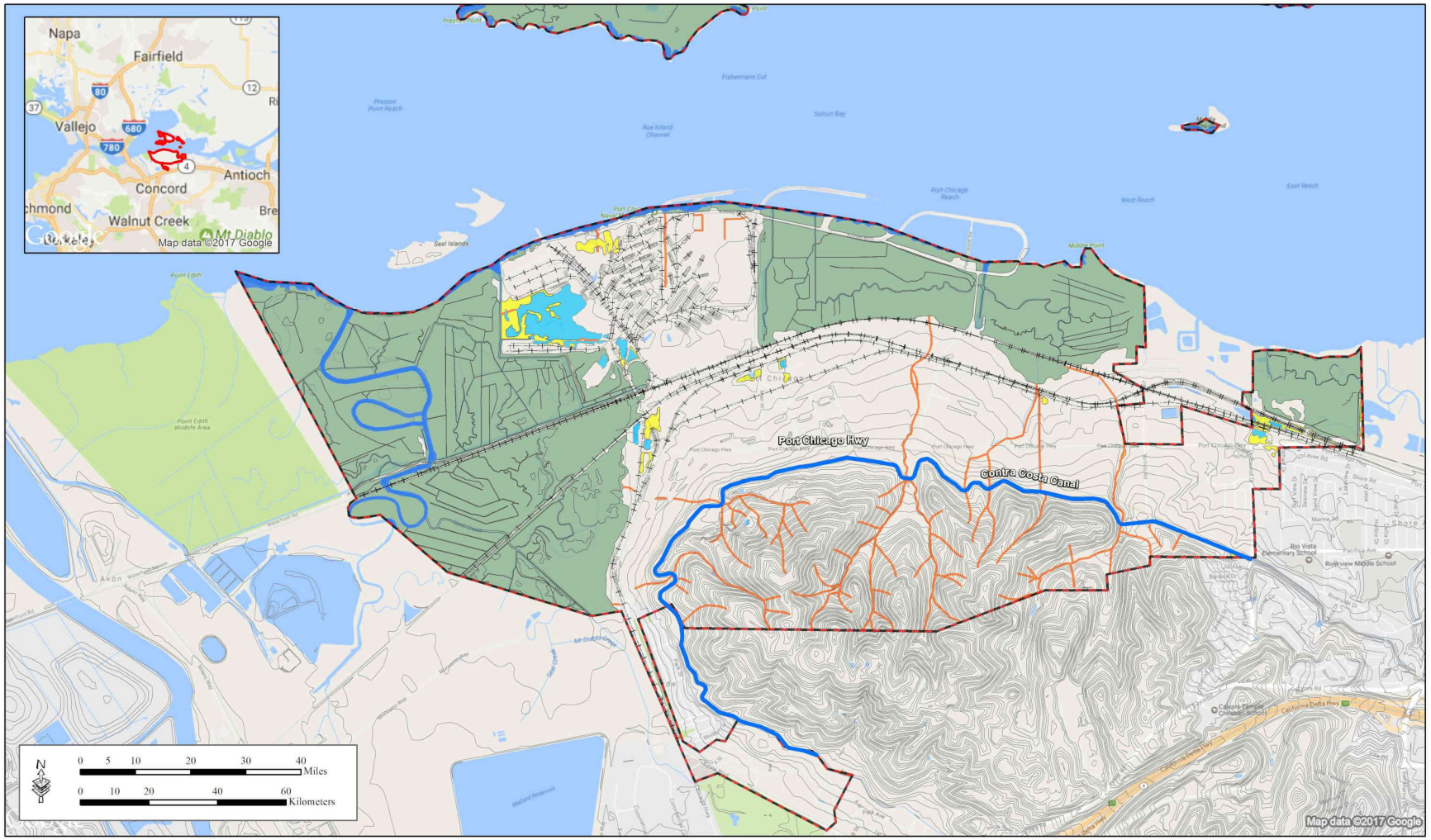
The State of California has a policy of no net loss of wetlands and requires that all impacts on wetlands be mitigated under Section 401 of the CWA, State of California Water Quality Certification of U.S. Army Corps of Engineers (USACE) permits. The USACE has jurisdiction over all waters of the U.S., including MOTCO's wetlands that are hydrologically connected to Suisun Bay, and may or may not have jurisdiction over isolated palustrine wetlands (U.S. Environmental Protection Agency [USEPA] and USACE 2008). The USACE requires Section 404 permitting for jurisdictional wetlands and waters of the U.S., or those with a significant nexus to navigable waters; hence a state may assert Section 401 jurisdiction over some waterbodies not subject to Section 404 USACE permit jurisdiction. In addition to Section 404 permitting, a permit pursuant to Section 10 of the Rivers and Harbors Act would be required for any structures or work in, under, or over navigable waters below the High Tide Line. A formal jurisdictional delineation would be needed to assess the extent of Federal and state jurisdiction. An aquatic resources delineation has not been conducted for the entire project area, but aquatic resources delineations would be conducted on a project-specific basis, as necessary, to determine project-specific impacts to aquatic resources, including wetlands.

3.2.1.4 Floodplains

The 100-year floodplain represents those areas that could be inundated by high floodwater levels expected to occur once every 100 years from a combination of heavy rainfall, high tides, and storm surges. Development within the 100-year floodplain is constrained by regulatory requirements related to safety and environmental concerns. EO 11988, *Floodplain Management*, directs Federal agencies to provide leadership in avoiding direct or indirect development of floodplains as well as to restore and preserve the natural and beneficial values of floodplains. Specifically, Federal agencies are required to:

1. Determine if a proposed action is in the base floodplain (that area which has a one percent or greater chance of flooding in any given year).
2. Conduct early public review, including public notice.
3. Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain.
4. Identify impacts of the proposed action.
5. If impacts cannot be avoided, develop measures to minimize the impacts and restore and preserve the floodplain, as appropriate.
6. Reevaluate alternatives.
7. Present the findings and a public explanation.

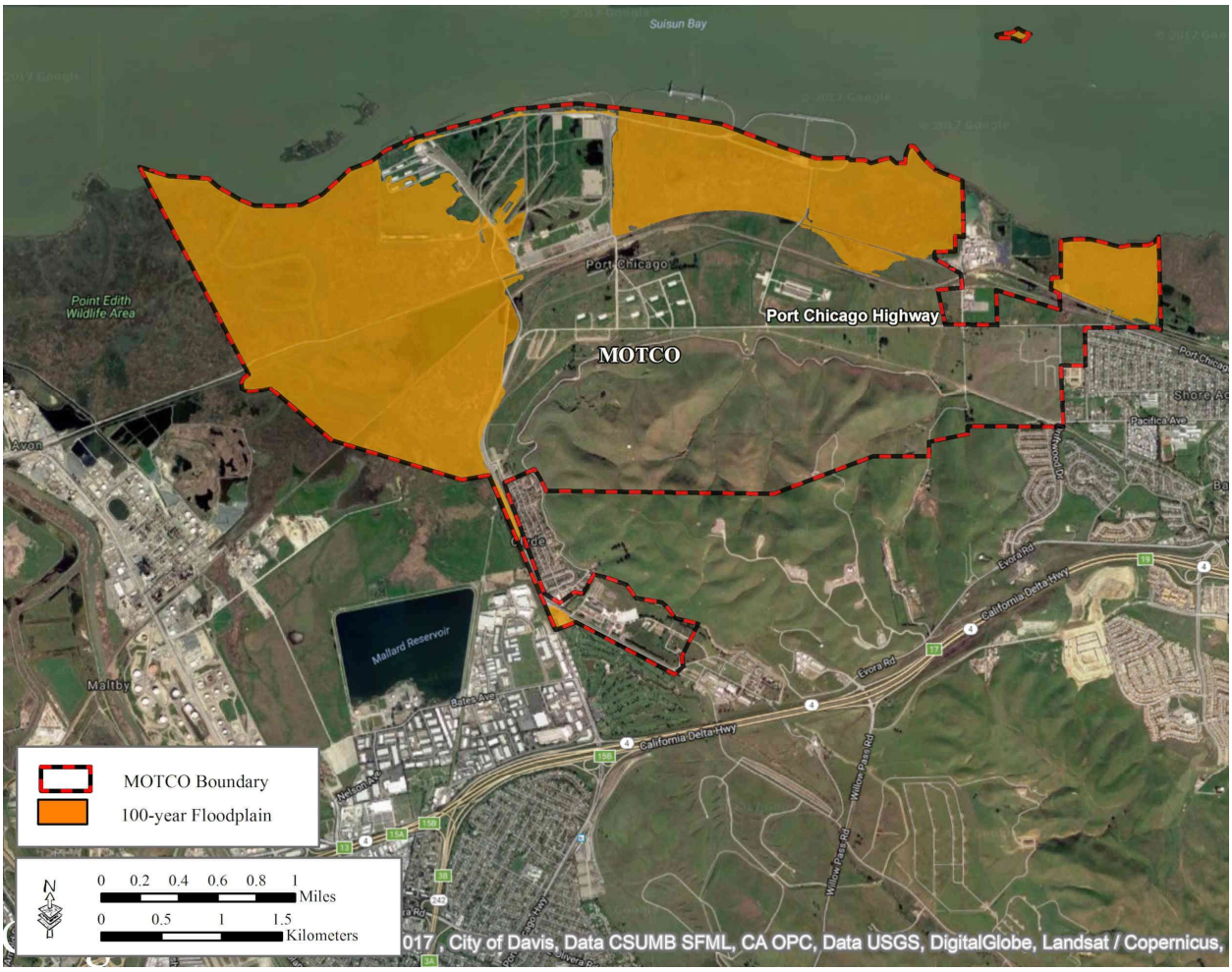
Engineering methods can be used to reduce potential impacts from development in floodplains; however, the engineering costs involved with development in floodplains are often prohibitive.



Source: Army 2017a

Figure 3-4. Potential Wetlands at MOTCO

Portions of the MOTCO Tidal Area were mapped by the Federal Emergency Management Agency (FEMA) in 2015 (Figure 3-5). A considerable portion of MOTCO land along the southern border of Suisun Bay is located in the 100-year floodplain (Zone AE), including several project sites of the Proposed Action.



Source: Army 2017a

Figure 3-5. 100-Year Floodplain

3.2.2 Environmental Consequences

3.2.2.1 Proposed Action

All sets of projects under the Proposed Action have the potential to affect surface water through increased runoff quantity, increased turbidity, and contamination. Construction, demolition, repair, and renovation under the Proposed Action would follow USEPA Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the *Energy Independence and Security Act* (USEPA 2009a). Since many disturbances would be in excess of one acre, the Army would obtain the required NPDES permit, including development of a site-specific SWPPP and use of BMPs. BMPs would include measures to reduce stormwater runoff and the transport of soils from the construction site to adjacent waterbodies and management measures that reduce the potential for contaminants to enter

surface water or infiltrate to groundwater. These BMPs are summarized in Section 5.2 and Table 5-1.

MOTCO does not operate or maintain groundwater wells for potable or industrial use. Water is provided by private utilities that pump water into storage reservoirs within the installation boundary and the Proposed Action would have a negligible effect on MOTCO's water demand or groundwater demand in the region.

Projects under the Proposed Action are not expected to encroach on existing wetlands or waterways. The State of California has a policy of no net loss of wetlands and requires all impacts to wetlands be mitigated under Section 404 of the CWA. The California Wetlands Policy (EO W-59-93) specifies that, in addition to the no net loss of wetlands, there should be a regional increase in both the acreage and quality of wetlands. If the final design of a proposed project would require encroaching on existing wetlands, the Army would consider onsite wetland restoration or offsite compensatory mitigation (e.g., mitigation banking) in accordance with the USACE Regional Compensatory Mitigation and Monitoring Guidelines (USACE 2015) and 33 CFR 332.

Activities in regulatory floodplain areas are limited in accordance with EO 11988. Further NEPA documentation of these activities would include a Finding of No Practicable Alternative as required by EO 11988 and Army policy.

Demolition

Demolition of foundations and internal revetments associated with the former R-Building area would take place within a FEMA-mapped 100-year floodplain. The amount of fill taken from the floodplain would be tracked and considered for use for current or future restoration projects. Prior to operations, the area would be prepared with appropriate runoff controls and BMPs to avoid contamination of soils and nearby potential wetlands and waterways; demolition would not adversely affect the hydrology of the surface waters.

Utility Construction and Maintenance

Renovation or replacement of electrical, water, wastewater, and communications utilities would require boring and trenching. These activities would take place in accordance with BMPs to avoid effects to surface water, groundwater, wetlands, and floodplains. If utility renovation or replacement would require impacts to wetlands or waterways, MOTCO would obtain the necessary state, local, and federal permits for the proposed work and comply with any conditions of those permits.

Realignment and Addition of Rail Lines

The set of projects under the realignment and addition of rail lines portion of the Proposed Action consists of removal, construction, and repair of rail lines, primarily within or adjacent to existing rail footprints. Most of these projects would take place outside of the 100-year floodplain or wetlands and would not affect surface water hydrology.

During realignment, existing creosote-treated railroad ties would be removed from the area for direct transport to a disposal or recycling facility, to an onsite facility for eventual reuse, or to

one of the staging areas created under the Proposed Action, with runoff controls to avoid contamination of surface water bodies or wetlands.

Railroad ties installed for new or realigned rail lines could be constructed primarily of concrete, plastics/composites, or creosote-treated wood. Creosote-treated railroad ties, desirable because of their relatively low cost and long life expectancy, have the potential to leach contaminants into surface water and infiltrate into groundwater. Creosote is composed of more than 300 chemicals, primarily polycyclic aromatic hydrocarbons (PAHs) such as chrysene that could leach out and contaminate soil and surface water. Presently, the proportion of each type of railroad tie to be used is unknown and would depend on functional and environmental considerations and cost. Any treated-wood ties used would be handled during construction in a manner that minimizes contact with soil and vegetation and avoids direct contact with surface water. In staging areas, creosote-treated railroad ties would be covered to avoid contamination of stormwater runoff.

The project "Repair and Expand R-Building Area" would take place in a FEMA-mapped 100-year floodplain. The area would be prepared prior to operations with appropriate runoff controls to avoid contamination of soils and nearby potential wetlands.

Expand Holding Pads and Transfer Pads

Construction and expansion of holding and transfer pads, including associated roadways and rail sidings, would take place in a gently sloping area with no defined surface water drainage and outside of the 100-year floodplain and wetlands. Groundwater would not be affected.

The expansion of impervious surfaces such as holding pads and roads would increase the runoff rate and volume of stormwater from its current state. Higher stormwater runoff rates and volumes can cause increased flooding and stream channel erosion, larger pollutant loadings to surface waters, and increased temperature of runoff, among other impacts. These increased stormwater discharges are regulated under Section 438 of the *Energy Independence and Security Act*, with mitigating measures specified in the USEPA *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects* (USEPA 2009a).

Stormwater impacts from developed sites can be reduced by using stormwater management practices often referred to as "green infrastructure" or "low-impact development" that retain water onsite and mimic the natural hydrology. Examples of practices to manage stormwater include: 1) infiltrate and recharge stormwater into the ground, 2) promote evapotranspiration through increased vegetation, and/or 3) harvest and use precipitation near to where it falls to earth. The USEPA Technical Guidance provides two options for meeting the performance objective of preserving or restoring the hydrology of a site:

- Option 1 (retaining the 95th percentile rainfall event) requires design, construction, and maintenance of stormwater systems that manage rainfall onsite, and prevent the offsite discharge of stormwater from all rainfall events less than or equal to the 95th percentile rainfall event.
- Option 2 (site-specific hydrologic analysis) requires design, construction, and maintenance of stormwater systems using a site-specific hydrologic analysis to determine predevelopment runoff conditions instead of using the estimated volume

approach of Option 1. Under Option 2, pre-development hydrology would be determined based on site-specific conditions and local meteorology by using continuous simulation modeling techniques, published data, studies, or other established tools.

Option 1 is a performance-based, simplified approach for meeting Section 438 requirements, while Option 2 allows for a hydrologic analysis of the site based on site-specific conditions.

Additional NEPA documentation prepared for the expansion of holding pads and transfer pads would include a calculation of the performance objective and proposed stormwater runoff control mechanisms (e.g., pond/bio-swale, detention basin).

New Construction or Major Renovation of Individual Buildings and Structures

All projects within this part of the Proposed Action would take place in areas with no defined surface water drainage and outside of the 100-year floodplain and wetlands. Groundwater would not be affected.

New construction could result in increases to impervious surface areas, with requirements under Section 438 of the *Energy Independence and Security Act*, as described above for holding pads and transfer pads.

Construction of an Emergency Backup Power Generation System

The system would be built in an area with no defined surface water drainage and outside the 100-year floodplain and wetlands. Groundwater would not be affected.

Supporting Actions

Staging areas would be developed within currently paved surfaces, concrete pads, and previously disturbed vegetated upland areas. The staging areas, construction equipment, and temporary storage of construction materials and material from the demolition would not adversely impact the hydrology of the area. Application of BMPs and runoff controls would avoid contamination of surface water bodies or wetlands within the project vicinity.

The fill material storage area is located within a FEMA-mapped 100-year floodplain. The area would be prepared for use prior to storage with appropriate runoff controls and BMPS to avoid contamination of soils and nearby potential wetlands. Only materials determined free of contaminants would be stored in the area.

3.2.2.2 No Action Alternative

Under the No Action Alternative, demolition, repairs, construction, modernization, and maintenance associated with projects under the Proposed Action would not occur. Surface water, groundwater, wetlands, and floodplains would remain in their current state, as described in Section 3.2.1, except for minor impacts from ongoing projects and maintenance activities.

3.3 AIR QUALITY

3.3.1 Existing Conditions

3.3.1.1 National Standards

The USEPA has established National Ambient Air Quality Standards (NAAQS) for specific pollutants determined to be of concern with respect to the health and welfare of the general public. Ambient air quality standards are classified as either "primary" (designed to protect public health with an adequate margin for safety) or "secondary" (designed to protect the public welfare from adverse effects, including those related to soils, water, crops, and vegetation). The major pollutants of concern, or criteria pollutants, are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and lead (Pb).

Areas that do not meet these NAAQS standards are designated as non-attainment areas; areas that meet both primary and secondary standards are designated as attainment areas. The Federal Conformity Final Rule (40 CFR Parts 51 and 93) specifies criteria and requirements for conformity determinations of Federal projects. The Federal Conformity Rule was first promulgated in 1993 by the USEPA, following the passage of Amendments to the CAA in 1990. The rule mandates that a conformity analysis be performed when a Federal action generates air pollutants in a region that has been designated as non-attainment or maintenance area for one or more NAAQS.

In addition to the ambient air quality standards for criteria pollutants, national standards exist for hazardous air pollutants (HAPs). The National Emission Standards for Hazardous Air Pollutants (NESHAP) regulate 188 HAPs based on available control technologies (40 CFR Parts 61 and 63). HAPs include compounds such as benzene, which is found in gasoline. The majority of HAPs are volatile organic compounds (VOCs).

3.3.1.2 California Standards

States must develop a State Implementation Plan (SIP) for ensuring NAAQS are achieved and maintained within a state. States may also establish their own ambient air quality standards. The California Health and Safety Code, Section 39606, authorizes the California Air Resources Board (CARB) to set ambient air pollution standards in consideration of public health, safety, and welfare. The CARB makes area designations for 10 NAAQS pollutants: ozone, suspended particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility reducing particles. The CARB reviews the area designations each year and updates them as appropriate, based on the three most recent complete and validated calendar years of air quality data (CARB 2018). The state of California has also established an ambient air quality standard for vinyl chloride.

California is divided into 15 air basins, or districts, based on meteorological and geographic conditions, and, where possible, jurisdictional boundaries such as county lines. The Bay Area Air Quality Management District (BAAQMD) includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, as well as the western portion of Solano County and the southern portion of Sonoma County. MOTCO is in Contra Costa County and so falls within jurisdiction of the BAAQMD. The portion of the BAAQMD that includes MOTCO has

been designated as a Federal attainment area for carbon monoxide, sulfur dioxide, and lead, and a non-attainment area for ozone and $PM_{2.5}$ (Table 3-2; BAAQMD 2017a). It has also been designated as a state non-attainment area for ozone, PM_{10}, and $PM_{2.5}$.

Table 3-2. Ambient Air Quality Standards at MOTCO

Pollutant	Averaging Time	California Standards[1]		National Standards[2]	
		Concentration	Status	Concentration	Status
Ozone (O_3)	8 hour	0.070 ppm	N	0.070 ppm	N
	1 hour	0.09 ppm	N	-	-
Carbon Monoxide (CO)	8 hour	9.0 ppm	A	9 ppm	A
	1 hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	A	0.100 ppm[6]	U/A[3]
	Annual arithmetic mean	0.030 ppm	-	0.053 ppm	A
Sulfur Dioxide (SO_2)	24 hour	0.04 ppm	A	0.14 ppm	U/A[3]
	1 hour	0.25 ppm	A	0.075 ppm	U/A[3]
	Annual arithmetic mean	-	-	0.030 ppm	-
Particulate Matter (PM_{10})	Annual arithmetic mean	20 µg/m^3	N	-	-
	24 hour	50 µg/m^3	N	150 µg/m^3	U
Particulate Matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3	N	12 µg/m^3	U/A
	24 hour	-	-	35 µg/m^3 [4,5]	N
Sulfates	24 hour	25 µg/m^3	A	-	-
Lead (Pb)[6]	30-day average	1.5 µg/m^3	-	-	A
	Calendar quarter	-	-	1.5 µg/m^3	A
	Rolling 3 month average	-	-	0.15 µg/m^3	-
Hydrogen Sulfide	1 hour	0.03 ppm	U	-	-
Vinyl Chloride	24 hour	0.010 ppm	No information available	-	-
Visibility Reducing Particles	8 hour (1000 to 1800 Pacific Standard Time)	See footnote 7	U	-	-

Source: BAAQMD 2017a

A = Attainment, N = Nonattainment, U = Unclassified, - No Standard or Not Designated

ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter

Notes:

[1] California standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average.

[2] National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less.

The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m^3. The 24-hour PM2.5 standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3.

Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

[3] Source: BAAQMD 2018.

[4] On January 9, 2013, USEPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This USEPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this USEPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to USEPA, and USEPA approves the proposed redesignation.

[5] Source: USEPA 2019

[6] CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure below which there are no adverse health effects determined.

[7] Statewide visibility reducing particles (VRP) standard: particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

The most recent BAAQMD ozone plan prepared in response to Federal air quality planning requirements is the *2005 Ozone Strategy*. To fulfill Federal air quality planning requirements for $PM_{2.5}$, the BAAQMD adopted the $PM_{2.5}$ 2012 emissions inventory in November 2012. The inventory was submitted to the CARB for inclusion in the California SIP.

MOTCO maintains a permit, B2769, issued by BAAQMD, for the operation of stationary sources of air emissions. The permit covers nine permitted and two exempt sources, including emergency generators, a fixed fuel storage tank, and a piece of woodworking equipment.

3.3.1.3 Greenhouse Gases and Climate Change

A greenhouse gas (GHG) is a type of gas that traps heat in the atmosphere. GHG emissions occur from natural processes and human activities. Naturally occurring GHGs in the atmosphere include water vapor, carbon dioxide (CO_2), methane, and nitrous oxide, while those that are man-made include fluorinated gases such as hydrofluorocarbons and perfluorocarbons, as well as sulfur hexafluoride and nitrogen trifluoride. Atmospheric concentrations of both natural and man-made GHGs have been rising over the last few centuries due to the industrial revolution. As global population has increased and our reliance on fossil fuels (such as coal, oil and natural gas) has firmly solidified, emissions of these gases have risen. While gases such as carbon dioxide occur naturally in the atmosphere, through our interference with the carbon cycle (through burning forest lands, or mining and burning coal), we artificially move carbon from solid storage to its gaseous state, thereby increasing atmospheric concentrations (National Oceanic and Atmospheric Administration [NOAA] 2019). Scientific studies indicate a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with these emissions is predicted to produce negative economic and social consequences around the world.

In 2017, the major GHG-producing sectors in California were transportation (40.1 percent), industry (21.1 percent), electricity (14.7 percent), residential and commercial (9.7 percent), and agriculture (7.6 percent) (CARB 2019). A breakdown of the main sources of GHG emissions included passenger vehicles (28.0 percent), in-state electricity generation (9.1 percent), heavy

duty vehicles (8.4 percent), refineries (7.0 percent), residential (6.1 percent), livestock (5.3 percent), general industrial fuel use (4.5 percent), and refrigerants (4.3 percent) (CARB 2019).

In 2006, the California legislature passed the *California Global Warming Solutions Act of 2006*, which created a comprehensive, multi-year program with the goal of reducing GHG emissions to 1990 levels by 2020. In 2016, the California legislature passed SB 32, which codifies a 2030 GHG emissions reduction target of 40 percent below 1990 levels. The most recent GHG inventory (year 2017) shows substantial progress toward meeting the 2020 goal, with GHG emissions from activities statewide equivalent to 424 million metric tons of CO_2 ($MMTCO_2e$), 7 $MMTCO_2e$ below the 2020 limit of 431 $MMTCO_2e$ (CARB 2019).

3.3.1.4 Energy Security and Sustainability Strategy

In 2015, the Army published the *Energy Security and Sustainability (ES^2) Strategy*, expanding on and replacing the 2009 *Army Energy Security Implementation Strategy* (Army 2015b). The ES^2 Strategy outlines the Army's energy and sustainability posture and establishes the underlying basis for an Army that adopts "security," "resiliency," and "future choice" as organizing approaches. It includes operational energy and sustainability while strengthening the focus on resource management for installations. The ES^2 Strategy consists of five energy security and sustainability goals (Army 2015b):

Goal 1. Inform Decisions—Leverage Army culture to use resources wisely, improve mission effectiveness, and preserve future choice.

Goal 2. Optimize Use—Minimize demand and increase both efficiency and recovery to maximize resource and mission effectiveness for systems, installations, and operations.

Goal 3. Assure Access—Provide reliable access to energy, water, and land resources and protect delivery mechanisms to mission-essential functions and applications, both domestically and to contingency bases during operational deployments.

Goal 4. Build Resiliency—Advance the capability for systems, installations, personnel, and units to respond to unforeseen disruptions and quickly recover while continuing critical activities.

Goal 5. Drive Innovation—Identify new concepts; develop, test, and field new processes and technologies; and institutionalize and communicate best practices to maximize resource effectiveness.

3.3.2 Environmental Consequences

3.3.2.1 Proposed Action

Temporary and minor impacts on air quality would occur from the use of heavy equipment, support vehicles, and worker vehicles (combustion emissions) and the disturbance of soils (fugitive dust) during construction, demolition, repair, and renovation activities under the Proposed Action. Particulate emissions would occur as a result of vehicle trips on unimproved roads, bulldozing, compacting, truck dumping, and grading. Construction, demolition, repair, and renovation activities would also generate minimal VOC, NO_2, CO_2, and SO_2 emissions. Fugitive dust and other emissions would minimally increase; however, these emissions would

be temporary and would return to pre-project levels upon the completion. Application of BMPs, such as dust suppression and maintaining equipment in proper working condition, would reduce the temporary construction impacts (see Table 5-1).

Conformity Requirements

A conformity analysis is the process used to determine whether a Federal action meets the requirements of the General Conformity Rule. The General Conformity Rule prohibits any Federal action that does not conform to the applicable air quality attainment plan or SIP and applies to areas designated as nonattainment or maintenance from NAAQS. It requires the responsible Federal agency to evaluate the nature of a proposed action and associated air pollutant emissions and calculate emissions that may result from the implementation of the Proposed Action. If the emissions exceed established limits, known as *de minimis* thresholds, the project proponent is required to perform a conformity determination and implement appropriate mitigation measures to reduce air emissions. A project is exempt from the conformity rule if the total net project-related emissions (construction and operation) are less than *de minimis* thresholds.

The Proposed Action would be located in the BAAQMD and the general conformity requirements apply to the ozone precursors VOCs and nitrogen oxides (NO_X), carbon monoxide, $PM_{2.5}$, and sulfur dioxide, which is considered a $PM_{2.5}$ precursor. In accordance with the air conformity requirements, the applicable *de minimis* thresholds are presented in Table 3-3.

Table 3-3. General Conformity *de minimis* Thresholds (tons/year)

	VOCs	CO[1]	NOx	SO_2[2]	PM_{10}	$PM_{2.5}$
Applicable *de minimis* Thresholds	100	100	100	100	NA	100

Source: 40 CFR Section 93.153

Notes:

[1]CO is included because the BAAQMD is a maintenance area for CO.

[2]SO_2 is included as a potential precursor for $PM_{2.5}$ formation.

The air quality analysis for this PEA refers exclusively to regulatory requirements and air impacts in the BAAQMD, as the assumption is made that all project-related trucks, privately owned vehicles, and equipment would stay within this district while performing project-related work. Air quality impacts were assessed by comparing emissions generated by activities under the Proposed Action to the abovementioned thresholds. These activities represent the additive short-term net change in emissions at MOTCO as compared to the already existing operational emissions.

The conformity analysis is presented in Appendix B. Emissions as a result of the Proposed Action are expected to be below *de minimis* thresholds for all constituents and therefore would not be considered significant.

Greenhouse Gases

In 2019, the CEQ issued draft guidance for consideration of GHGs under NEPA (CEQ 2019a). Under the draft guidance, CEQ reiterates its “rule of reason” in all NEPA analyses, permitting “agencies to use their expertise and experience to decide how and to what degree to analyze

particular effects." For GHG analysis, "agencies should assess effects when a sufficiently close causal relationship exists between the proposed action and the effect," with GHG emissions "used as a proxy for assessing potential climate effects." Further, "agencies should attempt to quantify a proposed action's projected direct and reasonably foreseeable indirect GHG emissions when the amount of those emissions is substantial enough to warrant quantification..."

GHG emissions from implementation of the Proposed Action would consist of short-term combustion emissions from heavy equipment, support vehicles, and worker vehicles during construction, demolition, repair, and renovation activities. New stationary sources of GHG emissions under the Proposed Action would include the addition of five 1,250-kilowatt backup diesel generator sets. Generator sets would be tested monthly, for a minimum of 30 minutes, and in operation only during an emergency as necessary to allow islanded base operations to continue. These generators would be permitted by the BAAQMD and would meet emission standards in effect at that time.

Operations at MOTCO would remain at current levels. Projects under the Proposed Action and further efforts to implement the Army's ES^2 Strategy could result in lower GHG emissions through increased operational efficiency. In accordance with draft NEPA Guidance on Consideration of Greenhouse Gas Emissions (CEQ 2019a), the Army has determined that GHG emissions from the Proposed Action are not substantial enough to warrant quantification and are without "sufficiently close causal relationship" to potential climate effects.

Project Elements

Proposed Action project elements are not evaluated separately for this resource area. Each project element would generate emissions, in varying degrees that would be unknown until final project design and contracting. Each project element would result in combustion emissions from heavy equipment use, transport of workers to MOTCO and individual jobsites, and use of support vehicles to transport equipment and materials or waste to and from jobsites. Ground disturbance would result in fugitive dust, leading to temporary and minor impacts on air quality. Application of BMPs, such as maintaining equipment in proper working condition and dust suppression, would reduce the temporary construction impacts (see Table 5-1). BMPs and California-required vehicle retrofits and emissions system modifications would be identified as requirements in project contracts. BMPs would include, but would not be limited to the following:

- Placing a time restriction of five minutes of unnecessary heavy equipment idle time and incorporating unscheduled inspections to verify compliance with the restriction.
- Ensuring that equipment engines are maintained and tuned to perform at CARB and/or USEPA certification levels, preventing tampering, and conducting unscheduled inspections to ensure these measures are followed.
- Leasing new equipment, where practicable, that meets the most stringent of applicable Federal or California standards.
- Committing to the best available emissions control technology where practicable and reasonable. Use of Tier 4 engines will be utilized as much as is feasible. For equipment

that does not meet Tier 4 standards, CARB and USEPA-verified controls, such as particulate traps and oxidation catalysts, will be used to reduce emissions of diesel particulate matter and other pollutants.

- Controlling fugitive dust, where appropriate, by covering soil piles, installing wind fencing, and limiting equipment and haul truck speeds to 15 miles per hour onsite.

