

FINAL

ENVIRONMENTAL ASSESSMENT

Construction of a Mess Hall and Consolidated Warehouse in 62 Area



MCB Camp Pendleton, California

October 2019



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DEPARTMENT OF DEFENSE
UNITED STATES MARINE CORPS

**FINDING OF NO SIGNIFICANT IMPACT FOR CONSTRUCTION OF A MESS HALL
AND CONSOLIDATED WAREHOUSE, MARINE CORPS BASE, CAMP PENDLETON,
(MCB CAMPEN) SAN DIEGO COUNTY, CALIFORNIA**

Pursuant to the National Environmental Policy Act (NEPA) (42 United States Code §§ 4321-4370h); the Council on Environmental Quality Regulations implementing procedural provisions of NEPA (40 Code of Federal Regulations Parts 1500-1508); and the Marine Corps Environmental Compliance and Protection Program (Marine Corps Order P5090.2, Volume 12), the Marine Corps gives notice that an Environmental Assessment (EA) has been prepared and an Environmental Impact Statement (EIS) will not be prepared for a proposal to construct an Enlisted Dining Facility and a Consolidated Storage Facility aboard MCB CAMPEN. I find that the proposed action, including adherence to the impact avoidance, minimization, and mitigation measures set forth in detail in the EA, will not have a significant impact on the human environment. Therefore, an EIS is not required.

Proposed Action: The Proposed Action is the construction, operation, and maintenance of a mess hall for enlisted personnel and a consolidated warehouse. The proposed action includes demolition of existing outdated facilities, parking lot construction, widening/realignment of roadways to accommodate large commercial and military vehicles, and site improvements in order to accommodate the construction and the operation of the new facilities.

Purpose and Need for the Proposed Action: The purpose of the proposed action is to provide facilities needed to support the Marine and Navy units in the 62 area and the northern area of the base. The proposed action is needed because the current mess hall and warehouses no longer meet the needs of the United States Marine Corps, and their poor condition causes loss of food and supplies due to inclement weather, electrical failures, and pests. The temporary warehouse facilities are unable to support the necessary administrative operations, provide enough secure space for storage, and meet all security requirements.

Alternatives: The EA analyzed the potential effects of one action alternative. Other alternatives were considered, but not carried forward for analysis for reasons set forth in the EA. The no action alternative is used in this EA as an analytical baseline that establishes the current facilities and land use framework. It provides the analytical baseline upon which potential impacts to the human environment could be determined.

Selected Alternative: Based on the analysis in the EA, I have selected the preferred alternative for implementation.

Summary of Environmental Effects: The EA analyzes the potential environmental impacts resulting from implementation of the proposed action. Impacts to the following resources were analyzed and found to be negligible or non-existent: cultural resources; land use, air quality, water quality and hydrology; visual resources; socioeconomic and environmental justice; traffic; noise; services and utilities; public health and safety; geology and soils. With incorporation of special conservation measures, impacts to all resources, including cumulative impacts, would not be significant.

Findings: There will not be any disproportionately high and adverse human health or environmental effects from the proposed action. The proposed action will not have a significant impact on the human environment. Therefore, an EIS is not required.

The EA and finding of no significant impact addressing the proposed action are on file and may be reviewed at the place of origin: MCB Campen (Attn: Environmental Security), Box 555008 building 22165, Camp Pendleton, California 92055-5010, telephone (760) 725-4512


Signature

5 DEC 19
Date

DAN CONLEY
Brigadier General, U.S. Marine Corps
Commanding General
MCIWEST-MCB CAMPEN

Abstract

Designation: Environmental Assessment

Title of Proposed Action: Construction of a Mess Hall and Consolidated Warehouse

Project Location: 62 Area, Marine Corps Base Camp Pendleton

Lead Agency for the EA: United States Marine Corps

Affected Region: San Diego County, California

Action Proponent: Marine Corps Base Camp Pendleton

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Date: October 2019

The United States Marine Corps has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA).

The proposed action would demolish nine warehouse buildings and a dining facility; construct a new dining facility, warehouse and parking lot; relocate a Combat Fitness Training field; restore an existing warehouse building; widen/realign roads; and conduct site improvements on existing utilities.

Demolition and Construction activities would continue for approximately 36 months.

This EA evaluates the potential environmental impacts associated with the Proposed Action and the No Action Alternative to the following resource areas: air quality and biological resources.

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Environmental Assessment
Construction of a Mess Hall and Consolidated Warehouse
62 Area, Camp Pendleton, California

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Abbreviations and Acronyms

Acronym	Definition	Acronym	Definition
APE	Area of Potential Effect	IR	Installation Restoration
ARTO	Arroyo Toad	LAN	Local Area Network
ATFP	Antiterrorism Force Protection	LBVI	Least Bell's Vireo
BA	Biological Assessment	MCB	Marine Corps Base
BEAP	Base Exterior Architecture Plan	MCBCP	Marine Corps Base Camp Pendleton
BFR	Basic Facilities Requirements	NAAQS	National Ambient Air Quality Standards
BMP	best management practice	NEPA	National Environmental Policy Act
BO	Biological Opinion	NIP	notice of intent to prepare
CAA	Clean Air Act	NO ₂	Nitrogen Dioxide
CAAQS	California Ambient Air Quality Standards	NOA	notice of availability
CAGN	Coastal California Gnatcatcher	NO _x	Nitrogen Oxide
CalEEMod	California Emissions Estimator Model	O ₃	Ozone
CARB	California Air Resources Board	PM	Particulate Matter
CFT	Combat Fitness Test	SDAB	San Diego Air Basin
CSS	Coastal Sage Scrub	SDCAPCD	San Diego County Air Pollution Control District
Db	decibel	SIP	State Implementation Plan
DoN	United States Department of the Navy	SO ₂	Sulfur Dioxide
EA	Environmental Assessment	USEPA	U.S. Environmental Protection Agency
EMCS	Energy Monitoring Control System	UFC	Unified Facilities Criteria
ES	Environmental Security	UMA	Unit Marshalling Area
ESA	Endangered Species Act	USFWS	U.S. Fish and Wildlife Service
GHG	greenhouse gas	USMC	U.S. Marine Corps
GIS	Geographical Information System	UST	Underground Storage Tanks
INRMP	Integrated Natural Resource Management Plan	VOC	Volatile Organic Compounds

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1 Purpose of and Need for the Proposed Action

1.1 Introduction

The United States Marine Corps (USMC) has prepared this Environmental Assessment (EA) in support of proposal to construct, operate, and maintain an Enlisted Dining Facility (referred to as mess hall) and a Consolidated Storage Warehouse (referred to as warehouse). To accommodate the new construction and the operation of the facilities, demolition of existing outdated facilities, parking lot construction, widening/realignment of roadways to accommodate large commercial and military vehicles and site improvements will be necessary. [See Chapter 2](#) for more details. Demolition and Construction activities would continue for an estimated 24 to 36 months.

1.2 Background

The 62 Area at MCB Camp Pendleton hosts a variety of functions and tenant Commands and was originally established in 1940 with barracks and respective support facilities such as a mess hall, administrative, storage, and recreational facilities. The industrial area (vehicle maintenance, supply, and armory) is below the encampment to the southwestern side (DoN, 1992). The mess hall services the northern area of Camp Pendleton and the warehouses provide storage and administrative spaces for multiple tenants in the 62 Area. Facilities in this area are aging and have not been modernized to meet current demand and capacity requirements.

The 62 Area Mess Hall, built in 1954, services the northern area of Camp Pendleton. It is utilized by over 5,000 Marines and Sailors that live and work in the 62 Area and the staff at the mess hall prepares meals to bring to troops in the 63 and 64 Areas. The building is currently outdated and has had multiple issues with mold, mildew, and pests. The current building cannot accommodate the current demand. This mess hall is critical in serving current and future Marines and Sailors as the 62 Area continues to grow. The nearest alternative mess hall is the School of Infantry (SOI) 52 Area Mess Hall, located approximately 7.2 miles southeast which is beyond walking distance.

The existing warehouses that supply the troops were built as temporary structures in 1953 in support of the Korean War and still used despite their poor condition. Since these buildings were not built for permanent administrative use, electrical overloads occur frequently, there is no indoor plumbing or heating, roofs leak, supplies are lost, and they do not meet security requirements. Additionally, since storage is scattered across multiple buildings in the 62 Area, the Marines in the 62 Area must purchase and maintain redundant equipment at different buildings throughout the camp.

1.3 Location

The proposed action would be implemented at MCB Camp Pendleton, the USMC's major amphibious training center for the west coast. The project site is located on 41.12 acres (16.64 hectares) in the 62 Area in the northwestern portion of the Base (Figure 1-1).

1.4 Purpose of and Need for the Proposed Action

The purpose of the proposed action is to support 5th Marine Regiment's warehousing and all 62/63/64 Area tenants messing requirements in accordance with MCB Camp Pendleton's Master Plan.

The proposed action is needed because the mess hall and warehouses no longer meet the needs of the USMC. Current condition of property causes loss of food and supplies due to inclement weather, electrical failures, and pests. The temporary warehouse facilities are unable to support the necessary administrative operations, provide enough secure space for storage, and meet all security requirements. The proposed action will consolidate and reduce failing facilities and save the Marine Corps facilities sustainment and operating cost.

1.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with the action alternative and the No Action Alternative. The environmental resource areas analyzed in this EA include: biological resources and air quality.

1.6 Public and Agency Participation and Intergovernmental Coordination

The USMC published a Notice of Intent to Prepare (NIP) and a Notice of Availability (NOA) (Appendix B) on the MCB Camp Pendleton website at <https://www.pendleton.marines.mil/Staff-Agencies/Environmental-Security/Document-Library/Environmental-Planning-Documents>.

The USMC determined that the effects of the Preferred Alternative are likely to adversely affect the arroyo toad and may affect, not likely to adversely affect coastal California gnatcatcher and least Bell's vireo. The USMC requested formal consultation/concurrence with the determinations outlined in the Biological Assessment provided to the U.S. Fish and Wildlife Service on May 15, 2019. United States Fish and Wildlife Service (USFWS) issued a Biological Opinion (BO) on July 17, 2019 (Appendix A).

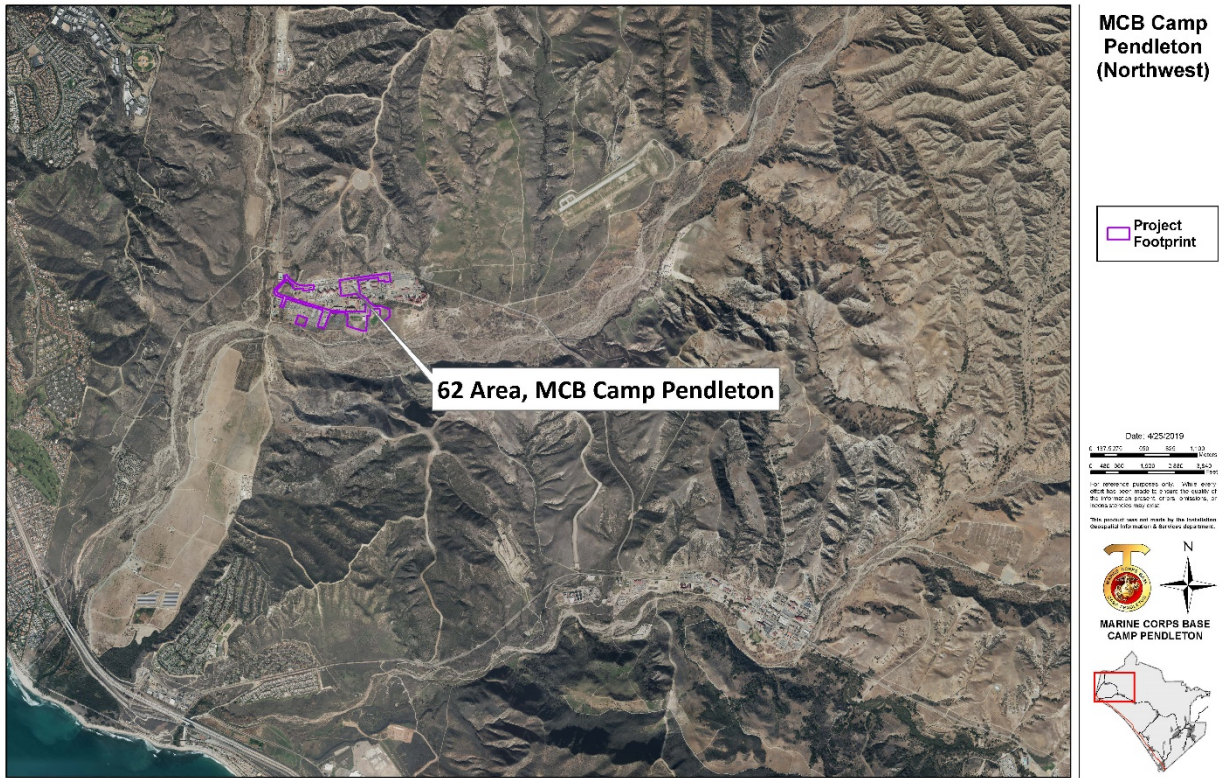


Figure 1-1: Location Map

2 Proposed Action and Alternatives

2.1 Proposed Action

The proposed action project components include the following:

- Demolition of nine warehouse buildings: 62358, 62451, 62453, 62454, 62455, 62456, 62457, 62555, and 62556 (totaling 36,000 square feet (sf)), and a mess hall (23,265 sf)
- Construction of a mess hall facility (up to 37,000 sf)
- Construction of a Consolidated Warehouse with outdoor storage (warehouse 30,270 sf + outside storage 96,226 sf = 126,496 sf)
- Widening/relocation of roads
- Construction of Parking Lots (organic vehicles parking/storage, mess hall POV parking and Combat Fitness Test (CFT) parking)
- Restoration/modernization to existing warehouse building 620591
- Site improvements, relocation of CFT field
- Utilities (electricity, natural gas, communication, water, stormwater and wastewater)

Construction would occur over a 24 to 36-month period and would require up to 100 workers per day. In general, the following equipment would be used during construction: excavators, graders, forklifts, dump trucks, scrapers, backhoes, concrete mixers, pickup trucks, loaders, cranes, compactors, electrical generators, air compressors, and miscellaneous smaller equipment. Construction staging and laydown areas would be located within the project site (Figure 1-2).

Demolition

Demolition would include the existing mess hall building 62402 (23,265 sf), and nine existing warehouse buildings: 62358, 62451, 62453, 62454, 62455, 62456, 62457, 62555, and 62556, totaling an additional 36,000 sf. Demolition would require lead and asbestos testing, and soil testing be done as part of this project prior to construction to confirm that no contaminants are present.

CFT Field Relocation

The proposed action proposes to relocate the CFT field to a location in compliance with the 2030 Base Masterplan adjacent to the 62 Area Fitness Center and Baseball Park. The CFT field will consist of a turf (grass or artificial) athletic field encompassed by a running track, irrigation, lights, goal posts, bleachers, and a fabric shade structure.

Mess Hall Construction

The construction of the new 62 Area Mess Hall facility would include the construction of a concrete masonry unit (CMU) building where five of the current warehouses and the old mess hall are located. The building would be constructed of reinforced concrete masonry with reinforced concrete foundation and concrete slab, structural steel framing, steel trusses, ribbed steel deck and standing seam metal roof. The new mess hall will include HVAC, with energy monitoring and control system (EMCS)

Consolidated Warehouse Construction

The Consolidated Warehouse would be constructed of reinforced concrete masonry with reinforced concrete foundation and concrete slab, structural steel framing, steel trusses, ribbed steel deck and standing seam metal roof. Proposed construction includes the construction of administrative spaces (5,200 sf), fork lift battery charging area, and a required outdoor storage area (approximately 94,251 sf), that will complete the storage/warehouse requirement. The warehouse will include heavy duty concrete slab drive-in bays and a loading dock to accommodate Regimental Supply (Receiving and Issuing Sections) for the Regiment. The warehouse will be ventilated and heated with EMCS.

Roadway Realignment

The project sites are accessed via multiple cantonment roads such as 3rd Street, 6th Street, Zahn Way, and San Mateo Road. Direct access to the project mess hall site would be provided via San Mateo Road. Trucks would utilize Zahn Way to access the Warehouse. To safely and efficiently accommodate the large trucks, road widening would occur at the curve on Zahn Way. To accommodate the road widening, a fence would need to be relocated. The proposed fire access road would connect to the existing training road on the north side of Zahn Way.

Existing Warehouse Renovation

The project would renovate the interior of the existing warehouse 62059.

Construction of a Motor Transportation (Motor T) Lot

The current Motor T Lot would be re-designated as privately owned vehicle (POV) parking. No trenching or removal of pavement would occur. Re-striping may occur. To accommodate the loss of spaces, a new Motor T lot would be constructed. The construction would involve grading, paving, and potential striping as necessary.

Utilities and Site Improvements

Utility system upgrades and modifications would be required to support the mess hall and the warehouse. Site utilities would include connections to water, stormwater, sanitary sewer, natural gas, electrical, local area network (LAN) communications, telephone, and cable television. Additionally, existing utility infrastructure would be upgraded as necessary to meet the requirements of the new building (Figure 2-8).

New utilities would be installed below-ground in the existing, disturbed utility corridor along existing roads and within the project site, and connect directly to existing infrastructure and systems along San Mateo Road, Zahn Way, and within adjacent development. Trenching would be required along portions of roads and within the project site to connect new utility/communication lines from the new facilities to existing utilities within the cantonment area's utility corridors and adjacent development.

The project sites would be cleared and graded in preparation for installation of proposed buildings. Site improvements would include earthwork, grading, drainage, signage, paved sidewalks/hardscape, bicycle parking area, landmarks, bus shelter/turnouts, curbs/gutters, and security/safety lighting,

Paving and site improvements include grading and compaction (5,670 sf) for 18 POV parking spaces for the warehouse, (64,260 sf) for 204 POV parking spaces for the mess hall, roadways, roadway barriers, bollards, curbs, gutters, sidewalks, trash enclosures, monument signs, landscaping, utility connections and relocations, gates, fencing, exterior lighting, signs and storm water management drainage improvements such as storm water run-off, retention basins, storm sewer, manholes, catch basins, paving, filtration systems and bioretention swales. Outdoor dining features include a shade structure with picnic tables, benches and a bike rack, Antiterrorism Force Protection (ATFP) features, signage, and other miscellaneous features.

The proposed materials and equipment laydown areas would occur in existing parking lots, previously disturbed and compacted dirt areas and in the project site footprints (Figure 1-2). Slopes would be contoured to the extent possible to provide smooth transitions between the proposed grading and the adjacent landforms. Heavy motorized equipment used for site grading would include scrapers, front-end loaders, dump trucks, water trucks, and an excavator or auger.

2.2 Screening Factors

Potential alternatives that meet the purpose and need were evaluated against the following screening factors:

- Complies with the land use designations as illustrated in the Master Plan (DoN, 1992) and the Area Development Plan (DoN 2012)
- A location that utilizes existing infrastructure to the maximum extent practicable
- Meets Basic Facilities Requirements (BFR) and Unified Facilities Criteria (UFC)
- Sufficient roadways to allow semi-truck access for deliveries
- Supplies and feeds Marines near where they work and live
- Reduces footprint of facilities and consolidate operations
- Sufficient area to provide adequate space to meet ATFP minimum standoff distances for buildings, roadways, parking areas, and perimeter security barriers (fences)
- A location that avoids sensitive Cultural Resources such as archeological sites
- A location that avoids or minimizes potential impacts to sensitive riparian habitat and associated impacts to biological communities, including threatened and endangered species

Various alternatives were evaluated against the screening factors and it was determined that there was only one reasonable alternative. Therefore, the Proposed Action is also the preferred alternative.

2.3 Alternatives Carried Forward for Analysis

Based on the reasonable alternative screening factors and meeting the purpose and need for the Proposed Action, one action alternative was identified and will be analyzed within this EA.

2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. The Mess Hall would continue to degrade and would not meet health standards and there would be no consolidation of facilities. The No Action Alternative would not meet the purpose and need for the Proposed Action; however, the No Action

Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for analysis.

2.3.2 Proposed Action (Preferred Alternative)

After applying the screening factors, there was only one reasonable alternative, therefore the preferred alternative will also be known as the Proposed Action hereafter.

2.4 Alternatives Considered but Not Carried Forward for Detailed Analysis

The following alternatives were considered, but not carried forward for detailed analysis in this EA as they did not meet the purpose and need for the project and satisfy the reasonable alternative screening factors presented in Section 2.2.

2.4.1 Alternative Locations within MCB Camp Pendleton

Constructing the mess hall and warehouse elsewhere within MCB Camp Pendleton was evaluated as a potential alternative. However, this alternative would require troops to travel long distances for food and increase the transportation and logistics required to supply units from numerous storage locations within MCB Camp Pendleton. Since the troops would not be able to obtain food or supplies near where they live and work, this alternative does not meet the screening factors.

2.4.2 Alternative Locations within the 62 Area

Several potential locations for the 62 Area were considered. The Unit Marshalling Area (UMA) lot, located to the west of the Cantonment area was found to be too small, not centrally located, would not comply with the Base Masterplan and the UMA storage that is located there would need to be relocated which would cause encroachment into other areas (including training areas). The USMC also considered other placements within the 62 Area however, due to terrain and/or potential cultural resource impacts, the locations did not meet the screening factors and were not considered reasonable.

2.4.3 Alternative Locations within the Northern Area of the Base

Since the majority of the population that utilizes the mess halls and uses the facilities in the 62 Area are housed within the 62 Area and do not have cars, it would not meet the screening factors.

2.4.4 Facility Renovation

The renovation/improvement of the current mess hall facility would not provide the necessary space to accommodate the number of Marines at meal times, thus the facility would not be able to be renovated. Expansion/new construction is not possible due to the age and condition of the existing facility. The potential to renovate warehouse 62591 to accommodate the administrative space would require the use of additional temporary modular facilities. The storage areas would be unable to have heating or utility services. This alternative was not considered reasonable because it did not meet the purpose and need.

3 Affected Environment and Environmental Consequences

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementing the preferred alternatives and an analysis of the potential direct and indirect effects.

All potentially relevant environmental resource areas were initially considered for analysis in this EA. The discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact.

3.1 Resource Areas Not Carried Forward for Detailed Analysis

The potential impacts to the following resource areas are considered to be negligible or non-existent and were eliminated from detailed analysis in this EA:

Water Resources: All wetlands and/or potential Waters of the U.S. will be avoided.

Geological Resources: The proposed action is not located near a fault line. The nearest fault line is over 60 miles (97 km) away; however, the proposed action would be built to comply with applicable seismic design standards.

Cultural Resources: As the project avoids known cultural sites and cultural monitors would be present for ground disturbing activities adjacent to known sites, the programmatic Cultural Agreement (PA) applies; therefore, further analysis is not required.

Land Use: The area was initially occupied with buildings in the mid 1930's and was never within a range boundary. The proposed action is compatible with the Base Master Plan and the 62 Area Development plan.

Visual Resources: The construction will comply with the Base Exterior Architecture Plan (BEAP) and as a result will match the character of the area.

Airspace: The proposed action does not occur in any airspace.

Noise: The proposed action is not expected to generate noise above the community noise standard during the operations of the facilities. In addition, construction and demolition associated with the proposed action would be temporary (approximately 36 months) and occur between the hours of 0700 and 1800. The amount of increase of noise at the construction site would be representative of a typical construction site and would not exceed 85 decibel (dB).

Infrastructure: The net demand on utilities will not increase as a result of this project. The current utility demand of the mess hall and warehouses will be transferred to the replacement mess hall. The Consolidated Warehouse demand will be offset by the demolition of additional warehouses and relocation of the CFT field. The relocated CFT field if lighted could result in a minor increase in electrical demand. The existing utilities including electrical, sanitary sewer, natural gas, and communications are serviceable and are not in need of repair or upgrade.

Transportation: The proposed action is expected to produce no increase in traffic at MCB Camp Pendleton during proposed operations. However, a temporary increase in traffic during construction is expected.

Public Health and Safety: One Installation Restoration (IR) site (IR 33) and two active Underground Storage Tanks (USTs) are located within the project footprint. However, no ground disturbing activities would occur in proximity to these sites, minimizing the potential of encountering contaminants during construction activities. However, in the event contamination is discovered during construction activities, MCB Camp Pendleton Environmental Security would be contacted immediately for necessary remedial requirements.

Hazardous Materials and Wastes: Storage of hazardous materials and any vehicle maintenance would comply with the Base, local, state and federal regulations and applicable Best Management Practices.

Socioeconomics: There would be no additional military, government/civilian, and/or contractor support personnel stationed at MCB Camp Pendleton with implementation of the proposed action.

Environmental Justice: The proposed action would not result in disproportionate impacts to minority and low-income populations and would not result in environmental health or safety risks to children.

3.2 Resource Areas Carried Forward for Detailed Analysis

3.2.1 Biological Resources

The proposed project is likely to result in adverse effects to the federally endangered arroyo toad {a southwestern t. [*Anaxyrus californicus* (*Bufo microscaphus* c.)]; arroyo toad}; may affect, but are not likely to adversely affect, the federally threatened coastal California gnatcatcher (*Polioptila californica californica*; gnatcatcher).

The Biological Opinion for the 62 Area Mess Hall Project (USFWS 2019) is provided as Appendix A and constitutes part of this EA. The special conservation measures in that BO would be included in the proposed action and these measures would be included as contract requirements on all relevant project scoping, scheduling, and planning documents.

The proposed project will impact riparian habitat potentially occupied by the arroyo toad and the federally endangered least Bell's vireo (*Vireo bellii pusillus*; vireo), but the impacts fall below the upper threshold for Class III activities. Therefore, the project is programmatically covered by the Riparian BO as it applies to vireo and the arroyo toad within riparian habitat, and project-related impacts will be reported in the Annual Riparian BO Class III Report. Although adverse effects to the arroyo toad within riparian habitat will be addressed as a Class III activity under the Riparian BO, adverse effects to the arroyo toad within upland habitat are not addressed under the Riparian BO and, therefore, are addressed within this project's Biological Opinion.

3.2.2 Biological Resources Environmental Consequences

This section presents an analysis of potential direct, indirect, temporary, permanent, and cumulative effects on listed species that would result from the Proposed Action. The Action Area is defined as the construction footprint in addition to designated temporary impact buffers around these footprints. All project effects are described as they would occur after the Conservation Measures described in the BO.

3.2.2.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to biological resources. Therefore, no significant impacts to biological resources would occur with implementation of the No Action Alternative.

3.2.2.2 Proposed Action Potential Impacts

Elements of the Proposed Action occur in mostly disturbed/developed areas in the 62 Area on MCBCP.

Vegetation

The majority of the project area (is within previously disturbed/developed areas. The construction of the proposed action would result in both permanent and temporary impacts to multiple vegetation types which provide habitat to listed species. The project BO shows the acres of temporary and permanent impact by vegetation type. Revegetation of 2.46 acres of temporary impacts will be hydroseeded on site with an appropriate native seed mix approved by MCBCP ES.

Wildlife

Least Bell's Vireo (LBVI)

Removal of habitat, edge effects, and the increase of noise in some areas of the project footprint may cause an affect to listed species. To offset this, conservation measures are proposed and the project would offset both temporary and permanent impacts. Per the Riparian BO, all riparian vegetation clearing (southern riparian scrub) will occur outside of the LBVI breeding season (March 15 to August 31); i.e., vegetation clearing will occur from September 1 to March 14. The offset of impacts per the Riparian BO, Class III consultation, would cover both LBVI and ARTO riparian habitat removal. The implementation of the Conservation Measures named in the BO will minimize direct and indirect impacts to LBVI. Therefore, the Proposed Action may affect, not likely to adversely affect LBVI.

Arroyo Toad (ARTO)

Removal of habitat, edge effects, and the increase of noise in some areas of the project footprint may cause an affect to listed species. To offset this, conservation measures are proposed and the project would offset both temporary and permanent impacts. Permanent impacts to 4.91 acres of occupied ARTO upland habitat will be offset by debiting the Riparian Biological Opinion (BO) ledger at a 0.5:1 ratio or 2.46 acres.

Credits used from the Riparian BO Habitat Ledger represent riparian habitat that has already been partially restored through removal of non-native invasive plant species. Long-term management of the riparian habitat (per the Riparian BO and the MCBCP INRMP) will ensure that this habitat fully recovers to high-quality riparian habitat. Through implementation of the proactive and programmatic removal of non-native invasive plant species in riparian areas, the Marine Corps will continue to provide a net gain in riparian habitat that will promote conservation of the arroyo toad on MCBCP.

In addition to debiting the Riparian BO Habitat Ledger, the Marine Corps will also offset permanent loss of arroyo toad upland habitat by funding the control of non-native vegetation in areas near San Mateo Creek and install toad exclusion fencing around various facilities being constructed.

The implementation of the Conservation Measures named in the BO will minimize direct indirect impacts to ARTO. Therefore, the Proposed Action may affect, likely to adversely affect ARTO.

Coastal California Gnatcatcher (CAGN)

Due to a marginal potential that CAGN would utilize the disturbed, poor quality, CSS on an infrequent basis there is an insignificant effect to CAGN. Thus, the proposed action may affect, not likely to adversely affect CAGN.

3.2.3 Air Quality

The results of air quality analysis indicate that air pollutant emissions from the Proposed Action would not exceed their applicable conformity *de minimis* thresholds. Appendix C of this EA includes a Clean Air Act Record of Non-Applicability documentation for the Proposed Action.

The national standards, established by the USEPA, are termed the National Ambient Air Quality Standards (NAAQS). The NAAQS represent maximum acceptable concentrations that generally may not be exceeded more than once per year, except the annual standards, which may never be exceeded. State standards, established by the California Air Resources Board (CARB), are termed the California Ambient Air Quality Standards (CAAQS). The CAAQS can be more stringent than the national standards and include pollutants for which NAAQS do not exist. Under the NAAQS there are seven criteria pollutants of concern: carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), total suspended particulate matter less than or equal to 10 (PM₁₀) and 2.5 (PM_{2.5}) microns in diameter, and lead. The NAAQS represent maximum acceptable concentrations that generally may not be exceeded more than once per year, except the annual standards, which may never be exceeded (USEPA 2018a). The USEPA designates an area as in attainment when it complies with the NAAQS. Areas that violate these ambient air quality standards are designated as nonattainment areas. Areas that have improved air quality from nonattainment to attainment are designated as attainment/maintenance areas. The San Diego Air Basin (SDAB) is in nonattainment (moderate) of the 8-hour O₃ NAAQS (which includes its precursor pollutants of volatile organic compounds [VOCs] and nitrogen oxides [NO_x]) and is considered a maintenance area for the 1-hour O₃ NAAQS and the CO NAAQS (USEPA 2019). All other criteria pollutants are in attainment of the NAAQS. Although VOCs or NO_x other than NO₂ have no established ambient air quality standards, they are important as precursors to O₃ formation.

Each state is required by the CAA to develop, adopt, and implement a State Implementation Plan (SIP) to achieve, maintain, and enforce the federal air quality standards across the state. CARB is responsible for enforcing both the federal and state air pollution standards in California and for developing SIPs for each pollutant in violation of the NAAQS and CAAQS. The SDAB is in nonattainment of CAAQS for O₃, PM₁₀, and PM_{2.5}, and is in attainment of all other CAAQS criteria pollutants (CARB 2017). MCB Camp Pendleton is located within San Diego County and is under the jurisdiction of the San Diego County Air Pollution Control District (SDCAPCD). The SDCAPCD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies in the SDAB, which is contiguous with San Diego County. The December 2016 *2008 Eight-Hour Ozone Attainment Plan for San Diego County* is a comprehensive plan to bring the SDAB into compliance with the national standard for moderate O₃ nonattainment areas (SDCAPCD 2016a). The *2016 Revision of the Regional Air Quality Strategy for San Diego County* is the most recent plan to bring SDAB into compliance with the CAAQS (SDCAPCD 2016b). The plan includes control measures that can be implemented to reduce O₃ precursor emissions of VOCs and NO_x.

3.2.4 Air Quality Environmental Consequences

The air quality analysis for this EA focuses on the concentrations of VOCs, NO_x (both are precursors to the formation of O₃), CO, SO₂, PM₁₀, and PM_{2.5}. Air quality impacts from construction activities proposed would primarily occur from combustive emissions due to the use of fossil fuel-powered equipment and fugitive dust emissions (PM₁₀ and PM_{2.5}) from the operation of equipment on exposed soil. Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod), which is the current comprehensive tool for quantifying air quality impacts from land use projects throughout California. The model was developed in collaboration with the air districts of California and includes default data (e.g., emission factors, trip lengths, meteorology, source inventory) that have been provided by the various California air districts to account for local requirements and conditions (California Air Pollution Officers Association 2018). For this analysis, default data were overridden in the model by project-specific data (as provided in Chapter 2), when available. Assumptions were made regarding the total number of days each piece of equipment would be used and the number of hours per day each type of equipment would be used. Assumptions and model inputs are located within the modeling calculations in Appendix C. Because no operational changes are proposed under either action alternative, operational air emissions would be negligible compared to the existing conditions, and would not result in significant long-term increases in air emissions.

3.2.3.1 No Action Alternative

Under the No-Action Alternative, construction activities would not occur and operations would continue under current conditions. Therefore, no impacts on air quality would occur.

3.2.3.2 Proposed Action Potential Impacts

Emission calculations are provided in Appendix C. Because the potential emissions from construction and demolition activities would occur in different years, they are not additive. Estimated emissions from construction and decommissioning activities would be below *de minimis* thresholds and would not trigger a formal Conformity Determination under the Clean Air Act (CAA) General Conformity Rule. A Record of Non-Applicability is therefore appropriate and is included in Appendix C. Therefore, implementation of Alternative 1 would result in no significant impacts to air quality.

4 Cumulative Impacts

4.1 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the study area delineates the geographic extent of the cumulative impacts analysis. The study area will include those areas previously identified in Chapter 3 for the respective resource areas. The time frame for cumulative impacts centers on the timing of the proposed action and any actions past, present, and “reasonably foreseeable”. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for Environmental Impact Statements and EAs, management plans, land use plans, and other planning related studies.

4.2 Past, Present, and Reasonably Foreseeable Actions

It was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. Projects included in this cumulative impacts analysis are listed in Table 4-1.

4.3 Cumulative Impact Analysis

Past projects were determined to not contribute to biological impacts as they have already undergone consultations and the temporary or permanent mitigation/restoration impacts are fully compensated for.

Present/Reasonably foreseeable project impacts have been considered, but no significant impact was found as impacts would follow the same course as the past projects. While there may be temporary overlapping effects, ultimately the results would be the same. Therefore, no current or foreseeable future actions are anticipated to result in significant cumulative effects to federally listed plant or animal species.

<i>Project Name</i>	<i>Timeframe</i>	<i>Project Location</i>	<i>Relevant Areas of Potential Cumulative Impact</i>
Basewide Utilities Infrastructure	Present	Multiple Locations	Biological Resources, Air Quality/GHG
Basewide Water Infrastructure	Present/Reasonably Foreseeable	Multiple Locations	Biological Resources, Air Quality/GHG
California State Park Waterline Installation	Present	San Onofre State Park Mesa	Air Quality/GHG
San Onofre Mitigation Area Vernal Pool Restoration	Present	San Onofre State Park Mesa	Air Quality/GHG
P159 and 159A Green and Red Beach Ops Access	Present/Reasonably Foreseeable	Green and Red Beach	Biological Resources, Air Quality/GHG
P637	Present/Reasonably Foreseeable	Range 314	Biological Resources, Air Quality/GHG
Replace Roof Reservoirs	Reasonably Foreseeable	Buildings 51770, 51771, and 51772	Biological Resources, Air Quality/GHG
Future Retail Site	Reasonably Foreseeable	South of Building 51811	Biological Resources, Air Quality/GHG
San Onofre Nuclear Generating Station Decommissioning	Reasonably Foreseeable	San Onofre Nuclear Generating Station	Biological Resources, Air Quality/GHG
Large-Scale Exercise	Reasonably Foreseeable	Multiple Locations	Biological Resources, Air Quality/GHG
Joint Logistics Over the Shore	Reasonably Foreseeable	Multiple Locations	Biological Resources, Air Quality/GHG
Range and Training Areas Maintenance Activities	Reasonably Foreseeable	Multiple Locations	Biological Resources, Air Quality/GHG
Range 409A	Reasonably Foreseeable	Range 409	Biological Resources, Air Quality/GHG
Wildfire Management Plan	Reasonably Foreseeable	Multiple Locations	Biological Resources, Air Quality/GHG
MARSOC	Reasonably Foreseeable	41 Area	Biological Resources, Air Quality/GHG
Note: GHG = Greenhouse gases			

Table 4-1: Projects Included in the Cumulative Impacts Analysis

5 Other Considerations Required by NEPA

5.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies, and Regulations

The project does not conflict with any federal, regional, state and/or local land use plans, policies and controls.