The CARB's Portable Engine Airborne Toxic Control Measure (ATCM) fleet standards went into effect on 1 January 2013. The ATCM requires owners of portable engines to submit a statement of compliance signed by a Responsible Official to the Air Resources Board. In addition to the statement of compliance, a summary that identifies each portable engine in the fleet and the associated emission rate must be submitted. Portable engines would likely be used onsite during project activities but would be under the ownership and control of contractors performing the construction work. Compliance with the ATCM would be the responsibility of the contractors.

Once projects are completed, operational air emissions may be reduced from current levels due to increased operational efficiencies.

3.3.2.2 No Action Alternative

Under the No Action Alternative, demolition, repairs, construction, modernization, and maintenance associated with projects under the Proposed Action would not take place. No additional emissions from these activities would occur. Operational air emissions would remain the same as current levels. No additional impacts to air quality would occur.

3.4 BIOLOGICAL RESOURCES

3.4.1 Existing Conditions

Biological resources consist of the native and naturalized plants and animals as well as the habitats in which they occur. Inventories of biotic communities within MOTCO have previously occurred and been summarized (MOTCO 2018b) which provides a baseline of species present within the areas where work will take place.

3.4.1.1 Habitats

MOTCO is located on the southern shore of Suisun Bay, which is composed of the eastern, upstream portion of San Francisco Bay and the western extent of the Sacramento-San Joaquin Delta. Suisun Bay represents the central, brackish-transition zone of the largest estuary, and contains the largest continuous area of brackish wetlands found anywhere in the western U.S. MOTCO land borders and its facilities extend into these waters. As a result, any action performed within MOTCO territory must consider the effect that it will have on aquatic communities and resources within Suisun Bay.

Habitat types in this area have been defined by the San Francisco Estuary Institute (SFEI) EcoAtlas Baylands Mapping Project (SFEI 2018). Habitat is determined by overlapping gradients of salinity, drainage, elevation and tidal exposure. Anthropogenic alterations to communities also affect habitat structure. The majority of habitat within MOTCO boundaries has been classified as either tidal marsh or non-native annual grassland, as indicated in Table 3-4.

Table 3-4. Acreage of Different Habitats at MOTCO

Habitat Type	Inland Area	Tidal Area		Total
		Mainland	Offshore Islands	
Developed/Disturbed	115	815	0	930
Non-native Annual Grassland	0	1,706	0	1,706
Canal	0	7	0	7
Slough	0	32	0	32
Unimpaired Tidal Marsh	0	97	1,075	1,172
Muted Tidal Marsh	0	1,647	0	1,647
Diked Marsh	0	12	0	12
Deep Bay	0	4	1	5
Shallow Bay	0	16	195	211
Tidal Flat	0	2	2	4
Saline Depression	0	2	0	2
Transitional Brackish Marsh	0	46	0	46
Totals	**115**	**4,422**	**1,275**	**5,812**

The tidal marshlands of MOTCO are a mosaic of marsh vegetation and bodies of water including tidal sloughs, channels, ponds, and man-made ditches, all of which function as a circulatory system for water, oxygen, sediment and nutrient transport, and as pathways for the movement of fish and aquatic wildlife. The interface between marsh vegetation and water throughout the marshes provides a structurally complex and productive habitat that is used for nesting, foraging, nursery, and refuge by a variety of wildlife.

Upland habitats support non-native annual grasslands. Grazing has been implemented to control vegetative growth and to reduce fire hazards in this area. The dominant plant species are non-native grasses including wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), Mediterranean barley (*Hordeum marimum*), and Italian ryegrass (*Lolium multiflorum*). Several acres of non-native annual grasslands throughout MOTCO also support the noxious, invasive species, yellow star thistle (*Centaurea solstitialis*). Bluegum eucalyptus trees (*Eucalyptus globulus*) occur throughout MOTCO grounds and provide nesting, foraging and roosting habitat for birds.

3.4.1.2 Flora

Plant species known to occur within the present boundaries of MOTCO are based on the most current INRMP (MOTCO 2018b). As a whole, the terrestrial and wetland flora of the installation is representative of the brackish and upland elements of the San Francisco Bay Estuary.

The upland vegetation of MOTCO is dominated by non-native and invasive grasslands. As habitat transitions to more tidal, brackish areas, common marsh species including Baltic rush (*Juncus balticus-lesuerii*), pickleweed (*Salicornia depressa*), California bulrush (*Schoenoplectus californicus*), Hardstem tule (*Schoenoplectus acutus*), cattails (*Typha* sp.), and common reed (*Phragmites australis*) become increasingly prevalent.

The majority of projects proposed would occur in previously developed/disturbed areas within MOTCO. Most of the vegetation in these areas is non-native including areas dominated by the non-native, highly invasive ice plant (*Carpobrotus edulis*).

There are two plant species, soft bird's beak (*Chloropyron molle ssp. molle*) and Antioch Dunes evening-primrose (*Oenothera deltoides* ssp. *howellii*), classified at the Federal level as endangered that have the potential to be present within MOTCO. During surveys performed in 2015, soft bird's beak was observed in the northeastern portion of Middle Point Marsh in the vicinity of Pier 4 and White Road (HTH 2015). No occurrence of Antioch Dunes evening-primrose has been documented within MOTCO boundaries.

3.4.1.3 Fauna

Fish and Essential Fish Habitat

A large number of fish species are known to frequent the estuarine waters bordering MOTCO, including some non-native species (e.g. striped bass, *Morone saxatilis*). Common bony fish species in Suisun Bay include various smelt species, gobies, small fish such as Pacific herring (*Clupea pallasii*), white sturgeon (*Acipenser transmontanus*), flatfish, and perches.

The Pacific Fishery Management Council has designated essential fish habitat (EFH) for each of the four primary fisheries that they manage within their Fisheries Management Plans (FMPs). Three of these EFH (Pacific Coast Groundfish, Pacific Coast Salmon, and Coastal Pelagic) contain species which have been identified as residing within Suisun Bay. EFH species covered by the respective FMPs that are likely to occur in the vicinity of MOTCO are listed in Table 3-5.

Table 3-5. Fish Species with Designated EFH that Are Expected to Occur in Suisun Bay

Common Name	Scientific Name	Life Stage in Area[1]
Pacific Coast Groundfish Species		
Brown Rockfish	*Sebastes auriculatus*	J
English Sole	*Parophrys vetulus*	A, J, L
Starry Flounder	*Platichthys stellatus*	A, E, J
Pacific Coast Salmon Species		
Chinook Salmon	*Oncorhynchus tshawytscha*	A, J
Coastal Pelagic Species		
Northern Anchovy	*Engraulis mordax*	A, L, E

Sources: Pacific Fishery Management Council 1998, 2005, 2011a, 2011b, 2012

[1] A = Adult, J = Juvenile, L = Larvae, E = Eggs

MOTCO is also within an area designated as Habitat Area of Particular Concern (HAPC) for various federally managed fish species within the Pacific Coast Groundfish FMP. HAPCs are subsets of EFH that provide extremely important ecological functions or are especially vulnerable to degradation based on one or more of the following reasons: 1) importance of the ecological function provided by the habitat; 2) the extent to which the habitat is sensitive to human-induced environmental degradation; 3) whether, and to what extent, development activities are, or will be, stressing the habitat type; and 4) rarity of the habitat type (NOAA 2004).

Amphibians and Reptiles

Nine amphibian and 22 reptilian species are known or likely to occur on MOTCO. Native amphibian species recently observed within the installation include California slender salamander (*Batrachoseps attenuatus*), arboreal salamander (*Aneides lugubris*), Pacific chorus frog (*Pseudacris regilla*), and California toad (*Anaxyrus boreas halophilus*). Additionally, two special status amphibian species have the potential to be found in the project area: California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana draytoni*) are both listed as federally threatened and endangered at the state level. While they have the potential to occur in the region, no documented evidence exists to suggest that they reside within MOTCO boundaries.

Native reptile species that have been observed within MOTCO boundaries include California alligator lizard (*Elgaria multicarinata multicarinata*), Coast range fence lizard (*Sceloporus occidentalis bocourtii*), Skilton's skink (*Plestiodon skiltonianus skiltonianus*), Gilbert's skink (*Plestiodon gilberti*), California whiptail (*Aspidoscelis tigris munda*), western yellow-bellied racer (*Coluber constrictor mormon*), Pacific ring-necked snake (*Diadophis punctatus amabilis*), California king snake (*Lampropeltis getula californiae*), California striped racer (*Masticophis lateralis lateralis*), Pacific gopher snake (*Pituophis catenifer catenifer*), California red-sided garter snake (*Thamnophis sirtalis infernalis*), and valley garter snake (*Thamnophis sirtalis fitchi*). Two federally threatened reptile species, Alameda whipsnake (*Masticophis lateralis euryxanthus*) and giant garter snake (*Thamnophis gigas*) have the potential to reside in the area, but no previous occurrence on MOTCO has been documented. The northwestern pond turtle (*Actinemys marmorata*), a state level species of concern, has previously occurred on the installation within the Tidal Area in Otter Slough and Seal Creek Marsh.

Birds

Within MOTCO, 154 bird species are known or likely to occur, including a large number of shorebird and waterfowl species as well as raptors and songbirds. Birds of conservation concern with the potential to occur within the project areas include California black rail (*Laterallus jamaicensis coturniculus*), Suisun song sparrow (*Melospiza melodia maxillaris*), loggerhead shrike (Lanius ludovicianus), long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), willet (*Tringa semipalmata*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), oak titmouse (*Baeolophus inornatus*), Allen's hummingbird (*Selasphorus sasin*), rufous hummingbird (*Selasphorus rufus*), wrentit (*Chamaea fasciata*), spotted towhee (*Pipilo maculatus*), and Nuttall's woodpecker (*Dryobates nuttallii*). All migratory birds found on MOTCO are protected by the Migratory Bird Treaty Act (MBTA) and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds.*

Mammals

Numerous mammal species can be observed at various times of day and night, across habitat types throughout MOTCO. In total, 40 mammal species have been observed at MOTCO or considered possible based on habitat and proximity to known occurrence (MOTCO 2018b). Mammals most likely to occur include wide-ranging generalists and predators as well as a few that are specific to brackish marshes in the region. These include the following:

- Wide-ranging species: house mouse (*Mus musculus*), big brown bat (*Eptesicus fuscus*), Brazilian free-tailed bat (*Tadarida brasiliensis*), brush rabbit (*Sylvilagus bachmani*), California ground squirrel (Oto*spermophilus beecheyi*), western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Peromyscus maniculatus*), Pinyon mouse (*Peromyscus truei*), Black-tailed jackrabbit (*Lepus californicus*), California vole (*Microtus californicus*), Norway rat (*Rattus norvegicus*), coyote (*Canis latrans*), red fox (*Vulpes fulva*), gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), muskrat (*Ondatra zibethicus*), long-tailed weasel (*Mustela frenata*), badger (*Taxidea taxus*), western spotted skunk (*Spilogale gracilis*), striped skunk (*Mephitis mephitis*), river otter (*Lontra canadensis*), and mule deer (*Odocoileus hemionus*).
- Brackish marsh species: salt marsh wandering shrew (*Sorex vagrans halicoites*), and Suisun shrew (*Sorex ornatus sinuosus*)

Within the neighboring waters of Suisun Bay, California sea lion (*Zalophus californianus*) and harbor seal (*Phoca vitulina*) have been observed. Federally endangered humpback whales (*Megaptera noveangilae*) can also occasionally be seen as far as the Sacramento River. All marine mammal species are protected under the Marine Mammal Protection Act (MMPA).

Invertebrates

With regard to aquatic invertebrates, studies specific to Suisun Bay have revealed invertebrate assemblages broken down by locations including channels, channel edges, shallow subtidal, and slough channels. Channels are dominated by the bivalves *Corbula amurensis* and *Corbicula fluminea*, the polychaetes *Marenzellaria viridis* and *Heteromastus filiformis* and the surface-dwelling crustacean *Nippoleucon hinumensis*. Channel edges house a greater diversity and abundance with the same dominant species as the channels and the addition of the isopod *Synidotea laevidorsalis* and the barnacle *Balanus improvises*. In the shallow subtidal areas, the dominant species are the bivalve *C. amurensis*, the polychaete *M. viridis*, and an amphipod, *Monocorophium alienense*. Within slough channels, invertebrate communities share a similar composition to the shallow subtidal zone, but with much lower abundance.

Two species of concern have the potential to reside within the neighboring waters of MOTCO. The vernal pool fairy shrimp (*Branchinecta lynchi*) is federally threatened and the vernal pool tadpole shrimp (*Lepidurus packardi*) is federally endangered. Neither species has been previously observed within the territory.

Detailed information for terrestrial invertebrates within MOTCO is lacking. There are four species of concern that have not been documented within MOTCO but have the potential to occur within the project area. They include the federally threatened delta green ground beetle (*Elaphrus viridis*) and valley elderberry longhorn beetle (*Desmocerus californicus dimoprhus*) as well as the federally endangered San Bruno elfin butterfly (*Callophrys mossii bayensis*) and callippe silverspot butterfly (*Speyeria callippe callippe*).

3.4.1.4 Special Status Species

For the purposes of this PEA, special status species include species that are federally listed as threatened or endangered, or that are considered a candidate species by USFWS or National Marine Fisheries Service (NMFS) under the ESA. Special status species also include species

protected under the Bald and Golden Eagle Protection Act (BGEPA) or the MMPA; species listed as threatened or endangered by the State of California, for which California Department of Fish and Wildlife (CDFW) is the responsible agency, under the California Endangered Species Act or Native Plant Protection Act, included on the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants; and other species of concern. The USFWS Information for Planning and Conservation (IPaC) Tool (USFWS 2019) as well as the NatureServe Explorer (NatureServe 2019) were referenced in determining the species to include. The status of federally listed and/or state-listed threatened or endangered species and other state or Federal species of concern is provided in Table 3-6.

Species occurrence data is based on recent special status surveys within MOTCO grounds, localized survey efforts conducted in association with interim environmental restoration projects and the MOTCO INRMP, and a California Natural Diversity Database (CNDDB) search (CNDDB 2019).

3.4.1.4.1 Federally Listed Plant Species

Soft Bird's Beak

Soft bird's-beak is a hemiparasitic annual herb in the broomrape family (*Orobanchaceae*). It grows in the coastal salt marshes and brackish marshes of San Pablo and Suisun Bays, in Solano, Contra Costa, Sonoma, and Marin Counties. Its gray-green foliage, often tinged with purple, is covered with soft hairs. The whitish flowers in a spike-like inflorescence are partially hidden by lobed bracts that are densely soft-hairy. The soft hairs distinguish soft bird's-beak from the stiff-bristly hispid bird's-beak (*Cordylanthus mollis* ssp. *hispidus*), which occurs in more alkaline areas elsewhere.

This species is endemic to the North Bay marshes and to date 19 occurrences of the species have been documented (CNDDB 2019). The range of soft bird's-beak once included the counties bordering the Sacramento-San Joaquin Delta, Suisun and San Pablo Bays, and the coasts of Marin and Sonoma Counties. It is now believed to be extirpated from Marin, Sacramento, San Joaquin, and Sonoma Counties, and extant only in salt marshes in Napa, Solano, and Contra Costa counties (CNDDB 2017). Soft bird's-beak grows in coastal salt marshes, commonly in the marsh/upland transition zone with pickleweed, jaumea, alkali heath, San Francisco Bay gumplant, and saltgrass.

Soft bird's-beak is included in the CNPS inventory of rare and endangered plants as a List 1B.2 species, indicating that it is rare, threatened, or endangered in California and elsewhere (CNPS 2019). It is listed by the State of California as rare (listed July 1979) and by USFWS as endangered (USFWS 1997). Soft bird's-beak is threatened by non-native vegetation, which is encroaching on its habitat, erosion of the landscape by feral pigs, trampling, and by marsh drainage. A small population of this plant was observed in the northeastern portion of Middle Point Marsh in the vicinity of Pier 4 and White Road during surveys performed in 2015 (HTH 2015).

Table 3-6. Special Status Species Potentially Occurring in MOTCO Area

Common Name	Scientific Name	Status* Federal/State/CNPS/ IPaC *Critical Habitat?*	Occurrence within the Project Area	Responsible Agency	Habitat/Regional Occurrence
Plants					
Soft bird's-beak	*Chloropyron molle ssp. molle*	E / R / 1B / IPaC *Designated Critical Habitat*	Unlikely, no suitable habitat within the Action Area	USFWS	Low marsh zone and eroding banks of Delta tidal brackish marshes. A population was observed in Middle Point Marsh during surveys performed in 2015.
Antioch Dunes evening-primrose	*Oenothera deltoides* ssp. *howellii*	E / E / 1B / IPaC *Designated Critical Habitat*	Unlikely, no suitable habitat within the Action Area	USFWS	Sand dune habitat located near the meeting of the Sacramento River and the San Joaquin River. No previous occurrence at MOTCO.
Delta mudwort	*Limosella australis*	-- / -- / 2B / --	Unlikely, no suitable habitat within the Action Area	CDFW	Mud banks of the Delta, usually in marsh associations with Mason's lilaeopsis.
Mason's lilaeopsis	*Lilaeopsis masonii*	-- / R / 1B / --	Unlikely, no suitable habitat within the Action Area	CDFW	Exposed sediments, mud banks along Delta brackish-tidal shorelines. On base, found in Middle Point Marsh.
Delta tule pea	*Lathyrus jepsonii ssp. jepsonii*	-- / -- / 1B / --	Unlikely, no suitable habitat within the Action Area	USFWS	Upper edges of fresh and brackish marshes and along streams and rivers of the Delta. On base, found on Ryer Island.
Suisun Marsh aster	*Symphyotrichum lentum*	-- / -- / 1B / --	Unlikely, no suitable habitat within the Action Area	USFWS	High marsh zone of Delta freshwater and tidal brackish marshes, also along slough and creek banks. On base, found in Middle Point Marsh, Pier Marsh, Hastings Slough, and on Ryer Island.
Showy madia	*Madia radiata*	-- / -- / 1B / --	Possible, although appropriate soils are not present within Action Area	CDFW	Grows in grasslands and woodlands on heavy clay soils. Last observed in the county in 1941.

Common Name	Scientific Name	Status* Federal/State/CNPS/ IPaC *Critical Habitat?*	Occurrence within the Project Area	Responsible Agency	Habitat/Regional Occurrence
Fish					
Delta smelt	*Hypomesus transpacificus*	T / E / -- / IPaC *Suisun Bay Designated as Critical Habitat*	Extremely unlikely, no suitable habitat within the Action Area	USFWS	Larval, juvenile, and adult individuals may all be found in Suisun Bay, including the shallow edges and backwater sloughs.
Sacramento splittail	*Pogonicthys macrolepidotus*	-- / SC / -- / --	Extremely unlikely, no suitable habitat within the Action Area	NMFS	Occurs in Suisun Bay, but prefers shallow water with low salinity (0-10 ppt).
Longfin smelt	*Spirinchus thaleichthys*	C / T / -- / --	Extremely unlikely, no suitable habitat within the Action Area	USFWS	Larval and juvenile longfin smelt may be found in Suisun Bay.
Green sturgeon	*Acipensir medirostris*	T / -- / -- / -- *Suisun Bay Designated Critical Habitat*	Extremely unlikely, no suitable habitat within the Action Area	NMFS	Suisun Bay supports juvenile, sub-adult, and adult Southern distinct population segment (DPS) fish, serving as important rearing habitat and an important migratory corridor from the San Pablo and San Francisco Bays to and from the Delta and Sacramento River system.
Central Valley steelhead	*Oncorhynchus mykiss irideus*	T / T / -- / --	Extremely unlikely, no suitable habitat within the Action Area	NMFS	An ocean-maturing species that migrates through Suisun Bay, primarily December-April, to spawn upstream.
Central California coast steelhead	*Oncorhynchus mykiss*	T / -- / -- / --	Extremely unlikely, no suitable habitat within the Action Area	NMFS	An ocean-maturing species that migrates through Suisun Bay, primarily January-April, to spawn upstream.

Common Name	Scientific Name	Status* Federal/State/CNPS/ IPaC *Critical Habitat?*	Occurrence within the Project Area	Responsible Agency	Habitat/Regional Occurrence
Sacramento chinook salmon, Winter Run	*Oncorhynchus tshawytscha*	E / -- / -- / -- *Suisun Bay Designated Critical Habitat*	Extremely unlikely, no suitable habitat within the Action Area	NMFS	Adults migrate through Suisun Bay in December-July, with smolts returning downstream to the ocean within one year.
Central Valley chinook salmon, Spring Run	*Oncorhynchus tshawytscha*	T / T / -- / --	Extremely unlikely, no suitable habitat within the Action Area	NMFS	Adults migrate through Suisun Bay in March-July, with smolts returning downstream to the ocean within one year.
Central Valley chinook salmon, Fall and Late-Fall Run	*Oncorhynchus tshawytscha*	SOC / -- / -- / --	Extremely unlikely, no suitable habitat within the Action Area	NMFS	Adults migrate through Suisun Bay in June-December, with smolts returning downstream to the ocean within one year.
Amphibians					
California red-legged frog	*Rana draytonii*	T / CE / -- / IPaC *Designated Critical Habitat*	Possible	USFWS	Permanent freshwater ponds and marshes. Nearest known occurrences are in four ponds within Inland Re-Use Area. Species was observed onsite during 1998-1999 surveys. No occurrences were found during 2014-2015 and 2015-2016 surveys.
California tiger salamander	*Ambystoma californiense*	T / CE / -- / IPaC *Designated Critical Habitat*	Possible	USFWS	Permanent freshwater ponds and marshes. Nearest known occurrences are in four ponds within Inland Re-Use Area. No occurrences were found during 2014-2015 and 2015-2016 surveys.

Common Name	Scientific Name	Status* Federal/State/CNPS/ IPaC *Critical Habitat?*	Occurrence within the Project Area	Responsible Agency	Habitat/Regional Occurrence
Reptiles					
Northwestern pond turtle	*Actinemys m. marmorata*	-- / SC / -- / --	Possible	USFWS	Permanent or near-permanent freshwater ponds. Previous occurrence in Tidal Area on-installation in Otter Slough and Seal Creek Marsh. Observed onsite by TEC, Inc. in 2009.
Alameda whipsnake	*Masticophis lateralis euryxanthus*	T / T / -- / IPaC *Designated Critical Habitat*	Unlikely	USFWS	Chaparral, northern coastal sage scrub, adjacent habitats, such as grasslands, oak savannas, and occasionally oak-bay woodlands. No previous occurrence on MOTCO.
Giant garter snake	*Thamnophis gigas*	T / T / -- / IPaC	Unlikely	USFWS	Marshes, sloughs, drainage canals, and irrigation ditches, especially around rice fields, and occasionally in slow-moving creeks. No previous occurrence on MOTCO.
Birds					
California black rail	*Laterallus jamaicensis coturniculus*	-- / T / -- / --	Possible	CDFW	Low-lying salt marshes with abundant pickleweed. Found during 2010 and other surveys at numerous sites within Tidal Area.
California Ridgway's rail (formerly California clapper rail)	*Rallus obsoletus obsoletus (*formerly *Rallus longirostris obsoletus*)	E / E / -- / IPaC	Extremely unlikely; limited potential habitat, no recent occurrences, and not detected in recent surveys	USFWS	Salt and brackish marshes. Rare in Suisun Bay. No occurrences were found within or adjacent to the project action area during 2010, non-protocol 2013 survey, or during 2015 protocol survey.
California least tern	*Sternula antillarum browni*	E / E / -- / --	Possible, transient occurrence	USFWS	Colonial breeder on bare or sparsely vegetated sand beaches or alkali flats. Last observed on installation in 1982. Nesting colony ~10 mi up Delta in Montezuma Slough.

Common Name	Scientific Name	Status* Federal/State/CNPS/ IPaC *Critical Habitat?*	Occurrence within the Project Area	Responsible Agency	Habitat/Regional Occurrence
Golden eagle	*Aquila chrysaetos*	BGEPA / --/ -- / --	Possible	CDFW	Feeds in open terrain and nests on cliffs and large trees. May occur, but has not been observed.
Swainson's Hawk	*Buteo swainsoni*	-- / T / -- / --	Possible	CDFW	Open pine-oak woodland and cultivated lands with scattered trees. Observed nesting in Los Medanos Hills.
Suisun song sparrow	*Melospiza melodia maxillaris*	-- / SC / -- / --	Possible	CDFW	Endemic to marshes bordering San Francisco Bay. Observed on installation in numerous tidal marsh areas (2009).
Saltmarsh common yellowthroat	*Geothylipis trichas sinuosa*	-- / SC / -- / --	Possible	CDFW	Occurs in coastal salt marsh areas of San Francisco Bay, but west of the Carquinez Strait. Several nearby documented occurrences may be of the more common species.
Tricolored blackbird	*Agelaius tricolor*	-- / ST / -- / --	Possible	CDFW	Requires large stands of bulrush and cattails, and can occur in Bay coastal marsh.
Burrowing owl	*Athene cunicularia*	-- / SC / -- / --	Possible	CDFW	Open, dry grasslands, including along levees and sloughs. May occur in Tidal Area on installation, but not observed in 2009 surveys.
Short-eared owl	*Asio flammeus*	-- / SC / -- / --	Possible	CDFW	Open, dry grasslands, including along levees and sloughs. May occur in Tidal Area on installation.
Loggerhead shrike	*Lanius ludovicianus*	-- / SC / -- / --	Possible	CDFW	Dry grasslands with scattered trees and shrubs. Observed on installation at numerous locations within Tidal Area (2009).

Common Name	Scientific Name	Status* Federal/State/CNPS/ IPaC *Critical Habitat?*	Occurrence within the Project Area	Responsible Agency	Habitat/Regional Occurrence
Mammals					
Salt marsh harvest mouse	*Reithrodontomys raviventris*	E / E / -- / IPaC	Unlikely given limited extent of potential habitat	USFWS	Requires large pickleweed flats with adjoining refuge areas above the High Tide line. There is an up to 30 percent probability for this species to occur on MOTCO, primarily in areas of Pier Marsh; occurrence in other marsh areas cannot be discounted, but regarded as very low potential.
Salt-marsh wandering shrew	*Sorex vagrans halicoetes*	-- / SC / -- / -- / --	Unlikely given limited extent of potential habitat	USFWS	Mid-marsh (6-8 feet above mean sea level) pickleweed habitat, similar to the salt marsh harvest mouse and the California Ridgway's rail habitats.
Humpback whale	*Megaptera novaeangliae*	E,MMPA / -- / -- / --	Extremely unlikely	NMFS	Rare occurrence in Suisun Bay-Delta.
Pacific harbor seal	*Phoca vitulina richarii*	MMPA / -- / -- / --	Extremely unlikely	NMFS	Small numbers present in Suisun Bay.
California sea lion	*Zalophus californianus*	MMPA / -- / -- / --	Extremely unlikely	NMFS	Spotted periodically in Suisun Bay.
Crustaceans					
Vernal pool fairy shrimp	*Branchinecta lynchi*	T / -- / -- / IPaC *Designated Critical Habitat*	Extremely unlikely	USFWS	Vernal pools in Oregon and California; occasionally in artificial pools created by roadside ditches. No previous occurrence on MOTCO.
Vernal pool tadpole shrimp	*Lepidurus packardi*	E / -- / -- / IPaC *Designated Critical Habitat*	Extremely unlikely	USFWS	Vernal pools, clay flats, alkaline pools, ephemeral stock tanks, roadside ditches, and road ruts in California's Great Central Valley. No previous occurrence on MOTCO.

Common Name	Scientific Name	Status* Federal/State/CNPS/ IPaC *Critical Habitat?*	Occurrence within the Project Area	Responsible Agency	Habitat/Regional Occurrence
Insects					
Delta green ground beetle	*Elaphrus viridis*	T / -- / -- / IPaC *Designated Critical Habitat*	Extremely unlikely	USFWS	Open habitats in the grassland-playa pool matrix in the greater Jepson Prairie area in south-central Solano County. No previous occurrence on MOTCO.
San Bruno elfin butterfly	*Callophrys mossii bayensis*	E / -- / -- / IPaC *Designated Critical Habitat*	Extremely unlikely	USFWS	Rocky outcrops and cliffs in coastal scrub on the San Francisco Peninsula. No previous occurrence on MOTCO.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T / -- / -- / IPaC *Designated Critical Habitat*	Unlikely	USFWS	On or close to host plant, red or blue elderberry (*Sambucus* spp.), along rivers and streams. No previous occurrence on MOTCO.
Callippe Silverspot Butterfly	*Speyeria callippe callippe*	E / -- / -- / IPaC *Designated Critical Habitat*	Unlikely	USFWS	Native grassland and adjacent habitat. Eggs are laid on larval host plant, *Viola tricolor*. No previous occurrence on MOTCO.

Source: CNPS 2019, CNDDB 2019, MOTCO INRMP 2018b

* T = Threatened; E = Endangered; C = Candidate; SOC = Species of Concern; R = Rare; SC = Special Concern; BGEPA = Bald and Gold Eagle Protection Act; MMPA = Marine Mammal Protection Act; 1B = Plants that are considered by the California Native Plant Society (CNPS) as Rare, Threatened, or Endangered in California and elsewhere; and 2B = Plants that are considered by CNPS as Rare, Threatened, or Endangered in California, but more common elsewhere, Threatened, or Endangered in California but are more common elsewhere. The Species of Concern category does not apply at the Federal level as it is an informal term and is not defined in the ESA.

Antioch Dunes Evening-primrose

Antioch Dunes evening-primrose is a California endangered plant species. Antioch Dunes evening-primrose is a short-lived perennial plant found at the Antioch Dunes National Wildlife Refuge. The plant has large white flowers that open in the early evening and close in the morning, and it blooms from March to September. Antioch Dunes evening-primrose requires pollinators to reproduce, relying mostly on bees. Like many evening-primrose species, Antioch Dunes evening-primrose grows in mostly pure sand, but unlike other species, it will only re-establish in areas that contain new sand. Antioch Dunes evening-primrose is also listed as a federally endangered plant species (CDFW 2019).

Originally, Antioch Dunes evening-primrose habitat was destroyed by urban development, sand mining, and agricultural conversion (CDFW 2019). Today, habitat alteration due to invasive plants is the biggest threat to this species. Invasive plants choke out Antioch Dunes evening-primrose and other native plants and stabilize the soil when they establish, causing major changes in the sand dune ecosystem and limiting access to the sand conditions that Antioch Dunes evening-primrose requires to thrive. Other threats include herbicides used to control invasive weed species, and catastrophic events such as wildfire that could destroy an entire population (CDFW 2019).

3.4.1.4.2 Federally Listed Animal Species

Delta Smelt

The Delta smelt (*Hypomesus transpacificus*) is a small, slender fish found primarily in the Sacramento-San Joaquin Estuary, but also upstream in several tributary rivers. Adults typically range in size from 2 to 3 inches in length, although some may reach 5 inches. Their preference for the zone between freshwater and marine waters is unique and makes this species sensitive to physical environmental changes. This species mainly transitions between brackish and fresh water, unlike anadromous species that spend time in truly marine areas with higher salinities (USFWS 1994). While not a migratory species, Delta smelt do move deeper into the Delta in winter to spawn, and then fingerlings remain in this region to feed and mature. Most adults spawn once and then die, but some live to spawn a second year. As a result, this species grows and reaches maturity quickly. Habitat requirements are mainly determined by salinity levels, but during spawning females must find areas with suitable substrate to attach their eggs.

Threats to Delta smelt include reductions in freshwater outflow from streams and rivers, entrainment losses to water diversions, entrainment at power plant intakes, changes in abundance and composition of prey organisms, environmental contaminants, and competition and predation from exotic invasive aquatic species. The Delta smelt was listed as threatened by the USFWS in 1993 (USFWS 1993). Critical habitat for this species was designated in 1994, and includes areas of all water and all submerged lands below ordinary high water and the entire water column bounded by and contained in Suisun Bay (including the contiguous Grizzly and Honker Bays); the length of Goodyear, Suisun, Cutoff, First Mallard (Spring Branch), Montezuma sloughs, and the existing contiguous waters contained within the Delta (USFWS 1994).

The Delta smelt inhabits the Sacramento-San Joaquin estuary and is known to occur in nearshore waters of Suisun Bay. Critical habitat has been designated for this species in the vicinity of MOTCO.