5.2 Irreversible or Irretrievable Commitments of Resources

Implementing the Proposed Action would not result in significant irreversible or irretrievable commitment of resources.

5.3 Unavoidable Adverse Impacts

This EA has determined that the alternatives considered would not result in any significant impacts.

5.4 Relationship between Short-Term Use of the Environment and Long-Term Productivity

The Proposed Action would not result in any impacts that would significantly reduce environmental productivity or permanently narrow the range of beneficial uses of the environment.

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7 List of Preparers

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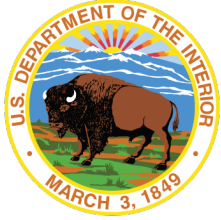
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Appendix A
Endangered Species Act Documentation



United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE

Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008



In Reply Refer to:
FWS-MCBCP-19B0159-19F1013

July 17, 2019
Sent by Email

Kristin H. Thomas
Head, Environmental Planning Branch
Environmental Security
MCIWEST-Marine Corps Base Camp Pendleton
P.O. Box 555008
Camp Pendleton, California 92055-5008

Subject: Formal Consultation on 62 Area Mess Hall Project, Marine Corps Base Camp Pendleton

Dear Ms. Thomas:

This is in response to the U.S. Marine Corps' (Marine Corps) request, received via electronic mail on May 15, 2019, to initiate consultation pursuant to section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*), for construction of the 62 Area Mess Hall and Consolidated Warehouse (62 Area Mess Hall) Project, on Marine Corps Base Camp Pendleton (MCBCP). The Marine Corps has determined that the proposed project is likely to result in adverse effects to the federally endangered arroyo toad {a. southwestern t. [*Anaxyrus californicus* (*Bufo microscaphus* c.)]; arroyo toad}.

The Marine Corps has determined that the activities may affect, but are not likely to adversely affect, the federally threatened coastal California gnatcatcher (*Polioptila californica californica*; gnatcatcher). Based on our review of the project, species occurrence information, and the conservation measures that the Marine Corps will implement to avoid and minimize potential impacts, we concur with your determination for the gnatcatcher (see Appendix).

The Marine Corps has requested that we review the project as a Class III activity as defined in the U.S. Fish and Wildlife Service's (Service) 1995 *Biological Opinion for Programmatic Activities and Conservation Plans in Riparian and Estuarine/Beach Ecosystems on Marine Corps Base, Camp Pendleton* (Riparian BO). The project will impact riparian habitat potentially occupied by the arroyo toad and the federally endangered least Bell's vireo (*Vireo bellii pusillus*; vireo), but the impacts fall below the upper threshold for Class III activities. Therefore, the project is programmatically covered by the Riparian BO as it applies to vireo and the arroyo toad within riparian habitat, and project-related impacts will be reported in the 2019 Annual Riparian BO Class III Report. The Marine Corps has provided specific conservation measures (see Appendix) during the course of this consultation to ensure the project is consistent with a Class III activity. Although adverse effects to the arroyo toad within riparian habitat will be addressed as a Class III activity under the Riparian BO, adverse effects to the arroyo toad within upland

habitat are not addressed under the Riparian BO and, therefore, will be addressed within this biological opinion.

CONSULTATION HISTORY

This biological opinion is based on information provided in your May 15, 2019, initiation request, the *Biological Assessment for the Construction of a Mess Hall and Consolidated Warehouse at 62 Area, Marine Corps Base Camp Pendleton, California* (BA), and various email correspondence during the consultation time period. The complete project file for this consultation is maintained at the Service's Carlsbad Fish and Wildlife Office (CFWO).

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action consists of the following project components (Figure 1):

1. Demolition of nine warehouse buildings (totaling 36,000 square feet) and the existing mess hall (23,265 square feet);
2. Construction of a new mess hall facility (36,305 square feet);
3. Relocation and construction of the Combat Fitness Training (CFT) field;
4. Construction of a Consolidated Warehouse with outdoor storage (131,204 square feet);
5. Construction of parking lots (including the "Motor-T Lot");
6. Restoration/modernization to an existing warehouse building;
7. Widening and realignment of roads; and
8. Site improvements and utilities (electrical, natural gas, communication, water, storm water, and wastewater).

In general, the following equipment will be used during construction: excavators, graders, forklifts, dump trucks, scrapers, backhoes, concrete mixers, pickup trucks, loaders, cranes, compactors, electrical generators, air compressors, and miscellaneous smaller equipment. Construction staging and laydown areas will be located within the project site. Construction will occur over a 12-month period and will require up to 100 workers on site per day. The project is anticipated to receive funding and begin construction in fiscal year 2020 (October 2019). A more detailed description of the proposed action can be found within the BA.

Conservation Measures

As part of the proposed action, the Marine Corps has proposed the following Conservation Measures (CMs) to avoid and minimize adverse effects to federally listed species:

General Conservation Measures

- CM 1. All construction and maintenance will take place within the construction footprints defined in the BA. Construction site boundaries will be clearly delineated by flagging, stakes, survey lath, silt or snow fencing, as practical, and may be in conjunction with Storm water Pollution Prevention Plan (SWPPP) fencing.
- CM 2. Contractors will be provided with digital files and hardcopy maps showing the project limits that were used for the environmental analyses in the BA and this biological opinion and will be informed that construction activity must be confined within those limits. Digital files and hardcopy maps will also include the locations of federally listed species and sensitive habitats. Any work that is proposed outside those construction footprints will be subject to review by MCBCP Environmental Security (ES) to determine if potential impacts will occur to environmental resources. If there are significant changes to the project, MCBCP ES will determine whether consultation with the Service needs to be reinitiated.
- CM 3. The contractor will designate a project biologist to ensure compliance with the conservation measures specified in the BA and this biological opinion. The project biologist will have familiarity with the species addressed in this biological opinion, with qualifications approved by MCBCP ES. The project biologist may also serve as the species-specific biologist referenced in this biological opinion (CM 19-22; Appendix CM 30) if they meet the minimum qualifications.
- CM 4. Heavy equipment and staging areas will be restricted to existing roads and disturbed areas and will be delineated on the grading plans. Vehicle operation and laydown areas will be defined by staking and flagging between stakes to prevent operations outside these areas.
- CM 5. Night-time (dusk-dawn) construction and associated lighting adjacent to natural areas, especially riparian areas, will be avoided to the maximum extent practicable, thereby avoiding adverse effects of construction-related nighttime lighting and nighttime noise. If nighttime construction is required, lighting will be shielded so it does not illuminate adjacent habitat. In addition, a nighttime speed limit of 5 miles per hour on all roads shall be enforced.
- CM 6. To control the spread of weeds that may degrade native plant communities on MCBCP, all construction equipment and vehicles will be thoroughly power-washed before entering MCBCP. The project biologist will identify weed species that become established at the various project sites and report all new weed species invasions to MCBCP ES.

- CM 7. In conjunction with final design and as required, a SWPPP will be prepared for the project and submitted to the Regional Water Quality Control Board. The SWPPP will incorporate Best Management Practices (BMPs) for erosion and sedimentation controls, including techniques to diffuse and slow the velocity of storm water runoff. All construction activities with the potential to impact water quality due to the runoff from the site will be conducted in accordance with SWPPP requirements. The SWPPP will be designed to support arroyo toad exclusion measures to avoid potential impacts to arroyo toad. The intent is to allow the same fence for SWPPP and arroyo toad exclusion fencing.
- CM 8. Dust will be minimized by reducing vehicle speeds and traffic in newly cleared areas and covering or lightly spraying exposed soil piles with water when weather conditions warrant.
- CM 9. Construction workers will be prohibited from bringing domestic pets to construction sites to ensure that domestic pets do not disturb or depredate wildlife in adjacent habitats.
- CM 10. The project site will be kept as clean as possible to avoid attracting predators and protected species. All food-related trash will be placed in sealed bins or removed from the site regularly.
- CM 11. All construction and maintenance-related debris will be disposed of properly and will not be discarded on site. Temporary impacts will be restored to as near the original biological condition as possible or better once the project is completed.
- CM 12. Landscaping conducted around new buildings will comply with the Base Exterior Architecture Plan (BEAP). Compliance with the BEAP will provide for appropriate review of landscape plans and otherwise ensure that invasive plant species are not incorporated into areas where landscape plantings will be installed.
- CM 13. A contractor education program will be implemented to ensure that the contractor(s) and all construction personnel are fully informed of the biological resources associated with the project. This program will focus on: (a) the purpose for resource protection; (b) contractor identification of sensitive resource areas in the field (e.g., areas delineated on maps and by flags or fencing); (c) environmentally responsible construction practices; (d) protocol to resolve conflicts that may arise at any time during the construction process; and (e) ramifications of noncompliance. This program will be conducted by the project biologist and/or MCBCP ES staff and will be a requirement for all construction personnel.
- CM 14. All fencing material (i.e. mesh, stakes) and temporary SWPPP BMPs will be removed following construction.

- CM 15. Fueling and maintenance of equipment will take place within existing paved areas or the identified laydown area, but not closer than 100 feet from drainages. Cleaning of vehicles and equipment will take place off site to the greatest extent possible. If it is necessary to clean vehicles on site, vehicles may be rinsed with water within designated bermed and lined areas used to prevent rinse water contact with storm water, creeks, rivers, and other water bodies. Soaps or detergents will not be used. Rinsate will be allowed to evaporate, and the solid residue will be disposed of properly based on chemical characteristics.
- CM 16. Construction equipment staging and access and disposal or temporary placement of excess fill within drainages or other wetland areas is prohibited.
- CM 17. After final design of the project, the design contractor will provide geographic information system (GIS) shapefiles, including the project footprint and amount/type of vegetation impacted (including temporary and permanent), to MCBCP ES. The Marine Corps will provide the CFWO summary tables showing the amount/type of vegetation impacted (including both temporary and permanent) based upon final project designs.
- CM 18. After construction impacts to vegetation, the construction contractor will provide GIS shapefiles, including the project footprint and amount/type of vegetation impacted (including temporary and permanent), to MCBCP ES. The Marine Corps will provide the CFWO summary tables showing the amount/type of vegetation impacted (including both temporary and permanent) based on actual project impacts.

Seasonal Restrictions

- CM 19. Grading during the rainy season (November 1 to May 1) will be minimized. Where it is impractical to avoid grading during the rainy season, erosion and sedimentation BMPs will be installed and maintained immediately downslope of work areas until work is completed and graded areas have been re-contoured, physically stabilized, and planted.
- CM 20. Non-native vegetation and grassland within the arroyo toad buffer areas may be removed year-round with the implementation of arroyo toad Conservation Measures listed below.

Arroyo Toad Conservation Measures¹

- CM 21. An arroyo toad biologist² will be required to be on site for CMs 22-23 described below and for CM 14 described previously. In addition, the arroyo toad biologist

¹ Arroyo Toad Conservation Measures are applicable to the CFT relocation, Consolidated Warehouse construction, and Motor-T Lot expansion.

² The project biologist for measures associated with arroyo toads will have at least 2 years of independent experience conducting arroyo toad surveys and have demonstrated experience in handling arroyo toads.

will be on call and available as needed (e.g., during and immediately after measurable rainfall) in the event that an arroyo toad is encountered during project activities and needs to be relocated (CM 24). Qualifications of the arroyo toad biologist will be reviewed and approved by MCBCP ES prior to the beginning of project activities.

- CM 22. In coordination with the SWPPP, temporary silt fencing will be installed and maintained on the perimeter of the applicable project components. The fencing will be installed prior to any construction activities (with the possible exception of vegetation removal), with oversight from the arroyo toad biologist.
- a. Fencing will consist of woven nylon netting approximately 3 feet in height attached to wooden stakes. Prior to installing the fencing, a narrow trench about 6 inches in depth will be excavated, and the fence will be buried to prevent arroyo toads from burrowing beneath the fence. If trenching is not possible, sand bags will be placed over the bottom lip of the fence to hold it in place.
 - b. The silt fencing will be installed at least 14 days prior to construction to allow time for arroyo toad surveys to be completed during optimal weather conditions.
 - c. The fence will be fully enclosed at the end of each shift (closed, sealed gate) ensuring arroyo toads are prevented from entering the worksite through the access portal and digging into site soil stockpiles, decomposed granite piles, etc. and/or accessing site trash receptacles or other project materials. Since this project may span multiple years, maintenance of this exclusion fence in pristine condition must be a priority for construction to proceed un-impeded.
 - d. Maintenance of the exclusion fence will also be a requirement of the contractor, with instruction and training on proper fence maintenance and repair provided by the arroyo toad biologist. The exclusion fence will be checked (and documented) at the beginning and end of every shift, with periodic verification from various government staff or their delegates. If at any time the fence is determined to be breached or not intact in any form, the contractor shall notify MCBCP ES immediately for review and construction must cease until cleared to proceed by ES. As necessary, the fence will be repaired and/or replaced under the direction and discretion of the arroyo toad biologist, with the potential to have additional nighttime surveys (CM 22). If the contractor is determined to be negligent in the maintenance of the exclusion fence, the arroyo toad biologist may be required to oversee re-installation, surveys, and maintenance of fence at the cost to the contractor. Failure to maintain the fence or notify MCBCP ES immediately upon any breach of fence may lead to construction shutdown and construction delays, and additional biomonitoring at a cost to the contractor while a biologist becomes available to oversee. Any negligence in

this requirement will be considered a violation by contractor and may result in a non-compliance notification.

- CM 23. After exclusionary fencing has been installed, but prior to the initiation of construction, the arroyo toad biologist will conduct at least three nighttime surveys for arroyo toads within the fenced area. These surveys will be conducted during appropriate climatic conditions (e.g., light rain, fog, high humidity) and during appropriate hours (i.e., evenings, nights and mornings) to maximize the likelihood of encountering toads. If climatic conditions are not highly suitable for arroyo toad activity, arroyo toad habitat in the project footprint will be watered to encourage aestivating toads to surface. All arroyo toads found within the project area will be captured and translocated by the arroyo toad biologist to the nearest suitable riparian habitat within San Mateo Creek. Upon completion of these surveys and prior to the initiation of construction activities, the arroyo biologist will report the capture and release locations of all arroyo toads found and relocated during this initial survey to MCBCP ES, who will submit the report to the CFWO.
- CM 24. If arroyo toads are encountered within the project area at any time during the course of project activities, they will be captured and translocated by the arroyo toad biologist to the closest area of suitable habitat within San Mateo Creek.
- CM 25. Dust control (i.e., water truck spraying) will be performed after arroyo toad exclusion fence has been erected, and overspray will be minimized to avoid attracting arroyo toads to the project site. Watering shall not be conducted at night.

Restoration/Compensation for Temporary and Permanent Impacts

- CM 26. Final designs for construction will minimize temporary impacts to federally-listed species habitat. Temporary impacts³ to occupied arroyo toad upland habitat will be hydroseeded with an appropriate native seed mix, as approved by MCBCP ES, and will occur in conjunction with SWPPP requirements for vegetative cover.
- CM 27. Final designs for construction will minimize permanent impacts to federally-listed species habitat. The Marine Corps will offset the permanent impacts⁴ to occupied habitat by:
- a. Providing funding⁵ to remove upland invasive species from riparian margins to improve habitat for federally-listed species. These funds may assist in enhancing the Marine Corps' ongoing invasive weed removal program

³ Only those areas considered occupied by federally listed species will be included; e.g., previously disturbed/developed areas are not included.

⁴ Only those areas considered occupied by federally listed species will be included; e.g., previously disturbed/developed areas are not included

⁵ The Marine Corps has budgeted \$50,000 of project funds for this effort.

including targeting fringe upland pockets of invasive plants that have not previously been a primary target.

- b. Funding will augment operations and maintenance funding and is not considered a replacement for such funds.

CM 28. About 1,540-linear-feet of permanent toad exclusion barrier will be placed around the portions of the project that are adjacent to arroyo toad habitat. These areas include the southern portions of the Motor-T Lot and the MRAP facility. The terminal ends of the fencing will be angled to re-direct toads back towards suitable habitat.

CM 29. Temporary impacts to native vegetation will be hydroseeded on site, and a total of 2.46 acres of credits will be deducted from the Riparian BO Habitat Ledger to offset permanent impacts to upland habitat⁶ occupied by the arroyo toad.

Action Area

According to 50 CFR § 402.02 pursuant to section 7 of the Act, the “action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. For this project, the action area is defined to include the entire 62 Area Mess Hall Project footprint (Figure 1) and the surrounding habitat within 500 feet of the construction footprint that may be exposed to project-related effects such as increased noise, light, and dust levels and human activity during construction and maintenance activities.

STATUS OF THE SPECIES

The status of the arroyo toad rangewide has been described in a [proposal to downlist](#) the species from endangered to threatened (Service 2014), the completed [5-year review](#) for the species (Service 2009a), and in the species’ [recovery plan](#) (Service 1999). Please refer to these documents for detailed information on the life history requirements of this species, threats to the species, and conservation needs of the species.

For convenience, we have included a brief a summary of the status and distribution of this species rangewide and on MCBCP.

Arroyo Toad

Arroyo toads typically breed in pools with slow moving water in braided-channel stream systems. Arroyo toads forage and aestivate in riparian habitat surrounding breeding pools and occasionally move farther into surrounding upland habitats to forage and aestivate. The primary threats to the recovery of the arroyo toad include urban development, agriculture, operation of

⁶ Based on: 4.91 acres upland impacts x 0.50 compensation ratio = 2.46 acres deduction for upland habitat.

dams and water diversions, mining and prospecting, livestock grazing, roads and road maintenance, recreation, invasive, nonnative plants, introduced predator species, drought, fire and fire suppression, and effects of climate change (Service 2014).

An estimated 25 populations of arroyo toad are known in the United States, from Monterey County south to the Mexican border (Service 2014); an additional 10 populations occur in Mexico. These populations persist primarily as small, isolated populations in the headwaters of streams. MCBCP supports arroyo toad populations in the Santa Margarita, San Onofre, and San Mateo drainages. These populations appear to be large and robust and are unique in that their breeding habitat extends to the coast (Service 1999; Brehme *et al.* 2006).

The Service recently proposed to downlist the arroyo toad from endangered to threatened status based on our preliminary assessment that arroyo toad populations had improved rangewide (Service 2014). This assessment was later revised, and the proposal was withdrawn (Service 2015). After review of the best available scientific information, the Service (2015) determined that threats to arroyo toads remain the same as at the time of listing, and new threats have been identified. While conservation efforts are ongoing in most populations to help manage and reduce threats to arroyo toads, we have not yet documented a species response to conservation actions that would indicate a change in status is warranted.

While observed occupation by breeding arroyo toads at San Mateo Creek and San Onofre Creek on MCBCP has typically been sporadic (ranging from 0 to over 90 percent of survey sites being occupied from 2003 to 2010) and linked to annual precipitation cycles (Brehme *et al.* 2015), occupation by breeding arroyo toads on the Santa Margarita River has been more consistent (ranging from about 60 to near 100 percent of survey sites being occupied from 2003 to 2010) and linked to more consistent perennial flows. From 2010 to 2016, occupation by breeding arroyo toads at San Mateo Creek and San Onofre Creek was almost completely absent while occupation on the Santa Margarita River steadily declined (Matsuda *et al.* 2017). These recent declines have been attributed (Matsuda *et al.* 2017) to extended drought, degradation of breeding sites (e.g., through military activities in riparian areas, water diversions and/or releases, encroachment by vegetation, damming and ponding by beavers, *Castor canadensis*), and depredation by non-native American bullfrogs (*Lithobates catesbeiana*). In 2017, when rainfall was about 25 percent above average, arroyo toads rebounded to occupation levels between 80 to 100 percent for all three MCBCP drainages (Matsuda *et al.* 2018). This rebound indicates that precipitation patterns and related surface flows are probably the most significant factor in determining inter-annual abundance and persistence of arroyo toads on MCBCP.

Within the last decade, a new threat has emerged that has the potential to impact the arroyo toad throughout its range. A disease complex involving two species of ambrosia beetles, the polyphagous shot hole borer (*Euwallacea* sp. 1) and Kuroshio shot hole borer (*Euwallacea* sp. 5), a mix of associated fungi (Lynch *et al.* 2016), and other pathogens is causing widespread damage to trees in riparian ecosystems throughout southern California (Eskalen *et al.* 2013). These shot hole borers create galleries in trees and inoculate the galleries with fungal spores (e.g., *Fusarium* sp.). *Fusarium* sp. causes significant damage to trees, and the galleries open up trees to attack

from other pathogens that may be even more damaging. The combination of structural damage from the galleries and tissue damage from the pathogens causes limbs to break and trees to die.

The ongoing geographic expansion and colonization of additional riparian systems by these shot hole borers potentially represents a new threat to arroyo toad populations and arroyo toad recovery. At this point, it is too early to determine how this new threat will affect the overall status of arroyo toads, but it is being monitored by the Service. Reduction in the amount of riparian woodland related to this threat may alter arroyo toad prey availability, increase exposure to predation, and affect hydrogeomorphic processes (e.g., flooding, alluvial deposition, and pool formation) that are important for arroyo toad breeding.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation and the impacts of State and private actions that are contemporaneous with the consultation in progress.

Arroyo Toad

Arroyo toad upland habitat, used for foraging, burrowing, and dispersal, is defined as upland vegetation (excluding disturbed/developed area) within the 82-foot elevation contour above a stream channel occupied by arroyo toads. The 82-foot elevation contour is based on methods used by the Service (2009b) to estimate the spatial extent of upland habitat used most frequently by arroyo toads. The Service (2009b) determined that the majority of arroyo toad documented in upland habitats occurred within the 82-foot contour above the stream channel.

Using the 82-foot contour limit, the BA estimates up to 7.31 acres of arroyo toad upland habitat occurs within the footprint for the proposed project features (4.91 acres within the permanent impact footprint, and 2.4 acres within the temporary impact footprint). Although we do not have project-specific surveys that indicate the number of arroyo toads in the area affected, we have previously (FWS-MCBCP-10B0201-10F0410, FWS-MCBCP-09B0226-09F0650) estimated the density of arroyo toads in upland areas along San Mateo Creek to be about 0.46 arroyo toads per acre. Based on an estimated density of 0.46 arroyo toads per acre in occupied upland vegetation, we estimate that up to 4 arroyo toads⁷ may occur in occupied upland vegetation within the project footprint.

By comparison, in our previous analysis for the Sierra Training Area (FWS-MCBCP-09B0226-09F0650) we estimated that the San Mateo Creek watershed (including San Mateo, Cristianitos, Talega, and Gabino creeks) is likely to contain thousands (and perhaps tens of thousands) of

⁷ 0.46 arroyo toads/acre × 7.31 acres of upland habitat = 3.36 ≈ 4 arroyo toads. Note: While the BA uses this same calculation and rounds down to 3 arroyo toads, we have rounded up to 4 arroyo toads for our estimate of the number of individuals likely to be affected within the project footprint.

arroyo toads, although the numbers of individuals is likely fluctuate dramatically from year to year depending on environmental conditions.

The majority of the arroyo toad upland habitat that will be impacted (about 6.5 acres, or about 89 percent of the total 7.31 acres) is non-native grassland or other non-native vegetation. The remainder (about 0.81 acre, or about 11 percent of the total 7.31 acres) is disturbed Diegan coastal sage scrub (DCSS; 0.54 acre) and southern riparian scrub (0.27 acre) disconnected from the main channel. Therefore, the areas that will be impacted by project activities are relatively disturbed, primarily by past and ongoing Marine Corps training activities. These areas are already bounded to the north (i.e., areas of increasing upland elevation) by development in the 62 Area which already restricts arroyo toad movement further into the uplands.

Where buildings or other barriers do not restrict arroyo toad movements into the 62 Area, it is likely that arroyo toads occasionally disperse into these developed areas and are accidentally crushed by vehicles in paved areas (e.g., Lorne 2014, pers. comm.), or get trapped and starve within developed areas unsuitable for foraging. This detrimental dispersal into the 62 Area is more likely during high reproduction years (e.g., above-average rainfall years) when toads (especially juveniles) tend to disperse farther, and at higher numbers, into the uplands.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action, are later in time, and still reasonably certain to occur.

Arroyo Toad

Construction-Related Death and Injury and Habitat Loss

Based on the analysis provided in the “Environmental Baseline” section above, we estimate that up to 4 arroyo toads may occur in upland vegetation within the project footprint. However, as described below, we anticipate that avoidance and minimization measures will reduce the number of arroyo toads that are killed or injured during project activities.

Access to the site will be via existing access routes (CM 5), and construction activities will be avoided during nighttime hours (CM 5), when arroyo toads are most active. Also, prior to the initiation of construction activities, an arroyo toad biologist will oversee installation of arroyo toad exclusionary fencing around the perimeter of the project area and conduct three surveys within the fenced area (CM 20 and CM 21). Any arroyo toads found in the project footprint will be captured and released into the nearest suitable habitat by the arroyo toad biologist (CM 21). As described in the “Conservation Measures” section above, if climatic conditions are not highly suitable for arroyo toad activity during the survey period, the area may be watered to cause arroyo toads in the project footprint to surface (CM 21).

Capture and relocation measures have the potential to effectively minimize death and injury of arroyo toads during project construction. Toads often release their bladder contents upon capture (Stebbins and McGinnis 2012) and may experience increased stress levels; these responses could reduce arroyo toad survival and reproduction following capture and relocation. However, foraging and aestivating arroyo toads are not known to be territorial, so individuals have the potential to continue foraging or aestivating without substantial disruption following relocation.

A capture and relocation effort was implemented successfully during the construction of the Rincon Harrah's Casino in 2001 when about 144 arroyo toads were removed from the casino footprint prior to construction. Of the 144 toads removed, 50 were implanted with Passive Integrated Transponders (PIT tags) and translocated to adjacent, suitable habitat on the Rincon Reservation. Follow-up surveys conducted in 2006 (5 years post-translocation) located 3 of the PIT-tagged toads (6 percent of the total number of marked toads) within the vicinity of the translocation site. Because few toads survive past 5 years in the wild, it is likely that many of the PIT-tagged toads died prior to the 2006 follow-up surveys. However, the 2006 identification of 3 of the PIT-tagged arroyo toads shows that some proportion of the marked toads were able to survive the pre-construction relocation efforts, thereby minimizing project-related impacts to arroyo toads.

We have little data on the proportion of arroyo toads likely to be captured during pre-project surveys. A pitfall trapping study of arroyo toads on MCBCP documented few adults and subadults during the period from August through December, when there is generally little precipitation, but noted that the only times that arroyo toads were captured during this interval was when there were rainfall events (Holland and Sisk 2001). Although we have little data regarding the percentage of arroyo toads that can be successfully moved out of a project footprint, based on our best professional judgment, we believe that with appropriate climatic conditions and/or repeated watering, it is likely a majority of arroyo toads (roughly 75 percent) in the impact area will surface and be relocated.

If 75 percent (or 3 individuals) of the estimated 4 arroyo toads in the project footprint are successfully removed, then an estimated 25 percent (or 1 individual) of the arroyo toads within the impact area will remain. We assume that any arroyo toad remaining in the impact area will be killed or injured as a result of being crushed by heavy equipment. Because any arroyo toads remaining in the project footprint are likely to be aestivating and difficult to observe and because we estimate that no more than 1 individual will remain in the project footprint following pre-project removal efforts, we believe it is unlikely that any arroyo toads will be observed killed or injured during construction activities.

In addition to being killed or injured during construction activities, arroyo toads could be killed or injured if they become entangled or trapped within exclusionary fencing and as a result of capture and relocation efforts. However, fence placement and trapping and relocation efforts will be overseen by a designated arroyo toad biologist with experience using methods that have been implemented successfully during construction of other projects in arroyo toad-occupied habitat. Therefore, we anticipate that no more than one individuals will be killed or injured during trapping and relocation efforts.

The BA estimates that project construction will permanently impact about 4.91 acres of occupied upland vegetation and temporarily impact about 2.40 acres of occupied upland.

The primary effects of the temporary impacts are the construction-related death, injury, and displacement of individuals in the project footprint, which are described above. Temporarily impacted habitat will be reseeded with native vegetation upon completion of construction (CM 27). This re-seeding has the potential to convert areas that are currently non-native vegetation to native vegetation beneficial for arroyo toad foraging and sheltering. Because arroyo toads are not dependent on mature vegetation, we expect temporarily impacted areas (2.40 acres) to be re-occupied shortly following project completion.

The Marine Corps will offset permanent impacts to 4.91 acre of upland habitat occupied by arroyo toads by debiting the Riparian BO Habitat Ledger at a 0.5:1 ratio, or 2.46 acre (CM 29). The permanent loss of up to 4.91 acres of upland vegetation represents only a small fraction of the available arroyo toad upland habitat on MCBCP, and there is some evidence that the availability of riparian habitat may be the primary limiting factor regarding arroyo toad survival (Mitrovich *et al.* 2011); therefore, while it is upland aestivation habitat that will be eliminated, additional conservation of riparian habitat will benefit arroyo toads. Credits used from the Riparian BO Habitat Ledger represent riparian habitat that has already been partially restored through removal of non-native invasive plant species. Long-term management of the riparian habitat (per the Riparian BO and the MCBCP INRMP) will ensure that this habitat fully recovers to high-quality riparian habitat. Through implementation of the proactive and programmatic removal of non-native invasive plant species in riparian areas, the Marine Corps will continue to provide a net gain in riparian habitat that will promote conservation of the arroyo toad on MCBCP.

In addition to debiting the Riparian BO Habitat Ledger, the Marine Corps will also offset permanent loss of arroyo toad upland habitat by funding the control of non-native vegetation in areas near San Mateo Creek. Control of non-native vegetation will increase native vegetation cover, which should improve the ability of this area to support arroyo toad feeding and sheltering in this area. This will enhance the ability of the remaining upland habitat to continue to support a robust population of arroyo toads along San Mateo Creek.

Construction-Related Sedimentation, Erosion, Lighting, and Noise

Arroyo toads could be impacted by increased sedimentation, erosion, lighting, and noise associated with project construction activities. To minimize the potential for erosion and sedimentation, a SWPPP will be developed and measures will be implemented to prevent construction-related sedimentation and run-off (CM 1, CM 7, CM 14, and CM 20). Temporary erosion control measures such as silt fencing, sand bags, and straw matting will be installed during construction and maintenance activities. These BMPs will avoid and minimize soil erosion, sedimentation, and run-off pollutants, reducing potential for degradation of the adjacent upland or breeding habitat.

Habitat adjacent to construction areas may be exposed to increased lighting and noise. Increased ambient lighting and noise levels can affect arroyo toads through increased predation risk and

disruption of normal behaviors in adjacent breeding, foraging, and dispersal habitat. To minimize the impacts of lighting and noise on arroyo toads, construction activities within arroyo toad-occupied habitat at night will be avoided at night to the maximum extent practicable (CM 5), minimizing adverse effects from lighting and noise impacts to arroyo toads, which are active at night. If nighttime work is required, lighting will be shielded to reduce light pollution into adjacent habitats (CM 5). With implementation of the proposed minimization measures, we anticipate that potential effects to arroyo toads resulting from lighting and noise are likely to be insignificant.

Invasive Plants

Arroyo toads may be indirectly affected by the introduction or spread of invasive plant species by construction activities. Invasive plant species can degrade upland habitat (Service 2009a), reducing arroyo toad foraging success and impeding movement through upland areas. However, conservation measures will be implemented to minimize the potential for construction activities to introduce or spread invasive plant species (CM 6). Temporarily impacted areas will be restored with native plant species (CM 29), while control of invasive plant species will be conducted in adjacent upland areas beyond the project footprint (CM 27). Therefore, project construction is not anticipated to result in an increased risk of invasive plant species introduction or spread relative to existing conditions, and it is likely to reduce the adverse impacts of non-native vegetation in this area.

Future Operation

Future operation of the proposed facilities may degrade adjacent upland habitat through increased noise, light, and human activity that may disturb arroyo toads foraging and sheltering in these areas. Despite this, most of the proposed structures will be within previously developed areas within 62 Area, so will not add to existing disturbance. While the boundaries of developed areas within 62 Area will be pushed closer to San Mateo Creek at several locations (Figure 1), future operations are likely to affect arroyo toads in a manner similar to what currently is occurring.

As stated in our Environmental Baseline, arroyo toads may currently be dispersing into the 62 Area, subsequently being crushed on paved areas, or getting trapped and starving within developed areas unsuitable for foraging. To reduce this potential, the Marine Corps will implement a measure (CM 28) to install permanent toad dispersal barriers (e.g., small mesh metal fencing at ground level integrated into chain link fencing necessary for facility security) that will eliminate dispersal of arroyo toads into these components of the project, and this measure should also reduce arroyo toad dispersal (and subsequent mortality) in the 62 Area as a whole. Thus, with the proposed conservation measures, the potential adverse effects to arroyo toads resulting from future operations are likely to be insignificant.

Habitat Restoration

Restoration activities (i.e., hydroseeding of temporarily impacted areas, and weeding over a broader area) have the potential to affect foraging and dispersing arroyo toads. Hydroseeding will occur in areas with little, if any, vegetative cover, which would not be expected to be occupied by arroyo toads, so arroyo toads are not likely to be impacted by this activity. Weed

control activities are relatively low impact, generally being conducted by only a few people at any given time, moving on foot. Given the low density of arroyo toads in upland areas and the dispersed nature of weed control activities, persons conducting weed control activities would only rarely, if ever, be in proximity to arroyo toads in upland areas. There is very little likelihood that persons conducting weed control activities would inadvertently step on an arroyo toad or inadvertently hit them with a weed-whip or other weeding tool. Therefore, restoration activities are not anticipated to substantially interfere with arroyo toad foraging or dispersal, and the potential for arroyo toads to be killed or injured during restoration activities is discountable.

Effects on the Local Population of Arroyo Toads

In our preceding analysis, we anticipate that up to two arroyo toads will be injured or killed as a result of the proposed action (one from being impacted within the footprint by construction, one during relocation activities). Within the “Environmental Baseline” section of this biological opinion, we estimate that the arroyo toad population within the San Mateo Creek watershed consists of thousands, perhaps tens of thousands, of individuals. The estimated mortality of two arroyo toads represents a small fraction of this population. In addition, arroyo toads produce many offspring in successful breeding years, and arroyo toad survival in the area may benefit as a result of the weed control activities that will be implemented. Therefore, we do not anticipate that the loss of two arroyo toads related to this project will cause any measurable reduction in the local arroyo toad population.

Effect of the Proposed Action on Recovery

The primary goal described in the arroyo toad recovery plan (Service 1999) is the protection of existing populations; a secondary goal includes the restoration and management of habitat. The proposed project will impact arroyo toads within upland habitat; however, all temporarily impacted area will be reseeded with native vegetation, and permanent impacts will be offset by debiting the Riparian BO Habitat Ledger (i.e., advance restoration) and enhancing local arroyo toad habitat through weed control actions. Because arroyo toads are not dependent on mature vegetation, re-seeded areas will immediately be available to arroyo toads once the project is completed, and we expect temporarily impacted areas to be re-occupied shortly following project completion. Additionally, because most of the arroyo toads within construction footprints will be relocated nearby, we anticipate that individuals killed by construction will likely be replaced in the population by breeding in subsequent years.

Moreover, placement of dispersal barriers around project features will reduce ongoing mortality of arroyo toads that disperse into developed portions of the 62 Area. Proposed weed control activities will enhance arroyo toad foraging and sheltering habitat that will promote better survival of arroyo toads. Together, these measures have the potential to marginally boost the local population of arroyo toads despite the losses caused by project construction in support of arroyo toad recovery.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any non-Federal actions in the area of the proposed project that may affect the species considered in this biological opinion.

CONCLUSION

After reviewing the current status of the arroyo toad, the environmental baseline for the action area, effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the arroyo toad. We reached these conclusions by considering the following:

1. Adverse effects to arroyo toad in the action area will be reduced by implementation of the conservation measures identified in the “Project Description” of this biological opinion.
2. Temporary construction impacts to 2.40 acres of arroyo toad upland habitat will be re-seeded with native plants upon completion of the project. This re-seeding has the potential to convert areas from non-native vegetation to native vegetation beneficial to arroyo toads. Since arroyo toads do not depend on mature vegetation in either the riparian or upland environment, we expect re-seeded areas will be re-occupied shortly following restoration efforts.
3. Permanent construction impacts to 4.91 acres of occupied arroyo toad upland habitat will be offset by debiting the Riparian BO Habitat Ledger at a 0.5:1 ratio, or 2.46 acres. Offsetting this impact to upland habitat by debiting the Riparian BO Habitat Ledger is appropriate because availability of breeding habitat is likely the primary factor limiting the arroyo toad population on MCBCP. This permanent loss of occupied upland habitat represents only a fraction of the thousands of acres of occupied arroyo toad habitat on MCBCP and rangewide.
4. While we estimate that four arroyo toads could be present in the construction footprint, we anticipate that no more than 1 of these individuals will be injured or killed during the translocation effort and that no more than 1 individual will be missed during these efforts and killed or injured by construction activities. A much larger number of arroyo toads will remain outside the project footprint and will be able to recolonize most of the project footprint soon after completion of construction activities; thus, the potential loss of up to 2 arroyo toads due to this project is not anticipated to result in an appreciable reduction in the numbers, reproduction, or distribution of the San Mateo Creek population of arroyo toads or of the species rangewide.
5. Placement of an arroyo toad dispersal barrier around portions of the project will reduce ongoing dispersal of arroyo toads into developed portions of the 62 Area, and

associated arroyo toad mortality. This will increase survival of arroyo toads dispersing through upland areas near Area 62 and contribute to a more robust arroyo toad population on San Mateo Creek in support of recovery of the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by us to include significant habitat modification or degradation that actually kills or injures a listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by us as an action that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, such incidental take is not considered a prohibited taking under the Act, provided that such taking is in compliance with this incidental take statement.