Longfin Smelt

The Bay-Delta DPS of the longfin smelt (*Spirinchus thaleichthys*) was added to the candidate species list on 2 April 2012 (USFWS 2012). This species is currently also state-listed in California as endangered. Longfin smelt generally spawn in freshwater and then move downstream to brackish water to rear. Juvenile and adult longfin smelt have been found year-round in salinities ranging from pure freshwater to pure saltwater. However, once past the juvenile stage, they are typically collected in waters with salinities ranging from 14 parts per thousand (ppt) to 18 ppt. This species is also believed to be restricted to waters generally less than 71 degrees Fahrenheit (°F) and will move into deeper waters during the summer months when water temperatures in the Bay-Delta are higher. Adult longfin smelt occupy water at temperatures ranging from 61°F to 68°F, with spawning occurring in water with temperatures of 41°F to 58°F (USFWS 2012). In the Bay-Delta, most longfin smelt spend their first year in the Suisun Bay and Marsh. The remainder of their life is spent in the San Francisco Bay or the Gulf of Farallones. Delta smelt and longfin smelt hybrids have been observed in the Bay-Delta estuary, although these offspring are not thought to be fertile (USFWS 2012).

Green Sturgeon

Green sturgeon (*Acipensir medirostris*) is a large and long-lived anadromous fish species that ranges from the Bering Sea, Alaska, to Ensenada, Mexico. The southern DPS is the only population known to occur in the vicinity of MOTCO, and spawns only in the Sacramento River system (NMFS 2005, 2019a; USFWS 1995). Individuals from the northern and southern DPS apparently overlap and are widely distributed along the Pacific coast during their oceanic phase.

Although anadromous, green sturgeons are found more often in coastal marine or estuarine waters, rather than in inland fresh waters. Adults migrate into freshwater during spring and early summer to spawn and at other times for unknown reasons. Information on current and historical spawning locations is limited, as this species has been reduced in number due to harvest and anthropogenic disturbances (NMFS 2019a). General habitat types where this species is known to reside include nearshore marine habitats, estuaries, bays, sounds, lower reaches of large rivers, upper reaches of rivers, and salt or brackish waters off river mouths. They are bottom feeders, feeding on a variety of benthic invertebrates and fishes (NMFS 2009).

The most serious threat for the survival of the green sturgeon southern DPS is the reduction of spawning area to a particular section of the Sacramento River. The southern DPS of green sturgeon was listed as threatened by NMFS in April 2006 and USFWS in April 2007 (NMFS 2006; USFWS 2007). Critical habitat was designated in 2009 for this DPS, including numerous freshwater and marine areas within California and Oregon. The waters and shorelines of Suisun Bay are included within the critical habitat designation (NMFS 2009).

Juveniles, sub-adults, and adults of the green sturgeon southern DPS have been identified in Suisun Bay in the general MOTCO area, and they use these waters for migration, feeding, and maturation (NMFS 2009). Adults are thought to migrate from the San Pablo and San Francisco

Bays into Suisun Bay and the Delta, and move upstream to spawning grounds in the Sacramento River and its tributaries during the spring (NMFS 2009; USFWS 1995).

Outmigration occurs during the summer, and individuals may linger in the bays and estuarine waters for extended periods. Juveniles move gradually downstream, utilizing freshwater and estuarine habitats as they develop over the next 1 to 2 years (NMFS 2009). Green sturgeon in the Bay-Delta region typically occur in shallow (<10 meters depth) waters near the bottom, but they require a range of depths, with adults favoring deeper pools and juveniles tending to concentrate in shallows (1 to 3 meters deep) (NMFS 2009).

Steelhead

Steelhead are an anadromous fish distributed along the entire Pacific coast. Steelhead populations are split into distinctive groups known as Evolutionarily Significant Units (ESUs). The ESUs known to occur in the vicinity of MOTCO include the Central California Coast and Central Valley. The Central California Coast steelhead ESU is large and includes all naturally spawned anadromous populations of steelhead below natural and man-made impassable barriers in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers. It also includes tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek). The Central Valley steelhead ESU includes all naturally spawned populations of steelhead below natural and man-made impassable barriers in the Sacramento and San Joaquin Rivers and their associated tributaries, as well as two artificial propagation programs: the Coleman National Fish Hatchery (NFH), and Feather River Hatchery steelhead hatchery programs (NMFS 1997; NMFS 1998; NMFS 2019b).

During the spawning season, male steelheads undergo minor changes to their head, mouth, and body coloring. Typically, individuals migrate to freshwater for spawning after spending anywhere from 1 to 4 years in marine habitats. Steelheads are capable of spawning more than once during their lifetimes, unlike other salmonids. In central California, peak spawning occurs December through April. General habitat types where this species is known to reside include nearshore marine, estuarine, and cool, shallow streams (NMFS 2019b).

The most serious threat for the survival of Central California Coast and Central Valley steelhead populations is the loss of watershed habitat from coastal development, blocked access to headwater spawning areas from dams in the Russian River, and potential interactions with hatchery-reared fish (Good et al. 2005). The Central California Coast steelhead ESU was listed as threatened by NMFS in 1997 (NMFS 1997), and the Central Valley ESU was listed as threatened by NMFS in 1998 (NMFS 1998). Critical habitat was designated for both DPSs in 2005, and although deemed important areas for steelhead, Suisun Bay and Suisun Creek in their entireties were excluded from the designations (NMFS 2005b).

Suisun Bay is presumed to provide rearing and migratory habitat for both ESUs (NMFS 2005b). Since the waters adjacent to MOTCO are near its upstream distributional limit in the San Francisco Bay-Delta ecosystem, and no suitable spawning habitat exists near MOTCO, the Central California Coast steelhead ESU is expected to occur infrequently in the vicinity of

MOTCO. Spawning locations for the Central Valley steelhead ESU are located upstream of the project area in the Sacramento and San Joaquin River systems.

Chinook Salmon

Chinook salmon are an anadromous fish and possess the largest body size of any salmon species. In the U.S., Chinook salmon occur from the Bering Strait area off the coast of Alaska to southern California. Four distinct runs of Chinook salmon spawn in the Sacramento-San Joaquin River system, and each ESU is named for the season when the majority of the run enters freshwater as adults.

The three ESUs known to occur in the vicinity of MOTCO are the Central Valley spring-run, Central Valley fall-run, and Sacramento River winter-run. The Central Valley spring-run ESU includes all naturally spawned populations in the Sacramento River and its tributaries in California, including the Feather River and the Feather River Hatchery spring-run Chinook program. The Central Valley fall-run ESU includes all naturally spawned populations in the Sacramento and San Joaquin River Basins and their tributaries east of Carquinez Strait, California. The Sacramento River winter-run Chinook salmon ESU includes all naturally spawned populations in the Sacramento River and its tributaries in California, as well as two artificial propagation programs: winter-run Chinook from the Livingston Stone NFH, and winter-run Chinook in a captive broodstock program maintained at Livingston Stone NFH and the University of California Bodega Marine Laboratory (NMFS 2019c).

Most Chinook salmon remain at sea for 1 to 6 years before returning to freshwater to spawn. One form named “Jack salmon” either remains and matures in freshwater or returns to freshwater after spending only 2 or 3 months in the marine environment. Seasonality of Chinook salmon migration varies greatly between river systems, and the timing is dependent on various biological and environmental factors. This species spawns one time and then dies. Central Valley spring-run Chinook enter the Sacramento River from late March through September. Adults remain in cool water habitats through the summer and spawn in the fall from mid-August through early October. Juveniles migrate soon after emergence as young-of the-year or remain in freshwater and migrate as yearlings (CNDDB 2019). Central Valley fall-run Chinook enter the Sacramento River in September or October, and juveniles spend between one and four summers at sea (NMFS 2019c). Sacramento River winter-run Chinook have a complicated seasonal distribution due to shifts that have occurred from the construction of the Shasta and Keswick Dams, which now function to artificially regulate water temperatures when cool waters are released (NMFS 2004). General habitat requirements of Chinook salmon include nearshore marine areas and relatively large, deep streams (NMFS 2019c).

Major threats to Chinook salmon include loss of historical spawning habitat, degradation of remaining habitat, and threats to genetic integrity from damming and potential interactions with hatchery-reared fish. In 1999, the Central Valley spring-run ESU, which had been previously proposed for listing as endangered, was instead listed as threatened (NMFS 1999). The status of Central Valley fall-run ESU was not determined to warrant an ESA listing when proposed in 1999, and in 2005 was added to the Species of Concern list (NMFS 2019c). The Sacramento River winter-run ESU was listed as endangered in 1994 (NMFS 1994). Critical habitat was designated by NMFS in 2005 for the Central Valley spring-run ESU, but it does not include the

Suisun Bay area (NMFS 2005b). Critical habitat was designated by NMFS in 1993 for the Sacramento River winter-run ESU and includes "all waters from Chipps Island westward to Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Strait" (NMFS 1993). Suisun Bay, including the waters surrounding MOTCO, is presumed to provide juvenile rearing and migratory habitat for these ESUs (NMFS 2005b). One winter-run Chinook was sighted in Honker Bay during a USGS quadrangle mapping survey.

California Tiger Salamander

The California tiger salamander, which is designated as federally threatened throughout its range, is an amphibian within the family Ambystomatidae. The California tiger salamander is endemic and restricted to California, and does not overlap with any other tiger salamander species (Holzman 2003). Because these salamanders are only able to adapt to a very narrow range of environmental situations due to habitat loss, the California tiger salamander currently has only two sub-populations which are now discontinuous from one another (Holzman 2003).

California tiger salamanders tend to live within vacant mammal burrows, particularly those made by ground squirrels and gophers, and lay their eggs in vernal or ephemeral pools and ponds (NatureServe 2019). Breeding generally occurs from December to February/March once the vernal pools fill. California tiger salamanders will migrate to breeding grounds up to 1.6 kilometers away to lay their eggs (Holzman 2003; NatureServe 2019).

Populations of the California tiger salamander are threatened by habitat loss and fragmentation, mainly due to human encroachment in the form of highways that block their migration routes (Holzman 2003; Mossman 2009). Infringement of predator species is another threat to populations of the California tiger salamander. During the 1998-1999 surveys in support of a past INRMP (Downard et al. 1999), California tiger salamanders were found at nine different locations, but all were within portions of the Inland Area that are no longer part of MOTCO. These locations range in distance from roughly 4 to 6 miles from the current installation boundary, and California Highway 4 represents an obstacle to any potential northward movement. However, this species may be using any of the several springs in the Los Medanos Hills onsite as breeding pools. Tadpole larvae were observed in at least one of these during the reconnaissance surveys conducted in June 2009.

California Red-legged Frog

These frogs are common in the San Francisco Bay area and along the central coast of California; however, they have been eradicated from much of their historical range, which once included the Sierra Nevada, the northern coast, and the northern Transverse ranges, as well as the peninsular ranges (USFWS 2002). They generally breed in ponds or pond-like areas of streams, lagoons, and marshes (Fellers 2009) from late November to early April, when female frogs deposit egg masses on emergent vegetation.

The California red-legged frog was federally listed as threatened in May 1996, and has been documented to have been eradicated from 70 percent of its former range (USFWS 2002). Threats to their populations are wetland destruction, contamination, and fragmentation, as well as urbanization, development, construction of reservoirs, drought activity, stream channelization, and exotic introductions of predators (NatureServe 2019). Another reason for

declining populations of the red-legged frog is widespread usage of pesticides in California (Fellers 2009).

During the 1998-1999 surveys in support of a past INRMP (Downard et al. 1999), California red-legged frogs were found at 10 different locations, but all within the larger portion of the Inland Area that is no longer part of MOTCO. These locations range in distance from 4 to 6 miles from the current installation boundary, and California Highway 4 represents an obstacle to any potential northward movement. However, California red-legged frog could be using any of the several springs in the Los Medanos Hills onsite as breeding pools, and tadpole larvae of unknown species type were observed in at least one of these during the reconnaissance surveys conducted in support of the INRMP in June 2009.

California Ridgway's Rail

The California Ridgway's rail is a part of the large family (Rallidae) of small- to medium-sized birds that have a large cosmopolitan distribution; however, this subspecies is endemic only to California's San Francisco Bay, Monterey Bay, and Morro Bay.

California Ridgway's rails live in salt and brackish marshes and favor tidal sloughs and marsh channels. Historically, the California Ridgway's rail ranged from the tidal marshes of Humboldt Bay south to Morro Bay as well as within estuarine marshes of San Francisco Bay and San Pablo Bay (LSA Associates 2004). Today these birds are limited for the most part to San Francisco Bay.

The California Ridgway's rail was federally listed on 13 October 1970 and state listed as an endangered species on 27 June 1971. Population decline has been attributed to the alteration and loss of habitat, as well as an increase in the predator population of red fox (*Vulpes vulpes*), (LSA Associates 2004). Currently, there is a single population of breeding California Ridgway's rails, which is located within the geography of the San Francisco Bay (USGS 2006b). Research has shown that the reason for low fecundity of the California Ridgway's rail is due mainly to environmental contamination as well as predation of eggs (USGS 2006b). An increase in the number of transmission lines transecting its marsh habitats has been responsible for some of the increased predation, as they provide perch sites for predatory raptors (USGS 2006b).

During the 1998-1999 surveys in support of a past INRMP (Downard et al. 1999), the California Ridgway's rail was found in the brackish habitat of Seal Creek Marsh as well as within Hastings Slough East Marsh. More recently, during 2015 pre-construction surveys for MOTCO's Pier 3 Repairs Project, no California Ridgway's rails were observed and no vocalizations for the species were noted (WRA Environmental Consultants 2015).

California Least Tern

The California least tern is part of the larger family of gulls and terns (Laridae). It is the smallest of all North American terns and has a typical colony size of about 25 pairs (USFWS 2006).

The California least tern is a migratory species that arrives to breed at the end of April and leaves its breeding grounds in August. Its breeding range extends along the Pacific coast from Monterey County to southern Baja, and nesting sites in the San Francisco Bay area have been documented since 1970 (USFWS 1985).

The California least tern inhabits coastal bays and estuaries and lays its eggs in the open beach areas nearby. Their eggs are laid within depressions in sparsely vegetated areas located near water on gravel to sandy substrate, with clutches of two to three eggs being common (CDPR 2003; USFWS 1985). An important reproductive strategy of this species is to roost at sites well away from breeding locations before egg-laying occurs, in an attempt to minimize predation (USFWS 1985).

Populations of the California least tern are threatened by development and encroachment on their nesting habitat by humans, in addition to predation of eggs and young by other birds and mammals (NatureServe 2019). For example, it was documented that red foxes destroyed 75 percent of the California least tern nests in Orange County, California in 1988 (NatureServe 2019). Noise pollution has been documented as detrimental to the California least tern are noise pollution, such as from helicopters flying low or landing in nesting areas, as well as military training noise (USFWS 2006).

The California least tern was listed as endangered in June 1970 and remains at this listing level to date (USFWS 1970). During the 1998-1999 surveys in support of a past INRMP (Downard et al. 1999), the California least tern was not identified within the study area. This species was last observed on the installation in 1982.

Salt Marsh Harvest Mouse

Salt marsh harvest mice are endemic only to San Francisco Bay salt marsh habitats. Their eastern limit seems to be defined by salinity. They require pickleweed habitat that does not occur east of Antioch because water becomes too fresh (Mossman 2008). The salt marsh harvest mouse prefers dense cover, most commonly inhabiting pickleweed beds, and during winter's highest tides they move into the marsh-upland transition zone (Mossman 2008). In general, salt marsh harvest mice eat a diet of leaves, seeds, and stems, tending toward pickleweed and eating mainly at night (Mossman 2008). In 1970, the salt marsh harvest mouse was federally listed as an endangered species (USFWS 2009).

Because this species is specifically adapted to the salt marsh environment and is endemic only to San Francisco Bay, loss of habitat is responsible for drastic declines in its populations. It has been documented that, since 1850, there has been an approximately 84 percent reduction in marsh habitat in San Francisco Bay (Mossman 2008). In addition, present marsh habitats are undergoing erosion and water diversions are altering salinity levels in the Bay, resulting in massive ecosystem changes.

During the 1998-1999 University of Arizona surveys (Downard et al. 1999), populations of salt marsh harvest mouse were found at seven locations within the Tidal Area, including Ryer Island, Hastings Slough West Marsh, Middle Point Marsh, Hastings Slough East Marsh, and Tug Slough Marsh.

3.4.2 Environmental Consequences

3.4.2.1 Proposed Action

All projects included in the Proposed Action have the potential to disrupt biological resources both directly by the loss of individuals or habitats or indirectly through the alteration of habitat

and ecosystem processes and the disruption of normal behavioral patterns. MOTCO would obtain the appropriate environmental permits and complete necessary ESA consultations during final design and would comply with all terms and conditions of those permits and consultations.

Demolition

Demolition of foundations and internal revetments associated with the former R-Building area along Froid Road would occur in habitats that have previously experienced substantial human-influenced disturbance. For this reason, most species in these areas are likely to have adapted to the disturbed conditions and experience minimal disturbance.

Work performed in service to this proposed action would potentially lead to an increase in available habitat resources. While the land would be disturbed, if it were allowed to revegetate, the removal of foundations and revetments could have a positive effect on local species diversity and abundance. The planting and maintaining of native plant species following the proposed action would provide an even more ideal habitat for wildlife to occupy.

Utility Construction and Maintenance

Construction of utilities related to new facilities will be limited to connections to previously existing electrical, communication, water, and wastewater systems. Repair and replacement of utilities that occur within 50 feet of either side on a named roadway are covered by the Road Bridge EA, and recurring maintenance of utilities is included in the *Maintenance EA*. Any utilities found outside of these previously established boundaries should warrant surveys to ensure that no critical habitat is disturbed.

Beyond temporary disruptions associated with construction activities, there should be minimal effects on biological resources as a result of the proposed actions.

Realignment and Addition of Rail Lines

The set of projects under the Realignment and Addition of Rail Lines project of the Proposed Action consists of construction and repair of rail lines, primarily within or adjacent to existing rail footprints. Based on previous survey work, the new rail will be entirely on previously disturbed lands and is not anticipated to impact sensitive habitats or wetlands. If wetlands or other sensitive habitats would be impacted based on the final design of the rail lines, MOTCO would obtain the appropriate environmental permits and complete necessary ESA consultations during final design and would comply with all terms and conditions of those permits and consultations.

Replacement of existing rail curves to increase safety and efficiency of the rail system at MOTCO may necessitate the acquisition of environmental permits. As such, consultation with resource and conservation agencies will be necessary as final designs are developed.

Expand Holding Pads and Transfer Pads

Expansion of holding and transfer pads will involve the loss of non-native grassland to developed land. In total, each holding pad would cover approximately 48,000 square feet with lightning protection systems, associated area lighting, utilities, berms, and fencing. A total of up to 130 acres would be disturbed.

The proposed expansion and creation of holding and transfer pads will result in a minor decrease in grasslands and, as a result, a decrease in potential habitat for bird species that prefer grasses for nesting (e.g. sparrows or meadowlarks), and for smaller rodent species that require vegetative cover for protection from predators. Additionally, raptors and larger mammals that rely on these grasslands as a food source may have to relocate if their available food resources are displaced or removed.

Construction of all holding and transfer pads will include the installation of lighting throughout the area. Artificial light sources have the potential to disrupt normal physiological and behavioral processes amongst wildlife, specifically nocturnal animals that utilize darkness as cover from predators, migratory birds that use moonlight and starlight as navigational tools, and insect species that are inadvertently attracted to the light sources. Any newly installed lighting fixtures would utilize low-pressure sodium bulbs as they produce a minimal environmental impact. Whenever possible, lights would be pointed down, fully shielded, and selectively placed so they are directed away from any native vegetative communities.

New Construction or Major Renovation of Individual Buildings and Structures

In all cases, the projects will occur in previously disturbed or developed habitat. As a result, minimal disturbances to native biological resources would occur. Due to their proximity to Suisun Bay, the proposed actions to replace rail barricade sidings and the construction of a new locomotive shed have the potential to disturb native wildlife in the nearby waters if there is inadvertent run-off into the system. MOTCO would install the proper SWPPP measures during all ground disturbing activities to ensure that stormwater runoff would be reduced or eliminated.

Construction of an Emergency Backup Power Generation System

Construction will occur in a previously disturbed habitat. As a result, minimal disturbances to native biological resources would occur.

Supporting Actions

Staging areas would be developed from currently paved surfaces, concrete pads, and previously disturbed vegetated areas. The staging areas, construction equipment, and temporary storage of construction materials and material from the demolition would not adversely impact the biological resources of the area. Most of this area has been previously developed and is not be considered quality habitat for any native species. Any potential disturbance to native wildlife could involve a temporary displacement, but upon project completion, species would return to ambient conditions.

3.4.2.2 No Action Alternative

Under the No Action Alternative, demolition, repairs, construction, modernization, and maintenance associated with projects under the Proposed Action would not occur. Biological resources would remain in their current state, as described in Section 3.4.1, except for minor changes from ongoing projects and maintenance activities.

3.5 LAND USE

3.5.1 Existing Conditions

Land use generally refers to human modification of land, often for residential or economic purposes. It also refers to the use of land for preservation or protection of natural resources such as wildlife habitat, vegetation, or unique features. Attributes of land use described in this PEA include general land use and ownership, land management plans, and special use areas. The existing land use at MOTCO is predominantly dictated by the military mission of the installation.

Developed land in the Tidal Area serves the primary mission of MOTCO as the shipping and distribution home of the 834th Transportation Battalion. This land is dedicated to operational uses including piers, holding pads, transfer facilities with some operational support such as warehousing, and maintenance. In the Tidal Area, missions generally occur at the port in the northern portion adjacent to Suisun Bay, with ammunition holding and transfer facilities located in the center. The prominent active land use in the Tidal Area is ammunition holding and staging, with approximately 8 percent of lands devoted to this function (Army 2017b). Large portions of the Tidal Area are marsh and wetlands located within the inhabited building distance explosive-safety quantity-distance arc. Also included in the Tidal Area are 2,045 acres of offshore islands.

There are two special use areas of note within the Tidal Area: the Port Chicago National Memorial and the Wetlands Preserve. The Port Chicago Naval Magazine National Memorial, which is administered by the NPS, became the 392nd unit of the NPS on October 28, 2009 (NPS 2019a). In October 2019, Port Chicago Naval Magazine National Monument became part of the African American Civil Rights Network, recognizing the “civil rights movement in the U.S. and the sacrifices made by those who fought against discrimination and segregation.” The African American Civil Rights Network was created by the *African American Civil Rights Act* of 2017 and is coordinated by the NPS (NPS 2019b). The memorial is located on 1.8 acres of the 5-acre site along White Road at MOTCO that has been developed for use by NPS per the National Defense Authorization Act for FY 2010 (Army 2015a). The Wetland Preserve, which was first established through a memorandum of understanding between the Navy and USFWS in 1984, occupies approximately 30 percent of the Tidal Area. The Army has committed to giving priority to protecting and managing the Wetland Preserve and preventing, as far as feasible, any military activity that could adversely affect or otherwise be detrimental to the wetland resources of the Wetland Preserve (USACE 2017a).

The 115-acre Inland Area supports administrative uses as well as maintenance, safety, and security functions. There are some minor tenant uses within the Inland Area and the Army Reserve operates a complex within the area.

Major land management plans for MOTCO include the Real Property Master Plan (RPMP), INRMP, and Integrated Cultural Resources Management Plan (ICRMP; MOTCO 2018a). Together, these planning documents provide for optimization of land use at MOTCO while ensuring protection of natural and cultural resources.

Land use in areas adjacent to MOTCO is mixed residential and industrial. The community of Bay Point lies to the east of the MOTCO boundary and the community of Clyde lies between the Tidal Area and Inland Area. General Chemical West, LLC, operates a chemical manufacturing facility on Nichols Road in Bay Point, an area bounded to the east, west, and south by MOTCO and to the north by Suisun Bay (California Department of Toxic Substances Control 2006). General Chemical West manufactures high purity acids and has been operating at this location since 1986. South and west of the Inland Area is a golf course. Immediately south of ACP #2 is a light industrial area.

3.5.2 Environmental Consequences

3.5.2.1 Proposed Action

Impacts on land use were evaluated for significance based on if one or more of the following would occur within the Proposed Action area:

- The action is substantially incompatible with surrounding land uses.
- The action changes land use in such a way that mission-essential operations are degraded.
- The action is substantially inconsistent or in conflict with the environmental goals, objectives, or guidelines of a community or county comprehensive plan for the affected area.

Proposed Action project sites are located in previously disturbed areas of the Tidal Area and Inland Area. In general, projects modify or add to existing facilities within or adjacent to areas already used for similar facilities and associated operations. No change to the nature or level of operations is anticipated as a result of the Proposed Action. Land use resulting from projects under the Proposed Action is consistent with existing land use as well as land use for the general area as outlined in MOTCO's RPMP.

Demolition

Demolition of foundations and internal revetments associated with the former R-Building area would take place within an existing area of mission use. No impacts to land use would occur.

Utility Construction and Maintenance

Utility repair or replacement, or connections to existing electrical, communication, water, and wastewater systems associated with new facilities would not change existing land use.

Realignment and Addition of Rail Lines

Rail lines would be realigned or added in areas of existing rail lines. No changes in land use would result from these rail lines or subsequent operational use.

Expand Holding Pads and Transfer Pads

The construction of new holding pads would convert approximately 130 acres (approximately 9 percent) of previously impacted non-native grasslands to developed land. This would reduce the amount of area available for grazing under the agricultural contract. Land use would remain

compatible with adjacent current use, bounded to the west by existing holding pads and to the east by a helicopter pad and the "Q Area."

Demolition, expansion, and construction of transfer pads would convert approximately 15 acres of non-native grassland to concrete pads and associated elements (e.g., berms, roadways).

Substantial grazing area would remain at MOTCO. Impact to land use would be minor.

New Construction or Major Renovation of Individual Buildings and Structures

New construction and major renovation projects can be categorized as follows:

- Replacements or renovations within the same footprint (ACP #2, Building 542 improvements);
- New structures within areas already dedicated to the primary function (lightning protection systems in rail barricade sidings area; locomotive shed in area served by rail lines);
- New facility within developed area (Emergency Services Training Facility in Inland Area); or
- New facility adjacent to related facility (Railcar Inspection Station near ACP #5).

All of these projects are consistent with current land uses; no impacts to land use are anticipated.

Construction of an Emergency Backup Power Generation System

Construction will occur in previously disturbed areas. No additional impacts to land are anticipated.

Supporting Actions

Staging area and fill material storage areas would be located in previously disturbed areas near construction sites. No land-use impacts would occur. Construction-related traffic would not result in any change to land use.

3.5.2.2 No Action Alternative

Under the No Action Alternative, projects under the Proposed Action would not take place. The current land use pattern at MOTCO would not change from existing conditions and no additional impacts on land use would be anticipated.

3.6 TRANSPORTATION AND UTILITIES INFRASTRUCTURE

3.6.1 Existing Conditions

3.6.1.1 Road Transport

State Route 4 provides the main access to MOTCO, with State Highway 242 and Interstates 680, 80, 580, and 780 providing access from the major urban centers of San Francisco, Oakland, San Jose, and Sacramento (Figure 3-6). The Tidal Area's primary road network consists of Port Chicago Highway/Taylor Boulevard, White Road, and Main Street/Murdoh Road. These roads provide access to the Tidal Area and among the various Tidal Area

Source: Army 2015a

Figure 3-6. Regional Road Network

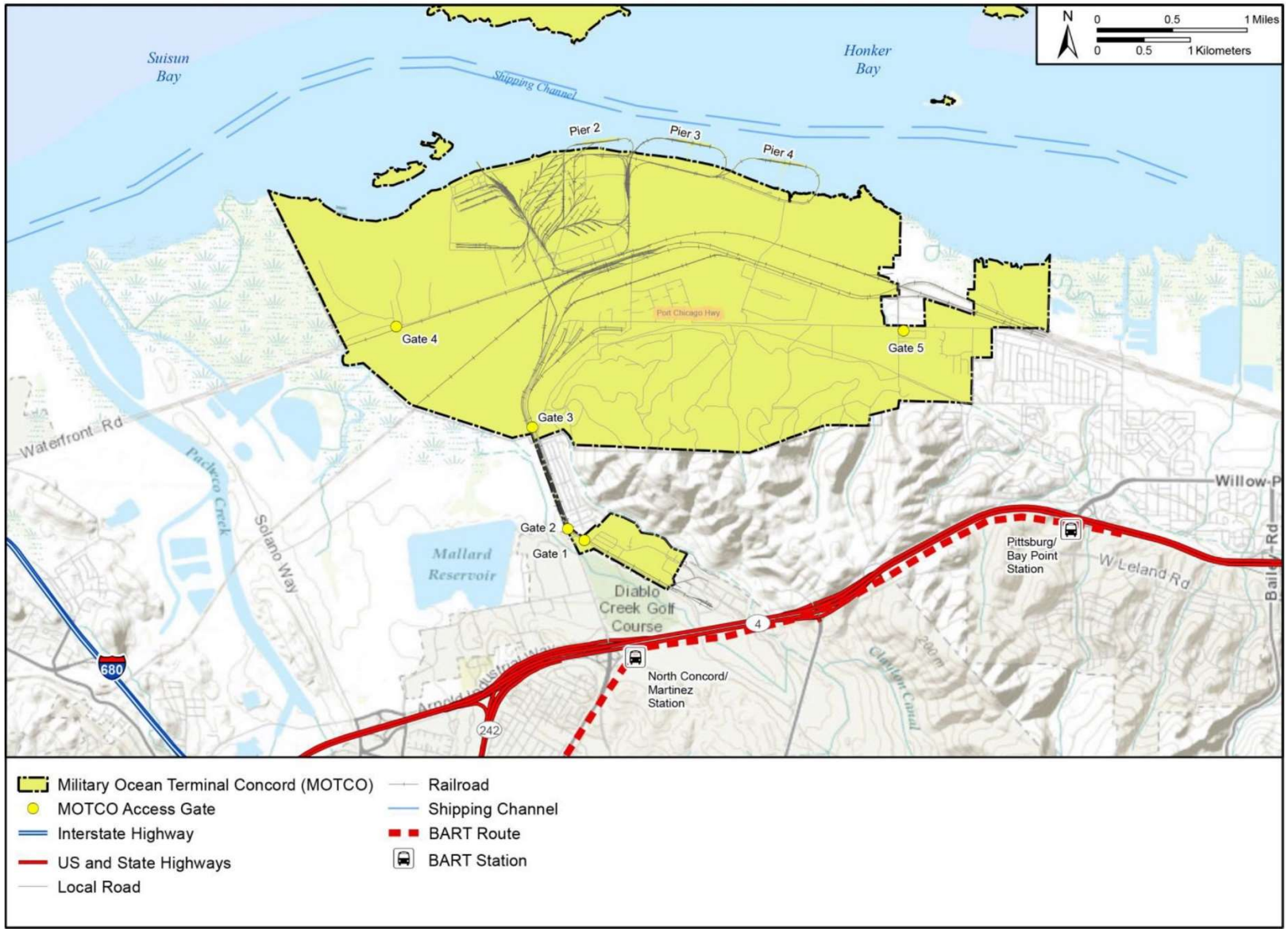
functions. The western portion of Port Chicago Highway, which is a county road, provides access to ACP #1 and ACP #2 from State Route 4; the eastern portion of Port Chicago Highway provides access to the Tidal Area at ACP #5.

ACP #1 is the main gate providing access to the Inland Area and is accessible via Kinne Boulevard. ACPs #2, #3, #4, and #5 provide access to the Tidal Area. ACP #2, located at Port Chicago Highway and Taylor Boulevard (Figure 3-7), and ACP #5, located at the intersection of Port Chicago Highway and Nichols Road in the eastern portion of MOTCO, serve as the primary points for trucks entering the Tidal Area. ACP #3 is located near the community of Clyde at the intersection of Port Chicago Highway and the Pacific Gas & Electric (PG&E) utility corridor. ACP #4 is located along Waterfront Road on the western side of the Tidal Area in the Hastings Marsh Area.

The City of Concord has designated a truck route for vehicles exceeding a maximum gross weight of 3 tons. Trucks exceeding this weight are prohibited from using all other streets except when necessary to travel to their destination for the purposes of loading or unloading (passenger buses, public utility vehicles while in use, and refuse collection vehicles are exempt) (City of Concord 2019a). Near MOTCO, designated truck routes include Willow Pass Road (route to ACP #5) and Port Chicago Highway near Arnold Industrial Way (route to ACPs #1, #2, and #3). In addition, Contra Costa County issues special permits to operate or move a vehicle, combination of vehicles, or special mobile equipment of a size or weight of vehicle or load exceeding the maximums specified in the California Vehicle Code. Permits available include single trip, repetitive, and annual transportation permits (Contra Costa County 2019a).