AMOUNT OR EXTENT OF TAKE

The precise distribution and number of arroyo toads in the action area is difficult to determine due to the dynamic conditions associated with their habitat and biology and because detection of arroyo toads outside of the breeding season is very difficult. However, as described in the “Environmental Baseline” section, we estimate that up to four arroyo toads could occur within upland vegetation in the construction footprint. We anticipate that 75 percent, or three arroyo toads, will be captured and relocated and one of these individuals could be killed or injured during capture; additional individuals may experience increased stress levels that could reduce their potential to survive and reproduce following capture and relocation. The remaining 25 percent, or one arroyo toad, is expected to be crushed or otherwise killed or injured during construction activities because heavy equipment will be used to remove essential feeding and sheltering habitat.

Take of arroyo toad associated with construction activities is exempted as follows:

1. Capture and relocation of up to three arroyo toads;
2. Death or injury of up to one arroyo toad as a result of capture and relocation efforts, including arroyo toads entangled or trapped within exclusionary fencing; and
3. Death or injury of up to one arroyo toad from construction activities, including permanent (4.91 acres) and temporary (2.40 acres) clearing and grading of up to 7.31 acres of arroyo toad upland habitat.

The amount or extent of incidental take will be exceeded if more than three arroyo toads are captured and relocated; if more than one arroyo toad is killed or injured as a result of trapping and relocation efforts; or if more than the specified amount of arroyo toad habitat is impacted. In

addition, because it is unlikely that individuals injured or killed by construction activity will be detected, the amount or extent of incidental take will be exceeded if more than one arroyo toad is observed dead or injured within the construction footprint.

EFFECT OF TAKE

In the accompanying biological opinion, we determined that these levels of anticipated take are not likely to result in jeopardy to the arroyo toad.

REASONABLE AND PRUDENT MEASURES

The Marine Corps will implement conservation measures as part of the proposed action to minimize the incidental take of arroyo toad. In addition to these conservation measures, the following reasonable and prudent measures (RPM) are necessary to monitor and report the effects of the incidental take on arroyo toad:

- RPM 1. The Marine Corps will submit final project designs to the CFWO prior to project implementation to ensure that impacts have been avoided and minimized to the maximum extent feasible and that anticipated construction impacts will be consistent with those analyzed in this biological opinion.
- RPM 2. The Marine Corps will keep the CFWO informed on the progress of project construction and will monitor and report on consistency with the exempted amount or extent of take arroyo toad associated with construction activities.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Marine Corps must comply with the following terms and conditions (TC), which implement the reasonable and prudent measure described above.

- TC 1.1. At least 14 days prior to initiating any portion of construction activities that will directly impact upland habitat that supports the arroyo toad, the Marine Corps will submit to the CFWO (via email or mail) a figure showing the impact area based on final project designs relative to the impact area depicted in the BA. The figure will include vegetation mapping and all federally listed species observations from basewide and project-specific surveys (identified to the year and source of the survey) and a table showing the final permanent and temporary impacts by habitat type. If the project is implemented in phases and submittals are made for each phase, the table showing the permanent and temporary impacts by habitat type will provide information for the current phase submitted, each previous phase submitted, and the cumulative impacts to date.
- TC 1.2. The Marine Corps has committed to implement all construction conservation measures listed in the project description. If there is any uncertainty regarding the measures listed, the Marine Corp will coordinate with the CFWO to interpret and

implement the conservation measures in a manner consistent with the effects analysis of this biological opinion or reinstate consultation if the measures cannot be implemented as anticipated.

- TC 1.3. The Marine Corps will provide annual reports on the status of construction until all construction is completed.
- TC 2.1. Prior to initiating construction activities in suitable arroyo toad upland vegetation, the Marine Corps will provide to the CFWO (via email or mail) the results of the pre-construction arroyo toad surveys, including the number of arroyo toads captured and relocated for the project phase (as described above) being implemented, the cumulative number of arroyo toads captured and relocated as a result of completed phases of the project, the project-specific and cumulative number of individuals killed or injured during capture and relocation efforts, and a map indicating where arroyo toads were captured and released relative to the project area. The purpose of this notification is to ensure that the impacts to arroyo toad from construction do not exceed the exempted amount of take based on number of individuals captured within the project footprint.
- TC 2.2. Within 30 days of completing construction activities for a particular phase (as described above) of the project, the Marine Corps will notify the CFWO (via email or mail) of any arroyo toads that were captured and relocated during construction activities. This notification will include the number of arroyo toads captured and relocated in association with the particular phase of construction being addressed, the cumulative number of arroyo toads captured and relocated as a result of all completed phases of construction, the phase-specific and cumulative number of individuals killed or injured during capture and relocation efforts, the phase-specific and cumulative number of individuals killed or injured as a result of construction activities, and a map indicating where arroyo toads were captured and released relative to the footprint of that construction phase. The purpose of this notification is to ensure that the impacts to arroyo toad from construction do not exceed the exempted amount of take based on number of individuals captured and relocated, number of individuals killed or injured during capture and relocation, or number of individuals killed or injured as a result of construction activities.
- TC 2.3. Within 30 days of completing removal of arroyo toad riparian and upland vegetation for a particular phase (as described above) of construction, the Marine Corps will notify the CFWO (via email or mail) of the total amount of arroyo toad upland habitat removed in association with construction activities for a particular phase and the cumulative amount of upland vegetation removed as a result of all phases completed to date. The purpose of this notification is to ensure that the impacts to arroyo toad from construction do not exceed the exempted amount or extent of take based on impacts to arroyo toad habitat.

- TC 2.4. If death or injury of any arroyo toad is observed in association with capture and relocation activities or construction activities within the footprint for any phase of construction, the Marine Corps will notify the CFWO within 1 business day and submit a written report (via email or mail) describing the incident within 2 business days so that the activities resulting in take can be reviewed to determine if additional protective measures are required.

DISPOSITION OF SICK, INJURED, OR DEAD SPECIMENS

Upon locating dead, injured, or sick individuals of threatened or endangered species, initial notification must be made to our Division of Law Enforcement in either San Diego, California, at 619-557-5063, or in Torrance, California, at 310-328-6307. The CFWO should also be notified via telephone (760-431-9440) and in writing via email or mail.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The conservation recommendations (CR) provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's responsibility for this species, pursuant to section 7(a)(1) of the Act.

- CR 1. As part of the proposed action, the Marine Corps will install permanent arroyo toad exclusion fencing around various facilities being constructed. We recommend the Marine Corps review other potential locations, in the 62 Area and elsewhere on MCBCP, where similar fencing can be installed to prevent arroyo toads from dispersing into developed areas on MCBCP. Such fencing would reduce mortality of arroyo toads that disperse into these developed areas.
- CR 2. We recommend the Marine Corps continue to investigate measures (e.g., structural barriers, culverts, etc.) that would reduce mortality of arroyo toads dispersing across roads in upland areas on MCBCP.
- CR 3. In our 2011 biological opinion for the Establishment of the Sierra Training Area (FWS-MCBCP-09B0226-09F0650), we recommended the following (Conservation Recommendation 2): "The Marine Corps should design and build a raised bridge to replace the existing road crossing of San Mateo Creek at the north end of the Sierra TA. A raised bridge will reduce long-term impacts to arroyo toads caused by training vehicle crossing San Mateo Creek at this location and allow improved passage at this site for southern steelhead (*Oncorhynchus mykiss*; steelhead). The Marine Corps should coordinate with the CFWO and the National Oceanic and Atmospheric Administration Fisheries Service during the early phases of planning and design of this bridge to ensure impacts to arroyo toads, steelhead, and other federally listed species are minimized. Any future engineered

improvements to this crossing should avoid Arizona Crossing type designs.” We hereby reiterate this recommendation.

REINITIATION NOTICE

This concludes formal consultation on the proposed action as outlined in materials submitted to us. As provided in 50 CFR §402.16 reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; and (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate your coordination on this project. If you have any questions regarding this letter, please contact Peter Beck at 760-431-9440, extension 213.

Sincerely,

Scott A. Sobiech
Acting Field Supervisor

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Personal Communications:

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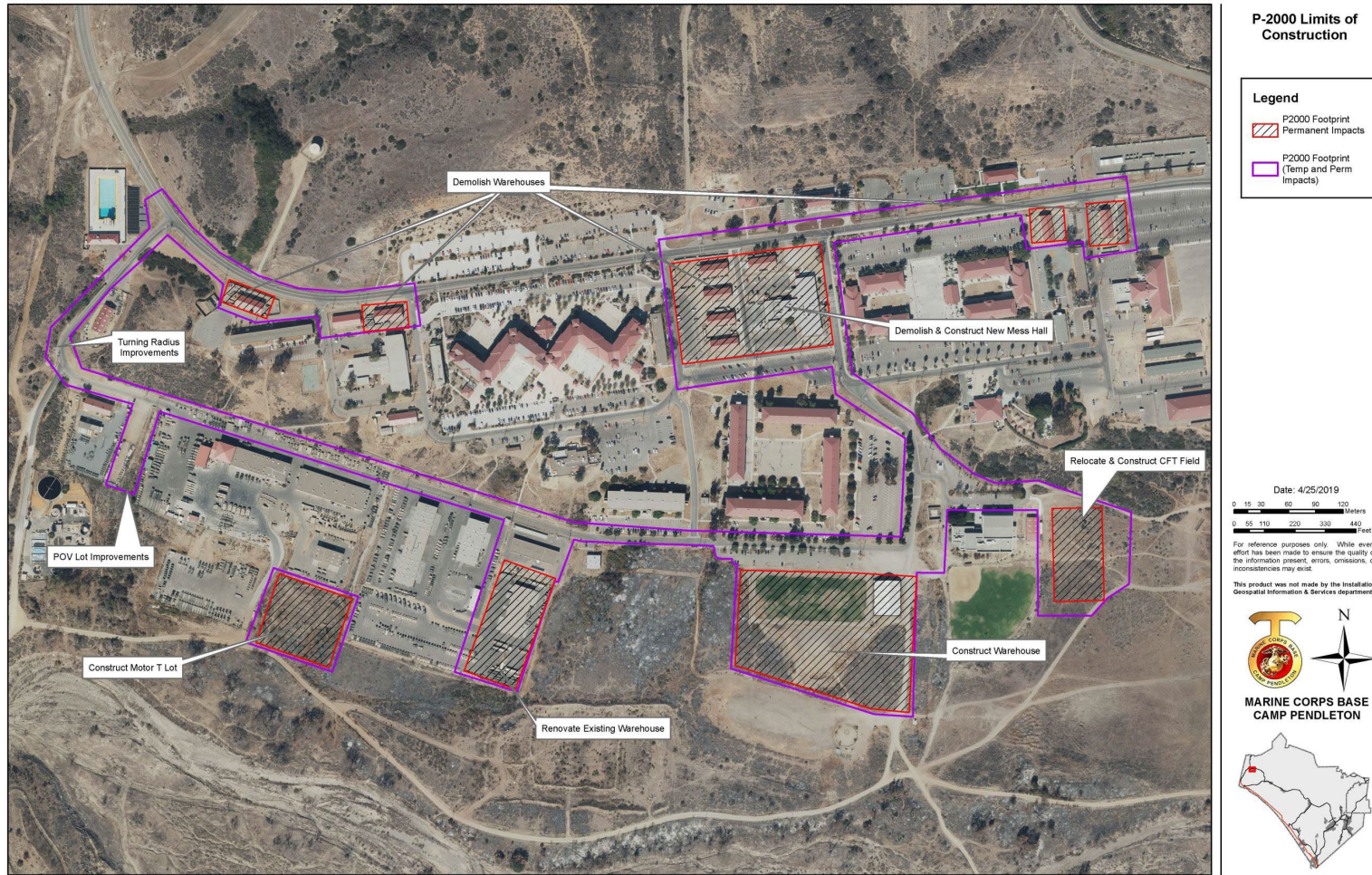


Figure 1. 62 Area Mess Hall and Consolidated Warehouse Project Footprint

APPENDIX

Informal Consultation on the Coastal California Gnatcatcher

The Marine Corps has determined the proposed action may affect, but is not likely to adversely affect, the gnatcatcher. In addition to the General Conservation Measures listed in the Description of the Proposed Action, the Marine Corps will implement the following conservation measures to avoid adverse effects to the gnatcatcher:

- CM 30. All vegetation clearing in habitats potentially occupied by gnatcatchers (DCSS)⁸ will occur outside the gnatcatcher breeding season (February 15 to August 31); i.e., vegetation clearing will occur from September 1 to February 14. If removal of DCSS is needed during the breeding season, then a qualified⁹ gnatcatcher biologist will conduct surveys to verify that gnatcatchers or active gnatcatcher nests are not present within the project footprint.

No project-specific protocol gnatcatcher surveys were conducted within the project footprint in support of the proposed action. The most recent 2014 Base-wide gnatcatcher surveys did not include the DCSS that will be affected by the project (Tetra Tech 2015, Figure 3), but it is likely that prior Base-wide surveys did cover these areas; none of those previous surveys (1989-2010) appear to have documented gnatcatchers within the DCSS that will be affected by the project (Tetra Tech 2010, Figure 8). Although the site does not appear to be occupied by gnatcatchers, the BA delineates some patches of disturbed DCSS suitable for gnatcatcher feeding, breeding, and sheltering, and it is possible that gnatcatchers may occasionally use the site, most likely when foraging during dispersal. The project will permanently remove several small patches of disturbed DCSS that amount to about 0.17 acre, and will temporary impact other patches amounting to about 0.37 acre, for a total of 0.54 acre of impacts.

Due to the apparent lack of occupation by gnatcatchers, the small scale of total impacts to DCSS, with the degraded quality and patchy, dispersed nature of the DCSS affected, the potential for the project to adversely affect gnatcatchers is discountable. If vegetation will be cleared during the breeding season, the Marine Corps will conduct surveys to verify that gnatcatchers and their nests are not present within the project footprint (CM 30). After completion of the project, temporarily impacted areas with degraded DCSS will be reseeded (CM 29). Although this will not lead to immediate recovery of DCSS, eventual recovery of DCSS in this area is likely to provide suitable gnatcatcher foraging habitat in the future.

Based on the analysis provided above, including the implementation of the proposed conservation measures, we concur that the proposed project is not likely to adversely affect the gnatcatcher.

⁸ All of the DCSS within the project site appears to be “disturbed” with substantial non-native vegetation component. Seasonal restrictions applied to DCSS include this “disturbed” DCSS.

⁹ The project biologist for measures associated with the gnatcatcher will be a trained ornithologist with at least 40 hours of observation in the field with the target species and documented experience locating and monitoring nests of the target species.

Riparian BO Class III Concurrence

The Marine Corps has determined the proposed action is a Riparian BO Class III action. In addition to the conservation measures listed in the Description of the Proposed Action, the Marine Corps will also implement the following conservation measures applicable to arroyo toads and vireos in riparian areas:

- CM 31. Per the Riparian BO, all riparian vegetation clearing (southern riparian scrub) will occur outside of the vireo breeding season (March 15 to August 31); i.e., vegetation clearing will occur from September 1 to March 14.
- CM 32. Final designs for construction will minimize temporary impacts to federally-listed species habitat. Temporary impacts¹⁰ to riparian habitat occupied vireos and/or arroyo toads will be hydroseeded. The areas will be hydroseeded with an appropriate native seed mix, as approved by MCBCP ES.

The Marine Corps has determined the revised project is a Riparian BO Class III activity relative to effects to the vireo and the arroyo toad within riparian areas.¹¹ While the project will result in both temporary (0.19 acre) and permanent (0.71 acre) impacts to riparian habitat potentially occupied by vireos and arroyo toads, these impacts fall below the upper threshold for Class III activities (i.e., 10 acres temporary impacts to riparian scrub and/or riparian woodland; 2 acres of permanent impacts to these riparian vegetation communities). Per the Riparian BO, the Marine Corps applies specific “Programmatic Instructions” (PIs) as conservation measures for Class III activities; applicable PIs are listed above as CM 31 and CM 32 for reference. Effects to the vireo and arroyo toad due to Class III projects were programmatically analyzed and incidental take of vireos (where applicable) was exempted in the Riparian BO. Since the project is a Class III activity programmatically covered by the Riparian BO, it does not require further analysis of the effects to vireos and arroyo toads in riparian habitat, and will be reported in the 2019 Annual Riparian BO Class III Report to the Service.

¹⁰ Only those areas considered occupied by federally listed species will be included; e.g., disturbed/developed areas are not included.

¹¹ Class III projects do not typically require advance review by the Service, but we address this Class III determination because there are additional impacts to other vegetation communities beyond riparian impacts.

Appendix B
Public Involvement Notices

**PUBLIC NOTICE
OF THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT
FOR THE CONSTRUCTION OF A MESS HALL AND WAREHOUSE
AT THE 62 AREA (SAN MATEO),
MARINE CORPS BASE CAMP PENDLETON, SAN DIEGO COUNTY, CALIFORNIA**

In accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code (USC) §§ 4321-4370h, as implemented by the Council on Environmental Quality (CEQ) regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508, and Marine Corps Order (MCO) P5090.2A, Change 3, Chapter 12, dated 26 August 2013, Environmental Compliance and Protection Manual, an Environmental Assessment (EA) for the above named project is being prepared that identifies and evaluates the environmental effects of the proposed action.

The proposed action is the construction of a new mess hall and warehouse on Marine Corps Base Camp Pendleton (MCBCP) in the northwestern portion of the Base and is needed because the current mess hall and warehouses no longer meet the needs of the Marine Corps. Specifically, the Proposed Action would construct, operate and maintain an Enlisted Dining Facility (referred to as mess hall) and a Consolidated Storage Warehouse (referred to as warehouse). To accommodate the new construction and the operation of the facilities, demolition of existing outdated facilities, parking lot construction, widening/realignment of roadways to accommodate large commercial and military vehicles and site improvements will be necessary. Demolition and Construction activities action would take place starting in 2019 and continuing for up to 12 months.

Further information about the proposed action or the NEPA process is available by contacting the USMC Point-of-Contact listed below.

Point-of-Contact: Kristin Thomas
MCIWEST-MCB Camp Pendleton
Environmental Security Office
c/o 62 Area Mess Hall/ Warehouse
Box 555200, Bldg. 22165
Camp Pendleton, CA 92055
Email: kristin.thomas@usmc.mil
Phone: 760.763.7946

PUBLIC NOTICE OF AVAILABILITY

FINDING OF NO SIGNIFICANT IMPACT FOR PROPOSED 62 AREA DINING FACILITY AND CONSOLIDATED WAREHOUSE AT MARINE CORPS BASE CAMP PENDLETON, CALIFORNIA

In accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code (USC) §§ 4321-4370h, as implemented by the Council on Environmental Quality (CEQ) regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508, and Marine Corps Order (MCO) P5090.2A, Change 3, Chapter 12, dated 26 August 2013, Environmental Compliance and Protection Manual an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) have been prepared for Proposed 62 Area Dining Facility and Consolidated Warehouse at Marine Corps Base (MCB) Camp Pendleton, and an Environmental Impact Statement is not required.

The Proposed Action is the construction, operation, and maintenance of a dining facility for enlisted personnel and a consolidated warehouse. The proposed action includes demolition of existing outdated facilities, parking lot construction, widening/realignment of roadways to accommodate large commercial and military vehicles, and site improvements in order to accommodate the construction and the operation of the new facilities. Based on the EA analysis, the preferred alternative will have negligible direct, indirect, or cumulative impacts on the quality of the environment and will comply with all regulatory requirements; no significant impacts will occur.

An online copy of the Final EA and FONSI can be found at:

<https://www.pendleton.marines.mil/Staff-Agencies/Environmental-Security/Document-Library/Environmental-Planning-Documents/> Questions or comments on the EA should be submitted to:

Point-of-Contact: MCIWEST-MCB Camp Pendleton
Environmental Security Office
Box 555200, Bldg. 22165
Camp Pendleton, CA 92055
Email: PNDL_ENV-NEPA@usmc.mil
Phone: 760.725.4512

Appendix C
Record of Non-Applicability



UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS WEST-MARINE CORPS BASE
BOX 555010
CAMP PENDLETON, CALIFORNIA 92055-5010

5090
CG
5 DEC 2019

MEMORANDUM FOR THE RECORD

From: Commanding General
To: Director, Environmental Security

Subj: RECORD OF NON-APPLICABILITY (RONA) CONSTRUCTION OF A MESS HALL AND CONSOLIDATED WAREHOUSE IN THE 62 AREA, MARINE CORPS BASE, CAMP PENDLETON

Ref: (a) 40 CFR Part 6, 51, and 93; Environmental Protection Agency, Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule
(b) 40 CFR Part 51 and 93; Environmental Protection Agency, Revisions to the General Conformity Regulations; Final Rule

Encl: (1) Annual Peak Estimated Emissions from the Proposed Project within the San Diego County Air Pollution Control District (APCD) - Alternative 1

1. References (a) and (b) provide implementing guidance for documenting Clean Air Act (CAA) Conformity Determination requirements. The General Conformity Rule applies to federal actions proposed within areas which are designated as either nonattainment or maintenance areas for a National Ambient Air Quality Standard (NAAQS) for any of the criteria pollutants.

2. An emissions analysis was conducted per enclosure (1). It was determined that *de minimis* thresholds for applicable criteria pollutants would not be exceeded as a result of implementation of the proposed action. A formal Conformity Determination is not considered necessary.


3. The proposed action would occur within the San Diego Air Basin (SDAB) portion of Marine Corps Base, Camp Pendleton (MCB CamPen). This portion of the SDAB is currently in nonattainment of the eight hour ozone (O₃) NAAQS and is a maintenance area for carbon monoxide (CO) NAAQS.

Subj: RECORD OF NON-APPLICABILITY (RONA) CONSTRUCTION OF A MESS HALL AND CONSOLIDATED WAREHOUSE IN THE 62 AREA, MARINE CORPS BASE, CAMP PENDLETON

4. SDAB is in attainment of the NAAQS for all other criteria pollutants. Therefore, only project emissions of CO and O₃ (or its precursors, volatile organic compounds [VOCs] and oxides of nitrogen [NO_x]) were analyzed for conformity rule applicability. The annual *de minimis* threshold levels for this region are 100 tons of VOC, NO_x, and CO. Federal actions may be exempt from conformity determinations if they do not exceed *de minimis* threshold levels.

5. The Marine Corps does not anticipate the proposed action would result in an increase in the number or frequency of traffic operations aboard MCB CamPen. Therefore, the Marine Corps determined that additional emissions analyses are not warranted for the proposed action.

6. To the best of my knowledge, the information presented in this RONA is correct and accurate, and I concur in the finding that implementation of the proposed action does not require a formal CAA Conformity Determination.



DAN CONLEY

Copy to:
Files

Annual Peak Estimated Emissions from the Proposed Project within the San Diego County Air Pollution Control District (APCD) - Alternative 1

Emission Source	Emissions (lbs/day)						Emissions (metric tons/year)			
	VOCs	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	N ₂ O	CO ₂ e
Proposed Project Emissions within the San Diego County APCD - 2019										
Construction Emissions (tons/year)	0.1552	1.5010	0.9585	1.9400e-003	0.1031	0.0760	173.7484	0.0458	0.0000	174.8939
Significance Thresholds (tons/year)	100	100	100	N/A	100	100	N/A	N/A	N/A	N/A
Exceeds Air Quality Significance Threshold Standards?	No	No	No	N/A	No	No	N/A	N/A	N/A	N/A
Proposed Project Emissions within the San Diego County APCD - 2020										
Construction Emissions (tons/year)	0.5703	5.4570	3.6486	7.5800e-003	0.3467	0.2699	664.9230	0.1786	0.0000	669.3884
Significance Thresholds (tons/year)	100	100	100	N/A	100	100	N/A	N/A	N/A	N/A
Exceeds Air Quality Significance Threshold Standards?	No	No	No	N/A	No	No	N/A	N/A	N/A	N/A
Proposed Project Emissions within the San Diego County APCD - 2021										
Construction Emissions (tons/year)	0.3397	3.2099	2.2913	5.5900e-003	0.2099	0.1508	491.3381	0.1242	0.0000	494.4425
Significance Thresholds (tons/year)	100	100	100	N/A	100	100	N/A	N/A	N/A	N/A
Exceeds Air Quality Significance Threshold Standards?	No	No	No	N/A	No	No	N/A	N/A	N/A	N/A

Legend: CO = carbon monoxide; NO_x = nitrogen oxides; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than 10 microns in diameter but greater than 2.5 microns in diameter; SO₂ = sulfur dioxide; VOCs = volatile organic compounds.

Notes: The San Diego Air Basin (SDAB) is in nonattainment (moderate) of the 8-hour O₃ NAAQS (which includes its precursor pollutants of VOCs and NO_x) and is in maintenance of the CO NAAQS. The SDAB is in nonattainment of the PM₁₀ and PM_{2.5} CAAQS.

NA = not applicable because the SDAB is currently in attainment of the NAAQS for these criteria pollutants.

P-2000 62 Area MessHall : Alternative 1 - San Diego Air Basin, Annual

P-2000 62 Area MessHall: Alternative 1

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	37.85	Acre	37.85	1,648,746.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - From Chapter 2 of EA, includes demolition and construction. Construction Phase - Project-specific assumptions

Off-road Equipment - Off-highway trucks = water truck

Off-road Equipment - Off-highway truck = water truck

Off-road Equipment - Off-highway truck = water truck

Off-road Equipment - Tractors/loaders/backhoes = 1 ea; Off-highway truck = water truck

Off-road Equipment - Off-highway truck = water truck

Off-road Equipment - Off-highway trucks = water truck

Grading - Assume 1/3 of project area

Demolition - Three booster pump stations and one elevated water tank

Trips and VMT - Includes project management vehicles, crew cab trucks, flat bed trucks, and traffic control vehicles

Fleet Mix -

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tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders

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tblVehicleEF	HHD	0.13	0.13
tblVehicleEF	HHD	0.11	0.12
tblVehicleEF	HHD	3.61	3.81
tblVehicleEF	HHD	1.15	1.15
tblVehicleEF	HHD	3.55	3.76
tblVehicleEF	HHD	4,331.26	4,373.53
tblVehicleEF	HHD	1,659.46	1,681.18
tblVehicleEF	HHD	10.27	10.62
tblVehicleEF	HHD	20.87	22.14
tblVehicleEF	HHD	3.82	4.28
tblVehicleEF	HHD	19.62	19.64
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.0500e-004	1.3700e-004
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	9.6000e-005	1.2700e-004
tblVehicleEF	HHD	8.8000e-005	1.0000e-004
tblVehicleEF	HHD	5.8980e-003	7.6040e-003
tblVehicleEF	HHD	0.70	0.74
tblVehicleEF	HHD	8.0000e-005	9.0000e-005
tblVehicleEF	HHD	0.13	0.14
tblVehicleEF	HHD	5.8300e-004	6.8600e-004
tblVehicleEF	HHD	0.11	0.12
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.6200e-004	1.6900e-004
tblVehicleEF	HHD	8.8000e-005	1.0000e-004
tblVehicleEF	HHD	5.8980e-003	7.6040e-003
tblVehicleEF	HHD	0.83	0.87
tblVehicleEF	HHD	8.0000e-005	9.0000e-005
tblVehicleEF	HHD	0.27	0.28

tblVehicleEF	HHD	5.8300e-004	6.8600e-004
tblVehicleEF	HHD	0.12	0.14
tblVehicleEF	LDA	7.0640e-003	7.5560e-003
tblVehicleEF	LDA	8.9160e-003	9.8610e-003
tblVehicleEF	LDA	0.64	0.67
tblVehicleEF	LDA	1.61	1.76
tblVehicleEF	LDA	269.94	280.70
tblVehicleEF	LDA	58.50	60.62
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	1.9050e-003	1.9230e-003
tblVehicleEF	LDA	2.2860e-003	2.2920e-003
tblVehicleEF	LDA	1.7570e-003	1.7730e-003
tblVehicleEF	LDA	2.1020e-003	2.1070e-003
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	2.7040e-003	2.8120e-003
tblVehicleEF	LDA	6.1300e-004	6.3700e-004
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.13	0.15
tblVehicleEF	LDA	7.6050e-003	8.1310e-003
tblVehicleEF	LDA	7.7690e-003	8.5880e-003
tblVehicleEF	LDA	0.72	0.75
tblVehicleEF	LDA	1.34	1.46
tblVehicleEF	LDA	285.32	296.71
tblVehicleEF	LDA	58.50	60.62
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.08	0.09
tblVehicleEF	LDA	1.9050e-003	1.9230e-003
tblVehicleEF	LDA	2.2860e-003	2.2920e-003
tblVehicleEF	LDA	1.7570e-003	1.7730e-003
tblVehicleEF	LDA	2.1020e-003	2.1070e-003

tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	2.8590e-003	2.9730e-003
tblVehicleEF	LDA	6.0800e-004	6.3200e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.11	0.13
tblVehicleEF	LDA	6.9480e-003	7.4330e-003
tblVehicleEF	LDA	9.3860e-003	0.01
tblVehicleEF	LDA	0.63	0.66
tblVehicleEF	LDA	1.73	1.88
tblVehicleEF	LDA	267.16	277.81
tblVehicleEF	LDA	58.50	60.62
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.09	0.11
tblVehicleEF	LDA	1.9050e-003	1.9230e-003
tblVehicleEF	LDA	2.2860e-003	2.2920e-003
tblVehicleEF	LDA	1.7570e-003	1.7730e-003
tblVehicleEF	LDA	2.1020e-003	2.1070e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.10	0.11
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	2.6760e-003	2.7830e-003
tblVehicleEF	LDA	6.1500e-004	6.3900e-004
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.10	0.11
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.14	0.15

tblVehicleEF	LDT1	0.01	0.01
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	1.39	1.51
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tblVehicleEF	LDT1	73.28	74.92
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tblVehicleEF	LDT1	0.20	0.22
tblVehicleEF	LDT1	2.8810e-003	2.9980e-003
tblVehicleEF	LDT1	3.5170e-003	3.6780e-003
tblVehicleEF	LDT1	2.6540e-003	2.7620e-003
tblVehicleEF	LDT1	3.2340e-003	3.3820e-003
tblVehicleEF	LDT1	0.11	0.12
tblVehicleEF	LDT1	0.30	0.32
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.21	0.22
tblVehicleEF	LDT1	0.24	0.26
tblVehicleEF	LDT1	3.4180e-003	3.5140e-003
tblVehicleEF	LDT1	7.9200e-004	8.1400e-004
tblVehicleEF	LDT1	0.11	0.12
tblVehicleEF	LDT1	0.30	0.32
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.21	0.22
tblVehicleEF	LDT1	0.26	0.29
tblVehicleEF	LDT1	0.01	0.01
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	1.54	1.66
tblVehicleEF	LDT1	2.76	3.02
tblVehicleEF	LDT1	358.51	368.39
tblVehicleEF	LDT1	73.28	74.92
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.18	0.20
tblVehicleEF	LDT1	2.8810e-003	2.9980e-003
tblVehicleEF	LDT1	3.5170e-003	3.6780e-003
tblVehicleEF	LDT1	2.6540e-003	2.7620e-003
tblVehicleEF	LDT1	3.2340e-003	3.3820e-003
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	0.32	0.34

tblVehicleEF	LDT1	0.20	0.21
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.19	0.20
tblVehicleEF	LDT1	0.20	0.23
tblVehicleEF	LDT1	3.6040e-003	3.7050e-003
tblVehicleEF	LDT1	7.8200e-004	8.0300e-004
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	0.32	0.34
tblVehicleEF	LDT1	0.20	0.21
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.19	0.20
tblVehicleEF	LDT1	0.22	0.25
tblVehicleEF	LDT1	0.01	0.01
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	1.37	1.48
tblVehicleEF	LDT1	3.61	3.96
tblVehicleEF	LDT1	336.75	346.09
tblVehicleEF	LDT1	73.28	74.92
tblVehicleEF	LDT1	0.15	0.16
tblVehicleEF	LDT1	0.21	0.23
tblVehicleEF	LDT1	2.8810e-003	2.9980e-003
tblVehicleEF	LDT1	3.5170e-003	3.6780e-003
tblVehicleEF	LDT1	2.6540e-003	2.7620e-003
tblVehicleEF	LDT1	3.2340e-003	3.3820e-003
tblVehicleEF	LDT1	0.10	0.10
tblVehicleEF	LDT1	0.35	0.37
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.25	0.26
tblVehicleEF	LDT1	0.25	0.28
tblVehicleEF	LDT1	3.3840e-003	3.4790e-003
tblVehicleEF	LDT1	7.9600e-004	8.1900e-004
tblVehicleEF	LDT1	0.10	0.10
tblVehicleEF	LDT1	0.35	0.37
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	0.26
tblVehicleEF	LDT1	0.27	0.30
tblVehicleEF	LDT2	6.2050e-003	6.7070e-003
tblVehicleEF	LDT2	7.5060e-003	8.5260e-003

tblVehicleEF	LDT2	0.73	0.78
tblVehicleEF	LDT2	1.59	1.77
tblVehicleEF	LDT2	380.39	393.35
tblVehicleEF	LDT2	82.33	84.92
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	1.8080e-003	1.7920e-003
tblVehicleEF	LDT2	2.2310e-003	2.2190e-003
tblVehicleEF	LDT2	1.6630e-003	1.6480e-003
tblVehicleEF	LDT2	2.0510e-003	2.0400e-003
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	3.8090e-003	3.9390e-003
tblVehicleEF	LDT2	8.5000e-004	8.7900e-004
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.12	0.12
tblVehicleEF	LDT2	0.05	0.05
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	6.6680e-003	7.2030e-003
tblVehicleEF	LDT2	6.5270e-003	7.4120e-003
tblVehicleEF	LDT2	0.82	0.87
tblVehicleEF	LDT2	1.31	1.47
tblVehicleEF	LDT2	401.53	415.21
tblVehicleEF	LDT2	82.33	84.92
tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	1.8080e-003	1.7920e-003
tblVehicleEF	LDT2	2.2310e-003	2.2190e-003
tblVehicleEF	LDT2	1.6630e-003	1.6480e-003
tblVehicleEF	LDT2	2.0510e-003	2.0400e-003
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.12	0.13
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.02	0.02

tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	4.0210e-003	4.1590e-003
tblVehicleEF	LDT2	8.4500e-004	8.7400e-004
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.12	0.13
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	6.1060e-003	6.6010e-003
tblVehicleEF	LDT2	7.9100e-003	8.9850e-003
tblVehicleEF	LDT2	0.72	0.76
tblVehicleEF	LDT2	1.70	1.90
tblVehicleEF	LDT2	376.56	389.40
tblVehicleEF	LDT2	82.33	84.92
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	1.8080e-003	1.7920e-003
tblVehicleEF	LDT2	2.2310e-003	2.2190e-003
tblVehicleEF	LDT2	1.6630e-003	1.6480e-003
tblVehicleEF	LDT2	2.0510e-003	2.0400e-003
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.11	0.12
tblVehicleEF	LDT2	3.7700e-003	3.8990e-003
tblVehicleEF	LDT2	8.5200e-004	8.8200e-004
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.12	0.13
tblVehicleEF	LHD1	5.1890e-003	5.4350e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.15

tblVehicleEF	LHD1	1.20	1.30
tblVehicleEF	LHD1	2.51	2.67
tblVehicleEF	LHD1	9.28	9.28
tblVehicleEF	LHD1	687.44	695.30
tblVehicleEF	LHD1	29.29	30.08
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	1.74	1.87
tblVehicleEF	LHD1	0.93	0.97
tblVehicleEF	LHD1	1.0250e-003	1.0190e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	9.1400e-004	9.8100e-004
tblVehicleEF	LHD1	9.8100e-004	9.7500e-004
tblVehicleEF	LHD1	2.5590e-003	2.5460e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	8.4100e-004	9.0300e-004
tblVehicleEF	LHD1	2.3070e-003	2.3730e-003
tblVehicleEF	LHD1	0.09	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7280e-003	1.7530e-003
tblVehicleEF	LHD1	0.14	0.15
tblVehicleEF	LHD1	0.30	0.30
tblVehicleEF	LHD1	0.26	0.27
tblVehicleEF	LHD1	6.7370e-003	6.8190e-003
tblVehicleEF	LHD1	3.4000e-004	3.5100e-004
tblVehicleEF	LHD1	2.3070e-003	2.3730e-003
tblVehicleEF	LHD1	0.09	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7280e-003	1.7530e-003
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	0.30	0.30
tblVehicleEF	LHD1	0.28	0.30
tblVehicleEF	LHD1	5.1890e-003	5.4350e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.15
tblVehicleEF	LHD1	1.22	1.32
tblVehicleEF	LHD1	2.37	2.52
tblVehicleEF	LHD1	9.28	9.28
tblVehicleEF	LHD1	687.44	695.30