The annual average daily traffic (AADT) volumes in the vicinity of ACP #1 along State Route 4, west and east of Port Chicago Highway, were 109,200 and 192,200 vehicles, respectively, in 2017 (California Department of Transportation [Caltrans] 2019a). The AADT volumes on State Route 4 west and east of Port Chicago Highway in Bay Point, on the route to ACP #5, were 189,000 and 164,900 vehicles, respectively, in 2017 (Caltrans 2019a). At this same location on Port Chicago Highway, Caltrans also determines AADT volume of trucks at a subset of locations measured for all traffic. In 2017, the AADT volume of trucks on State Route 4 west and east of Port Chicago Highway in Bay Point was 9,771 and 9,102 vehicles, respectively (Caltrans 2019b).

The community of Bay Point has a network of county-maintained roads that were built to support local residential neighborhoods, as well as arterials, including Willow Pass Road, Port Chicago Highway, and Bailey Road, that link Bay Point to State Route 4 and neighboring communities. Prior to 1994, one of Bay Point's key arterial connections with neighboring communities was the segment of Port Chicago Highway that runs through MOTCO. With its closure to public access, the primary east-west surface street linking Bay Point with Concord to the west was cut off.



Source: Army 2015a

Figure 3-7. MOTCO Access Points

The current amount of traffic using local roads in Bay Point generally reflects the size of Bay Point's population and the level of activity that occurs on a daily basis in the area. Table 3-7 presents the most recent available traffic counts for locations along Port Chicago Highway (Figure 3-8).

Table 3-7. Average Daily Vehicle Volumes

Roadway	From	To	Daily Volume	Level of Service
Port Chicago Highway (western portion)[1]	Arnold Industrial Way	Bates Avenue	17,617	Not Determined
Willow Pass Road[2]	State Route 4	Port Chicago Highway	21,500	A
Port Chicago Highway (eastern portion)[2]	Willow Pass Rd.	Pacifica Avenue	13,200	C
	Pacifica Ave.	McAvoy Road	5,200	A
	McAvoy Road	Driftwood Drive	5,000	A

Sources: [1] City of Concord 2019b, [2] DKS Associates 2016

Level of service (LOS) is a qualitative measure used to describe the quality of traffic service. LOS is used to analyze intersections and roadways by categorizing traffic flow and assigning quality levels of traffic based on performance measures such as speed and density. LOS is represented by the letters A through F. A LOS of A is considered the least restricted, or freest, flow of traffic, while a LOS of F is considered the most restricted flow of vehicles. In the Bay Point area, a LOS of D or better is considered acceptable, while a LOS of E or F is considered unacceptable (DKS Associates 2016).

In the *Nexus Study—Bay Point Area of Benefit*, prepared for the Contra Costa County Public Works Department, LOS was calculated for individual intersections and roadway segments within Bay Point (DKS Associates 2016). Based on the Nexus Study, the current LOS for the segments of Port Chicago Highway along the access route to ACP #5 ranges from A to C and is considered acceptable (see Table 3-7) (DKS Associates 2016). There is one location along the route, the traffic signal at the intersection of Port Chicago Highway and Pacifica Avenue (see Figure 3-8), with a LOS of E during morning hours; however, the LOS returns to an acceptable LOS of B in the afternoon and evening (DKS Associates 2016).

Annual installation support-related truck traffic totaled 4 trucks in 2015 (Army 2017c). During mission in 2015, MOTCO's total truck volume was 258 trucks (Army 2017c). Missions typically take place for up to 36 days each year, and during these times, daily stevedore, bus, and privately-owned vehicle (POV) traffic is estimated to total 80 vehicles. All POVs are parked in the parking lot near ACP #1, and workers are then shuttled to the Tidal Area through ACP #2.

3.6.1.2 Mass Transit

Bay Area Rapid Transit (BART) commuter train service is available in Contra Costa County and in the vicinity of MOTCO. BART stations on the yellow line are located near MOTCO with the North Concord/Martinez Station at the northwest intersection of State Route 4 and Port Chicago Highway, approximately 1.2 miles south of ACP #1 (see Figure 3-7). The Pittsburg/Bay Point BART station is located approximately 3 miles southeast of ACP #5.

Source: DKS Associates 2016

Figure 3-8. Traffic Count Locations and Level of Service (LOS) along Willow Pass Road and Eastern Portion of Port Chicago Highway

3.6.1.3 Rail Transport

Two major railroad lines currently carry freight within Contra Costa County. The Union Pacific railroad line, formerly the Southern Pacific railroad line, stretches 60 miles through the county from Richmond to the Alameda County line. The Union Pacific railroad line carries the most freight traffic of all the railroad corridors in the county (Army 2015a).

A 55-mile-long BNSF railroad corridor roughly parallels the Union Pacific railroad line between Richmond and Hercules (Contra Costa County 2005). Amtrak currently operates five northbound and five southbound commuter train routes that traverse MOTCO seven days a week, primarily on the BNSF tracks (Amtrak 2019).

A railroad track inspection completed in 2005 found that, in general, the railroad system at MOTCO is in fairly good condition. MOTCO's rail infrastructure was designed and built at a time in the 1940s when 40-foot and 50-foot boxcars were common in rail conveyance. Today DoD-owned rail cars (DODX) are 89-foot flat cars. There are some areas where tight curvature impacts mission efficiency as tight turns must be negotiated at very slow speeds of 10 mph or less to avoid derailments.

MOTCO currently relies on rail lines for approximately 95 percent of all its cargo transport needs. The rail lines described previously are used to transport cargo to and from MOTCO through Contra Costa County to the rest of the U.S.

3.6.1.4 Water Transport

To fulfill its mission, MOTCO uses three wharves, known as Piers 2, 3, and 4, located along Suisun Bay within the Tidal Area (see Figure 3-7). Piers 3 and 4 are mostly timber structures that were built between 1944 and 1945 to support ammunition movements to the Pacific theater during World War II. Each pier was constructed with a main deck plus raised platform along the waterside length of the pier. This dual-level pier design and MOTCO's rail track layout at the piers were originally designed for a non-containerized handling mission. Pier 2, also originally built between 1944 and 1945, was similar in construction to Piers 3 and 4 but is in the process of being modernized with replacement of the dual-level deck with a single-level deck, replacement of wooden piles with pre-stressed concrete piles, and the addition of two 80-long-ton container cranes (Army 2015a).

Currently, MOTCO primarily accommodates containerized cargo, which is a system of transport using containers. Most containerized cargo is received directly from manufacturers via rail and highway transport and arrives at MOTCO's transfer and holding pads where it is offloaded, staged, and outloaded onto ships for water transport.

3.6.1.5 Utilities

Sanitary Sewer

Sanitary sewer infrastructure is connected to most buildings in the Tidal Area, with Delta Diablo (District) receiving this discharge. In 2018, Delta Diablo treated an average of 13.3 million gallons per day; the plant is capable of treating up to 19.5 million gallons per day (Delta Diablo 2019).

Potable Water

The Contra Costa Water District (CCWD) supplies potable water to MOTCO. Water is treated at the Bollman Water Treatment Plant located in Concord, which is owned and operated by the CCWD. Together with the Randall Bold Treatment Facility, the CCWD has the capacity to treat the current and projected service population (CCWD 2017, CCWD 2018). In addition, MOTCO has the capacity to receive water from the East Bay Municipal Utility District (Army 2015a). All major facilities and the three piers at MOTCO have potable water access.

Electricity

Power at MOTCO is delivered to an electrical substation located in the Inland Area. Electricity is then delivered to the Tidal Area through 12-kilovolt transmission lines. The lines typically branch out to 4-kilovolt transmission lines, with the exception of the piers, which are served by 12-kilovolt lines. The Tidal Area also contains four substations; two are 12 kilovolt lines and two are 4.16 kilovolt lines. The electrical infrastructure at MOTCO is aging and in need of upgrades to meet current standards (MOTCO 2011a).

Natural Gas

Natural gas is supplied to MOTCO from San Francisco through transmission mains from Canada and Texas.

Telecommunications

Telecommunications services are provided via pole lines and underground conduit communications ducts for voice and data services.

Solid Waste

Solid waste, recyclable materials, and green waste are collected by Concord Disposal Services. There are two active solid waste landfills located within Contra Costa County: Acme Landfill and Keller Canyon Landfill (CalRecycle 2019a). In 2011, Contra Costa County disposed of a combined total of 827,995 tons of solid waste at the Acme and the Keller Canyon landfills (CalRecycle 2019d). The Acme landfill has a maximum permitted throughput of 1,500 tons per day and remaining capacity of 506,590 cubic yards (CY) as of 2012 (CalRecycle 2019b), while Keller Canyon Landfill has a maximum permitted throughput of 3,500 tons per day and a remaining capacity of 63,408,410 CY as of 2004 (CalRecycle 2019c).

California's Green (CALGreen) Building Standards Code (CALGreen Sections 4.408 and 5.408) required the diversion of at least 50 percent of the non-hazardous waste generated during most new construction projects. On 1 July 2012, that requirement was expanded to include additions and alterations to existing nonresidential building projects. A 2016 update increased the diversion quantity to 65 percent (CalRecycle 2019e). The City of Concord has adopted a local construction and demolition materials ordinance requiring that at least 65 percent of the non-hazardous waste materials and at least 75 percent of all non-hazardous inert debris (such as concrete and asphalt) generated by construction or demolition projects be diverted from the landfill (City of Concord 2019c). Pursuant to 42 U.S.C. § 6961, agencies must comply with Federal as well as state, interstate, and local requirements for management and disposal of non-hazardous solid waste. In accordance with *Implementing Instructions for Executive Order*

13834, Efficient Federal Operations, "agencies should pursue cost-effective waste prevention by first reducing overall waste generated, while also pursuing strategies that reduce disposal fees and minimize environmental impacts by diverting waste from treatment and disposal facilities, including landfill and incineration without energy recovery. Agencies should ensure that waste management service contracts have provisions for waste minimization and diversion in accordance with these Instructions, and that vendors report disposition to the agency, where feasible, to facilitate tracking of progress and compliance" (CEQ 2019b).

The community of Bay Point was awarded an environmental justice grant by the USEPA in 2007. In a USEPA Level 1 Grantee Final Report, it was noted that illegal dumping was a concern for any project that might involve the disposal of solid waste (USEPA 2009b). Due to Bay Point's proximity to the municipal landfill for the area, waste haulers often illegally dump solid waste in the fringes of the community so that they can avoid the tipping fees at the landfill or if they arrive after hours at the landfill and still want to dispose of their wastes (USEPA 2009b). In particular, on a regular basis, solid waste has been illegally dumped along Nichols Road near its intersection with Port Chicago Highway.

3.6.2 Environmental Consequences

3.6.2.1 Proposed Action

Transportation

During construction, demolition, repair, and renovation activities under the Proposed Action, there would be temporary impacts on traffic from trucks and POVs in the vicinity of MOTCO. Vehicles would include concrete mixers; dump trucks; transport trucks or truck/trailer combinations moving bulldozers, excavators, cranes, and other off-road equipment; and worker POVs. The number of off-installation truck trips per day would depend on the activity being conducted. Over an anticipated 18-month construction period (using a conservative assumption that all elements of the Proposed Action would be performed over a 30-month timeframe), there would be an estimated total of 8,139 vehicle trips (round trips), or 13 trips per workday (Table 3-8). It is anticipated that 20 to 30 additional workers would be at the job site each day. For Inland-Area projects, trucks would travel along Port Chicago Highway (western section) to enter MOTCO through ACP #1. For Tidal-Area projects, trucks would travel along Port Chicago Highway (western section) to enter MOTCO through ACP #2 (ACP #3 during replacement of ACP #2) or would enter at ACP #5 from the eastern section of Port Chicago Highway, driving through the community of Bay Point. POVs would approach MOTCO using the same routes, but, depending on project location and security protocols, may either enter through ACP #1, ACP #2 (ACP #3 during replacement of ACP #2), or ACP #5, or park in designated parking lots at ACP #1 or #5 and be bused to the worksite. Port Chicago Highway would remain open to local traffic. Crews would use the City of Concord's designated truck routes and obtain special permits from Contra Costa County, as required.

Table 3-8. Estimated Trips under the Proposed Activities

Type of Construction-Related Truck Trip	Number of Trips
Concrete Mixer	135
Dump Truck	450
Transport Truck	54
Worker Privately Owned Vehicles[1]	7,500
Number of Total Trips for Construction Activities	8,139
Average Number of Total Trips per Week[1]	65
Average Number of Total Trips per Day[2]	13

[1] Assumes an 18-month construction period occurring over a 30-month timeframe, 50 weeks/year
[2] Assumes a 5-day workweek (no weekend work needed)

Traffic impacts related to the Proposed Action would be short-term in nature, lasting approximately 30 months. The estimated number of additional daily trips would represent an incremental increase in traffic, divided between two different routes. LOS would not be affected. Traffic impacts would be negligible.

No changes to the area mass transit, rail transport, or water transport would occur with implementation of the Proposed Action.

Utilities

New utility construction would be needed in conjunction with new facilities and would be limited to connections to existing electrical, telecommunication, water, and wastewater systems; these activities are included within the Proposed Action. No relocation or modification of overhead electrical or communication lines outside of MOTCO would be necessary. Existing water and sewer would be extended from the existing infrastructure to the proposed facilities. New transformers may be installed to meet the increased demand for electricity. New fiber-optic cables (communications and security) may be extended from existing telecommunication lines to proposed facilities. Extended telecommunications lines would be installed within existing conduit and road rights-of-way. Details of the extension of utilities would be included in design documents for individual projects and would be analyzed in a future NEPA document.

The Proposed Action also includes projects to improve existing utility infrastructure, including upgrading water lines going to and from MOTCO's main pumping facility, the water storage tank located on TV Hill, and large-scale replacement or upgrade of exterior lighting or substations.

As levels of operational activities would not increase with new facilities, no substantial increase in demand for electrical, telecommunication, water, and wastewater services would be anticipated.

To the maximum extent possible, at least 65 percent of non-hazardous solid waste generated through construction, demolition, repair, and renovation projects would be diverted in accordance with CALGreen requirements and the City of Concord's construction and demolition

materials ordinance. Contra Costa County landfills have sufficient capacity to accommodate non-diverted solid waste.

Overall, the Proposed Action would result in negligible impacts on utilities at MOTCO and in the area.

3.6.2.2 No Action Alternative

Under the No Action Alternative, the Army would not perform construction, demolition, repair, and renovation projects described in the Proposed Action. No new traffic associated with these activities would be generated. Renovation or replacement of any utilities (electrical, water, wastewater, and communications) found outside of established road corridors would not be performed. Condition of these utilities would continue to degrade causing increased risk of failure and potential mission, environment, or human health/safety impacts.

3.7 VISUAL RESOURCES

3.7.1 Existing Conditions

There are two viewsheds at MOTCO that offer visual diversity that is relatively rare in terms of color, line, and form. The first is MOTCO's marshlands and waterfront viewsheds that provide views of Suisun Bay and views of the environmentally sensitive Hastings Marsh Area. The second is the Medanos Hills, which provide the rolling grassland-covered background views for MOTCO and the surrounding area. Both viewsheds are minimally disrupted by existing MOTCO development and activities. Both of these viewsheds contribute to the visual environment of the Port Chicago Naval Magazine National Memorial, which has unique visual elements designed by the NPS to commemorate the site of the 17 July 1944, explosion.

While MOTCO personnel are the main viewers of the visual environment at MOTCO, sensitive viewers include those who visit the Port Chicago Naval Magazine National Memorial, nearby residents in Clyde and Bay Point as well as users of the Del Diablo Golf Course located near MOTCO's Main Gate. However, views from these locations are largely screened or obstructed by intervening vegetation and topography.

There are a number of deteriorated facilities throughout the installation. These facilities degrade the aesthetics and vitality of the built environment. Furthermore, older, existing structures lack elements described in the Final 2014 Installation Design Guidance and 2016 MOTCO Installation Planning Standards, resulting in a lack of uniformity in visual elements, including building materials, architectural design, signage, and landscaping throughout the installation.

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

Under the Proposed Action, new and renovated structures would be consistent with MOTCO's installation-wide program for new construction outlined in the RPMP and would improve the visual character of the built environment for MOTCO personnel and visitors at those locations. Most Proposed Action projects are sited on MOTCO property at locations that would not impact the Port Chicago Naval Magazine National Memorial viewshed, or views of Suisun Bay or Los Medanos Hills. Construction operations required for two portions of the Rail Curve Repair

project would take place within sight of the memorial, approximately 200- to 700-feet away. Activities would be temporary, and the realignment of the rail curves would not alter the character of the viewshed. Construction operations to add rail tracks to Class Yard 1, approximately 0.5 mile west of the memorial, would be visible from parts of the memorial. These activities would also be temporary, with new tracks likely not visible from the memorial after completion. Neither of these projects would result in changes to types or frequency of operations.

With implementation of the Proposed Action, minor, temporary impacts on the visual resources at MOTCO and in the area would be expected; permanent impacts would be negligible.

3.7.2.2 No Action Alternative

Under the No Action Alternative, no construction, demolition, repair, and renovation activities resulting in change of visual character would take place; no changes to visual resources would be expected.

3.8 NOISE

3.8.1 Existing Conditions

3.8.1.1 Definitions and Terminology

Noise is generally described as unwanted sound, which can be based either on objective effects (i.e., hearing loss, damage to structures) or subjective judgments (e.g., community annoyance). Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB. The A-weighted decibel (dBA) is a measurement of sound pressure adjusted to conform to the frequency response of the human ear. The dBA metric is most commonly used for the measurement of environmental and industrial noise.

Noise levels occurring at night generally produce a greater annoyance than do the same levels occurring during the day. It is generally agreed that people perceive intrusive noise at night as being 10 dBA louder than the same level of intrusive noise during the day, at least in terms of its potential for causing community annoyance. This perception is largely because background environmental sound levels at night in most areas are also about 10 dBA lower than those during the day.

Long-term noise levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the Day/Night Average Noise Level (DNL). DNL is the community noise metric recommended by the USEPA and has been adopted by most Federal agencies. A DNL of 65 dBA is the level most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities such as construction.

As a general rule, noise generated by a stationary noise source, or “point source,” will decrease by approximately 6 dBA over hard surfaces and 9 dBA over soft surfaces for each doubling of the distance. For example, if a noise source produces a noise level of 85 dBA at a reference

distance of 50 feet over a hard surface, then the noise level would be 79 dBA at a distance of 100 feet from the noise source, 73 dBA at a distance of 200 feet, and so on.

3.8.1.2 Baseline Noise Levels

MOTCO conducted a noise measurement survey from 2 August 2016, through 6 August 2016. The objective of the noise measurement survey was to establish a baseline noise level for missions and for use in developing NEPA documentation. The primary focus of the noise measurement survey was to collect and calculate the DNL at four specific locations, so that noise generated by the mission near ACP #1 and ACP #2 as well as the existing ambient noise near ACP #5 could be determined prior to construction of the Modern ACP at that location. The findings from the noise measurement survey provide context of mission and background noise levels with which any changes in modeled noise exposure resulting from a project can be considered.

Noise measurement equipment was installed at four locations on MOTCO property during a mission to continuously record for at least 72 hours. The noise measurement survey focused on collecting a sample of noise data at four strategic locations near noise sensitive areas (e.g., residences) or near locations of potential projects that would have the greatest opportunity to be heard by the public because of their relatively close proximity to residential areas (Figure 3-9).

The following paragraphs provide both qualitative descriptions and quantitative analysis for each measurement location. First, location descriptions are given based primarily on qualitative observations made by the acoustical engineer who was onsite performing checks at each location during the noise measurement period. Second, the quantitative results are presented for each day of the noise measurement survey at each location.

DNL for each day at each location was directly calculated using the collected 1-second dBA data. The maximum number of continuous 24-hour periods measured at each site was used, beginning with the first full hour of measurement for each phase.

Location 1

Location 1 was at ACP #1, which is near the intersection of Kinne Boulevard and Port Chicago Highway and adjacent to MOTCO's Visitor Control Center. Land use in the vicinity of ACP #1 is developed for military use, and the nearest residence in the community of Clyde is approximately 758 feet north of ACP #1. The primary sources of noise associated with Location 1 were truck and POV traffic associated with the mission and general traffic entering and exiting MOTCO's Visitor Control Center. Throughout the measurement period, POVs passed Location 1 as they traveled along Port Chicago Highway to and from the community of Clyde. Wildlife, especially birds, occasionally made noise. Table 3-9 provides a summary of the DNL calculated during the noise measurement survey at Location 1.

BridgeNet International 2016

Figure 3-9. Noise Measurement Locations at MOTCO

Table 3-9. DNL Values at Location 1

Noise Measurement Period	Measured DNL (dBA)
August 2-3, 2016	61.5
August 3-4, 2016	63.2
August 4-5, 2016	63.9
August 5-6, 2016	63.2
Overall Average DNL	63.0

Source: BridgeNet International 2016

Location 2

Location 2 was at ACP #2 along Port Chicago Highway near the intersection with Taylor Boulevard. ACP #2 is the main entrance for all truck traffic entering MOTCO bound for the Tidal Area as part of the mission. Land use in the vicinity of ACP #2 is developed for military use, and the nearest residence in the community of Clyde is approximately 168 feet east of ACP #2.

The primary sources of noise associated with Location 2 were truck and POV traffic associated with the mission. Throughout the measurement period, POVs passed Location 2 as they traveled along Port Chicago Highway to and from the community of Clyde. Wildlife, especially birds, occasionally made noise. Table 3-10 provides a summary of the DNL calculated during the noise measurement survey at Location 2.

Table 3-10. DNL Values at Location 2

Noise Measurement Period	Measured DNL (dBA)
August 2-3, 2016	61.8
August 3-4, 2016	63.0
August 4-5, 2016	60.8
August 5-6, 2016	59.7
Overall Average DNL	61.3

Source: BridgeNet International 2016

Location 3

Location 3 was at ACP #5 at the intersection of Port Chicago Highway and Nichols Road. At the time, ACP #5 was unmanned and remained closed during missions. Land use in the vicinity of ACP #5 is developed for industrial and residential use. General Chemical is located approximately 735 feet north of ACP #5, and the closest residence along Nichols Road is 0.8 mile away.

During the noise measurement period, no military-related actions at or near Location 3 contributed to the ambient noise level. The primary sources of noise associated with Location 3 were POV traffic associated with Port Chicago Highway and truck traffic associated with commercial industries, including General Chemical, along Port Chicago Highway. Throughout the measurement period, POVs passed nearby Location 3 as they traveled along Port Chicago Highway, including residents coming to and from homes on Nichols Road. Noise from nearby

freight railroad and Amtrak lines could also be heard. Wildlife, especially birds, occasionally made noise. Table 3-11 provides a summary of the DNL calculated during the noise measurement survey at Location 3.

Table 3-11. DNL Values at Location 3

Noise Measurement Period	Measured DNL (dBA)
August 2-3, 2016	73.0
August 3-4, 2016	70.4
August 4-5, 2016	64.5
Overall Average DNL	69.3

Source: BridgeNet International 2016

Location 4

Location 4 was along Port Chicago Highway adjacent to residences in Bay Point. Land use in the vicinity is industrial and residential. General Chemical is located approximately 1 mile north of the noise measurement location, and the nearest residence in the community of Bay Point is approximately 56 feet west of Location 4. Rio Vista Elementary, Shore Acres Elementary, and Riverview Middle schools are all located within 1 mile of Location 4. A mosque, the Ahmadiyya Muslim Community East Bay, is also located within 1 mile of Location 4.

During the noise measurement period, no military-related actions at or near Location 4 contributed to the ambient noise level. The primary sources of noise associated with Location 4 were POV traffic associated with Port Chicago Highway and truck traffic associated with commercial industries, including General Chemical, along Port Chicago Highway. To a lesser degree, noise from nearby freight railroad and Amtrak lines could also be heard. Wildlife, especially birds, occasionally made noise. Table 3-12 provides a summary of the DNL calculated during the noise measurement survey at Location 4.

Table 3-12. DNL Values at Location 4

Noise Measurement Period	Measured DNL (dBA)
August 2-3, 2016	69.7
August 3-4, 2016	67.0
August 4-5, 2016	69.6
Overall Average DNL	68.8

Source: BridgeNet International 2016

Summary of Noise Measurement Survey Results

The noise measurement survey was conducted to provide a sample of real field noise levels at four locations on MOTCO property. Table 3-13 provides a summary of the noise levels recorded during the measurement period for each location. Table 3-14 provides a summary of the sensitive noise receptors that must be considered when analyzing noise impacts in the PEA. The table outlines sensitive noise receptors, the nearest source noise/noise measurement location, the distance from each receptor to the closest source noise/noise measurement

location, maximum DNL noise levels at the source/measurement location, and the attenuated DNL noise level experienced at the actual receptor.

Table 3-13. MOTCO Noise Measurement Survey Summary

Site	Measured DNL (dBA)
Location 1	63.0
Location 2	61.3
Location 3	69.3
Location 4	68.8

Source: BridgeNet International 2016

Table 3-14. Sensitive Noise Receptors near Noise Measurement Locations at MOTCO

Sensitive Noise Receptor	Nearest Source Noise/ Measurement Location	Distance from Source Noise/ Measurement Location (feet)	Source Noise Level (dBA)	Noise Level at Receptor (dBA)
Residential Home	Location 1	758	63.9	42.1
Residential Home	Location 2	168	63.0	47.7
Residential Homes	Location 4	56	69.7	65.7
Rio Vista Elementary School	Location 4	2,698	69.7	42.9
Shore Acres Elementary School	Location 4	2,071	69.7	44.0
Riverview Middle School	Location 4	3,104	69.7	42.3
Ahmadiyya Muslim Community East Bay	Location 4	2,722	69.7	42.8

Source: BridgeNet International 2016

3.8.2 Environmental Consequences

3.8.2.1 Proposed Action

Under NEPA, a proposed project is compared with the baseline scenario, or the No Action Alternative, to determine if noise impacts would occur. That is, the proposed project causes an impact when it changes the noise level compared to the No Action condition. Changes that are less than 3 dBA are considered negligible because they are barely perceptible to the human ear.

Construction Noise

New construction assumes standard construction and demolition practices, including the use of some heavy equipment over a temporary period. Construction-related noise emissions from the types of equipment that would be used to implement the Proposed Action would range from 79 to 85 dBA when measured 50 feet from the respective piece of equipment (Federal Highway Administration 2006). Construction noise is modeled using the Federal Highway Administration's Road Construction Noise Model Version 1.1, which was developed to calculate noise levels emanating from various types of construction equipment. Although developed

initially for road construction, the equipment types and noise calculations apply to any type of construction activity.

Construction, demolition, repair, and renovation activities would require the use of common construction equipment. Table 3-15 describes noise emission levels expected for types of equipment that may be used during construction activities under the Proposed Action.

Table 3-15. Noise Levels (dBA) of Construction Equipment and Modeled Attenuation at Various Distances[1]

Noise Source	50 feet	100 feet	200 feet	500 feet	1000 feet
Bulldozer	85	79	73	65	59
Dump Truck	84	78	72	64	58
Water Pump	76	70	64	56	50
Concrete Mixer Truck	79	73	67	59	53
Roller	80	74	68	60	54
Grader	85	79	73	65	59
Crane	81	75	69	61	55
Excavator	81	75	69	61	55
Front-end loader	79	73	67	59	53

Sources: Federal Highway Administration (FHWA) 2006, Army 2017c
[1]The dBA at 50 feet is a measured noise emission. The 100- to 1,000-foot results are modeled estimates.

Based on the modeled attenuation of noise levels listed in Table 3-15, the majority of activities conducted in the Tidal Area would occur far enough (greater than 1,000 feet) from noise-sensitive areas or sensitive noise receptors that they would experience equipment noise at levels below the lowest measured DNL. The projects closest to sensitive areas would be:

- **Building 542 Anti-terrorism/Force Protection Improvements**. These improvements would include interior hardening, parking, and landscaping changes but would not change the existing footprint of the building. This building lies approximately 80 feet from the nearest residence in Clyde.
- **ACP #2 Replacement**. The ACP #2 replacement would consist of a permanent gate house, guard booth, and overwatch, built within the same footprint as the current ACP #2 facility. ACP #2 lies approximately 200 feet from the nearest residence in Clyde.
- **Modernize Interchange Yard—Repair Rail Line to Connect to Union Pacific**. This project would repair approximately 16,000 LF of existing, closed track; construct up to three new at-grade crossings; and construct one rail connection (approximately 700 LF) to the existing Union Pacific main line. The eastern portion of this rail connection is as close as 100 feet to the nearest residence in Bay Point.

Noise generated by these construction activities would be intermittent and vary in intensity depending on the equipment used in each phase. Noise impacts would be minimized through the implementation of the BMPs detailed in Section 5.2, including restrictions on idling time, using/maintaining equipment in proper working order, and avoiding construction during

nighttime hours (10:00 p.m. to 7:00 a.m.) and on weekends. In addition, the Army is committed to maintaining good public relations with the community by providing notification to neighbors in advance of commencing the noisiest phases of planned construction projects and using standard DoD protocols to log and respond to noise complaints received during project implementation.

During final design and environmental analysis, predicted noise and vibration levels and mitigation measures would be reviewed in further detail. Current project activities would limit noise effects to minimize disturbances. Further noise mitigation would be provided if noise impacts occur for which mitigation is deemed necessary and appropriate under local ordinances.

3.8.2.2 No Action Alternative

Under the No Action Alternative, activities described for the Proposed Action would not be performed. Additional noise from construction, demolition, repair, and renovation would not be generated; therefore, no noise impacts would occur.

3.9 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.9.1 Existing Conditions

This socioeconomics analysis outlines the basic attributes of population and economic activity within the region of influence (ROI) for MOTCO and vicinity. A discussion of Environmental Justice and the protection of children is also included in this analysis. The ROI for socioeconomics is Contra Costa County. Data are also provided for the communities of Bay Point and Clyde and for Census Tracts 3142 and 3150 (Figure 3-10). Census Tract 3142 includes the northwestern portion of Bay Point and the far eastern portion of MOTCO. Census Tract 3150 includes all but the far eastern part of MOTCO, along with the communities of Clyde (near ACP #2) and the southwestern portion of the community of Bay Point, bounded by MOTCO on the west, SR-4 on the south, and the Contra Costa Canal on the north. All projects under the Proposed Action are located within Census Tract 3150, with the exception of "Modernize Interchange Yard – Repair Rail Line to Connect to Union Pacific," which extends from Census Tract 3150 into Census Tract 3142.

There are approximately 68 contractors, tenants, and government personnel at MOTCO on a daily basis (Army 2017c), most of whom work within the Inland Area. During a mission, approximately 80 personnel are present for contracted terminal operations and as stevedore personnel. In addition, there are 10 personnel at MOTCO on a daily basis associated with the Army Reserve Center, and during drill weekends the weekend population could include 200 to 300 reservists (Army 2015a).

3.9.1.1 Demographics

Population data from the U.S. Census Bureau shows that from 2010 to 2017, the populations of Bay Point and Census Tracts 3142 and 3150 increased at annual rates of 0.7 to 1.6 percent. The community of Clyde, contained within Census Tract 3150, experienced average annual growth of 4.1 percent during that time period. From 2010 through 2017, the average annual

Source: U.S. Census Bureau 2019c

Figure 3-10. Locations of Communities and Census Tracts near MOTCO.

population growth rate in Contra Costa County (1.0 percent) has been slightly higher than California (0.7 percent) and the U.S. (0.6 percent) (Table 3-16).

Table 3-16. Population Growth Comparison

Geographical Area	2000	2010	2017 (estimates)	Average Annual Growth Rate from 2010 to 2017 (Percent)
Contra Costa County	948,816	1,049,025	1,123,678	1.0
Bay Point	21,534	21,349	23,708	1.5
Clyde	694	678	901	4.1
Census Tract 3142	6,270	6,482	6,790	0.7
Census Tract 3150	3,596	3,281	3,668	1.6
California	33,871,648	37,253,956	38,982,847	0.7
United States	281,421,906	308,745,538	321,004,407	0.6

Source: U.S. Census Bureau 2019a

Race and ethnicity data (Table 3-17) show that the population of the area to the east of MOTCO is heavily minority, primarily Hispanic. The community of Bay Point and Census Tract 3142 have 84 percent or greater minority populations, with 60 percent or greater Hispanic populations. The minority populations in Census Tract 3150 as a whole and the community of Clyde are more mixed, with Hispanic populations of 21 and 7 percent, and minority populations of 56 and 46 percent, respectively.

Table 3-17. Race and Ethnicity (Percent)—2017 Estimates

Geographic Area	White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Other Race or Two or More Races	Hispanic (any race)	Total Minority
Contra Costa County	58.6	8.6	0.5	16.0	0.5	15.8	25.3	55.1
Bay Point	38.9	10.7	1.0	8.6	0.8	40.1	60.8	84.6
Clyde	58.2	0.8	0.8	24.3	0.0	16.0	6.7	46.2
Census Tract 3142	41.6	2.3	0.0	5.0	1.8	49.3	77.0	87.7
Census Tract 3150	53.2	7.0	3.0	19.1	0.8	16.8	21.2	55.6
California	60.6	5.8	0.7	14.1	0.4	18.4	38.8	62.1
United States	73.0	12.7	0.8	5.4	0.2	8.0	17.6	38.5

Source: U.S. Census Bureau 2019a

The median household incomes for Contra Costa County, Clyde, and Census Tract 3150 are well above the U.S. average (153, 149, and 121 percent, respectively); however, median

household incomes for Bay Point and Census Tract 3142 are below the national average (72 and 80 percent, respectively; Table 3-18).

Table 3-18. Median Household Income and Poverty—2017 Estimates

Geographic Area	Median Household Income	Percent of U.S. Median Household Income	Family Percent in Poverty	Population Percent in Poverty
Contra Costa County	$88,456	153	6.9	9.8
Bay Point	$41,749	72	19.0	21.8
Clyde	$69,773	121	9.9	15.4
Census Tract 3142	$46,087	80	13.1	15.5
Census Tract 3150	$85,793	149	5.4	11.0
California	$67,169	117	11.1	15.1
United States	$57,652	100	10.5	14.6

Source: U.S. Census Bureau 2019a

Poverty data show that while the poverty rate in Contra Costa County (9.8 percent) is below the poverty rate for California (15.1 percent) and the U.S. (14.6 percent), the poverty rate in Bay Point (21.8 percent) is somewhat higher. Poverty rates in Clyde and Census Tracts 3142 and 3150 are comparable to or lower than California.

3.9.1.2 Labor Force and Employment

The estimated size of the civilian labor force in Contra Costa County in 2017 was 575,151, with an unemployment rate of 6.9 percent, which is below the 7.7 percent unemployment rate for California and comparable to the U.S. unemployment rate of 6.6 percent (U.S. Census Bureau 2019a).

Employment by industry data show that the census tracts in the vicinity of MOTCO have less manufacturing than California and Census Tract 3142 has approximately 24 percent of the labor force employed in “professional, scientific, and management, and administrative and waste management services,” compared to 13.2 percent of California as a whole (U.S. Census Bureau 2019a).

3.9.1.3 Schools

The Mount Diablo Unified School District, one of 18 public school districts in Contra Costa County, serves areas around MOTCO. There are 31 elementary, nine middle, and five high schools in the district, three of which are located in areas adjacent to MOTCO. These schools, located in Bay Point, are Rio Vista Elementary, Shore Acres Elementary, and Riverview Middle School.

3.9.1.4 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was signed on 11 February 1994, by President Clinton. The EO directs Federal agencies to make achieving environmental justice part of their missions by identifying

and addressing, as appropriate, disproportionately high and adverse human health, environmental, economic, and social effects of their programs, policies, and activities on minority and/or low-income populations. A Presidential Transmittal Memorandum issued with the EO states that "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA, 42 U.S.C. Section 4321, et seq." DoD has directed that NEPA will be used to implement the provisions of the EO.

Analysis of demographic data on race and ethnicity and poverty provides information on minority and low-income populations that could be affected by the Proposed Action. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, Pacific Islander, or Other. Poverty status is used to define "low-income: for the U.S." Poverty is defined as the number of people with income below poverty level, which was $25,094 for a family of four in 2017, according to the U.S. Census Bureau (U.S. Census Bureau 2019b). A potential disproportionate impact may occur when the minority population in the study area exceeds 50 percent or when the percent minority and/or low-income in the study area are meaningfully greater than those in the region.

The populations living in Census Tracts 3142 and 3150 are more than 50 percent minority. Census Tract 3142 has a poverty rate (13.1 percent of families) that is nearly double the poverty rate for Contra Costa County (6.9 percent; Table 3-18); therefore, adverse impacts that extend beyond the MOTCO property boundary are evaluated for potential disproportionate impacts on these populations.

The Bay Point community was awarded an Environmental Justice grant by the USEPA in 2007 (USEPA 2007). Bay Point was one of 48 communities nationwide to receive a Community Action for Renewed Environment (CARE) grant through a partnership with the USEPA and University of San Francisco and in cooperation with the Centers for Disease Control and Prevention. The purpose of the grant was to foster an innovative way for a community to organize and become more aware of the problems related to toxic chemicals in the community and possible solutions to this concern.

In a USEPA Level 1 Grantee Final Report, Contra Costa County was noted as having the "highest concentration of oil refineries and chemical factories in California, and residents of Bay Point are exposed to multiple sources of toxic pollution" (USEPA 2009b). In the report, it was noted that the residents are subject to chronic exposures to a number of air toxins such as ammonia, nickel, and diesel exhaust due to the large volume of cars and trucks on State Route 4, which runs adjacent to Bay Point and serves as an access route to MOTCO. Projects that would increase the amount of vehicular traffic, especially truck traffic, would have to consider the environmental justice aspects of any projected increase on the residents of Bay Point.

3.9.1.5 Protection of Children

The potential for impacts on the health and safety of children is greater where projects are located near residential areas. EO 13045 requires each Federal agency "to identify and assess environmental health risks and safety risks that may disproportionately affect children" and "ensure that its policies, programs, activities, and standards address disproportionate risks to

children that result from environmental health risks or safety risks." This EO was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults.

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

Socioeconomics

Implementation of the Proposed Action would not result in any changes in permanent direct employment in the region, so there would be negligible impacts on population, incomes, schools, or businesses.

During construction, temporary minor direct beneficial impacts could occur if local companies are hired to perform construction, demolition, repair, and renovation projects or if construction materials are purchased locally. Temporary minor indirect benefits could occur if construction workers passing through nearby areas purchase local goods or eat at local restaurants.

Environmental Justice

Two communities are located adjacent to MOTCO, Bay Point and Clyde. Bay Point is considered a minority and low-income community under EO 12898 and subsequent guidance, with approximately 85 percent of the population being people of color and poverty rates meaningfully higher than those in Contra Costa County or the State of California. Adverse environmental effects to residents of Bay Point could be considered as disproportionately high in affecting minority populations, and therefore subject to further consideration as impacts under environmental justice (CEQ 1997).

Construction, demolition, repair, and renovation sites under the Proposed Action are on MOTCO property (or existing Union Pacific right-of-way). Because the nature and intensity of future operations would be unaffected, resource areas with the greatest potential for disproportionate offsite impacts are those with intangible boundaries: air quality, transportation, visual resources, and noise. Each of these resource areas is discussed above with particular emphasis on Bay Point; effects have been determined to be negligible or minor. Because none of these effects meet the criteria for "disproportionately high and adverse," construction, demolition, repair, and renovation activities under the Proposed Action would have no adverse impacts under environmental justice. Likewise, there would be no impacts that would adversely impact children's health and safety with implementation of the Proposed Action.

3.9.2.2 No Action Alternative

Under the No Action Alternative, activities under the Proposed Action would not take place, so there would be no adverse impacts on the residents of Bay Point. There would be no disproportionately high and adverse impacts on minority or low-income populations or children under the No Action Alternative.

3.10 HAZARDOUS MATERIALS AND WASTE

3.10.1 Existing Conditions

3.10.1.1 Hazardous Materials

A hazardous material (or substance) is defined in 29 CFR Section 1910.120(a)(3) as "(A) Any substance defined under Section 103(14) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (42 U.S.C 9601); (B) Any biologic agent and other disease causing agent which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such persons or their offspring; (C) Any substance listed by the U.S. Department of Transportation as hazardous materials under 49 CFR 172.101 and appendices; and (D) Hazardous waste as herein defined." Hazardous waste is defined as "(A) A waste or combination of wastes as defined in 40 CFR 261.3; or (B) Those substances defined as hazardous wastes in 49 CFR 171.8." Hazardous materials are federally regulated by the USEPA in accordance with the CWA, Toxic Substances Control Act (TSCA), Resource Conservation and Recovery Act (RCRA), CERCLA, and CAA.

Hazardous materials are generally in use at MOTCO for the maintenance of buildings, facilities, vehicles, and equipment. In order to fulfill its mission, MOTCO also stores and transports hazardous materials, including munitions, as required by activities in support of the Army's mission. Common hazardous substances used on the installation include petroleum, oil, and lubricants (POL) such as motor oils, hydraulic fluids, diesel fuel, and gasoline; paints; sealants; solvents; antifreeze; and batteries. MOTCO governs the handling of hazardous materials and hazardous waste through the Hazardous Waste Management Plan (HWMP) (MOTCO 2012). The HWMP describes the hazards and techniques associated with hazardous materials and hazardous waste handling specific to MOTCO activities so that personnel will be better able to protect their health, prevent damage to the environment, and comply with applicable laws, regulations, and policies.

The MOTCO Hazardous Material Management Program (HMMP) reduces waste generation from overstocked or expired product and enhances regulatory compliance by limiting the amount of hazardous materials stored onsite. The MOTCO Department of Public Works Environmental Compliance Manager (ECM) tracks the hazardous materials used on the installation; all hazardous materials must be approved by and registered with the ECM. The ECM maintains an activity-wide hazardous materials inventory and provides a copy to the MOTCO Fire Department. POL may be stored within a flammables locker at work locations in accordance with material requirements and the MOTCO HWMP, but most other hazardous materials and hazardous waste is stored at one of four satellite accumulation points near work locations.

The MOTCO Installation Spill Contingency Plan (ISCP) establishes procedures, methods, equipment, and other criteria to respond to unintentional releases of oils or hazardous substances from onshore and offshore facilities (MOTCO 2019a). Releases requiring response include DoD and non-DoD spills occurring on the installation, offsite spills affecting the

installation, and possibly other spills in the geographic area for which DoD assistance would be deemed appropriate. Hazardous substances include those involved in operations, processes, cargo, and hazardous waste. The ISCP outlines activities to be undertaken to minimize the adverse effects in the incidence of a spill, including notification, containment, decontamination, and cleanup of spilled materials.

The MOTCO SWPPP addresses proper management of POL and hazardous materials at construction sites to reduce the potential for soil contamination and expediently address any spills or breaches of protective systems in accordance with applicable laws and regulations (MOTCO 2015). The SWPPP has been developed to comply with California NPDES General Permit Requirements for Stormwater Discharges Associated with Industrial Activities. The Plan identifies industrial activities for each unit/activity located at MOTCO and the potential stormwater sources associated with those units/activities; it also establishes the BMPs designed to control pollutants in discharges of stormwater.

3.10.1.2 Hazardous Waste

Hazardous wastes, as defined by RCRA (42 U.S.C. 6903[5]), are wastes or combination of wastes that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. To be classified as a hazardous waste, material must first qualify as a solid waste. A solid waste is any material that is disposed of, incinerated, treated, or recycled except those exempted under 40 CFR Section 261.4.

Although the amount of hazardous waste disposed of fluctuates between calendar years, MOTCO is regulated as a Small Quantity Generator of hazardous waste as defined under RCRA. MOTCO disposed of 15,253 tons of hazardous waste in Calendar Year 2018, 32 tons in Calendar Year 2017, and 136 tons in Calendar Year 2016 (California Department of Toxic Substances Control 2019a). The unusually high waste generation for 2018 was because of 12,735 tons of contaminated soils from site clean-up and 2,514 tons of other inorganic solid waste (California Department of Toxic Substances Control 2019a, 2019b). Typically, the common hazardous waste generated at MOTCO includes spent, contaminated, off-specification, or unrecyclable hazardous materials, although fluctuations and abnormal disposal requirements can be attributed to facility cleanup efforts.

The MOTCO Department of Public Works Environmental Division oversees hazardous waste management via the HWMP on behalf of the military units and activities that generate the waste (MOTCO 2012). There is no one central, designated hazardous waste storage area at MOTCO. All hazardous wastes are stored at the four satellite accumulation points, which are at or near the points of hazardous waste generation and are under the control of the operators generating the waste. Satellite accumulation points are maintained to facilitate the collection of hazardous waste and to ensure that the wastes are transported off-post in accordance with applicable Federal, State, and DoD regulations. Hazardous wastes may be stored at satellite accumulation points for no longer than 90 days before being transported offsite for recycling, treatment, or disposal. The transport and disposal of hazardous waste is arranged through

contracts with appropriately licensed waste management and transportation companies. MOTCO recycles POL products (including waste oils and uncontaminated POL), various conventional batteries (including radio batteries, as well as lead-acid), and compressed gas cylinders.

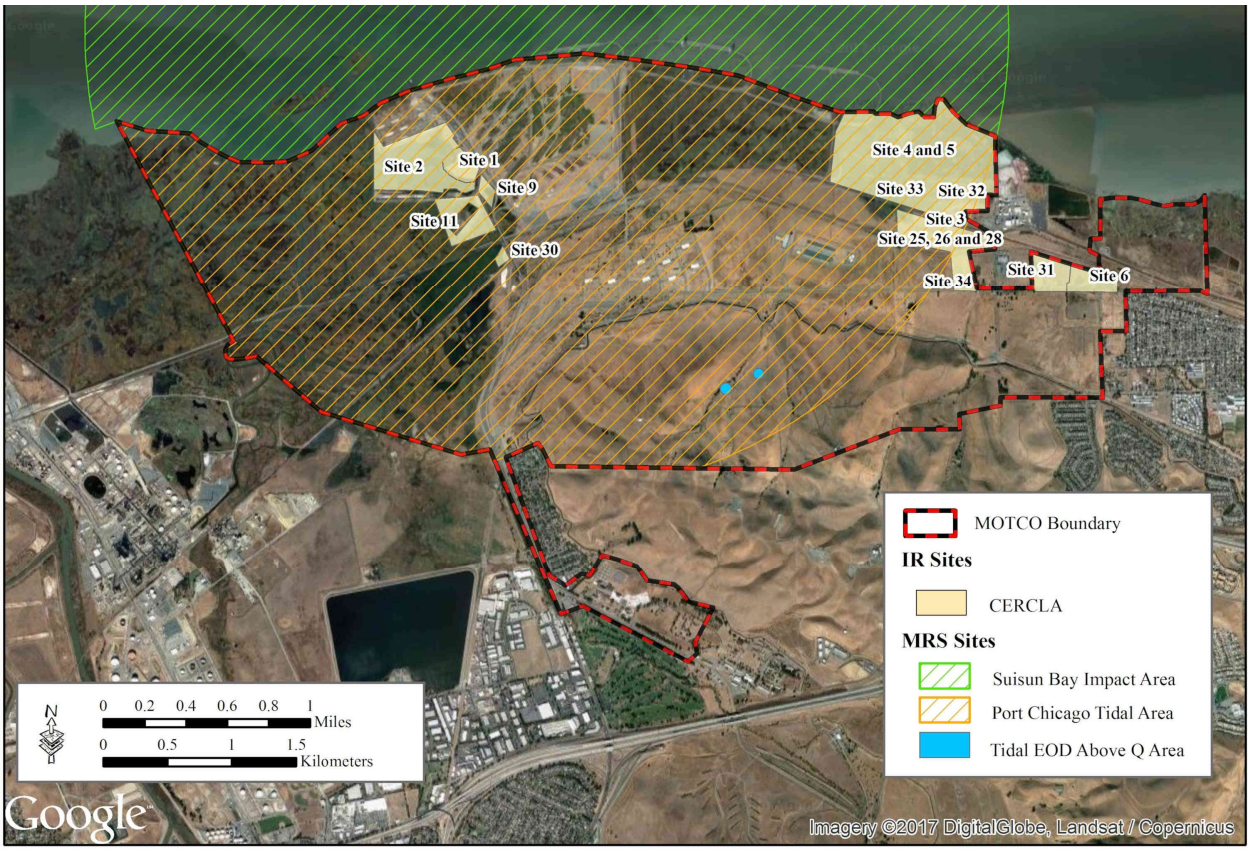
3.10.1.3 Toxic Substances

The enactment of TSCA (15 U.S.C. 2601 et seq.) and the promulgation of its implementing regulations (40 CFR Parts 700-766) represented an effort by the Federal government to address those chemical substances and mixtures for which it was recognized that the manufacture, processing, distribution, use, or disposal may present unreasonable risk of personal injury or to the health of the environment, and to effectively regulate these substances and mixtures in interstate commerce. The TSCA Chemical Substances Inventory lists information on more than 86,000 chemicals and substances. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics, and pesticides. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C 136 et seq.) registers and regulates pesticide use (40 CFR Parts 150-189).

Toxic chemical substances regulated by USEPA under TSCA and typically associated with buildings and facilities include asbestos, lead, mercury, and PCBs. The MOTCO Department of Public Works Environmental Division provides guidance for the location, condition, and recommended methods of managing toxic substances found throughout the installation. An installation asbestos register is maintained and updated regularly, including the type and the percentage of asbestos found in each material. Buildings and suspect materials and fixtures are screened for toxic materials prior to demolition and disposal. Buildings are tested for lead-based paint and PCB paint before maintenance or demolition, especially if they were built prior to 1978 when the Federal government banned consumer uses of lead and PCBs in paint.

3.10.1.4 Contaminated Sites

The Defense Environmental Restoration Program (DERP) was developed by the DoD pursuant to legislation codified at 10 U.S.C. Section 2700 et seq., to identify, investigate, and remediate potentially hazardous material disposal sites on DoD property. As part of DERP, the DoD has created the Installation Restoration Program (IRP) and the Military Munitions Response Program (MMRP). The IRP is designed to address the cleanup of hazardous substances on military installations. The MMRP addresses the challenges presented at sites called munitions response sites (MRS) that are not located on operational ranges. Munitions responses are response actions, including investigation, removal actions, and remedial actions, that address the explosives safety, human health, or environmental risks presented by munitions and explosives of concern (MEC). IRP sites and MRSs are shown in Figure 3-11.



Source: Army 2017a

Figure 3-11. Locations of IRP Sites and MRSs at MOTCO

The DERP is implemented using the process developed for cleanup under the CERCLA legislation, including a series of eight steps that follow the accepted plan of action beginning with a site investigation and, if necessary, ending in the remediation/clean-up of the site. The eight steps, which range in length to completion, are as follows:

- Preliminary Assessment
- Site Inspection
- Remedial Investigation
- Feasibility Study / Record of Decision
- Remedial Design
- Remedial Action
- Post Remedial Action: Remedy in Place; Response Complete; Long-term Management
- Site Closeout

Land use controls (LUCs) are often established at terrestrial IRP and MMRP sites, and navigation controls at water sites, to afford continuous or interim protection at a site as DERP steps are implemented. The DoD's Policy on Land Use Controls Associated with Environmental Restoration Activities defines LUCs as any type of physical, legal, or administrative mechanism

that restricts the use of, or limits access to, real property to prevent or reduce risks to human health and the environment (DoD 2001). All work is conducted in accordance with the MOTCO installation-wide LUC Environmental Sampling and Results Screening for Excavation Projects. This policy is part of the Land Use Control and Implementation Plan, which is an appendix to the RPMP that addresses avoidance of unexploded ordnance (UXO) and MEC at MOTCO (Army 2017b). The purpose of this policy is to select and implement LUCs that minimize the potential for human exposure to explosive hazards and to maintain the integrity of the MRS with respect to the current land use.

3.10.1.5 Military Munitions Response Program

There are three MMRP MRSs at MOTCO. For the MRSs, land use restrictions include the prohibition, or otherwise careful management, of required excavation activities and the restriction of daycare, hospital, schools, or residential use in these areas. The Land Use Control and Implementation Plan includes the requirement to obtain dig permits and coordination with the MOTCO RPMP.

During the Port Chicago explosion, objects were thrown more than 2 miles away from the center of the blast, with most objects falling within 0.7 mile of the explosion site. To address the potential occurrence of MEC immediately following the 1944 explosion, the U.S. Coast Guard surveyed the blast area around Pier 1, including marsh areas and nearby waters of Suisun Bay, by dragging bottom sediments and using divers to conduct surveys. Since that time, explosive ordnance disposal (EOD) area procedures have addressed discoveries and potential risk of MEC items in the bay, marsh, and on the shoreline (MOTCO 2011b, NAVFAC 2003, USACE 2009). There have been no recorded unexpected explosive incidents since the original explosion in 1944 (NAVFAC 2003). Some MEC and UXO have been encountered in and safely removed from the upland Tidal Area (USACE 2009).

Most of the Tidal Area lies within the Port Chicago Tidal Area MRS (MRS 8); only the eastern portion of the Tidal Area (east of ACP #5) lies outside of the MRS.

All construction activities that involve intrusive activities require UXO Construction Support in clearance of construction footprints, whether it is a building, roadway, or utility on the installation, prior to the construction activity taking place. An exception is provided when construction activities occur in an area where clearance activities have already been performed. In such cases, UXO Standby Support is used during construction activities, which includes providing UXO awareness training to construction personnel to recognize general hazards as well as onsite construction support personnel to investigate any potential UXO found during construction activities.

3.10.2 Environmental Consequences

3.10.2.1 Proposed Action

Hazardous Materials

Contract documents would specify that procedures for hazardous materials management established for MOTCO would be followed by contractors during all activities. To minimize the potential for impacts to humans and the environment associated with hazardous or regulated

materials, all POL and solvents required to operate and maintain the equipment used to perform the various tasks comprising the Proposed Action would be stored outside of the construction zone. Contractors would be required, in advance of deliveries to the installation, to provide the MOTCO Department of Public Works Environmental Division with material safety data sheets for large quantities of hazardous materials to be used. Upon delivery of the materials to the installation and throughout the course of the project activities, contractors would be required to manage the material in accordance with relevant environmental protection and worker safety regulations and MOTCO environmental management policies. Any spill of such materials on MOTCO property would be immediately reported to the MOTCO Fire Department, Directorate of Public Works, and Environmental Compliance Office to ensure response actions are appropriate and in accordance with the MOTCO ISCP (MOTCO 2019a).

Environmental impacts from hazardous materials are expected to be negligible from implementation of the Proposed Action.

Hazardous Waste

Contract documents would specify that established hazardous waste procedures would be followed during all activities, and MOTCO would continue to operate within its small quantity generator hazardous-waste permit conditions. Any hazardous waste generated through the implementation of the Proposed Action would be managed by contractors in accordance with the relevant requirements of the MOTCO HWMP, and applicable Federal, state, and local regulations. With the potential exception of creosote-treated railroad ties removed during rail realignment, it is not anticipated that substantial quantities of hazardous waste would be generated by project activities. Potential effects from hazardous waste expected with implementation of the Proposed Action would be minor.

Toxic Substances

Where lead-based or PCB paint or asbestos is present, required abatement and waste management planning and control measures would be implemented in accordance with Federal and California regulations. The removal of toxic substances as part of project activities, including, potentially, creosote-treated railroad ties, would be conducted in accordance with applicable Federal, state, and local regulations. Negligible to minor impacts from toxic substances are anticipated.

Contaminated Sites

Implementation of Proposed Action would result in temporary disturbance of areas managed under the MOTCO MMRP and IRP due to the need for grading and excavation in the Tidal Area associated with construction, demolition, and repair activities. The work would be conducted in accordance with the Land Use Control for Environmental Sampling and Results Screening for Excavation Projects (Army 2017b). Soil sampling and analysis may be performed before ground disturbance within IRP sites. Proposed Action project elements within or adjacent to IRP sites include the following:

- Demolition: sites 2 and 11

- Utility Construction and Maintenance: sites 1, 2, 9, and 34 (potentially additional sites depending on extent of new utilities and utility maintenance determined during final design)
- Realignment and Addition of Rail Lines: sites 1, 2, 3, 6, 9, 11, 25, 26, 28, 30, and 31
- Expand Holding Pads and Transfer Pads: none
- New Construction or Major Renovation of Individual Buildings and Structures: site 34
- Supporting Actions: site 11

For analyses indicating potential soil contamination above action levels, results would be taken into consideration for the DERP process; continued project work would take place only in accordance with applicable regulations.

Military Munitions Response Program

To comply with UXO requirements, a meeting would be held with the contractors and representatives from the USACE and MOTCO DPW to discuss general conditions, work schedule, phasing, and coordination, security, safety, permits, and other matters pertinent to work accomplishments prior to the initiation of work. In addition, the contractor would be required to submit various plans including a UXO Anomaly Avoidance Plan I, Plan for UXO Support During Construction Activities; Environmental Protection Plan; Quality Control Plan, Hazard Analysis, and Safety/Health Plan. These plans would discuss safety protocols and notification requirements that would minimize any potential for adverse impacts.

3.10.2.2 No Action Alternative

Under the No Action Alternative, no construction, demolition, repair, and renovation projects described for the Proposed Action would occur, and no impacts on hazardous materials and waste would be expected. Operations at MOTCO would continue and all regulations and plans that pertain to hazardous materials or waste, toxic substances, or contaminated sites would continue to be followed.

3.11 HEALTH AND SAFETY

3.11.1 Existing Conditions

Occupational health and safety applies to on-the-job safety and implements the requirements of 29 CFR 1926 et seq. All construction and demolition at MOTCO is performed in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations to protect human health and minimize safety risks and are coordinated between contractors and the Safety Office prior to initiation of construction and demolition activities.

Large portions of the Tidal Area at MOTCO are within the Inhabited Building Distance (IBD) ESQD arc. As such, all buildings are required to conform to the design and construction requirements to protect personnel within inhabited structures per DoD Manual 6055.09-STD DoD *Ammunition and Explosives Safety Standards* and Unified Facilities Criteria 3-340-02 *Structures to Resist the Effects of Accidental Explosions*. DoD Manual 6055.09-STD establishes safety standards designed to manage risks associated with ammunition and

explosives by providing protection criteria to minimize serious injury, loss of life, and damage to property. This manual also requires submitting site and general construction plans for non-ammunition and explosive facilities located within the IBD ESQD arc to the DoD Explosives Safety Board for review and approval. Unified Facilities Criteria 3-340-02 contains design procedures to achieve personnel protection, protect facilities and equipment, and prevent propagation of accidental explosions.

The MOTCO Fire Department provides fire protection services for MOTCO from two MOTCO fire stations: one in the Tidal Area and one in the Inland Area. In addition, the Contra Costa County Fire Protection District (CCCFPD) maintains 26 fire stations and has more than 400 employees (Contra Costa County 2019b). The CCCFPD serves the nearby communities of Bay Point (Station 86) and Clyde (Station 18). MOTCO has a Federal police department and receives contract support from the Contra Costa County Sherriff's office.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, recognizes a growing body of scientific knowledge that demonstrates children may suffer disproportionately from environmental health risks and safety risks. The EO directs Federal agencies to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children.

Under the BAAQMD, Rule 5, Section 213, prescribed burning is the planned, controlled application of fire to vegetation to achieve a specific natural resource management objective on land areas selected in advance of that application. Prescribed burning is regulated as Wildland Vegetation Management fires and subject to all of the requirements applicable to Subsection 5-401.15. As part of these requirements, MOTCO must prepare a smoke management plan, and submit the plan to the Air Pollution Control Officer of the BAAQMD at least 30 days prior to the burn for approval. At MOTCO, the Fire Chief is responsible for organizing and maintaining the appropriate level of firefighting resources and decides when a controlled burn is needed for approximately 1,300 acres of grassland habitat (Army 2017a).

Mosquito control is accomplished under a cooperative agreement with the Contra Costa Mosquito and Vector Control District. The emphasis of this campaign is to reduce mosquito larvae occurrence, thereby minimizing the need to use pesticides (adulticides). Reducing the adult mosquito population with adulticides approved by the USEPA would be done, if necessary, to prevent human illness or to suppress a heavy nuisance infestation of mosquitoes. The decision to spray, either by truck-mounted sprayers or by aircraft, is based on surveillance information or the documentation of West Nile virus activity at a level that indicates a threat to human health. Spraying is concentrated in areas most at risk for disease occurrence and would be conducted by certified and licensed applicators. The risk to the public and to the environment is very low. Mosquito adulticides are applied as ultra-low volume sprays. Ultra-low volume applications involve small quantities of active ingredient in relation to the size of the area treated, typically less than 2 ounces per acre, which minimizes exposure and risk to people and the environment (Contra Costa Mosquito and Vector Control District 2019).

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

Under the Proposed Action, no impacts on public health or safety are anticipated. Construction, demolition, repair, and renovation activities would result in a temporary increase in the amount of vehicular traffic near Clyde and through Bay Point; however, the projected increase would have no adverse impacts on residents in terms of traffic congestion or air quality. With regard to children, all construction would occur on MOTCO property or within Union Pacific rights-of-way, where access is restricted. No disproportionate safety or health risks to children are expected.

Construction, demolition, repair, and renovation activities under the Proposed Action would expose workers to hazards associated with industrial operations; however, these activities would not introduce any unique or unusual risks. Practices and policies would be in place to protect human health and minimize safety risks. These practices and policies would be coordinated between construction contractors and the Army prior to initiation of construction activities. Furthermore, all activities would follow all applicable OSHA requirements.

Most work under the Proposed Action would take place within the IBD ESQD arc. Only the Railcar Inspection Station, a portion of the track connection to Union Pacific, and projects in the Inland Area lie outside of the arc. The staging area, which would be used even for some projects outside the IBD ESQD arc, lies within the arc. To protect workers, during certain mission activities, work at jobsites within the IBD ESQD arc may be restricted or suspended.

There have been no recorded unexpected explosive incidents since the original explosion in 1944 (Army 2015a). MEC and UXO have been encountered in and safely removed from the upland Tidal Area (USACE 2009). Specifically, excavations associated with construction activities in an area adjacent to White Road between Preuitt and Christenbury Roads recovered a 3-inch/0.50-caliber high explosive projectile (USACE 2009). In February 2013, Phase II field work was completed and three live munitions (two 5-inch projectiles and one 40-millimeter projectile) were recovered (Army 2015a).

Based on the finding in the Tidal Area, it is assumed that the probability of encountering MEC is considered “moderate to high” through the entire Port Chicago Blast Area (Army 2015a). An Explosives Safety Submission (ESS) covers the munitions response action for ongoing construction activities within the Port Chicago Terrestrial Explosion Area MRS 8. The munitions response actions include UXO/MEC oversight for all on-going construction activities in both MRSs. Activities that involve ground disturbance may require a MEC survey and UXO clearance. Projects exempted from this requirement are those taking place in an area where clearance activities have already been performed. In such cases, UXO Standby Support is used during construction activities.

All facilities would be constructed in accordance with Army Unified Facilities Criteria, design, safety, security, and anti-terrorism/force protection requirements.

3.11.2.2 No Action Alternative

Under the No Action Alternative, the Army would not conduct construction, demolition, repair, and renovation activities described in the Proposed Action and no impacts on occupational

health and safety would be anticipated. Operations at MOTCO would continue and all health and safety precautions would continue to be implemented.

3.12 CULTURAL RESOURCES

3.12.1 Existing Conditions

"Cultural resources include historic properties, archaeological resources, and sacred sites. Historic properties are defined by the NHPA as any prehistoric or historic district site, building, structure, or object included on, or eligible for inclusion in the National Register of Historic Places (NRHP), including artifacts, records, and material remains relating to the district, site, building, structure, or object (NPS 2006a). To be considered eligible for the NRHP a property would need to possess integrity of location, design, setting, materials, workmanship, feeling, and association and must also meet at least one of four criteria (NPS 2002):

A. Be associated with events that made a significant contribution to the broad pattern of our history
B. Be associated with the lives of significant persons in our past
C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
D. Have yielded, or be likely to yield, information important in history or prehistory

A Traditional Cultural Property (TCP) is a specific type of historic property that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining and the continuing cultural identity of the community (Parker and King 1998). Given the broad range in types of historic properties, historic properties can often include other types of cultural resources such as cultural items, archaeological resources, sacred sites, and archaeological collections.

The Native American Graves Protection and Repatriation Act (NAGPRA) defines cultural items to include human remains, as well as both associated and unassociated funerary objects, sacred objects, and objects of cultural patrimony or objects that have an ongoing historical, traditional, or cultural importance to a Native American group or culture (NPS 2006b). Archaeological resources, as defined by the Archaeological Resources Protection Act (ARPA), consist of any material remains of past human life or activities that are of archaeological interest and are at least 50 years or older. Such items include, but are not limited to, pottery, basketry, bottles, weapons, weapon projectiles, tools, structures or portions of structures, pit houses, rock paintings, rock carvings, intaglios, graves, human skeletal remains, or any portion or piece of those items (NPS 2006c). Sacred sites are defined by EO 13007, Indian Sacred Sites, as any specific, discrete, narrowly delineated location on Federal land that is identified by a Native American tribe or Native American individual determined to be an appropriately authoritative representative of an Native American religion as sacred by virtue of its established religious significance or ceremonial use by a Native American religion, provided that the tribe or appropriately authoritative representative of a Native American religion has informed the Federal land-owning agency of the existence of such a site (NPS 1996).

Archaeological resources, as governed by the ARPA (ARPA, Section 3(I) 16 U.S.C. 470aa et seq.), include any material remains of past human life or activities that are capable of providing scientific or humanistic understandings of past human behavior and cultural adaptation through the application of scientific or scholarly techniques (ARPA, Section 3(I) 16 U.S.C. 470bb)."

As of January 2020, 47 cultural resource investigations covering 13,829.39 acres and 828.05 linear miles (with 13 investigations not specifying the areas surveyed) have been conducted within the property boundaries of MOTCO (MOTCO 2018a). These investigations were identified in a file search of the records of the California Historical Resources Information System (CHRIS), conducted on March 10, 2017, and of MOTCO on-site files in November 2016. A summary of these investigations is listed in Table 3-19.

Of the 47 investigations that have taken place within the MOTCO property boundary, only two NRHP eligible resources have been determined, and one resource, the Contra Costa Canal, is near the action alternative sites. The Contra Costa Canal, which is owned and managed by the Bureau of Reclamation, runs along the northern edge of MOTCO's Inland Area and traverses the Tidal Area just south of Port Chicago Highway. Previously conducted cultural resource investigations at MOTCO have determined that nearly all of the built environment resources constructed prior to 1998 have been evaluated, and none are eligible for NRHP consideration except for the canal (MOTCO 2011c).

Historically, two sites within the MOTCO area were found to have archaeological components. One site is the Nichols School (CA-CCO-638H), built in 1913, which consists of the remnants of the former school and a concrete walkway. During a 2015 pedestrian survey of the site, the area was found to be highly disturbed, and contained non-cultural soil with no artifacts present when they conducted shovel scrapes every 100 meters along two transect lines. The second site is the Getty Oil Site (CA-CCO-639H), which is a deposit of mixed building debris from the Getty Oil Company building that operated in the area from 1930-1970. Both of these sites are located within the Tidal Area of MOTCO.

In 1944, the Port Chicago Explosion at Pier 1 sank two ships: the S.S. *Quinalt Victory* and S.S. *E.A. Bryant*, and destroyed the pier. Based on historic aerial imagery, the remaining standing pilings that are visible in the current Pier 1 area located in the vicinity of the Port Chicago Naval Magazine National Memorial in the Tidal Area are likely associated with former Pier 1. The Port Chicago Naval Magazine National Memorial is a NRHP-listed property; however, it is not located near any of the action proposed sites.

The Native American Heritage Commission has identified five federally recognized Native American tribes and groups that have potential interests in MOTCO. They include the Bay Miwok, Ohlone/Constanoan, Plains Miwok, Northern Valley Yokuts, and the Patwin/Wintun. To date, no items subject to the NAGPRA have discovered or detected in the MOTCO area during any of the previously conducted surveys. In March 2017, a sacred lands file search was conducted by the California Native American Heritage Commission to identify any known sacred sites or TCPs within MOTCO, and did not identify any locations within the area.

Table 3-19. Summary of Previous Cultural Resources Investigations within MOTCO

CHRIS #	Author	Date	Title	Acres Surveyed	Resources Surveyed in MOTCO	Results
n/a	USACE	2016	Final Inventory and Evaluation Report: Military Ocean Terminal Concord (MOTCO) Pier 2& 3 Repair and Modernization Project	Unspecified	20 buildings and structures	18 buildings and structures not eligible for NRHP. Pier repair and modernization would have no adverse effects on NRHP -listed Port Chicago Naval Magazine Memorial or the NRHP-eligible Port Chicago Naval Magazine Explosion Site
n/a	Cardno	June 2016	Cultural Resources Survey and Testing Report for General Repair of Bridges, Roads, and Utilities at Military Ocean Terminal Concord (MOTCO), California	19.02 linear miles		No sites recorded
S-030387	CRM Tech	2005	Historical Resources Compliance Report, Burlington Northern Santa Fe Railway Double Track Project (Segment 2), Oakley (MP 1146.1) to Port Chicago (MP 1164.4), in and near the Cities of Oakley, Antioch & Pittsburg, & the Port Chicago Naval Weapons Station, Contra Costa County, California	20 linear miles	CA-CCO-732H	1 site recorded; CA-CCO-732H - Atchison, Topeka & Santa Fe Railroad. Segment within MOTCO appears to be unevaluated.
n/a	William Manley for Southwest Division Naval Facilities Engineering Command	2003	Final Reevaluation of Eligibility for Listing in the NRHP of Historic Places: World War II Munitions Depots at Seal Beach, Fallbrook, and Concord, California	None	None	Reevaluated Seal Beach, Fallbrook, and Concord's World War II significance. Did not change non-eligibility of resources or potential historic districts at MOTCO.
n/a	Rosenthal, J.S, Milliken, R., and Mikesell, S.	March 2002	ICRMP for years 2002-2007	None	None	No sites recorded. Recommends reevaluation of "Q Area" (1981) when it turns 50 years of age due to its rarity in California.
S-024281	Far Western Anthropological Research Group, Inc. & JRP Historical Consulting Services	2000	NWSSBD Concord, ICRMP for the Year 2000- 2005	12,900 acres	None	No sites recorded
S-023376	Basin Research Associates, Inc	2000	Archaeological Review of Navy Alignment, NWS Concord (letter report)	2 linear miles	None	No sites recorded
No data	Duff, Patricia J.	Feb. 1999	Addendum for Cultural Resources Survey Naval Weapons Station Concord, Port Terminal Operations Building	3.5 acres	None	Surveyed construction site of planned Building 542
No data	JRP	1998	Inventory and Evaluation of NRHP Eligibility of Cold War Era and Selected Other Buildings and Structures	N/A	375 Cold War buildings; 18 pre-1946 buildings	Recorded 375 Cold War buildings; 18 pre-1946 buildings; No NRHP - eligible resources.
S-022812	Basin Research Associates, Inc	1997	Contra Costa County Water Multipurpose Pipeline Project, Environmental Documentation Study, Cultural Resources Review (letter report)	90 linear miles	None	No sites recorded.

CHRIS #	Author	Date	Title	Acres Surveyed	Resources Surveyed in MOTCO	Results
S-19837	Carbone, Larry A. and Woodman, Craig F.; SAIC	Sept. 1997	Cultural Resources Survey of NWSSBD Concord, Port Terminal Operations and Administration Building	21.5 acres	None	Archival research and site survey of four proposed locations for a new Administration Building in MOTCO. Tidal Area: Driftwood Site, Clyde Site; Inland Area: Parking Lot and Ball Fields, and Pool Site. No sites recorded.
S-21133	Basin Research Associates	Jan. 1997	Archaeological Inventory: Three Supplement Areas Containerization Project; NWSSBD Concord	42 acres	None	Surveyed area in the vicinity of the town of Port Chicago. No sites recorded.
S-018440	West, James G, and Welch, P. for U.S. Bureau of Reclamation	1996	Class II Archaeological Survey of the Contra Costa Canal, Contra Costa County, California	75 linear miles	P-07-0022695	1 linear site recorded: Contra Costa Canal (P-07-0022695), owned by U.S. Bureau of Reclamation. Resource determined NRHP-eligible.
S-021132	Busby, Colin I., Donna M. Garaventa, Stuart A. Guedon, and Meloday E. Tannam	1996	Supplement of Archaeological Inventory of a Portion of NWS Concord, Warehouse Locations D-F, G North and G South, NWS, Concord, Contra Costa County, California	95 acres	None	Survey for proposed warehouse site. No sites recorded
S-21131	Basin Research Associates; Busby et al	Oct. 1996	Archaeological Inventory: Proposed Warehouse Locations D-F, G North, and G South, NWS, Concord, Contra Costa County, California	Unspecified	None	Surveyed various areas within the Inland Area of MOTCO for proposed warehouse construction. No sites recorded
S-017993	Woodward-Clyde Consultants; Hatoff et al	1995	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project	591.7 linear miles and 227.31 acres	None	190 sites recorded
S-018295	Basin Research Associates	1995	Cultural Resources Field Inventory, 109 Wellington Avenue, Clyde (letter report)	3,600 square feet	None	No sites recorded
S-17696	Basin Research Associates	March 1995	Cultural Resource Review: Containerization Project, NWSSBD Concord	Unspecified	None	Surveyed area near former Port Chicago township for proposed containerization project. No sites recorded.
S-18327	Cartier, Robert, and Eckert, Lynne; Archaeological Resource-Management	Dec. 1995	Cultural Resource Evaluation for the Concord NWS Project	150-foot linear segment	None	Surveyed a 150-foot-long corridor near Inland Area prior to construction of stormwater pipe. No sites recorded.
S-15500	Self	Aug. 1993	Cultural Resources Overview NWS Concord, Contra Costa County, California	None	506 pre-1946 buildings	No NRHP eligible resources. Identified four "Areas of Historical Interest" in the Tidal Area (three areas) and one on Ryer Island. None has been tested.

CHRIS #	Author	Date	Title	Acres Surveyed	Resources Surveyed in MOTCO	Results
S-14156	PRC Environmental Management and Self	Aug. 1992	Final Cultural Resources Survey Report, RASSs 1, 2, and 3, NWS Concord, California	294 acres	CA-CCO-638H, CA-CCO-639H	Surveyed 294 acres in the Tidal Area; Recorded CA-CCO-638H - Nichols School and CA-CCO-639H - Getty Oil Site. Both sites determined not eligible (DNE) for the NRHP.
S-12856	Duff, Patricia J.	1991	Cultural Resource Survey Report, Remedial Action Subsite 4, NWS, Concord, California	10 acres	None	No sites recorded.
S-12111	Chavez, David, and Hupman, Jan M.	1990	Cultural Resources Evaluations for the Pittsburg- Antioch BART Extension Project-Phase 1A and Phase 1B, Contra Costa County, California	3 linear miles	None	Surveyed pipeline corridor, which extends into the Tidal Area. No sites recorded.
S-11594	Jablonowski, M.	April 1990	Class III Cultural Resources Study of the Proposed Chevron Project	3 linear miles	None	Surveyed pipeline corridor, which extends into the Tidal Area. No sites recorded.
S-13416	Self	Aug. 1989	Mt. Diablo Creek Flood Control and Stream Stabilization Plan Archaeological Survey Report, NWS Concord	6 linear miles	None	Surveyed 6 miles of the Mt. Diablo Creek prior to a stream stabilization project. No sites recorded.
S-2180	U.S. Army Corps of Engineers	July 1980	San Francisco Bay to Stockton, CA Intensive Cultural Resource Survey and Literature Review of Four additional Proposed Dredged Material Disposal Sites in Contra Costa	Three separate areas: 40 acres, 65 acres, and 16 acres	None	Surveyed four proposed locations for 3 Dredged Material Disposal sites in Tidal Area. No sites recorded.
S-8854	Jack Miller and Suzanne Baker	1986	Archaeological Reconnaissance of the Morrison Property in Clyde, California	Unspecified	None	No sites recorded.
S-12856	Patricia J. Duff	1991	Cultural Resource Survey Report, Remedial Action Subsite (RASS) 4, Naval Weapons Station, Concord, California	10 acres	None	No sites recorded.
S-018352	Thomas Reid and Colin I. Busby	1976	East/Central Contra Costa County Wastewater Management Plan, California: Cultural Resources Survey	Unspecified	None	No sites recorded.
S-035861	Bai “Tom” Tang, Michael Hogan, Josh Smallwood, and Terri Jacquemain	2009	Archaeological Survey Report / Historical Resource Evaluation Report, Burlington Northern Santa Fe Railway Double Track Project (Segment 2), In and near the cities of Oakley, Antioch, and Pittsburg and the Port Chicago Naval Weapons Station, Contra Costa County, California	18.3 linear miles	07-000806	22 railroad bridges, segments of an abandoned telegraph line, and several concrete culverts were noted within the project area.
S-038814	Adam M. Nickels and Amy L. Dunay	2012	Cultural Resource Investigation of the Shortcut Pipeline Repair and Improvement Project, Central Valley Project, Delta Division, Contra Costa County, CA Mid-Pacific Region	Unspecified	07-002921	No sites recorded.
S-038875	Melissa Johnson and Kim J. tremaine	2010	Cultural Resources Inventory for the Clyde Pedestrian Path Project, Contra Costa County, CA	Unspecified	07-002402	No sites recorded.
S039495	Melissa Montag	2012	Update Report, Historic Building Inventory and Evaluation, Military Ocean Terminal, Concord, Contra Costa County, California	Unspecified	07-002150, 07-002151, 07-002152, 07-002229, 07-002235, 07-002236, 07-002237, 07-002238, 07-002239, 07-002240, 07-002241, 07-002242, 07-002243, 07-002244, 07-002245, 07-002246, 07-002247, 07-002251, 07-002260, 07-002313, 07-002317, 07-002339, 07-002432, 07-002439, 07-002440, 07-004500	Archaeological, Architectural/historical, evaluation, field study. This report contains unprocessed resource records which are being processed (A. Sims 8/29/2016)

CHRIS #	Author	Date	Title	Acres Surveyed	Resources Surveyed in MOTCO	Results
S-043779	Lorraine M. Willey, Brian Ludwig, Andrew York, and Diane Shalom	2007	Final Cultural Resources Inventory for a 115-acre Inland Parcel at Naval Weapons Station Seal Beach Detachment Concord, Contra Costa County, California	115 acres	None	No sites recorded.
S-043867	Carolyn Losee	2013	Trileaf Project No. 607677: AT&T CNU0027 “TV Hill Sector” Cell on Wheels (COW) 4690 Evora Road, Concord, Contra Costa County, California 94520 (letter report)	Unspecified	None	No sites recorded.
S-044218	Virginia Hagensieker and Janine M. Origer	2013	A Cultural Resources Study for the Wastewater Infrastructure Repair and Rehabilitation Project, within the cities of Bay Point, Pittsburg, and Antioch, Contra Costa County, California	Unspecified	None	No sites recorded.
No data	J. M Enright, N. Linville, M. Hanks, R. Jarvis, and J. Burns	2013	Phase I Marine Remote Sensing Survey for the Modernization and Repair of Piers 2 and 3 at Military Ocean Terminal Concord CA. Prepared for Cardno TEC by Southeastern Archaeological Research Inc. Pensacola, FL.	Unspecified	None	No sites recorded.
S-046155	Rand F. Herbert, Polly s. Allen, Karen Clementi, Jama Jones, and Rebecca Flores	2009	Historic Building Inventory and Evaluation Update Report, Concord Naval Weapons Station, Contra Costa County, California	Unspecified	07-000806, 07-002130, 07-002131, 07-002132, 07-002133, 07-002134, 07-002135, 07-002150, 07-002151, 07-002152, 07-002160, 07-002166, 07-002169, 07-002173, 07-002176, 07-002210, 07-002211, 07-002213, 07-002214, 07-002215, 07-002303, 07-002349, 07-002350, 07-002351, 07-002352, 07-002353, 07-002354, 07-002355, 07-002356, 07-002357, 07-002358, 07-002359, 07-002360, 07-002361, 07-002362, 07-002363, 07-002364, 07-002365, 07-002366, 07-002367, 07-002368, 07-002369, 07-002370, 07-002371, 07-002372, 07-002373, 07-002374, 07-002375, 07-002376, 07-002377, 07-002378, 07-002379, 07-002380, 07-002381, 07-002382, 07-002383, 07-002384, 07-002385, 07-002386, 07-002387, 07-002388, 07-002389, 07-002390, 07-002391, 07-002392, 07-002393, 07-002394, 07-002395, 07-002397, 07-002402, 07-002695, 07-004709, 07-004710	Architectural/historical, evaluation, field study. Resources recorded were not eligible for NRHP.
S-047962	Mark A. Carper	2014	MP-153 Cultural Resources Post Field Summary Record: Contra Costa Canal Geotechnical Investigations at Milepost (MP) 22.5 for Slope Embankment Repair Project	Unspecified	None	No sites recorded.

Cultural Overview

The prehistory of the San Francisco Bay Region and Central California includes three major chronological sequences: Windmiller Pattern, Berkeley Pattern and Augustine Pattern. Although Paleo-Indians may have been present as early as 10,000 years before present (B.P.), as has been evidenced elsewhere in North America, sites from that period are not well documented for this part of California.

At the time of initial European contact by the Spanish in 1772, the Bay Miwok were the primary cultural inhabitants of the region. The Miwok were a collection of independent triblets of people speaking a common language described as a subdivision of the Utian language family. Each triblet lived in permanent villages with multiple smaller seasonal campsites distributed throughout their territory. With the arrival of the Spanish, the population of Miwok people in the region was rapidly decimated by epidemic diseases introduced by the foreigners.

Early colonial interests of the Spanish, and later Mexicans and Americans, in the area were in cattle and sheep ranching. The discovery of coal around nearby Mt. Diablo in the mid-1800s brought a short-term mining boom to the area until about the 1880s. During this period, railroads from the mines and wharves for trans-shipment to various ports of call in the Bay area and beyond brought increasing development to the shorelines of the area. After the closure of the mines, some increase in agriculture in the area kept the coastal economy of Contra Costa County active. The community on Suisun Bay that would later become the site of Naval Magazine Port Chicago was called Bay Point. Throughout the first part of the twentieth century, Bay Point underwent a series of boom and busts with various local industrial endeavors including a smelting company, lumber mill, cement company, and rail service. During World War I, the Pacific Shipbuilding Company and Electro Metals Company came to Bay Point to fulfill a contract with the U.S. War Department to construct ten 10,000-ton freighters to support the war effort. Upon completion of the contract, the companies abandoned Bay Point. Various continued efforts to stimulate the failing local economy, including changing the name of the town to Port Chicago in 1931, had little effect.

Shortly before the U.S. joined into World War II in 1941, the Navy had begun searching for a location to serve as a new, larger ammunitions depot in the Bay Area of California. There was already an ammunition depot on Mare Island, although many of the larger Navy ships could not dock there due to the shallow waters in the Mare Island Strait. In 1942, following the 1941 attack on Pearl Harbor, the Navy acquired the 640 acres of land that contained the Port Chicago area because of its deep channels, preexisting railway routes, and relative isolation from the surrounding population.

On July 17, 1944, two ships, the *S.S. A.E. Bryan* and *S.S. Quinalt Victory,* were both docked at Pier 1 in Port Chicago while they were being loaded with munitions. During the process, two explosions tore through the munitions depot, destroying both ships, numerous buildings and equipment. The explosions killed 320 people and injured 390 more. This tragedy brought to light the discriminatory segregation policy of the U.S. Navy, which used primarily African American personnel for the dangerous job of loading ammunition at the time. The surviving personnel then refused to handle any more explosives until the loading methods that caused the explosions were investigated and the risks mitigated; this led to what was called the Port

Chicago Mutiny. Of the survivors involved in the mutiny, 50 men were court-martialed for their refusal to work and were given Federal prison sentences. As a result of this tragedy and following mutiny, the Navy instituted safer munitions loading procedures and ended the Navy's policy of segregation by race.

Following the disaster, the facility was repaired and continued to expand. From 1944 on, the Navy expanded its facilities to include both the Tidal Area and the Inland Area, and became an active ammunitions depot on the Pacific Coast; it continued to serve an important role through the Korean War, the Vietnam War, and remains an active munitions area today.

In 1992, the location of the Port Chicago Naval Magazine Explosion was dedicated as a National Memorial as a reminder of those who lost their lives in the explosions, its significance in civil rights history, and its critical role during World War II.

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

Implementation of the Proposed Action plan would not affect the Contra Costa Canal or the Port Chicago Naval Magazine National Memorial as they are not located near the areas affected. In addition, the two other points of historical interest, the Nichols School Site (CA-CCO-638H) and the Getty Oil Site (CA-CCO-639H), would not be impacted by these proposed alterations. The majority of the demolition, construction, repairs, and renovations are being conducted on previously disturbed locations or areas that have previously been surveyed.

To date, no items subject to NAGPRA have been recovered from or identified at MOTCO during previous cultural resources studies, so no impacts on these resources are anticipated.

However, if specific project areas have not been surveyed, consultation and evaluation of potentially significant cultural resources in these areas will occur during project design. In addition, if during construction a potential cultural resource was inadvertently discovered, all activities would cease and the discovery would immediately be reported to the MOTCO Environmental Coordinator, in accordance with ICRMP guidance and procedures. Therefore, there would be negligible impacts on cultural resources under the Proposed Action plan.

3.12.2.2 No Action Alternative

Under the No Action Alternative, any archeological or historical resources would not be impacted directly. Under the No Action Alternative, there would be no detrimental effects on a property that is significant to a community or ethnic social group. The management of cultural resources at MOTCO would continue under the installation's current ICRMP.

3.13 SUMMARY

Table 3-20 provides a summary of the potential environmental consequences of Proposed Action implementation and the No Action Alternative on each of the resources discussed in this section.

Table 3-20. Summary Matrix of Environmental Consequences

Resource Area	Proposed Action	No Action Alterative
Earth Resources	Projects would result in minor alterations to surface topography from demolition and extensive grading and filling. Renovation or replacement of electrical, water, wastewater, and communications utilities would require soil disturbance through boring and trenching, primarily in areas where natural soils have already been substantially altered. Construction and expansion of holding and transfer pads, including associated roadways and rail sidings, would require approximately 130 acres of soil disturbance. Alterations to topography and natural soil profiles from Proposed Action projects would be negligible. Creosote-treated ties would be handled during staging and construction in a manner that minimizes contact with soil. The Army would obtain the required NPDES permits, including development of site-specific SWPPPs and use of BMPs. Erosion and soil-contamination potential would be minimized through adherence to construction NPDES permit requirements. All design and construction would adhere to seismic standards to minimize hazards associated with earthquakes and fault rupture. Requests for lease agreements for mineral exploration, development, and production and surface access for such purposes to privately owned mineral estate underlying MOTCO lands would be subject to a number of requirements, including DoD/Army safety and security requirements, California regulatory requirements, and NEPA.	Soils would remain in their current state, except for minor changes from ongoing projects and maintenance activities.
Water Resources	Projects have the potential to affect surface water through increased runoff quantity, increased turbidity, and contamination. Construction, demolition, repair, and renovation under the Proposed Action would follow USEPA guidance for stormwater management, include a calculation of the performance objective and proposed stormwater runoff control mechanisms (e.g., pond/bio-swale, detention basin) for expansion of holding pads and transfer pads. Since many disturbances would be in excess of 1 acre, the Army would obtain the required NPDES permit, including development of a site-specific SWPPP and use of BMPs. BMPs would include measures to reduce stormwater runoff and the transport of soils from the construction site to adjacent waterbodies and management measures that reduce the potential for contaminants to enter surface water or infiltrate to groundwater. BMPs are listed in Section 5.2. During rail line realignment, existing creosote-treated railroad ties would be removed from the area for direct transport to a disposal or recycling facility, to an onsite facility for eventual reuse, or to one of the staging areas created under the Proposed Action, with runoff controls to avoid contamination of surface water bodies or wetlands. Any treated-wood ties used for new rail lines would be handled during construction in a manner that minimizes contact with soil, vegetation, and avoids direct contact with surface water. In staging areas, creosote-treated railroad ties would be covered to avoid contamination of stormwater runoff. MOTCO does not operate or maintain groundwater wells for potable or industrial use. The Proposed Action would have a negligible effect on MOTCO's water demand or groundwater demand in the region. Projects are not expected to encroach on existing wetlands. If the final design of a proposed project would require encroaching on existing wetlands, the Army would obtain any required permits and comply with the terms and conditions of those permits, including any compensatory mitigation requirements. Activities in regulatory floodplain areas are limited in accordance with EO 11988. NEPA documentation of activities in floodplains would include a Finding of No Practicable Alternative as required by Army policy. The project elements that impact the 100-year floodplain will be described more fully a separate FOMPA as required, and to include: a major reconstruction of segments of Roads, rail and vehicular bridge rehabilitation. Any project that proposes a loss of floodplain volume will be designed to reduce any loss in flooding carry capacity, avoid an increase in surface water elevation, or increase flowrates elsewhere in the basin during a storm event. Suisun Bay is an open system that can absorb storm surge over a very large area. Any maintenance or repair actions will be designed to minimize potential harm to or within the floodplain.	Surface water, groundwater, wetlands, and floodplains would remain in their current state except for minor changes from ongoing projects and maintenance activities.
Air Quality	Temporary and minor impacts on air quality would occur from the use of heavy equipment, support vehicles, and worker vehicles (combustion emissions) and the disturbance of soils (fugitive dust) during construction, demolition, repair, and renovation activities. Particulate emissions would occur as a result of vehicle trips on unimproved roads, bulldozing, compacting, truck dumping, and grading. Construction, demolition, repair, and renovation activities would also generate minimal VOC, NO_2, CO_2, and SO_2 emissions. Fugitive dust and other emissions would minimally increase; however, these emissions would be temporary and would return to pre-project levels upon the completion. Application of BMPs, such as dust suppression and maintaining equipment in proper working condition, would reduce the temporary construction impacts. Emissions are expected to be below *de minimis* thresholds for all constituents and therefore would not be considered significant.	No additional emissions from demolition, repairs, construction, modernization, and maintenance activities would occur. Operational air emissions would remain the same as current levels. No impacts to air quality would occur.
Biological Resources	Project sites are located in previously disturbed areas, with little to no suitable wildlife habitat. Construction of the new holding pads would remove approximately 130 acres of non-native grasslands, which could provide foraging or nesting habitat for grassland birds, small mammals, reptiles or amphibians. Displacement of these species would not be expected to adversely affect any population's viability. Lighting structures at these holding pads would disrupt some behavioral patterns, particularly for nesting birds. Mitigation measures, such as shielding, directional lights, and lower lumen lighting, could be installed to reduce the illumination intensity and footprint.	No effects on biological resources would occur under the No Action Alternative.

Resource Area	Proposed Action	No Action Alterative
Land Use	Project sites are located in previously disturbed areas of the Tidal Area and Inland Area. In general, projects modify or add to existing facilities within or adjacent to areas already used for similar facilities and associated operations. No change to the nature or level of operations is anticipated. Land use resulting from projects under the Proposed Action is consistent with existing land use, as well as land use for the general area as outlined in MOTCO's RPMP. Construction of new holding pads would convert approximately 130 acres of previously impacted non-native grasslands to developed land. This would reduce the amount of area available for grazing under the agricultural contract. Demolition, expansion, and construction of transfer pads would convert approximately 15 acres of non-native grassland to concrete pads and associated elements (e.g., berms, roadways). Substantial grazing area would remain at MOTCO. Impact on land use would be minor.	The current land use pattern at MOTCO would not change from existing conditions and no additional impacts on land use would be anticipated.
Transportation and Utilities Infrastructure	Temporary impacts on traffic from trucks and POVs in the vicinity of MOTCO would occur. Vehicles would include concrete mixers; dump trucks; transport trucks or truck/trailer combinations moving bulldozers, excavators, cranes, and other off-road equipment; and worker POVs. There would be an estimated total of 8,139 vehicle round trips, or 13 trips per workday. Crews would use the City of Concord's designated truck routes and obtain special permits from Contra Costa County, as required. Traffic impacts related to the Proposed Action would be short-term in nature, lasting approximately 30 months. The estimated number of additional daily trips would represent an incremental increase in traffic, divided between two different routes. LOS would not be affected. Traffic impacts would be negligible. No changes to the area mass transit, rail transport, or water transport would occur with implementation of the Proposed Action. New utility construction would be needed in conjunction with new facilities and would be limited to connections to existing electrical, telecommunication, water, and wastewater systems. Existing water and sewer would be extended from the existing infrastructure to the proposed facilities. New transformers may be installed to meet the increased demand for electricity. New fiber-optic cables (communications and security) may be extended from existing telecommunication lines to proposed facilities. Extended telecommunications lines would be installed within existing conduit and road rights-of-way. Details of the extension of utilities would be included in design documents for individual projects and would be analyzed in a future NEPA document. As levels of operational activities would not increase with new facilities, no substantial increase in demand for electrical, telecommunication, water, and wastewater services would be anticipated.	Renovation or replacement of any utilities found outside of established road corridors would not be performed. Condition of these utilities would continue to degrade causing increased risk of failure and potential mission, environment, or human health/safety impacts.
Visual Resources	New and renovated structures would be consistent with MOTCO's installation-wide program for new construction outlined in the RPMP and would improve the visual character of the built environment. Most projects are sited at locations that would not impact the Port Chicago Naval Magazine National Memorial viewshed, or views of Suisun Bay or Los Medanos Hills. Construction operations required for two portions of the Rail Curve Repair project would take place within sight of the memorial, approximately 200- to 700-feet away. Activities would be temporary, and the realignment of the rail curves would not alter the character of the viewshed. Construction operations to add rail tracks to Class Yard 1, approximately 0.5 mile west of the memorial, would be visible from parts of the memorial. These activities would also be temporary, with new tracks likely not visible from the memorial after completion. Neither of these projects would result in changes to types or frequency of operations. Minor, temporary impacts on the visual resources at MOTCO and in the area would be expected; permanent impacts would be negligible.	No changes to visual resources would be expected.
Noise	Construction-related noise emissions would range from 79 to 85 dBA when measured 50 feet from the respective piece of equipment. Based on modeled attenuation of noise levels, the majority of activities conducted in the Tidal Area would occur far enough (greater than 1,000 feet) from noise-sensitive areas or sensitive noise receptors that they would experience equipment noise at levels below the lowest measured DNL. Noise generated by construction activities closest to sensitive areas would be intermittent and vary in intensity depending on the equipment used in each phase. Noise impacts would be minimized through the implementation of the BMPs, including restrictions on idling time, using/maintaining equipment in proper working order, and avoiding construction during nighttime hours (10:00 p.m. to 7:00 a.m.) and on weekends. During final design and environmental analysis, predicted noise and vibration levels and mitigation measures would be reviewed in further detail. Further noise mitigation would be provided if noise impacts occur for which mitigation is deemed necessary and appropriate under local ordinances.	Additional noise from construction, demolition, repair, and renovation would not be generated; therefore, no noise impacts would occur.

Resource Area	Proposed Action	No Action Alterative
Socioeconomics and Environmental Justice	No changes in permanent direct employment in the region would occur, so there would be negligible impacts on population, incomes, schools, or businesses. During construction, temporary minor direct beneficial impacts could occur if local companies are hired to perform construction, demolition, repair, and renovation projects or if construction materials are purchased locally. Temporary minor indirect benefits could occur if construction workers passing through nearby areas purchase local goods or eat at local restaurants. Bay Point is considered a minority and low-income community with approximately 85 percent of the population as people of color and poverty rates meaningfully higher than those in Contra Costa County or the State of California. Adverse environmental effects to residents of Bay Point could be considered as disproportionately high in affecting minority populations and are therefore subject to further consideration as impacts under environmental justice. Because construction, demolition, repair, and renovation sites are on MOTCO property (or existing Union Pacific right-of-way), and because the nature and intensity of future operations would be unaffected, resource areas with the greatest potential for disproportionate offsite impacts are air quality, transportation, visual resources, and noise. Each of these resource areas is discussed above with particular emphasis on Bay Point; effects have been determined to be negligible or minor. Because none of these effects meet the criteria for "disproportionately high and adverse," construction, demolition, repair, and renovation activities would have no adverse impacts under environmental justice. Likewise, there would be no impacts that would adversely impact children's health and safety.	There would be no disproportionately high adverse impacts on minority or low-income populations or children.
Hazardous Materials and Waste	Contract documents would specify that procedures for hazardous materials management established for MOTCO would be followed by contractors during all activities. All POL and solvents required to operate and maintain equipment would be stored outside of the construction zone. Contractors would be required to provide the MOTCO Department of Public Works Environmental Division with material safety data sheets for large quantities of hazardous materials to be used. Upon delivery of the materials to the installation and throughout the course of the project activities, contractors would be required to manage the material in accordance with relevant environmental protection and worker safety regulations and MOTCO environmental management policies. Any spill of such materials on MOTCO property would be immediately reported to the MOTCO Fire Department, Directorate of Public Works, and Environmental Compliance Office to ensure response actions are appropriate and in accordance with the MOTCO ISCP. Environmental impacts from hazardous materials are expected to be negligible. Contract documents would specify that established hazardous waste procedures would be followed during all activities, and MOTCO would continue to operate within its small quantity generator hazardous-waste permit conditions. Any hazardous waste generated would be managed by contractors in accordance with the relevant requirements of the MOTCO HWMP, and applicable Federal, State, and local regulations. With the potential exception of creosote-treated railroad ties removed during rail realignment, it is not anticipated that substantial quantities of hazardous waste would be generated by project activities. Potential effects from hazardous waste expected with implementation of the Proposed Action would be minor. Where lead-based or PCB paint is present, required abatement and waste management planning and control measures would be implemented in accordance with Federal and California regulations. The removal of toxic substances as part of project activities, including, potentially, creosote-treated railroad ties, would be conducted in accordance with applicable Federal, State, and local regulations. Negligible to minor impacts from toxic substances are anticipated. Temporary disturbance of areas managed under the MOTCO MMRP and IRP would occur due to the need for grading and excavation in the Tidal Area. Soil sampling and analysis may be performed before ground disturbance within IRP sites. For analyses indicating potential soil contamination above action levels, results would be taken into consideration for the DERP process; continued project work would take place only in accordance with applicable regulations. To comply with UXO requirements, a meeting would be held with the contractors and representatives from the USACE and MOTCO DPW to discuss general conditions, work schedule, phasing, and coordination, security, safety, permits, and other matters pertinent to work accomplishments prior to the initiation of work. In addition, the contractor would be required to submit various plans including a UXO Anomaly Avoidance Plan I, Plan for UXO Support During Construction Activities; Environmental Protection Plan; Quality Control Plan, Hazard Analysis, and Safety/Health Plan. These plans would discuss safety protocols and notification requirements that would minimize any potential for adverse impacts.	Operations at MOTCO would continue and all regulations and plans that pertain to hazardous materials or waste, toxic substances, or contaminated sites would continue to be followed.
Health and Safety	Project activities would result in a temporary increase in the amount of vehicular traffic near Clyde and through Bay Point; however, the projected increase would have no adverse impacts on residents in terms of traffic congestion or air quality. With regard to children, all construction would occur on MOTCO property or within Union Pacific rights-of-way, where access is restricted. No disproportionate safety or health risks to children are expected. Workers could be exposed to hazards associated with industrial operations; however, these activities would not introduce any unique or unusual risks. Practices and policies would be in place to protect human health and minimize safety risks. These practices and policies would be coordinated between construction contractors and the Army prior to initiation of construction activities. Furthermore, all activities would follow all applicable OSHA requirements. MEC and UXO have been encountered in and safely removed from the upland Tidal Area. It is assumed that the probability of encountering MEC is considered "moderate to high" through the entire Port Chicago Blast Area. Munitions response actions include UXO/MEC oversight for all on-going construction activities in both MRSs. Activities that involve ground disturbance may require a MEC survey and UXO clearance.	No traffic-related human health risks would be incurred. No workers would face risks from standard industrial hazards or UXO. No effects to health and safety would occur.
Cultural Resources	No adverse impacts on historic properties would occur as a result of any of the proposed construction/demolition activities. All consultation and evaluation of potentially significant cultural resources will occur during project design.	No impacts on cultural resources would occur under the No Action Alternative.

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4 CUMULATIVE IMPACTS

4.1 DEFINITION OF CUMULATIVE IMPACTS

Cumulative impacts within NEPA are defined in 40 CFR Section 1508.7 as

> "the impact on the environment that results from the incremental impact of the action when added to the 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."

CEQ guidance entitled *Considering Cumulative Effects Under the National Environmental Policy Act* (1997) states that cumulative effects analyses should "...determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative effects issues…[and]...focus on truly meaningful effects." CEQ has issued further guidance on addressing past actions, stating

> The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of the proposed action that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision making regarding the proposed action… Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined (CEQ 2005).

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with, or in close proximity to, a proposed action would be expected to have a greater potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions:

1. Does a relationship exist such that impacts on affected resource areas by the proposed action might interact with the impacts on resources of past, present, or reasonably foreseeable actions?
2. If so, what would the combined impact be?
3. Are there any potentially significant impacts not identified when the proposed action is considered alone?

4.2 RESOURCE AREAS EVALUATED

Projects under the Proposed Action would take place almost exclusively within the boundaries of MOTCO, a restricted-access, active military installation. Ownership and access limit the range of potential cumulative effects for two reasons: 1) other actions in close proximity would be Army projects consistent with the existing baseline mission and also subject to NEPA

analysis; and 2) because most activities would be geographically isolated from the public, typically well within the boundaries of the facility.

This cumulative impacts analysis focuses on those resource areas where the incremental impact of the Proposed Action could have the potential for significant direct or indirect cumulative effects, as well as those resources that are of concern in the MOTCO region. Based on the analysis presented in Section 3.0 of this PEA, the following resource areas were carried forward for further analysis of potential cumulative effects: water resources, air quality, biological resources, transportation and traffic, environmental justice, and cultural resources.

The following resource areas were not carried forward for cumulative effects analysis: earth resources, land use, utilities, visual resources, noise, socioeconomics, health and safety, and hazardous materials and waste. Since the direct and/or indirect impacts on these resource areas are localized and/or temporary, another action would need to occur in the same localized area at the same time for significant cumulative impacts to be possible. While a few of the other actions potentially affecting these resource areas may occur in the same general area, cumulative significant impacts due to the incremental impact of the Proposed Action are unlikely, as the Proposed Action was found to result in negligible or minor direct/indirect adverse impacts on these resource areas.

4.3 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS AFFECTING RESOURCES OF CONCERN

Other past, present, and reasonably foreseeable actions that could influence the resource areas carried forward for further analysis (water resources, air quality, biological resources, transportation and traffic, environmental justice, and cultural resources) are addressed here. This includes consideration of the other past and present actions and their locations, the extent of their direct and indirect effects, any likely future actions, and their relative contribution to cumulative impacts on the specific resource.

In accordance with CEQ's guidance, this PEA focuses on the current aggregate effects of past actions without delving into the historical details of individual past actions, unless such information is necessary to describe the cumulative impact of all past actions combined.

Present and reasonably foreseeable actions include actions that are in detailed planning phases, under construction, or which have been recently initiated. A comprehensive list of relevant recent past, ongoing, and reasonably foreseeable future actions, along with the status of the NEPA analysis (if applicable) is provided in Table 4-1. These actions focus on those that were found to have potential for cumulative effects with the Proposed Action on water resources, air quality, biological resources, visual resources, transportation/traffic, cultural resources, toxic substances, and/or environmental justice.

Table 4-1. Actions Evaluated for Cumulative Effects

Action	Level of Analysis Completed or Planned	Decision Document	Lead Agency
Past Project			
Repair and Modernization of Piers 2 and 3	EIS	ROD (March 2015)	Army
Present and Reasonably Foreseeable Projects			
Pier 2 Modernization and Repair Design Changes	Supplemental EA	FNSI (February 2017)	Army
Modern Access Control Point #5 Construction and Operation	EA	FNSI (April 2017)	Army
Repair of Bridges, Roads, and Utilities	EA	FNSI (June 2017)	Army
IRP Remedial Actions	Regulatory Consultation	NA	Army
Military Munitions Response Program Actions	Regulatory Consultation	NA	Army
Periodic Dredging of Piers	TBD	TBD	Army
Community Transportation Projects	NA	NA	Various
Regional Shoreline Restoration Project	NA	NA	East Bay Regional Park District
Concord Reuse Project	EIR	NA	City of Concord

Notes: EA = Environmental Assessment; EIR = Environmental Impact Report; EIS = Environmental Impact Statement; FNSI = Finding of No Significant Impact; NA = not available; ROD = Record of Decision; TBD = to be determined

The sections below describe details of the actions listed in Table 4-1.

4.3.1 U.S. Army Projects

Repair and Modernization of Piers 2 and 3

In April 2015, the Army issued a ROD for the modernization and repair of Pier 2 and repair of Pier 3. The selected alternative would fully implement repairs to Piers 2 and 3, with Pier 2 re-oriented to align the west end with the existing shipping channel to create a more modernized configuration. The Army completed consultation with SHPO and NPS concerning the proposed action as required by Section 106 of the NHPA regarding the Army's determination that the proposed action will have no adverse effect on cultural resources or historic properties. The Army also completed consultation with NMFS and USFWS as required by Section 7 of the ESA as well as with NMFS as required by the *Magnuson-Stevens Fishery Conservation and Management Act*. As a result of these consultations, the Army committed to the implementation of various avoidance, minimization, and compensation measures.

To extend the useful life of Pier 3 until Pier 2 was ready for missions, high-density polyethylene jackets were installed around the most structurally significant timber piles located under the Main Platform and walkway that were infested by marine borers. Repairs to Pier 3 began in October 2015.

Pier 2 Modernization and Repair Design Changes

The EIS preferred alternative for Pier 2 modernization included demolition of a considerable portion of Pier 2 and replacement of the main platform and trestles and reorienting the west end of the pier. As the design of the modernization and repair progressed, the Army identified changes in the proposed Pier 2 layout (primarily the consolidation to a single trestle) that would result in more efficient pier operations and a reduction in construction costs. The Army prepared a Supplemental EA to evaluate the changes between the preferred alternative and the revised design. As part of the NEPA process, consultation with SHPO, USFWS, and NMFS was reinitiated. The Supplemental EA was finalized in 2017. Construction is projected to be complete by 2020.

In general, there are anticipated to be lesser environmental impacts with the revised design due to the reduced pier footprint. One of the elements of the revised design was further clarification regarding White Road repairs that would be implemented as part of the Pier 2 project. Specifically, two segments of White Road, from just west of Anderson Road intersection to just east of Prueitt Road intersection, and the Pier 2 east trestle approach between the Christenbury Road and Murdoh Road intersections, were included in the Supplemental EA. The height of these road segments would be raised from the existing level of 8 to 10 feet to 10 to 12 feet to provide an even grade throughout. The White Road repair segment just west of the Anderson Road intersection to just east of the Pruett Road intersection runs through the area of the Port Chicago Naval Magazine National Memorial. Potential improvements to reduce the visual impacts of the road raising to the memorial were to be addressed and could include minor pedestrian and visitor amenities at the site.

Modern Access Control Point #5 Construction and Operation

The Army is constructing a modern ACP at the eastern Port Chicago Highway entrance to MOTCO (ACP #5). This ACP will provide a dedicated area for the inspection of ammunition-laden trucks and efficient access to the Tidal Area at MOTCO. Of the current five designated ACPs at MOTCO, there is no dedicated truck inspection area on the installation, and none of the existing ACPs meet all modern Army requirements, including Army Standard for ACPs (April 2012) and Army ACPs Standard Design (May 2013).

Construction of the modern ACP is nearing completion. Operations are anticipated to begin in late 2020. The modern ACP is intended to resolve current truck and traffic delays at ACP #2, which would improve the overall efficiency for MOTCO’s operations.

Repair of Bridges, Roads, and Utilities

Currently, some MOTCO linear infrastructure systems are deficient with some elements operating under restrictions. Some other installation linear infrastructure systems do not comply with current Army or Department of Transportation codes and standards. MOTCO's RPMP and Utility Master Plan identify current and future needs at MOTCO. The Roads and Bridges EA (Army 2017b) narrowly focuses on repairs to existing roads and bridges throughout the installation as identified in the RPMP and Utility Master Plan. It provides a project-level NEPA review of specific repairs expected to occur in the 2018 to 2022 time period. It also sets up a programmatic framework for NEPA review of longer-term road and bridge repairs occurring in

2022 or later. Spatially, the EA is limited to an area of 50 feet from either side of the existing edge of pavement or bridge.

IRP Remedial Actions

The IRP and its relation to DERP are described in Section 3.11.1.4. Actions at IRP sites are determined with USEPA oversight. The Army also completes ESA Section 7 and NHPA Section 106 consultations, as well as CWA and associated regional and local permitting for these actions. While most IRP sites have been closed out or are in the long-term monitoring phase, several sites within the Tidal Area await final determination on what further remedial actions, if any, are necessary. These sites are the Tidal Area Landfill Groundwater (Site 001A), the former Main Street Dump (Site 38), the Former Copper Smelter (Site 40), and the Former Fertilizer Plant Groundwater (Site 31A) (MOTCO 2019b).

Military Munitions Response Program Actions

The MMRP and its relation to DERP are described in Section 3.11.1.4. MRSs are described in Section 3.11.1.5. Actions at MMRP MRSs are determined with USEPA oversight. Three MRSs within the Tidal Area await final determination on what further remedial actions, if any, are necessary. These MRSs are the Explosive Ordnance Q Area (Site 007), Port Chicago Tidal Area (Site 008), and Suisun Bay Impact Area (Site 010) (MOTCO 2019b) (see Figure 3-11).

Periodic Dredging of Piers

Maintenance dredging was performed on a regular basis at Naval Weapons Station Seal Beach Detachment (NWSSBD) Concord (now MOTCO) until 1993; since 1943, basins at Piers 2, 3, and 4 have been dredged nearly 20 times. Dredging was typically performed using a clamshell method to -32 feet mean lower low water (MLLW) at Piers 2, 3, and 4; -14 feet MLLW at the Barge Pier and east lighter mooring; and -22 feet MLLW at the west lighter mooring. Since 1943, a total of 1.8 million CY of dredged material has been removed from NWSSBD Concord (Army 2015a). It is expected that within the next two years, maintenance dredging would be required at one or more of the piers to address shoaling that has occurred since the last dredging event. The total quantity of dredging is approximately 180,000 CY. Appropriate review would be conducted under NEPA and in accordance with associated *Coastal Zone Management Act* and DMMO permit requirements prior to initiating any dredging actions.

4.3.2 Non-Army Projects

Community Transportation Projects

In 1985, the Contra Costa County Board of Supervisors passed a resolution forming the Bay Point Area of Benefit (AOB) Program. The purpose of the Bay Point AOB Program is to help fund improvements to the County's roadway, bicycle, and pedestrian facilities to accommodate travel demand generated by new land development within the unincorporated portion of the AOB (DKS Associates 2016). At the time of its formation, there were many vacant parcels in the AOB with potential for residential development, and the existing transportation system was inadequate to handle the additional traffic generated by the projected development. In 1991, 1996, and 1998, and again most recently in 2016, the Bay Point AOB Program was revised to reflect the changing needs of the area. Over the past 30 years, the AOB fees have helped pay

for improvements to Willow Pass Road, Bailey Road, Port Chicago Highway, Pacifica Avenue, and Driftwood Drive.

In recent years, most of the residential development potential within the AOB has been fulfilled, and many of the original projects on the Bay Point AOB Program project list have been constructed. The 2016 project list recommends three projects in the vicinity of the Proposed Action: pedestrian and bicycle improvement along Port Chicago Highway from Driftwood Drive to West of McAvoy Road; realignment of the curve and addition of pedestrian and bicycle improvements along Port Chicago Highway from West of McAvoy Road to Pacifica Avenue; and multi-modal safety improvements on Port Chicago Highway at Willow Pass Road (DKS Associates 2016).

On an ongoing basis, the county assesses the unconstructed projects on the AOB project list and determines project priorities. As enough funding becomes available to implement the projects identified as priorities, the county would implement those projects (DKS Associates 2016).

Regional Shoreline Restoration Project

The Bay Point Regional Shoreline Restoration Project, outlined in the 2013 Bay Area Integrated Regional Water Management Plan, is located in the vicinity of the MOTCO and included in this cumulative effects analysis. Specifically, it is located in Bay Point at the end of McAvoy Road on Suisun Bay. The sponsoring agency for the project is the East Bay Regional Park District (Bay Area Integrated Regional Water Management Plan 2013). Project work began in 2014 and is scheduled for completion in 2020 (EcoAtlas 2019). When fully implemented, the project would preserve and restore a 48-acre parcel of marshland and provide access to the bay shoreline. It would also restore 16 acres of filled areas with tidal areas. In total, the Bay Point Regional Shoreline would consist of 138 acres of marsh and uplands at the Bay Point Waterfront.

Concord Reuse Project

The City of Concord has proposed a redevelopment of the former Concord Naval Weapons Station Inland Area, along with the adjacent Coast Guard Housing Complex and North Concord/Martinez BART Station (City of Concord 2018). The project would construct up to 13,000 dwelling units and 8,400,000 gross square feet of Commercial/Campus/Institutional use buildings, along with extensive open spaces, bicycle and pedestrian networks, and streets. All development would take place south of SR-4, with the exception of a proposed extension of Evora Road to the western part of Port Chicago Highway, adjacent to SR-4, and an optional site for a new Pacific Gas and Electric Company (PG&E) substation that is north of Highway 4.

The City of Concord anticipates that construction would occur in increments over an approximately 30-year-long buildout horizon, starting from year 2022 to anticipated buildout in 2049. A California Environmental Quality Act (CEQA) Environmental Impact Report is in preparation.

4.4 DETERMINATION OF THE MAGNITUDE AND SIGNIFICANCE OF CUMULATIVE IMPACTS

4.4.1 Water Resources

4.4.1.1 Description of Geographic Study Area

Impacts on water resources are typically localized. Therefore, the study area considered in the cumulative analysis for this resource is limited to projects that may occur within the Tidal Area at or in proximity to the Proposed Action project sites.

4.4.1.2 Relevant Past, Present, and Future Actions

Several of the projects planned by the Army within the Tidal Area (as listed in Table 4-1) are relevant in that they could impact surface waters or wetlands within a similar time frame as the Proposed Action. These actions are repair of bridges, roads, and utilities; potential IRP remedial and MMRP actions; and periodic dredging of piers.

4.4.1.3 Cumulative Impact Analysis

Under the Proposed Action, no groundwater withdrawals are expected; there would be no additive effects from groundwater withdrawals associated with other projects. Likewise, no activities are anticipated that would cause groundwater contamination.

Drainage patterns of surface waters would not be substantially impacted by the Proposed Action, and water quality, wetlands, and floodplains would remain unchanged. Expansion of holding and transfer pads would result in a net increase in impermeable surface area, but stormwater would be managed in accordance with Section 438 requirements (see Section 3.2.2.1) and no other projects would be anticipated to substantially increase surface water runoff. The Army would obtain proper permits, prepare a site-specific SWPPP and site-specific erosion and sedimentation controls, as required, and other BMPs would be in place during implementation of Proposed Action projects.

Some of MOTCO's other projects with potential surface water impacts could be implemented concurrent with Proposed Action projects. These include temporary dewatering for the replacement of pile sections below the mudline for several bridge repairs, and IRP or MMRP actions. Where projects could be implemented concurrently, there is potential for additive impacts in terms of increased turbidity within Suisun Bay; however, any increased turbidity associated with these projects would be mainly localized at the project sites. The potential for additive effects from Proposed Action projects would be minimal, but appropriately addressed in permits, SWPPPs, BMPs, and SOPs.

No significant adverse cumulative impacts on water resources are anticipated with the Proposed Action.

4.4.2 Air Quality

4.4.2.1 Description of Geographic Study Area

The study area considered in the cumulative impact analysis for air quality includes areas on and near MOTCO.

4.4.2.2 Relevant Past, Present, and Future Actions

The local construction projects planned by the Army, including potential IRP or MMRP actions, are relevant in that they would produce emissions that would be additive to those produced by implementation of the Proposed Action.

4.4.2.3 Cumulative Impact Analysis

The Proposed Action and other regional projects could produce short-term additive amounts of emissions if they are concurrent. As part of the air quality analysis in this PEA, a general conformity applicability analysis was performed to determine if maximum annual direct and indirect emissions from the Proposed Action would exceed *de minimis* thresholds. Based on this air quality analysis, the maximum estimated emissions would be below conformity *de minimis* levels. Other actions listed in Table 4-1 were either assessed through NEPA to be below conformity *de minimis* levels or would be expected to have *de minimis* levels of emissions. Therefore, it is not anticipated that air emissions from other past, present, and future actions, when considered incrementally with the Proposed Action, would exceed regulatory standards.

The conformity analysis showed that, using conservative modeling assumptions, emissions of NO_x could approach the BAAQMD CEQA threshold of significance under the Proposed Action. This conformity analysis is, in itself, a cumulative impact analysis as BAAQMD based its thresholds of significance on the emission levels for which a project's individual emissions would be cumulatively considerable (i.e., if a project were to exceed a significance threshold, significant adverse air quality impacts to the region's existing air quality conditions would result) (BAAQMD 2017b). Therefore, additional analysis to assess cumulative impacts is unnecessary.

4.4.3 Biological Resources

4.4.3.1 Description of Geographic Study Area

Direct impacts to biological resources are typically localized, while indirect impacts can be regional. Since there are only minor impacts to non-native or disturbed habitats associated with the Proposed Action, the study area considered in the cumulative analysis for this resource is limited to projects that may occur within the Tidal Area at or in proximity to the Proposed Action project sites.

4.4.3.2 Relevant Past, Present, and Future Actions

Several of the projects planned by the Army within the Tidal Area (as listed in Table 4-1) are relevant in that they could impact wildlife habitats, including wetlands, within a similar time frame as the Proposed Action. These actions are repair of bridges, roads, and utilities; potential IRP remedial and MMRP actions; and periodic dredging of piers.

4.4.3.3 Cumulative Impact Analysis

Several on-going or future projects have the potential to remove or disrupt wildlife habitat and thus could affect different wildlife species. Loss of individuals is anticipated to be low, and population level impacts are not expected to occur. There could be limited impacts on nesting birds if localized brush clearing occurs during the breeding season. These impacts can be mitigated by performing surveys for occupied nests before brush clearing or equipment staging

takes place and performing these activities outside of the nesting seasons of potentially affected avian species in compliance with the MBTA. The Proposed Action, therefore, would provide a minor to moderate contribution to the cumulative effects on wildlife habitats and populations. However, the Proposed Action would not contribute to cumulative impacts on threatened or endangered species.

4.4.4 Transportation and Traffic

4.4.4.1 Description of Geographic Study Area

For any of the projects listed in Table 4-1, temporary traffic increases would be observed on roads used for the transport of construction equipment, materials, and workers to and from job sites. Thus, the study area considered in the cumulative analysis for transportation infrastructure includes roadways on the installation, ACPs, and roadways off the installation, particularly the access routes associated with ACP #2 and ACP #5 (Port Chicago Highway near Clyde and through the community of Bay Point, respectively).

4.4.4.2 Relevant Past, Present, and Future Actions

Construction and remediation projects described in Section 4.3 would utilize existing transportation infrastructure and are thus relevant to the cumulative analysis. A total trip count has not been provided for each project, but potential traffic impacts have been evaluated at varying levels of detail where NEPA documentation has been completed.

4.4.4.3 Cumulative Impact Analysis

Traffic levels anticipated at approaches to MOTCO over the Proposed Action period (2021 through 2025) are within baseline levels and may be slightly less than levels that were experienced during the height of Pier 2 modernization from 2017 through 2019 and ACP #5 construction scheduled for completion in 2021.

Completion of the new truck inspection facility at ACP #5 will likely result in a permanent shift of mission-related truck traffic from the ACP #2 entrance to ACP #5, with trucks traveling along the Willow Pass/Port Chicago Highway route through Bay Point. During annual missions, MOTCO's total truck volume using the new ACP is projected at approximately 260 trucks. Missions would typically take place for up to 36 days each year. Increases in truck traffic would be intermittent and would equate to an additional 7 trucks per day for each of the 36 days associated with the mission. Once the mission is completed, it is estimated that non-mission truck traffic would be no greater than 4 trucks per year for general installation support. Approximately 80 personnel would be present each day for contracted terminal operations and as stevedore personnel during a mission. POV traffic would be intermittent and would only occur during missions. Once a mission is completed, no more than 5 POVs would be expected to use ACP #5 on a daily basis to access the Tidal Area. In addition to POVs, up to 4 government-owned vehicles could use ACP #5 on a daily basis (Army 2017c).

Based on the current LOS provided by Port Chicago Highway through the community of Bay Point, additional MOTCO traffic resulting from completion of ACP #5, when combined with Proposed Action and other project-related traffic, would have a negligible effect on the LOS along Port Chicago Highway in general; however, one intersection in Bay Point, at Port Chicago

Highway and Pacifica Avenue, currently has an unacceptable LOS of E during morning hours (see Figure 3-8). Congestion at this intersection is created by school-related traffic in the mornings Monday through Friday. Even though the MOTCO-related traffic through Bay Point would not likely result in any major impacts on traffic in the community, MOTCO has agreed to work with its mission trucking companies to place restrictions on delivery times during morning hours on school days, where practicable (Army 2017c).

The Concord Reuse Project would generate construction-related traffic beginning as early as 2022. Because the project is located south of SR-4, potential conflicts with MOTCO traffic would likely be limited to the SR-4/Port Chicago Highway interchange south of ACP #2. With diversion of mission-related traffic to ACP #5, the incremental increase in traffic at ACP #2 resulting from the Proposed Action is unlikely to contribute to LOS impacts at the SR-4/Port Chicago Highway interchange.

4.4.5 Environmental Justice

4.4.5.1 Description of Geographic Study Area

The study area considered in the cumulative impact analysis for environmental justice is the community of Bay Point. This community would be potentially affected by the movement of traffic on existing roadways to and from ACP #5.

4.4.5.2 Relevant Past, Present, and Future Actions

As analyzed for transportation, most of the construction, demolition, and remediation projects described in Section 4.3 would require the use of ACP #5 and thus are collectively relevant to environmental justice concerns.

4.4.5.3 Cumulative Impact Analysis

Due to the short-term nature of most projects and the relatively minor volume increases within the context of average roadway traffic, it is not anticipated that traffic increases related to construction or remediation activities would have a long-term or substantial impact on local communities; however, increased construction and remediation activities at MOTCO would increase the volume of traffic and noise experienced at and near ACP #5 and thus cause the disproportionate exposure of low income/minority neighborhoods to increased traffic and noise near these locations. These effects would be additionally pronounced if traffic backs up at ACP #5; however, this was not anticipated as a result of ACP #5 traffic (Army 2017c) and would be unlikely given the relatively small additional traffic volumes expected as a result of the Proposed Action. Some of the trucks could be hauling demolition material classified as hazardous waste, treated wood waste, or toxic substances. Transportation of all such waste would be in compliance with Federal, state, and local regulations, including adhering to local regulations on containment, transportation, signage, and routing. Neither the increased traffic nor the transport of contaminated materials would put adjacent communities at increased safety risk.

Simultaneous execution of projects may result in short-term and localized traffic impacts that may disproportionally affect the Bay Point community adjacent to MOTCO; however, these

impacts would be small. As a result, no significant and adverse cumulative impacts to the Bay Point community are anticipated.

4.4.6 Cultural Resources

4.4.6.1 Description of Geographic Study Area

Impacts to cultural resources are typically localized; therefore, the study area considered in the cumulative analysis for this resource is limited to projects that may occur within the Tidal Area at or in very close proximity to the Proposed Action project sites.

4.4.6.2 Relevant Past, Present, and Future Actions

Several of the projects planned by the Army within the Tidal Area (as listed in Table 4-1) are relevant in that they could potentially affect cultural resources within a similar time frame or location as the Proposed Action. These actions are repair of bridges, roads, and utilities; potential IRP remedial and MMRP actions; and periodic dredging of piers.

4.4.6.3 Cumulative Impact Analysis

No adverse impact on historic properties is anticipated under the Proposed Action; therefore, there would be no contribution to cumulative impacts on these resources. Any potential impact on cultural resources due to the other on-going or future projects identified above would undergo consultation with the California SHPO under Section 106 of the NHPA. Consequently, no major adverse cumulative impact would be expected.

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5 MITIGATION MEASURES

5.1 INTRODUCTION AND DEFINITION OF MITIGATION MEASURES

Mitigation is a specific NEPA term that refers to additional action taken to avoid, minimize, rectify, reduce/eliminate, or provide compensation for an adverse impact resulting from implementation of an action alternative. In 40 CFR §1508.20, mitigation includes the following:

- avoiding the impact altogether by not taking a certain action or parts of an action;
- minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- compensating for the impact by replacing or providing substitute resources or environments.

5.2 BEST MANAGEMENT PRACTICES AND STANDARD OPERATING PROCEDURES

As discussed in Section 3, there are management actions such as BMPs and SOPs that the Army implements on an ongoing basis to provide environmental protection. BMPs and SOPs are distinguished from mitigation measures in this PEA because they are 1) existing requirements for the Proposed Action; 2) ongoing, regularly occurring practices; and 3) not specific to the Proposed Action. Table 5-1 provides a summary of the relevant BMPs and SOPs to the Proposed Action evaluated in this PEA. The table indicates the BMP and/or SOP that would be applied and the primary resource areas that would benefit from the BMP and/or SOP. Implementation, monitoring of effectiveness, and revisions and updates of BMPs and SOPs are part of the Army's overall environmental management system cycle of continual improvement.

5.3 MITIGATION MEASURES INCLUDED IN THIS PEA

The BMPs and SOPs included in Section 3 and summarized in Section 5.2 and Table 5-1 would minimize overall effects associated with projects under the Proposed Action. Separately, the Army would consult with the SHPO concerning individual projects as part of additional NEPA requirements in accordance with Section 106 of the NHPA as well as consult with the USFWS as required by Section 7 of the ESA.

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Table 5-1. Summary of Relevant Best Management Practices and/or Standard Operating Procedures

BMP/SOP	Description	Geology and Soils	Water Resources	Air Quality	Biological Resources	Noise	Health and Safety	Cultural Resources
Erosion Control	A range of BMPs would control erosion during construction to eliminate and/or minimize nonpoint source pollution in surface waters due to sediment transport. Erosion control BMPs include, but are not limited to, the following practices and procedures: • Erosion control through site approval process (whereby the proposed project site is reviewed for its erosion potential) • An Erosion and Sediment Control Plan would be prepared and implemented in construction plans and practices to the maximum extent practicable • Topsoil removed from the site would be placed in the immediate area and reused for re-compaction purposes (if appropriate) • Soil exposed near water as part of the project would be protected from erosion with erosion control blankets (organic or synthetic fibers held together with net to cover disturbed areas) after exposure and stabilized as soon as practicable (with vegetation matting, hydroseeding, etc.) • Silt-containment (silt fences and other physical barriers that intercept runoff from drainage areas) would be implemented as needed • The area would be re-vegetated as soon as possible after any ground disturbance or grading • Construction and grading would be minimized during inclement weather • Soil piles and exposed slopes would be covered during inclement weather • Excavated materials would be stockpiled behind impermeable berms and away from the influence of water bodies and runoff • Vegetation/mulch would be stabilized (applying coarse plant residue to cover soil surface. The vegetation/mulch should be free of invasive species viable reproductive parts, such as rhizomes, seeds, and plants) • Level spreader would be implemented (non-erosive outlet for runoff to disperse flow uniformly across slope) • Sediment basins would be implemented (barrier that retains sediment from runoff)	X	X		X			
Stormwater Management Plan (SWMP)	In compliance with the CWA under Section 401, the proposed action would require a SWMP. A SWMP is a document that describes the minimal procedures and practices used to reduce the surface flow and subsequent discharge of pollutants to storm drainage systems, and includes the following structural and non-structural practices: • Dams would be checked (small temporary stone dam across drainage) • Diversion dike/swale would be implemented (berm or ditch that channels water to desired location) • Waterways would be lined (lined outlet for drainage) • Storm drain inlet would be protected (permeable barrier around inlets reducing sediment let into storm drain) • Stormwater ponds and wetlands would be used • Infiltration practices would be implemented (capture/temporarily store water before infiltrating into the soil) • Groundwater recharge wells and infiltration basins would be used, where applicable • Filtering practices would be implemented (capture/temporarily store water and pass through filter beds of sand, organic matter, soil, or other media)	X	X		X			
Stormwater Pollution Prevention Plan (SWPPP)	A SWPPP is a self-implementing plan for compliance with an installation's stormwater permit. • Facilities would be required to comply with the SWPPP during construction and then during day-to-day operations to ensure that stormwater remains free of contaminants. • The SWPPP requires development of pollution prevention measures to reduce and control pollutants in stormwater discharge. • A site-specific SWPPP would be developed to provide additional site-specific measures to reduce impacts.	X	X		X			

BMP/SOP	Description	Geology and Soils	Water Resources	Air Quality	Biological Resources	Noise	Health and Safety	Cultural Resources
Low-Impact Development Design Technology	Examples of low-impact development design include the following practices: • Grassed vegetation would be maintained on berms • Native plant landscaping would be implemented • Use of pesticides and fertilizers would be avoided • Watershed-based management. A watershed protection management approach would consider: ▪ Participation in the development of a watershed management plan ▪ Implementation of specific watershed protection strategies ▪ Design of land use planning techniques that would reduce or shift impervious cover and enhance percolation ▪ Work towards achieving important water resource goals		X		X			
Hazardous Materials Management Plan (HMMP)	HMMPs describe implementation procedures for the transportation, storage, use, and disposal of hazardous materials. HMMPs would also include waste minimization plans that provide protocols designed to encourage and promote the efficient use of hazardous materials, substitute products that are less toxic whenever feasible, minimization of their use, and promote recycling and reuse of hazardous materials. HMMPs would contain procedures such as: • Implementation of hazardous materials spill/release control measures (use of secondary containment and leak detection methods in operations involving liquid hazardous substances) • Construction materials and all construction-related materials should be free of leachable pollutants • Personnel would be trained (DoD personnel and contractors in proper labeling, container, storage, staging, and transportation requirements for hazardous substances. Also, they would be trained in accordance with spill prevention, control, and cleanup methods) • All vehicle maintenance activities would be performed at existing DoD maintenance shops • All personnel and contractors would ensure to store, handle, and dispose of all POL per all applicable local and Federal laws, regulations, and requirements • Temporary equipment laydown or construction staging areas would be located in previously disturbed (e.g., paved) areas	X	X		X		X	
Hazardous Waste Management Plan (HWMP)	HWMPs include waste minimization plans that provide protocols designed to encourage the efficient use of hazardous waste, substitute products that are less toxic whenever feasible, minimize their use, and promote recycling and reuse of hazardous waste. HWMPs include the following recommendations: • The existing HWMP would be updated and implemented to include procedures for the transportation, storage, use, handling, and disposal of hazardous waste • Project-specific hazardous waste disposal protocols would be modified, as appropriate • Ensure personnel and contractors would be trained regarding project- and facility-specific hazardous waste plans • The use of spill/release control measures would be implemented (use of secondary containment and leak detection methods in operations involving liquid hazardous substances). • Appropriate housekeeping protocols would be implemented (improving overall hazardous waste housekeeping practices, keeping area swept, wiping up spills, etc.). • All maintenance activities would be performed at existing DoD maintenance shops • All Federal, State, and DoD laws and regulations would be observed via inspections/audits/surveillances and implement corrective actions as necessary. Also ensure that all personnel and contractors manage, store, handle, transport, and dispose of hazardous waste in accordance with applicable Federal and State regulations • Temporary equipment laydown or construction staging areas would be located in previously disturbed (e.g., paved) areas • When new construction occurs on sites where contamination and/or MEC has been identified, the risk of human/ecological exposure would be minimized via the use of site-specific health and safety plans, engineering and administrative controls, and personal protective equipment in accordance with 29 CFR Section 1910.120 (hazardous waste operations and emergency response operations). These site-specific health and safety plans must specifically address how these controls would be implemented to ensure the protection of human health and the environment	X	X	X	X		X	

BMP/SOP	Description	Geology and Soils	Water Resources	Air Quality	Biological Resources	Noise	Health and Safety	Cultural Resources
Spill Prevention Control and Counter-measure (SPCC) Plans	• The existing SPCC Plan would be updated and implemented to assess and respond to hazardous substance spills and/or releases. • Ensure DoD personnel and contractors would be trained as to proper labeling, container, storage, staging, and transportation requirements for hazardous substances. Also, ensure they would be trained in accordance with spill prevention, control, and cleanup methods • Ensure POL fuel transfers would be kept away from water bodies and a response/contingency plan is in place in the event of any releases, leaks, or spills. • Ensure that all hazardous substance containers would be properly labeled to prevent inappropriate storage or use • Contaminant migration would be controlled (e.g., reducing contaminant migration pathways by preventing releases to drains, pipelines, and sewers and the use of absorbent pads and materials to prevent and control spills and releases) • Ensure that contaminants (e.g., oils, greases, lubrication fluids for heavy equipment) would be properly stored at work sites and temporary construction staging areas to avoid spills, releases, and leaks • Ensure that emergency response plans would be in place for responding to releases, leaks, or spills of hazardous substances • The risk of uncontrolled leaks, spills, and releases would be minimized through industry and Army accepted methods for spill prevention, containment, control, and abatement • The risk of human exposure to contaminated media would be minimized through the use of a site-specific health and safety plan, engineering and administrative controls, and appropriate personal protective equipment (e.g., indicating where eye-wash stations, fire extinguishers, etc., are located)	X	X		X		X	
Munitions and Explosives of Concern (MEC)	• All applicable MEC protocols, procedures, and guidance would be complied with • The potential exposure to UXO would be reduced through completion of limited MEC clearance operations by qualified UXO technicians • All applicable DoD MEC operations guidance would be implemented to minimize or eliminate potential MEC explosion hazards and other adverse impacts • Construction crews would be trained on identifying and responding to MEC encountered in the field. UXO personnel would be available to monitor earthmoving activities		X		X		X	X
Natural Resources Management (Terrestrial Focused)	• INRMP obligations would be achieved	X	X	X	X			
Natural Resources Management (Marine Focused)	Contamination of the marine environment would be minimized from project-related activities through actions such as: • Contractors would be required to have and to implement a contingency plan to control and contain toxic spills, including petroleum products. Appropriate materials to contain and clean potential spills would be maintained and readily available at the work site. These materials would include absorbent pads and kitty litter and secondary containment absorbent booms • All construction project-related materials and equipment placed in the water would be maintained so as not to release pollutants into the bay and/or be used to control pollutants that may be released by the construction, demolition, repair, and renovation activities. The project manager and heavy equipment operators would perform daily pre-work equipment inspections for cleanliness and leaks. All heavy equipment operations would be postponed or halted should a leak be detected, and would not proceed until the leak is repaired and equipment cleaned. This requirement is written into the construction contract conditions • Fueling of construction project-related vehicles and equipment would take place at least 100 feet away from the water unless a bermed and lined refueling area is constructed. With respect to construction equipment that cannot be fueled out of the water, spill prevention booms would be employed to contain any potential spills. Any fuel spilled would be cleaned up immediately. • A plan would be developed and implemented to prevent construction debris from entering or remaining in the marine environment during the project		X		X			
Transportation and Traffic	Roadway project construction BMPs would include the following recommendations: • A Traffic Control Plan would be prepared and implemented • Temporary equipment laydown or construction staging areas would be located in previously disturbed (paved, gravel, etc.) areas • Material from demolition of existing road pavements would be stored in previously disturbed areas whenever possible • An Erosion and Sediment Control Plan for roadway construction/work would be prepared and implemented in construction plans and practices to the maximum extent practicable • Leaks or spills of contaminants would be prevented by ensuring all temporary equipment laydown or construction staging areas are located in previously disturbed (paved, gravel, etc.) areas and constructed with secondary containment for storage of any hazardous or petroleum products	X	X	X	X			

BMP/SOP	Description	Geology and Soils	Water Resources	Air Quality	Biological Resources	Noise	Health and Safety	Cultural Resources
Noise Abatement	BMPs to abate noise from roadway construction would include the following: • Ensure that all equipment items would have the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators, intact and operational • All construction equipment would be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding) • Idling equipment would be turned off when no longer in use • A construction noise monitoring program would be implemented to limit potential impacts • Noisier operations would be planned during times least sensitive to receptors • Construction would be avoided during nighttime hours (10:00 p.m. to 7:00 a.m.) and on weekends • Noise levels would be kept relatively uniform and avoid impulsive noises • Good public relations would be maintained with the community to minimize objections to the unavoidable construction impacts • Frequent activity updates would be provided of all construction activities				X	X	X	
Cultural Resources	• Archaeological monitoring would take place during construction in consultation with SHPO • For post-review discoveries, an assessment would be made for NRHP eligibility in consultation with SHPO							X
Seismic Design	• During project design and construction, hazards associated with earthquakes and fault rupture would be minimized	X					X	
Air Quality (Construction Emissions)	• A time restriction of five minutes would be placed on unnecessary heavy equipment idle time and unscheduled inspections would be incorporated to verify compliance with the restriction • Ensure equipment engines would be maintained and tuned to perform at CARB and/or USEPA certification levels, preventing tampering, and unscheduled inspections would be conducted to ensure these measures are followed • New equipment would be leased, where practicable, that meets the most stringent of applicable Federal or California standards • Commit to the best available emissions control technology where practical and reasonable. Use of Tier 4 engines will be utilized as much as is feasible. For equipment that does not meet Tier 4 standards, CARB and USEPA-verified controls such as particulate traps and oxidation catalysts will be used to reduce emissions of diesel particulate matter and other pollutants • Equipment powered with liquid propane gas, batteries, or direct plug-in will be implemented, as feasible • Fugitive dust will be controlled, where appropriate, by covering soil piles, installing wind fencing, and limiting equipment and haul truck speeds to 15 miles per hour onsite			X				

Note: 1. Project specific SWMPs, SWPPPs, and SPCC plans would be developed separately for the Proposed Action projects. Each project would have its own timeline for final design and construction. As such, there may be changes in the regulations and guidelines that would be accounted for in each project by having these plans developed separately and during final design and just prior to construction.

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APPENDIX A

PUBLIC INVOLVEMENT

[To be developed after release of Draft PEA]

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APPENDIX B

CONFORMITY ANALYSIS

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APPENDIX B

CONFORMITY ANALYSIS AND RECORD OF NONAPPLICABILITY

1 INTRODUCTION

1.1 PROJECT AREA AND SCOPE

Military Ocean Terminal Concord (MOTCO) is a Surface Deployment and Distribution Command (SDDC) munitions and cargo transshipment facility located on Suisun Bay in north-central Contra Costa County, California (Figure 1). This installation is the Army's primary west coast ammunition terminal and home to the SDDC's 834th Transportation Battalion.

Due to age, condition, and functional obsolescence, many of the facilities located at MOTCO are in need of major renovation, replacement, or redevelopment in order to meet mission requirements. A Programmatic Environmental Assessment (PEA) is being prepared to programmatically describe the types of renovation, replacement, or redevelopment actions that can be reasonably expected to occur to infrastructure within the upland habitats on the installation through 2025 and the associated effects of these actions. Additionally, it will provide an analysis of the effects associated with known specific projects.

Major elements of redevelopment include replacement of underground and aerial utilities, realignment of rail lines, demolition of outdated facilities not covered under previous *National Environmental Policy Act* (NEPA) documents, and new facility construction. Some renovation, replacement, or redevelopment actions would occur within currently and previously disturbed areas and other actions would necessitate the conversion of non-native grasslands to developed land.

1.2 NATIONAL STANDARDS

The U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for specific pollutants determined to be of concern with respect to the health and welfare of the general public. Ambient air quality standards are classified as either "primary" (designed to protect public health with an adequate margin for safety) or "secondary" (designed to protect the public welfare from adverse effects, including those related to soils, water, crops, and vegetation). The major pollutants of concern, or criteria pollutants, are carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$) and lead.

Areas that do not meet these NAAQS standards are designated as non-attainment areas; areas that meet both primary and secondary standards are designated as attainment areas. The Federal Conformity Final Rule (40 CFR Parts 51 and 93) specifies criteria and requirements for conformity determinations of Federal projects. The Federal Conformity Rule was first promulgated in 1993 by the USEPA, following the passage of Amendments to the Clean Air Act in 1990. The rule mandates that a conformity analysis be performed when a Federal action generates air pollutants in a region that has been designated a non-attainment or maintenance area for one or more NAAQS.

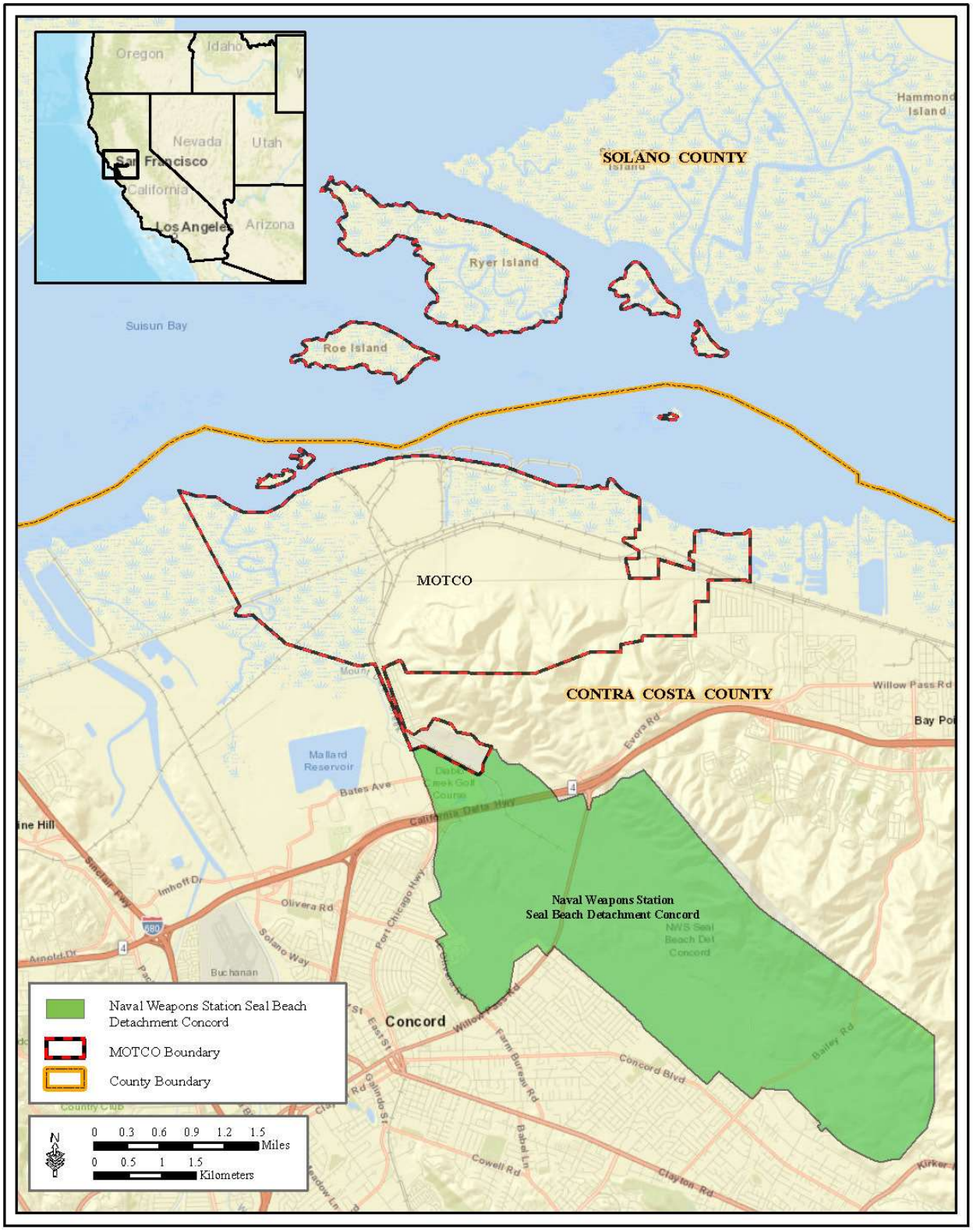

Figure 1. MOTCO Boundaries

In addition to the ambient air quality standards for criteria pollutants, national standards exist for hazardous air pollutants (HAPs). The National Emission Standards for Hazardous Air Pollutants (NESHAP) regulate 188 HAPs based on available control technologies (40 CFR Parts 61 and 63). HAPs include compounds such as benzene, which is found in gasoline. The majority of HAPs are volatile organic compounds (VOCs).

1.3 CALIFORNIA STANDARDS

States must develop a State Implementation Plan (SIP) for ensuring NAAQS are achieved and maintained within a state. States may also establish their own ambient air quality standards. The California Health and Safety Code, Section 39606, authorizes the California Air Resources Board (CARB) to set ambient air pollution standards in consideration of public health, safety, and welfare. The CARB makes area designations for 10 pollutants: ozone, suspended particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility reducing particles. The CARB reviews the area designations each year and updates them as appropriate, based on the three most recent complete and validated calendar years of air quality data (CARB 2018). The state of California has also established an ambient air quality standard for vinyl chloride.

California is divided into 15 air basins, or districts, based on meteorological and geographic conditions, and, where possible, jurisdictional boundaries such as county lines. The Bay Area Air Quality Management District (BAAQMD) includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, as well as the western portion of Solano County and the southern portion of Sonoma County. MOTCO is in Contra Costa County and so falls within jurisdiction of the BAAQMD. The portion of the BAAQMD that includes MOTCO has been designated as a Federal attainment area for carbon monoxide, sulfur dioxide, and lead, and a non-attainment area for ozone and $PM_{2.5}$ (Table 1; BAAQMD 2017a). It has also been designated as a state nonattainment area for ozone, PM_{10}, and $PM_{2.5}$.

The most recent BAAQMD ozone plan prepared in response to Federal air quality planning requirements is the *2005 Ozone Strategy*. To fulfill Federal air quality planning requirements for $PM_{2.5}$, the BAAQMD adopted the $PM_{2.5}$ 2012 emissions inventory in November 2012. The inventory was submitted to the CARB for inclusion in the California SIP.

2 GENERAL CONFORMITY

A conformity analysis is the process used to determine whether a Federal action meets the requirements of the General Conformity Rule. The General Conformity Rule prohibits any Federal action that does not conform to the applicable air quality attainment plan or SIP and applies to areas designated as nonattainment or maintenance from NAAQS. It requires the responsible Federal agency to evaluate the nature of a proposed action and associated air pollutant emissions and calculate emissions that may result from the implementation of the proposed action. If the emissions exceed established limits, known as *de minimis* thresholds, the project proponent is required to perform a conformity determination and implement appropriate mitigation measures to reduce air emissions. A project is exempt from the conformity rule if the total net project-related emissions (construction and operation) are less than *de minimis* thresholds.

Table 1. Ambient Air Quality Standards at MOTCO

Pollutant	Averaging Time	California Standards[1]		National Standards[2]	
		Concentration	Status	Concentration	Status
Ozone (O_3)	8 hour	0.070 ppm	N	0.070 ppm	N
	1 hour	0.09 ppm	N	-	-
Carbon Monoxide (CO)	8 hour	9.0 ppm	A	9 ppm	A
	1 hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	A	0.100 ppm[6]	U/A[3]
	Annual arithmetic mean	0.030 ppm	-	0.053 ppm	A
Sulfur Dioxide (SO_2)	24 hour	0.04 ppm	A	0.14 ppm	U/A[3]
	1 hour	0.25 ppm	A	0.075 ppm	U/A[3]
	Annual arithmetic mean	-	-	0.030 ppm	-
Particulate Matter (PM_{10})	Annual arithmetic mean	20 µg/m^3	N	-	-
	24 hour	50 µg/m^3	N	150 µg/m^3	U
Particulate Matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3	N	12 µg/m^3	U/A
	24 hour	-	-	35 µg/m^3 [4,5]	N
Sulfates	24 hour	25 µg/m^3	A	-	-
Lead (Pb)[6]	30-day average	1.5 µg/m^3	-	-	A
	Calendar quarter	-	-	1.5 µg/m^3	A
	Rolling 3 month average	-	-	0.15 µg/m^3	-
Hydrogen Sulfide	1 hour	0.03 ppm	U	-	-
Vinyl Chloride	24 hour	0.010 ppm	No information available	-	-
Visibility Reducing Particles	8 hour (1000 to 1800 Pacific Standard Time)	See footnote 7	U	-	-

Source: BAAQMD 2017a

A = Attainment, N = Nonattainment, U = Unclassified, - No Standard or Not Designated

Notes:

[1] California standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on the average.

[2] National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m^3. The 24-hour PM2.5 standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3.

Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard

at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

[3] Source: BAAQMD 2018.

[4] On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This EPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "nonattainment" for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to EPA, and EPA approves the proposed redesignation.

[5] Source: USEPA 2019

[6] CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure below which there are no adverse health effects determined.

[7] Statewide visibility reducing particles (VRP) standard: particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

The Proposed Action for the PEA would be located in the BAAQMD and the general conformity requirements apply to the ozone precursors VOCs and nitrogen oxides (NO_X), carbon monoxide, $PM_{2.5}$, and sulfur dioxide, which is considered a $PM_{2.5}$ precursor. In accordance with the air conformity requirements, the applicable *de minimis* thresholds are presented in Table 2.

Table 2. General Conformity *de minimis* Thresholds (tons/year)

	VOCs	CO[1]	NOx	SO_2[2]	PM_{10}	$PM_{2.5}$
Applicable *de minimis* Thresholds	100	100	100	100	NA	100

Source: 40 CFR Section 93.153

Notes:

[1]CO is included because the BAAQMD is a maintenance area for CO.

[2]SO_2 is included as a potential precursor for $PM_{2.5}$ formation.

3 ANALYSIS

The conformity analysis for the Proposed Action examines the net impacts of the direct and indirect emissions from mobile and stationary sources, and emissions from any reasonably foreseeable Federal action. Indirect emissions include those emissions the Federal agency can practicably control and has continuing program responsibility to maintain control, and emissions caused by the Federal action later in time and/or farther removed in distance from the action itself, but that are still reasonably foreseeable. Reasonably foreseeable emissions are those from projected Federal actions that can be quantified at the time of the conformity requirements and are included in the analysis.

Reasonably foreseeable emissions analyzed for the MOTCO Proposed Action include emissions from:

- Off-road construction equipment engines
- On-road truck hauling and worker vehicle trips
- Dust from grading, construction, and driving
- Asphalt paving
- Emergency generator testing and operation

Air quality impacts were assessed by comparing emissions generated by activities under the Proposed Action to the abovementioned thresholds. For construction, these activities represent the additive short-term net change in emissions at MOTCO as compared to the already existing operational emissions. With the exception of emergency generator use, the Proposed Action would not result in foreseeable operational or maintenance changes; therefore, operations and maintenance emissions are not included and only short-term construction emissions and operational emissions from emergency generators are presented.

3.1 EMISSIONS CALCULATION

3.1.1 CalEEMod

The California Emissions Estimator Model (CalEEMod; California Air Pollution Officers Association [CAPCOA] 2017a) is the modeling software listed by the BAAQMD to assist lead agencies in analyzing criteria pollutant and greenhouse gas (GHG) air-quality impacts from proposed land-use projects and plans (BAAQMD 2019). CalEEMod calculates potential emissions from construction and operation of land use projects, reporting maximum and annual averages for criteria pollutants as well as annual GHG emissions, and combines user-defined data with default data when site-specific information is not available (CAPCOA 2017). It can also incorporate adjustments for mitigation. This model uses widely accepted methodologies for estimating emissions and quantifying air quality and climate change impacts. For this PEA, CalEEMod is used to estimate annual emissions of criterial pollutants and compared to *de minimis* levels to evaluate if a conformity determination is required.

3.1.2 Model Inputs and Assumptions

Model inputs include project size and location, construction schedule and phasing, equipment numbers and activity hours, vehicle mileage, and transported soil and material amounts. This information is derived from project-specific data for the Proposed Action. When data are unavailable, conservative judgements and assumptions are used to develop the modeling scenario, specifications, and inputs to obtain cautious yet realistic screening estimates.

Within the context of a PEA, Proposed Action projects are defined in a general manner; construction specifications have not been prepared, contractors have not been selected, and project schedules are unknown. Further NEPA documentation would be developed for individual projects as details are known. The intent of this analysis is to demonstrate whether or not the set of project activities described under the Proposed Action, when performed, are likely to generate emissions below *de minimis* levels. If modeling of the Proposed Action, using conservative assumptions for areas, volumes, equipment, and scheduling, results in projected emissions substantially below *de minimis* levels, further project-specific NEPA documentation for individual projects may assume the project is exempt from the conformity rule without additional analysis.

Project location. All projects under the Proposed Action are located in Contra Costa County, California. The air quality analysis refers exclusively to regulatory requirements and air impacts in the BAAQMD, and the assumption is made that all project-related trucks, privately owned vehicles, and equipment would stay within this district while performing project-related work.

Project area. Total project acreage (173.5 acres) is calculated from information provided in the description of the Proposed Action on project lengths (e.g., rail lines) combined with conservative width assumptions, Google Earth computations of areal dimensions of project sites (e.g., R-Building Area), and project areas provided directly (e.g., Expand Holding Pads and Transfer Pads project).

Schedule. The start of construction was assumed to be 1 July 2021, with construction of all elements of the Proposed Action occurring within 30 months (ending 31 December 2023). This schedule assumption is conservative in two ways: 1) a 30-month schedule would require most individual project activities to be performed concurrently rather than over the anticipated timeline extending to 2025, thus maximizing modeled annual emissions; and 2) using the earliest possible start date for projects results in higher calculated equipment emissions as equipment fleets modernize over time (newer equipment, complying with stricter, current emission standards, replaces older equipment).

Construction phases. The CalEEMod model is oriented around project construction phase types, occurring in series. For each phase type, options are available to describe equipment to be used and for input of specific parameters, from which the model will calculate emissions. Modeled Proposed Action phases and durations are listed in Table 3.

Table 3. Modeled Construction Phases and Durations

Phase Type	Start Date	End Date	Days/Week	Total Days
Demolition	7/1/2021	10/31/2021	5	88
Grading	11/1/2021	4/30/2022	5	130
Trenching	5/1/2022	10/31/2022	5	130
Construction	11/1/2022	6/30/2023	5	174
Paving	7/1/2023	12/31/2023	5	131

Actual construction would be oriented around individual projects rather than construction phases, with many projects consisting of multiple construction phases; however, the sequencing and schedule of projects are unknown for the PEA. Given that each phase type varies in pollutants and quantities emitted based on the nature of the activity and equipment used, modeling by phase type would tend to show the maximum emissions that could occur. For example, given that grading would generally produce greater daily particulate emissions than trenching, modeled particulate emissions from fugitive dust would be higher if grading activities for all projects occurred simultaneously.

Off-road equipment. For estimation purposes, the Army developed a list of equipment to be used during Proposed Action construction activities (Table 4). Each piece of equipment was projected to be used 8 hours per day, 5 days per week, over an 18-month period. For modeling purposes, the 18-month equipment use was spread over 30 months (130 weeks), matching the total operational hours for each piece of equipment in Table 4, with representative equipment assigned to each construction phase listed in Table 3 (for example, cranes were assigned to the construction phase). CalEEMod default values were used for horsepower and load factor for each equipment type.

Table 4. Projected Off-Road Equipment for Proposed Action Activities

Equipment	Quantity	Hours/Day	Days/Week	Weeks
Bulldozer	2	8	5	78
Dump truck	4	8	5	78
Water pump	1	8	5	78
Concrete mixer truck	2	8	5	78
Roller	1	8	5	78
Grader	1	8	5	78
Crane	2	8	5	78
Excavator	1	8	5	78
Front-end loader	1	8	5	78

Source: MOTCO 2019

Acres graded, material movement, haul trips, and worker trips. The total acreage graded was assumed to be the 173.5-acre project area, described above. Material imported and haul trips was calculated from Army-determined traffic information of 450 dump-truck loads of material. No material was assumed to be exported. Worker trips was based on 12 vehicles per day over the 30-month modeled project duration.

Mitigation. Mitigation for construction dust was considered. The construction site was assumed to be exposed to water 2 times per day to minimize the release of fugitive dust. The modeled construction fleet was assumed to be Tier 3 compliant.

Operations. The only substantial change to operational emissions from the project is the addition of five stationary 1,250-kilowatt emergency generator sets. These generators would be permitted by the BAAQMD and would meet emission standards in effect at that time. Conservative assumptions used for modeling were that engines would be USEPA Tier 2 certified with no other emission controls. Modeling used the Tier 2 limits for emission factors and an engine horsepower rating of 1,839 based on a representative model, a 2018 MTU 16V2000 DS1250.

3.2 EMISSION RESULTS

Table 5 presents annual unmitigated and mitigated criteria pollutant emissions calculated in CalEEMod for construction activities and compared to *de minimis* rates. All maximum unmitigated and mitigated emission rates for criteria pollutants are substantially below *de minimis* thresholds for all project years. Table 6 presents operational emissions, which are also substantially below *de minimis* thresholds for all project years.

BAAQMD specifies the construction-related *California Environmental Quality Act* (CEQA) threshold of significance at an average of 54 pounds per day for NO_x emissions (BAAQMD 2017b). This quantity equates to 10 tons on an annual basis. Modeled mitigated NOx construction emissions do not exceed this threshold on a calendar year basis. As stated in Section 3.1, schedule and construction phase assumptions used in modeling would tend to overstate emissions. It is unlikely that average emissions would exceed the CEQA threshold of significance on an annual average. Likewise, operational emissions would not exceed CEQA thresholds.

Table 5. CalEEMod Estimated Construction Emissions and General Conformity *de minimis* Thresholds (tons/year)

	VOCs[1]	CO[2]	NOx	SO_2[3]	PM_{10}	$PM_{2.5}$
Construction Emissions (unmitigated)						
–Year 2021	0.4	2.7	4.6	<0.1	0.9	0.5
–Year 2022	0.9	5.6	8.9	<0.1	1.5	0.9
–Year 2023	0.7[4]	4.2	5.1	<0.1	0.2	0.2
–Maximum	0.9	5.6	8.9	<0.1	1.5	0.9
Construction Emissions (mitigated)						
–Year 2021	0.1	3.1	2.6	<0.1	0.4	0.3
–Year 2022	0.3	8.6	6.8	<0.1	0.8	0.6
–Year 2023	0.4[4]	8.2	5.6	<0.1	0.3	0.2
–Maximum	0.4	8.6	6.8	<0.1	0.8	0.6
Applicable *de minimis* Thresholds	100	100	100	100	NA	100
Conformity Determination Required?	No	No	No	No	NA	No
CEQA Thresholds of Significance	10	None	10	N/A	15 (exhaust)	10 (exhaust)

Source: Gulf South Research Corporation 2019 and 2020
[1]Reported by CalEEMod as reactive organic gases
[2]CO is included because the BAAQMD is a maintenance area for CO
[3]SO_2 is included as a potential precursor for $PM_{2.5}$ formation
[4]Includes off-gassing from asphalt pavement

Table 6. CalEEMod Estimated Operational Emissions and General Conformity *de minimis* Thresholds (tons/year)

	VOCs[1]	CO[2]	NOx	SO_2[3]	PM_{10}	$PM_{2.5}$
Annual Operational Emissions (EPA Certified Tier 2 Engine)						
Emergency Diesel Generator Set (5)	1.1	2.9	5.3	<0.1	0.2	0.2
Applicable *de minimis* Thresholds	100	100	100	100	NA	100
Conformity Determination Required?	No	No	No	No	NA	No
CEQA Thresholds of Significance	10	None	10	N/A	15	10

Source: Gulf South Research Corporation 2020
[1]Reported by CalEEMod as reactive organic gases
[2]CO is included because the BAAQMD is a maintenance area for CO
[3]SO_2 is included as a potential precursor for $PM_{2.5}$ formation

3.3 SOURCES OF ERROR

Actual project emissions will vary from CalEEMod estimates due to sources of error within the model and input-related uncertainties, despite best efforts to provide accurate data and valid assumptions. This analysis is based on best-available project data. As a programmatic document, projects are described in general terms and specific methods of performing the work and equipment to be used will vary from assumptions made in calculating model inputs and default assumptions made in the model itself. To safeguard against underestimating actual emissions, many assumptions were conservatively applied. The construction schedule (and

phases) were compressed to 30 months, which would overestimate emissions. Vehicle and equipment emissions are likely to be lower than calculated for activities performed in years 2021 through 2025. Although actual emissions may vary from those predicted by CalEEMod, they are likely to be overestimated due to conservative assumptions used.

4 CONCLUSIONS

This General Conformity analysis results in a *de minimis* determination for the Proposed Action. Construction and operational emissions were estimated using CalEEMod software, project-specific data, and conservative modeling assumptions. Both unmitigated and mitigated emission estimates were found to be substantially below *de minimis* levels for all criteria air pollutants. This determination is subject to review by state and local authorities, and also by the public. This will take place as part of the Draft PEA review, which will allow an opportunity for review and comment by interested parties.

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