tblVehicleEF	LHD1	29.29	30.08
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	1.67	1.79
tblVehicleEF	LHD1	0.89	0.92
tblVehicleEF	LHD1	1.0250e-003	1.0190e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	9.1400e-004	9.8100e-004
tblVehicleEF	LHD1	9.8100e-004	9.7500e-004
tblVehicleEF	LHD1	2.5590e-003	2.5460e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	8.4100e-004	9.0300e-004
tblVehicleEF	LHD1	3.3350e-003	3.4350e-003
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	2.9220e-003	2.9810e-003
tblVehicleEF	LHD1	0.14	0.15
tblVehicleEF	LHD1	0.28	0.29
tblVehicleEF	LHD1	0.24	0.26
tblVehicleEF	LHD1	6.7370e-003	6.8190e-003
tblVehicleEF	LHD1	3.3800e-004	3.4900e-004
tblVehicleEF	LHD1	3.3350e-003	3.4350e-003
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	2.9220e-003	2.9810e-003
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	0.28	0.29
tblVehicleEF	LHD1	0.27	0.29
tblVehicleEF	LHD1	5.1890e-003	5.4350e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.15
tblVehicleEF	LHD1	1.20	1.29
tblVehicleEF	LHD1	2.57	2.74
tblVehicleEF	LHD1	9.28	9.28
tblVehicleEF	LHD1	687.44	695.30
tblVehicleEF	LHD1	29.29	30.08
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	1.73	1.86
tblVehicleEF	LHD1	0.95	0.99

tblVehicleEF	LHD1	1.0250e-003	1.0190e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	9.1400e-004	9.8100e-004
tblVehicleEF	LHD1	9.8100e-004	9.7500e-004
tblVehicleEF	LHD1	2.5590e-003	2.5460e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	8.4100e-004	9.0300e-004
tblVehicleEF	LHD1	2.1440e-003	2.2160e-003
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.5280e-003	1.5490e-003
tblVehicleEF	LHD1	0.14	0.15
tblVehicleEF	LHD1	0.33	0.33
tblVehicleEF	LHD1	0.26	0.28
tblVehicleEF	LHD1	6.7370e-003	6.8190e-003
tblVehicleEF	LHD1	3.4100e-004	3.5300e-004
tblVehicleEF	LHD1	2.1440e-003	2.2160e-003
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.5280e-003	1.5490e-003
tblVehicleEF	LHD1	0.17	0.18
tblVehicleEF	LHD1	0.33	0.33
tblVehicleEF	LHD1	0.29	0.31
tblVehicleEF	LHD2	3.7920e-003	4.0010e-003
tblVehicleEF	LHD2	8.7750e-003	9.7230e-003
tblVehicleEF	LHD2	8.1910e-003	9.2800e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.63	0.68
tblVehicleEF	LHD2	1.22	1.33
tblVehicleEF	LHD2	14.18	14.23
tblVehicleEF	LHD2	720.45	728.63
tblVehicleEF	LHD2	24.86	25.41
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.07	1.23
tblVehicleEF	LHD2	0.51	0.55
tblVehicleEF	LHD2	1.2990e-003	1.3150e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.2000e-004	4.5400e-004

tblVehicleEF	LHD2	1.2430e-003	1.2580e-003
tblVehicleEF	LHD2	2.6830e-003	2.6770e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.8600e-004	4.1800e-004
tblVehicleEF	LHD2	8.1200e-004	8.8700e-004
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	6.6100e-004	7.0500e-004
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	1.3800e-004	1.3900e-004
tblVehicleEF	LHD2	7.0090e-003	7.0910e-003
tblVehicleEF	LHD2	2.7100e-004	2.7900e-004
tblVehicleEF	LHD2	8.1200e-004	8.8700e-004
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.6100e-004	7.0500e-004
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.12	0.14
tblVehicleEF	LHD2	3.7920e-003	4.0010e-003
tblVehicleEF	LHD2	8.8860e-003	9.8550e-003
tblVehicleEF	LHD2	7.8500e-003	8.8860e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.63	0.68
tblVehicleEF	LHD2	1.16	1.26
tblVehicleEF	LHD2	14.18	14.23
tblVehicleEF	LHD2	720.45	728.63
tblVehicleEF	LHD2	24.86	25.41
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.03	1.18
tblVehicleEF	LHD2	0.49	0.52
tblVehicleEF	LHD2	1.2990e-003	1.3150e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.2000e-004	4.5400e-004
tblVehicleEF	LHD2	1.2430e-003	1.2580e-003
tblVehicleEF	LHD2	2.6830e-003	2.6770e-003
tblVehicleEF	LHD2	0.02	0.02

tblVehicleEF	LHD2	3.8600e-004	4.1800e-004
tblVehicleEF	LHD2	1.1790e-003	1.2880e-003
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.1210e-003	1.2000e-003
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.3800e-004	1.3900e-004
tblVehicleEF	LHD2	7.0090e-003	7.0910e-003
tblVehicleEF	LHD2	2.7000e-004	2.7700e-004
tblVehicleEF	LHD2	1.1790e-003	1.2880e-003
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.1210e-003	1.2000e-003
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	3.7920e-003	4.0010e-003
tblVehicleEF	LHD2	8.7260e-003	9.6650e-003
tblVehicleEF	LHD2	8.3440e-003	9.4580e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.62	0.67
tblVehicleEF	LHD2	1.26	1.36
tblVehicleEF	LHD2	14.18	14.23
tblVehicleEF	LHD2	720.45	728.63
tblVehicleEF	LHD2	24.86	25.41
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.07	1.22
tblVehicleEF	LHD2	0.52	0.56
tblVehicleEF	LHD2	1.2990e-003	1.3150e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.2000e-004	4.5400e-004
tblVehicleEF	LHD2	1.2430e-003	1.2580e-003
tblVehicleEF	LHD2	2.6830e-003	2.6770e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.8600e-004	4.1800e-004
tblVehicleEF	LHD2	7.3400e-004	8.1000e-004
tblVehicleEF	LHD2	0.04	0.04

tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	5.8200e-004	6.2100e-004
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.08	0.09
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	1.3800e-004	1.3900e-004
tblVehicleEF	LHD2	7.0090e-003	7.0910e-003
tblVehicleEF	LHD2	2.7200e-004	2.7900e-004
tblVehicleEF	LHD2	7.3400e-004	8.1000e-004
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.8200e-004	6.2100e-004
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.08	0.09
tblVehicleEF	LHD2	0.12	0.14
tblVehicleEF	MCY	0.48	0.47
tblVehicleEF	MCY	0.16	0.16
tblVehicleEF	MCY	20.90	21.48
tblVehicleEF	MCY	9.69	9.67
tblVehicleEF	MCY	181.50	180.59
tblVehicleEF	MCY	46.22	46.61
tblVehicleEF	MCY	1.16	1.17
tblVehicleEF	MCY	0.31	0.31
tblVehicleEF	MCY	2.0750e-003	2.0020e-003
tblVehicleEF	MCY	3.9150e-003	4.0000e-003
tblVehicleEF	MCY	1.9430e-003	1.8770e-003
tblVehicleEF	MCY	3.6970e-003	3.7820e-003
tblVehicleEF	MCY	0.93	0.92
tblVehicleEF	MCY	0.76	0.77
tblVehicleEF	MCY	0.74	0.74
tblVehicleEF	MCY	2.46	2.47
tblVehicleEF	MCY	0.61	0.62
tblVehicleEF	MCY	2.13	2.14
tblVehicleEF	MCY	6.8300e-004	6.8700e-004
tblVehicleEF	MCY	0.93	0.92
tblVehicleEF	MCY	0.76	0.77
tblVehicleEF	MCY	0.74	0.74
tblVehicleEF	MCY	3.03	3.03
tblVehicleEF	MCY	0.61	0.62
tblVehicleEF	MCY	2.31	2.33

tblVehicleEF	MCY	0.47	0.46
tblVehicleEF	MCY	0.14	0.14
tblVehicleEF	MCY	19.88	20.40
tblVehicleEF	MCY	8.75	8.75
tblVehicleEF	MCY	181.50	180.59
tblVehicleEF	MCY	46.22	46.61
tblVehicleEF	MCY	1.05	1.05
tblVehicleEF	MCY	0.29	0.29
tblVehicleEF	MCY	2.0750e-003	2.0020e-003
tblVehicleEF	MCY	3.9150e-003	4.0000e-003
tblVehicleEF	MCY	1.9430e-003	1.8770e-003
tblVehicleEF	MCY	3.6970e-003	3.7820e-003
tblVehicleEF	MCY	1.50	1.50
tblVehicleEF	MCY	0.85	0.85
tblVehicleEF	MCY	1.44	1.45
tblVehicleEF	MCY	2.38	2.38
tblVehicleEF	MCY	0.57	0.58
tblVehicleEF	MCY	1.85	1.86
tblVehicleEF	MCY	2.2100e-003	2.2090e-003
tblVehicleEF	MCY	6.6000e-004	6.6400e-004
tblVehicleEF	MCY	1.50	1.50
tblVehicleEF	MCY	0.85	0.85
tblVehicleEF	MCY	1.44	1.45
tblVehicleEF	MCY	2.93	2.93
tblVehicleEF	MCY	0.57	0.58
tblVehicleEF	MCY	2.01	2.02
tblVehicleEF	MCY	0.49	0.48
tblVehicleEF	MCY	0.17	0.17
tblVehicleEF	MCY	21.61	22.23
tblVehicleEF	MCY	10.18	10.16
tblVehicleEF	MCY	181.50	180.59
tblVehicleEF	MCY	46.22	46.61
tblVehicleEF	MCY	1.17	1.18
tblVehicleEF	MCY	0.32	0.32
tblVehicleEF	MCY	2.0750e-003	2.0020e-003
tblVehicleEF	MCY	3.9150e-003	4.0000e-003
tblVehicleEF	MCY	1.9430e-003	1.8770e-003
tblVehicleEF	MCY	3.6970e-003	3.7820e-003
tblVehicleEF	MCY	0.84	0.84
tblVehicleEF	MCY	1.03	1.03

tblVehicleEF	MCY	0.58	0.58
tblVehicleEF	MCY	2.50	2.52
tblVehicleEF	MCY	0.72	0.73
tblVehicleEF	MCY	2.26	2.28
tblVehicleEF	MCY	2.2410e-003	2.2420e-003
tblVehicleEF	MCY	6.9500e-004	6.9900e-004
tblVehicleEF	MCY	0.84	0.84
tblVehicleEF	MCY	1.03	1.03
tblVehicleEF	MCY	0.58	0.58
tblVehicleEF	MCY	3.08	3.09
tblVehicleEF	MCY	0.72	0.73
tblVehicleEF	MCY	2.46	2.48
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.18	1.31
tblVehicleEF	MDV	2.86	3.15
tblVehicleEF	MDV	506.28	521.37
tblVehicleEF	MDV	108.34	111.22
tblVehicleEF	MDV	0.14	0.16
tblVehicleEF	MDV	0.26	0.29
tblVehicleEF	MDV	1.9460e-003	1.9550e-003
tblVehicleEF	MDV	2.4170e-003	2.4590e-003
tblVehicleEF	MDV	1.7950e-003	1.8030e-003
tblVehicleEF	MDV	2.2250e-003	2.2640e-003
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.08	0.08
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.22	0.25
tblVehicleEF	MDV	5.0690e-003	5.2220e-003
tblVehicleEF	MDV	1.1340e-003	1.1680e-003
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.08	0.08
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.24	0.27
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.01	0.02

tblVehicleEF	MDV	1.30	1.43
tblVehicleEF	MDV	2.37	2.62
tblVehicleEF	MDV	533.72	549.63
tblVehicleEF	MDV	108.34	111.22
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.24	0.27
tblVehicleEF	MDV	1.9460e-003	1.9550e-003
tblVehicleEF	MDV	2.4170e-003	2.4590e-003
tblVehicleEF	MDV	1.7950e-003	1.8030e-003
tblVehicleEF	MDV	2.2250e-003	2.2640e-003
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.17	0.18
tblVehicleEF	MDV	0.12	0.12
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.19	0.21
tblVehicleEF	MDV	5.3450e-003	5.5060e-003
tblVehicleEF	MDV	1.1250e-003	1.1580e-003
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.17	0.18
tblVehicleEF	MDV	0.12	0.12
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.21	0.23
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.16	1.29
tblVehicleEF	MDV	3.07	3.38
tblVehicleEF	MDV	501.32	516.26
tblVehicleEF	MDV	108.34	111.22
tblVehicleEF	MDV	0.14	0.16
tblVehicleEF	MDV	0.27	0.30
tblVehicleEF	MDV	1.9460e-003	1.9550e-003
tblVehicleEF	MDV	2.4170e-003	2.4590e-003
tblVehicleEF	MDV	1.7950e-003	1.8030e-003
tblVehicleEF	MDV	2.2250e-003	2.2640e-003
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.18	0.19
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.03	0.04

tblVehicleEF	MDV	0.12	0.12
tblVehicleEF	MDV	0.23	0.26
tblVehicleEF	MDV	5.0200e-003	5.1710e-003
tblVehicleEF	MDV	1.1370e-003	1.1720e-003
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.18	0.19
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.12	0.12
tblVehicleEF	MDV	0.25	0.28
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	3.71	4.45
tblVehicleEF	MH	7.07	7.68
tblVehicleEF	MH	1,239.67	1,244.38
tblVehicleEF	MH	60.83	63.19
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tblVehicleEF	MH	0.97	1.01
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.3290e-003	1.6580e-003
tblVehicleEF	MH	3.2090e-003	3.2060e-003
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.2220e-003	1.5340e-003
tblVehicleEF	MH	1.12	1.19
tblVehicleEF	MH	0.10	0.10
tblVehicleEF	MH	0.59	0.62
tblVehicleEF	MH	0.15	0.18
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.41	0.47
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.3200e-004	7.6700e-004
tblVehicleEF	MH	1.12	1.19
tblVehicleEF	MH	0.10	0.10
tblVehicleEF	MH	0.59	0.62
tblVehicleEF	MH	0.21	0.25
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.45	0.51
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.03	0.03

tblVehicleEF	MH	3.84	4.56
tblVehicleEF	MH	6.60	7.19
tblVehicleEF	MH	1,239.67	1,244.38
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tblVehicleEF	MH	1.60	1.68
tblVehicleEF	MH	0.92	0.96
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.3290e-003	1.6580e-003
tblVehicleEF	MH	3.2090e-003	3.2060e-003
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.2220e-003	1.5340e-003
tblVehicleEF	MH	1.55	1.65
tblVehicleEF	MH	0.10	0.10
tblVehicleEF	MH	1.03	1.08
tblVehicleEF	MH	0.16	0.19
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.39	0.44
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.2400e-004	7.5800e-004
tblVehicleEF	MH	1.55	1.65
tblVehicleEF	MH	0.10	0.10
tblVehicleEF	MH	1.03	1.08
tblVehicleEF	MH	0.22	0.26
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.42	0.48
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.03	0.04
tblVehicleEF	MH	3.66	4.42
tblVehicleEF	MH	7.29	7.93
tblVehicleEF	MH	1,239.67	1,244.38
tblVehicleEF	MH	60.83	63.19
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tblVehicleEF	MH	1.00	1.03
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.3290e-003	1.6580e-003
tblVehicleEF	MH	3.2090e-003	3.2060e-003
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.2220e-003	1.5340e-003

tblVehicleEF	MH	1.17	1.24
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.55	0.58
tblVehicleEF	MH	0.15	0.18
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.42	0.48
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.3500e-004	7.7100e-004
tblVehicleEF	MH	1.17	1.24
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.55	0.58
tblVehicleEF	MH	0.21	0.25
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.46	0.52
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	6.2830e-003	0.01
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	0.36	0.43
tblVehicleEF	MHD	0.45	0.65
tblVehicleEF	MHD	6.60	7.28
tblVehicleEF	MHD	146.10	149.39
tblVehicleEF	MHD	1,207.33	1,211.82
tblVehicleEF	MHD	57.76	57.90
tblVehicleEF	MHD	0.62	0.97
tblVehicleEF	MHD	1.59	2.26
tblVehicleEF	MHD	11.06	11.17
tblVehicleEF	MHD	7.6400e-004	2.9800e-003
tblVehicleEF	MHD	6.7210e-003	0.05
tblVehicleEF	MHD	9.3400e-004	9.8800e-004
tblVehicleEF	MHD	7.3100e-004	2.8510e-003
tblVehicleEF	MHD	6.4240e-003	0.04
tblVehicleEF	MHD	8.5900e-004	9.0800e-004
tblVehicleEF	MHD	9.6600e-004	1.0710e-003
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	7.2600e-004	7.8800e-004
tblVehicleEF	MHD	0.06	0.13
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.39	0.43
tblVehicleEF	MHD	1.4060e-003	1.4370e-003

tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.9300e-004	7.0700e-004
tblVehicleEF	MHD	9.6600e-004	1.0710e-003
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.2600e-004	7.8800e-004
tblVehicleEF	MHD	0.07	0.15
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.43	0.48
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	6.3910e-003	0.01
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	0.26	0.31
tblVehicleEF	MHD	0.45	0.66
tblVehicleEF	MHD	6.20	6.84
tblVehicleEF	MHD	154.74	158.23
tblVehicleEF	MHD	1,207.33	1,211.82
tblVehicleEF	MHD	57.76	57.90
tblVehicleEF	MHD	0.64	1.00
tblVehicleEF	MHD	1.53	2.18
tblVehicleEF	MHD	11.01	11.12
tblVehicleEF	MHD	6.4400e-004	2.5120e-003
tblVehicleEF	MHD	6.7210e-003	0.05
tblVehicleEF	MHD	9.3400e-004	9.8800e-004
tblVehicleEF	MHD	6.1600e-004	2.4030e-003
tblVehicleEF	MHD	6.4240e-003	0.04
tblVehicleEF	MHD	8.5900e-004	9.0800e-004
tblVehicleEF	MHD	1.4290e-003	1.5880e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.2870e-003	1.4090e-003
tblVehicleEF	MHD	0.06	0.13
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.38	0.41
tblVehicleEF	MHD	1.4870e-003	1.5200e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.8600e-004	6.9900e-004
tblVehicleEF	MHD	1.4290e-003	1.5880e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.04	0.04

tblVehicleEF	MHD	1.2870e-003	1.4090e-003
tblVehicleEF	MHD	0.07	0.15
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.41	0.45
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	6.2360e-003	0.01
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	0.50	0.59
tblVehicleEF	MHD	0.44	0.65
tblVehicleEF	MHD	6.77	7.48
tblVehicleEF	MHD	134.14	137.16
tblVehicleEF	MHD	1,207.33	1,211.82
tblVehicleEF	MHD	57.76	57.90
tblVehicleEF	MHD	0.60	0.92
tblVehicleEF	MHD	1.58	2.25
tblVehicleEF	MHD	11.08	11.19
tblVehicleEF	MHD	9.2900e-004	3.6260e-003
tblVehicleEF	MHD	6.7210e-003	0.05
tblVehicleEF	MHD	9.3400e-004	9.8800e-004
tblVehicleEF	MHD	8.8900e-004	3.4690e-003
tblVehicleEF	MHD	6.4240e-003	0.04
tblVehicleEF	MHD	8.5900e-004	9.0800e-004
tblVehicleEF	MHD	9.0300e-004	1.0090e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	6.3900e-004	6.9400e-004
tblVehicleEF	MHD	0.06	0.12
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.40	0.44
tblVehicleEF	MHD	1.2930e-003	1.3220e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.9600e-004	7.1000e-004
tblVehicleEF	MHD	9.0300e-004	1.0090e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	6.3900e-004	6.9400e-004
tblVehicleEF	MHD	0.07	0.15
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.44	0.49
tblVehicleEF	OBUS	0.01	0.01

tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.29	0.29
tblVehicleEF	OBUS	0.82	0.94
tblVehicleEF	OBUS	6.39	6.81
tblVehicleEF	OBUS	108.17	107.53
tblVehicleEF	OBUS	1,341.72	1,349.07
tblVehicleEF	OBUS	69.31	69.84
tblVehicleEF	OBUS	0.57	0.64
tblVehicleEF	OBUS	1.83	2.17
tblVehicleEF	OBUS	2.43	2.51
tblVehicleEF	OBUS	2.0000e-004	2.9900e-004
tblVehicleEF	OBUS	8.4740e-003	0.01
tblVehicleEF	OBUS	8.8300e-004	9.0300e-004
tblVehicleEF	OBUS	1.9100e-004	2.8600e-004
tblVehicleEF	OBUS	8.0840e-003	9.8830e-003
tblVehicleEF	OBUS	8.1200e-004	8.3200e-004
tblVehicleEF	OBUS	1.3850e-003	1.4400e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	8.8000e-004	9.0100e-004
tblVehicleEF	OBUS	0.08	0.09
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.40	0.43
tblVehicleEF	OBUS	1.0440e-003	1.0380e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0500e-004	8.1800e-004
tblVehicleEF	OBUS	1.3850e-003	1.4400e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	8.8000e-004	9.0100e-004
tblVehicleEF	OBUS	0.10	0.12
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.44	0.47
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.27	0.28
tblVehicleEF	OBUS	0.84	0.96
tblVehicleEF	OBUS	5.98	6.38

tblVehicleEF	OBUS	113.58	112.91
tblVehicleEF	OBUS	1,341.72	1,349.07
tblVehicleEF	OBUS	69.31	69.84
tblVehicleEF	OBUS	0.59	0.66
tblVehicleEF	OBUS	1.76	2.08
tblVehicleEF	OBUS	2.38	2.46
tblVehicleEF	OBUS	1.6800e-004	2.5200e-004
tblVehicleEF	OBUS	8.4740e-003	0.01
tblVehicleEF	OBUS	8.8300e-004	9.0300e-004
tblVehicleEF	OBUS	1.6100e-004	2.4100e-004
tblVehicleEF	OBUS	8.0840e-003	9.8830e-003
tblVehicleEF	OBUS	8.1200e-004	8.3200e-004
tblVehicleEF	OBUS	1.9640e-003	2.0430e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	1.5960e-003	1.6430e-003
tblVehicleEF	OBUS	0.08	0.09
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	0.38	0.41
tblVehicleEF	OBUS	1.0960e-003	1.0900e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.9800e-004	8.1100e-004
tblVehicleEF	OBUS	1.9640e-003	2.0430e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	1.5960e-003	1.6430e-003
tblVehicleEF	OBUS	0.10	0.12
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	0.41	0.45
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.31	0.32
tblVehicleEF	OBUS	0.81	0.94
tblVehicleEF	OBUS	6.58	7.01
tblVehicleEF	OBUS	100.69	100.11
tblVehicleEF	OBUS	1,341.72	1,349.07
tblVehicleEF	OBUS	69.31	69.84
tblVehicleEF	OBUS	0.54	0.61
tblVehicleEF	OBUS	1.83	2.17

tblVehicleEF	OBUS	2.45	2.54
tblVehicleEF	OBUS	2.4300e-004	3.6400e-004
tblVehicleEF	OBUS	8.4740e-003	0.01
tblVehicleEF	OBUS	8.8300e-004	9.0300e-004
tblVehicleEF	OBUS	2.3200e-004	3.4800e-004
tblVehicleEF	OBUS	8.0840e-003	9.8830e-003
tblVehicleEF	OBUS	8.1200e-004	8.3200e-004
tblVehicleEF	OBUS	1.3410e-003	1.4050e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	7.9700e-004	8.1700e-004
tblVehicleEF	OBUS	0.08	0.09
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.41	0.44
tblVehicleEF	OBUS	9.7300e-004	9.6700e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0800e-004	8.2200e-004
tblVehicleEF	OBUS	1.3410e-003	1.4050e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	7.9700e-004	8.1700e-004
tblVehicleEF	OBUS	0.10	0.12
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.44	0.48
tblVehicleEF	SBUS	0.87	0.88
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.09	0.09
tblVehicleEF	SBUS	6.28	6.15
tblVehicleEF	SBUS	1.09	1.17
tblVehicleEF	SBUS	7.52	7.72
tblVehicleEF	SBUS	1,232.55	1,247.19
tblVehicleEF	SBUS	1,121.00	1,129.88
tblVehicleEF	SBUS	40.31	39.00
tblVehicleEF	SBUS	11.52	12.29
tblVehicleEF	SBUS	4.87	5.27
tblVehicleEF	SBUS	14.64	14.90
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	7.4800e-004	7.4700e-004

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.7300e-003	2.7390e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	6.8800e-004	6.8700e-004
tblVehicleEF	SBUS	2.4020e-003	2.6290e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.76	0.74
tblVehicleEF	SBUS	1.4680e-003	1.5270e-003
tblVehicleEF	SBUS	0.13	0.14
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.38	0.39
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	5.3300e-004	5.2400e-004
tblVehicleEF	SBUS	2.4020e-003	2.6290e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	1.09	1.07
tblVehicleEF	SBUS	1.4680e-003	1.5270e-003
tblVehicleEF	SBUS	0.16	0.17
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.42	0.43
tblVehicleEF	SBUS	0.87	0.88
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	6.14	6.00
tblVehicleEF	SBUS	1.11	1.19
tblVehicleEF	SBUS	5.88	6.04
tblVehicleEF	SBUS	1,293.97	1,309.86
tblVehicleEF	SBUS	1,121.00	1,129.88
tblVehicleEF	SBUS	40.31	39.00
tblVehicleEF	SBUS	11.89	12.69
tblVehicleEF	SBUS	4.69	5.07
tblVehicleEF	SBUS	14.60	14.87
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	7.4800e-004	7.4700e-004
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.7300e-003	2.7390e-003
tblVehicleEF	SBUS	0.03	0.03

tblVehicleEF	SBUS	6.8800e-004	6.8700e-004
tblVehicleEF	SBUS	3.3880e-003	3.6960e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.75	0.74
tblVehicleEF	SBUS	2.6690e-003	2.7830e-003
tblVehicleEF	SBUS	0.13	0.14
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.33	0.34
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	5.0600e-004	4.9500e-004
tblVehicleEF	SBUS	3.3880e-003	3.6960e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	1.08	1.06
tblVehicleEF	SBUS	2.6690e-003	2.7830e-003
tblVehicleEF	SBUS	0.16	0.17
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.36	0.38
tblVehicleEF	SBUS	0.87	0.88
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.09	0.10
tblVehicleEF	SBUS	6.48	6.36
tblVehicleEF	SBUS	1.08	1.16
tblVehicleEF	SBUS	8.33	8.56
tblVehicleEF	SBUS	1,147.74	1,160.65
tblVehicleEF	SBUS	1,121.00	1,129.88
tblVehicleEF	SBUS	40.31	39.00
tblVehicleEF	SBUS	11.01	11.75
tblVehicleEF	SBUS	4.85	5.25
tblVehicleEF	SBUS	14.65	14.92
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	7.4800e-004	7.4700e-004
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	2.7300e-003	2.7390e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	6.8800e-004	6.8700e-004
tblVehicleEF	SBUS	2.3450e-003	2.6180e-003
tblVehicleEF	SBUS	0.03	0.03

tblVehicleEF	SBUS	0.76	0.75
tblVehicleEF	SBUS	1.3180e-003	1.3800e-003
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.41	0.42
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	5.4700e-004	5.3700e-004
tblVehicleEF	SBUS	2.3450e-003	2.6180e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	1.09	1.07
tblVehicleEF	SBUS	1.3180e-003	1.3800e-003
tblVehicleEF	SBUS	0.16	0.17
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.45	0.46
tblVehicleEF	UBUS	1.88	2.00
tblVehicleEF	UBUS	0.05	0.04
tblVehicleEF	UBUS	8.13	8.55
tblVehicleEF	UBUS	6.99	6.93
tblVehicleEF	UBUS	1,953.87	1,976.87
tblVehicleEF	UBUS	109.95	106.18
tblVehicleEF	UBUS	8.18	8.97
tblVehicleEF	UBUS	14.39	14.67
tblVehicleEF	UBUS	0.58	0.59
tblVehicleEF	UBUS	0.13	0.14
tblVehicleEF	UBUS	8.7600e-004	8.0800e-004
tblVehicleEF	UBUS	0.25	0.25
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	8.0600e-004	7.4300e-004
tblVehicleEF	UBUS	2.1010e-003	2.0420e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	2.0280e-003	1.9360e-003
tblVehicleEF	UBUS	0.61	0.67
tblVehicleEF	UBUS	8.6280e-003	8.1940e-003
tblVehicleEF	UBUS	0.61	0.60
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.2270e-003	1.1880e-003
tblVehicleEF	UBUS	2.1010e-003	2.0420e-003
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	2.0280e-003	1.9360e-003

tblVehicleEF	UBUS	2.56	2.75
tblVehicleEF	UBUS	8.6280e-003	8.1940e-003
tblVehicleEF	UBUS	0.67	0.66
tblVehicleEF	UBUS	1.88	2.00
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	8.15	8.57
tblVehicleEF	UBUS	5.97	5.91
tblVehicleEF	UBUS	1,953.87	1,976.87
tblVehicleEF	UBUS	109.95	106.18
tblVehicleEF	UBUS	7.89	8.65
tblVehicleEF	UBUS	14.34	14.62
tblVehicleEF	UBUS	0.58	0.59
tblVehicleEF	UBUS	0.13	0.14
tblVehicleEF	UBUS	8.7600e-004	8.0800e-004
tblVehicleEF	UBUS	0.25	0.25
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	8.0600e-004	7.4300e-004
tblVehicleEF	UBUS	2.5840e-003	2.5120e-003
tblVehicleEF	UBUS	0.05	0.04
tblVehicleEF	UBUS	3.6340e-003	3.4810e-003
tblVehicleEF	UBUS	0.61	0.67
tblVehicleEF	UBUS	7.7270e-003	7.3480e-003
tblVehicleEF	UBUS	0.55	0.55
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.2090e-003	1.1710e-003
tblVehicleEF	UBUS	2.5840e-003	2.5120e-003
tblVehicleEF	UBUS	0.05	0.04
tblVehicleEF	UBUS	3.6340e-003	3.4810e-003
tblVehicleEF	UBUS	2.57	2.75
tblVehicleEF	UBUS	7.7270e-003	7.3480e-003
tblVehicleEF	UBUS	0.60	0.60
tblVehicleEF	UBUS	1.88	2.00
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	8.12	8.54
tblVehicleEF	UBUS	7.45	7.38
tblVehicleEF	UBUS	1,953.87	1,976.87
tblVehicleEF	UBUS	109.95	106.18
tblVehicleEF	UBUS	8.14	8.92
tblVehicleEF	UBUS	14.42	14.70
tblVehicleEF	UBUS	0.58	0.59

tblVehicleEF	UBUS	0.13	0.14
tblVehicleEF	UBUS	8.7600e-004	8.0800e-004
tblVehicleEF	UBUS	0.25	0.25
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	8.0600e-004	7.4300e-004
tblVehicleEF	UBUS	1.9570e-003	1.9160e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	1.8420e-003	1.7620e-003
tblVehicleEF	UBUS	0.61	0.67
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.63	0.62
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.2350e-003	1.1960e-003
tblVehicleEF	UBUS	1.9570e-003	1.9160e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	1.8420e-003	1.7620e-003
tblVehicleEF	UBUS	2.56	2.74
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.69	0.68

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1552	1.5010	0.9585	1.9400e-003	0.0281	0.0751	0.1031	6.4000e-003	0.0696	0.0760	0.0000	173.7484	173.7484	0.0458	0.0000	174.8939
2020	0.5703	5.4570	3.6486	7.5800e-003	0.0778	0.2690	0.3467	0.0207	0.2493	0.2699	0.0000	664.9230	664.9230	0.1786	0.0000	669.3884
2021	0.3397	3.2099	2.2913	5.5900e-003	0.0667	0.1431	0.2099	0.0177	0.1331	0.1508	0.0000	491.3381	491.3381	0.1242	0.0000	494.4425

Maximum	0.5703	5.4570	3.6486	7.5800e-003	0.0778	0.2690	0.3467	0.0207	0.2493	0.2699	0.0000	664.9230	664.9230	0.1786	0.0000	669.3884
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Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1552	1.5010	0.9585	1.9400e-003	0.0281	0.0751	0.1031	6.4000e-003	0.0696	0.0760	0.0000	173.7482	173.7482	0.0458	0.0000	174.8937
2020	0.5703	5.4570	3.6485	7.5800e-003	0.0778	0.2690	0.3467	0.0207	0.2493	0.2699	0.0000	664.9223	664.9223	0.1786	0.0000	669.3877
2021	0.3397	3.2099	2.2913	5.5900e-003	0.0667	0.1431	0.2099	0.0177	0.1331	0.1508	0.0000	491.3376	491.3376	0.1242	0.0000	494.4419
Maximum	0.5703	5.4570	3.6485	7.5800e-003	0.0778	0.2690	0.3467	0.0207	0.2493	0.2699	0.0000	664.9223	664.9223	0.1786	0.0000	669.3877

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-1-2019	12-31-2019	1.6471	1.6471
2	1-1-2020	3-31-2020	1.4965	1.4965
3	4-1-2020	6-30-2020	1.4945	1.4945
4	7-1-2020	9-30-2020	1.5109	1.5109
5	10-1-2020	12-31-2020	1.5129	1.5129
6	1-1-2021	3-31-2021	1.9394	1.9394
7	4-1-2021	6-30-2021	0.7987	0.7987
8	7-1-2021	9-30-2021	0.8026	0.8026
		Highest	1.9394	1.9394

Water						0.0000	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1066	0.0000	3.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6.8000e-004	6.8000e-004	0.0000	0.0000	7.2000e-004

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/1/2019	10/15/2019	5	11	
2	Potable Waterline Improvements	Trenching	10/8/2019	4/1/2021	5	388	
3	Booster Pump Station Demolition	Demolition	2/2/2021	4/5/2021	5	45	
4	New Booster Pump Station Construction	Building Construction	4/6/2021	6/30/2021	5	62	
5	Water Tank Demolition	Demolition	7/1/2021	8/2/2021	5	23	
6	New Water Tank Installation	Building Construction	8/3/2021	9/30/2021	5	43	

Acres of Grading (Site Preparation Phase): 12.6

Acres of Grading (Grading Phase): 0

Acres of Paving: 37.85

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	2	6.00	174	0.41
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38

Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
	Concrete/Industrial Saws	1	6.00	81	0.73
	Cranes	1	6.00	231	0.29
	Dumpers/Tenders	2	6.00	16	0.38
	Excavators	1	6.00	158	0.38
	Off-Highway Trucks	1	8.00	402	0.38
	Rollers	2	6.00	80	0.38
	Rubber Tired Dozers	1	1.00	255	0.40
	Rubber Tired Dozers	2	6.00	247	0.40
	Tractors/Loaders/Backhoes	3	6.00	97	0.37
	Cranes	1	6.00	231	0.29
	Forklifts	2	6.00	89	0.20
	Tractors/Loaders/Backhoes	2	6.00	97	0.37
	Dumpers/Tenders	2	8.00	16	0.38
	Rubber Tired Dozers	1	6.00	247	0.40
	Cranes	1	4.00	231	0.29
	Concrete/Industrial Saws	1	6.00	81	0.73
	Excavators	1	6.00	158	0.38
	Cement and Mortar Mixers	1	6.00	9	0.56
	Off-Highway Trucks	1	8.00	402	0.38
	Off-Highway Trucks	1	8.00	402	0.38
	Cement and Mortar Mixers	1	6.00	9	0.56
	Generator Sets	1	6.00	84	0.74
	Graders	1	6.00	187	0.41
	Cranes	1	6.00	231	0.29
	Rubber Tired Dozers	1	6.00	247	0.40

Rubber Tired Loaders	1	6.00	203	0.36
Dumpers/Tenders	2	8.00	16	0.38
Concrete/Industrial Saws	1	6.00	81	0.73
Rough Terrain Forklifts	1	6.00	100	0.40
Excavators	1	6.00	158	0.38
Off-Highway Trucks	1	8.00	402	0.38
Rubber Tired Loaders	1	6.00	203	0.36
Rough Terrain Forklifts	1	6.00	100	0.40
Cranes	1	6.00	231	0.29
Generator Sets	1	6.00	84	0.74
Off-Highway Trucks	1	8.00	402	0.38
Graders	1	6.00	187	0.41
Tractors/Loaders/Backhoes	2	6.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	20.00	0.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
	14	20.00	0.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
	9	20.00	5.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
	9	10.00	0.00	2.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
	9	10.00	0.00	2.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
	7	20.00	5.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT