DRAFT

ENVIRONMENTAL ASSESSMENT FOR MQ-9 REAPER LAUNCH AND RECOVERY ELEMENT

CALIFORNIA AIR NATIONAL GUARD
MARCH AIR RESERVE BASE

NATIONAL GUARD BUREAU
ASSET MANAGEMENT DIVISION

AUGUST 2016

DRAFT
FINDING OF NO SIGNIFICANT IMPACT
FOR MQ-9 REAPER LAUNCH AND RECOVERY ELEMENT
CALIFORNIA AIR NATIONAL GUARD
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1.0 INTRODUCTION

The California Air National Guard's (ANG's) 163d Attack Wing (163 ATKW) currently conducts their MQ-9 Reaper remotely piloted aircraft (RPA) Flying Training Unit (FTU) missions based out of March Air Reserve Base (ARB); however, the MQ-9 aircraft are stationed at the Southern California Logistics Airport (SCLA) in Victorville, California. Under the Proposed Action, the California ANG would beddown the MQ-9 Reaper Launch and Recovery Element (LRE) at March ARB and implement associated construction and interior renovation projects at March ARB in Moreno Valley, California. The Proposed Action is needed due to the inefficiencies associated with the separation of MQ-9 Reaper Mission Control Element (MCE), including remote in-flight operations, classroom training, and administrative functions, at March ARB and the MQ-9 Reaper LRE at SCLA. Relocation of the MQ-9 aircraft to March ARB would 1) reduce the MQ-9 aircraft operating costs (e.g., personnel costs and vehicle maintenance costs) associated with traveling to and from SCLA; 2) reduce the time associated with maintenance and petroleum, oils, and lubricants (POL) personnel commuting to SCLA; 3) increase overall training time for the FTU; and 4) provide for increased safety of personnel.

1.1 PROPOSED ACTION

There are two primary elements of the Proposed Action: one comprises the proposed beddown of the MQ-9 Reaper LRE and the establishment of the proposed travel corridor and Perris Lost Link Orbit; the other is the series of construction and interior renovation projects necessary at March ARB in order to maximize operations and maintenance facility efficiency as well as respond to physical needs associated with the beddown of the proposed MQ-9 Reaper LRE.

1.1.1 MQ-9 Reaper LRE Beddown

Under the Proposed Action, the California ANG would relocate six MQ-9 aircraft and the MQ-9 Reaper LRE for all training sorties from SCLA to March ARB. The 163 ATKW would fly an average of two 10- to 12-hour sorties per day, five days per week and one weekend per month. The 163 ATKW would typically fly two MQ-9 aircraft at the same time, resulting in an average of four additional airport operations daily (i.e., two arrivals and two departures). An additional two sorties would be accomplished during typical Unit Training Assembly (UTA) drill weekend days (24 days per year). Approximately 75 to 80 percent of the total flying time would occur within the existing training areas, Restricted Area (R-) 2515, R-2502, and R-2501, with the remainder including transit operations from March ARB to R-2515 and limited approach/departure operations at March ARB.

The MQ-9 aircraft would utilize a short taxi route at March ARB, necessary to minimize potential aircraft oil temperature increases, using Taxiways Alpha, Bravo, and Delta. Taxi operations would be conducted in line-of-sight mode using the Ground Data Terminal (GDT). MQ-9 aircraft would use standard arrival and departure routes for Runway 32/14. To enable NAS access, the 163 ATKW would utilize March Ground Controlled Approach (GCA) radar and Southern California Terminal Radar Approach Control (SOCAL TRACON) radar to climb to 8,500 feet above mean sea level (MSL) and transit via an assigned flight travel corridor to R-2515. A manned chase aircraft would escort the MQ-9 aircraft to and from the working Special Use Airspace (SUA). Chase aircraft operations would continue to be based out of Apple Valley Airport in Apple Valley, California. Under the Proposed Action the chase aircraft would perform the same operations; however, it would meet the MQ-9 aircraft at March ARB rather than SCLA.

The Perris Lost Link Orbit would be a new pattern that would be flown as a result of relocating the MQ-9 Reaper LRE from SCLA to March ARB. In the event that the C-Band and Ku-Band links are lost with the aircraft between R-2515 and March ARB, the MQ-9 would fly a pre-programmed route to the Perris Lost Link Orbit where it would fly in clockwise circles at 9,500 feet MSL at 95 to 105 knots above an uninhabited area (only one farming structure is located in the vicinity of the Perris Lost Link Orbit). If a link cannot be re-established with the aircraft after 2 hours, the MQ-9 aircraft would fly back to the existing R-2515 Lost Link Orbit where it would fly at in a similar orbit at 9,500 feet MSL for another 60 minutes. In the rare event that a link could not be re-established by this time, the aircraft would fly to a Flight Termination Point (FTP) on Edwards Air Force Base (AFB) known the "spin area". Edwards AFB would respond to the crash site to retrieve the aircraft and collect mishap information/data.

1.1.2 Proposed Facility Construction

Under the Proposed Action, all aircraft storage and maintenance functions would be moved from the existing 1.63-acre and 5.33-acre lease areas at SCLA to March ARB. Under the Proposed Action, the 163 ATKW would assume the use of Building 1244 (most recently used as a KC-135 Fuel Dock), which is currently underutilized, but functional in terms of MQ-9 requirements. Consistent with Air Force Instruction (AFI) 32-7066, *Environmental Baseline Surveys in Real Estate Transactions*, an Environmental Baseline Survey (EBS) would be prepared prior to transfer and use of the facility. Three Primary Authorized Aircraft (PAA) MQ-9 aircraft would be parked in Building 2305. Two PAA MQ-9 aircraft would be parked in Building 1246 and three PAA MQ-9 aircraft would be parked in Building

1244. The majority of these proposed facilities projects would be limited largely to interior renovation, repair, or add/alter of existing facilities (see Section 2.2.2, *Proposed Facility Construction*, within the Draft Environmental Assessment [EA] for a complete description of proposed facilities projects).

2.0 ALTERNATIVES

The National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, 32 Code of Federal Regulations (CFR) Part 651, and AFI 32-7061 require that a Federal agency consider reasonable alternatives to a Proposed Action.

2.1 ALTERNATIVE 1: CONSTRUCTION OF NEW HANGAR TO SUPPORT MQ-9 REAPER LRE

The key difference between the Proposed Action and Alternative 1, is the proposed construction of new hangar for MQ-9 aircraft storage. Under Alternative 1, the 163 ATKW would not occupy Building 1244 and would instead construct a new 17,000-sf hangar with limited general purpose shops and additional hangar space with capacity to park three PAA MQ-9 aircraft. All other proposed aircraft storage and construction and interior renovation elements would remain the same as described for the Proposed Action. In addition to the three PAA MQ-9 aircraft parked in the new hangar, three PAA MQ-9 aircraft would be parked in Building 2305. Further, as described for the Proposed Action, two PAA MQ-9 aircraft would be parked in Building 1246.

2.2 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the proposed beddown of the MQ-9 Reaper LRE and associated construction and interior renovation projects would not be implemented. The MQ-9 Reaper MCE would continue to be operated out of March ARB and the LRE would continue to be operated out of SCLA. Because CEQ regulations stipulate that the No-Action Alternative be analyzed to assess any environmental consequences that may occur if the Proposed Action is not implemented, the No-Action Alternative will be carried forward for analysis in the EA. The No-Action Alternative provides a baseline against which the Proposed Action can be compared.

Table 1. Proposed Construction and Interior Renovation Projects under the Proposed Action

Project Number	Project Title	Fiscal Year[2]	Area/ Size	Key Components
PDPG152997	Construct Site for GDT Install	2017	7,000 sf	– Construction of 2,000 sf concrete equipment pad, 5,000 sf asphalt paving, utilities, communications, and fencing – Installation of 50-foot antenna
PDPG159052	Construct AGE Shop & Covered Storage	2019	14,300 sf	– Renovation of Building 2339 – Construction of pavements and covered storage – Addition of fire suppression, utilities, fencing
PDPG122785	Repair Building 1246	2018	26,127 sf	– Parking for two PAA MQ-9 aircraft – Construction of aircraft maintenance avionics shops in Building 1246 – Connection to existing pumphouse – Construction of utilities and communications
N/A	Repair Building 1244	2020	16,500 sf	– 163 ATKW assumes use of Building 1244 – Parking for three PAA MQ-9 aircraft – Construction of 0.36-acre POV parking lot
PDPG149150	Construct Weapons Maintenance Facility	2020	5,000 sf	– Administrative munition functions relocated to Building 2315 – Construction of new 5,000-sf munitions and inspection facility within the arc along munitions road, including pavements, fire protection, utilities, and communications

3.0 ANTICIPATED ENVIRONMENTAL EFFECTS

Airspace Management. Under the Proposed Action, approximately 75 to 80 percent of the total flight MQ-9 flight operations would occur within existing training areas (i.e., R-2515, R-2502, and R-2501), with the remainder including transit operations from March ARB to R-2515 along the proposed travel corridor and limited approach/departure operations at March ARB. Implementation of the Proposed Action would not require any modification to the current terminal airspace structure or operational procedures. Further, implementation of the Proposed Action would not require any changes to the departure and arrival route structure of any airport in the vicinity or the Victor Routes used to transition between airports. The proposed MQ-9 aircraft operations would have no significant impact on the use and management of the March ARB Class C airspace or the airspace surrounding public and private airports in the region. Consequently, the Proposed Action would result in *less than significant* impacts to airspace management.

Air Quality. Under the Proposed Action, fugitive dust would be generated from construction activities, including site clearing and grading. Implementation of standard best management practices (BMPs) for dust control (e.g., regularly watering exposed soils, soil stockpiling, and soil stabilization) would reduce potential impacts resulting from fugitive dust generation to *less than significant* levels. Similarly, construction-related combustion emissions would result from the implementation of the Proposed Action; however, these emissions would be short-term and temporary. Mobile operational emissions of criteria pollutants at March ARB would not change significantly as a result of flight operations associated with the Proposed Action. Military aircraft emissions are not currently regulated under the Title V program. Further, operating altitudes would range from 8,500 feet to 9,500 feet above MSL under the Proposed Action. The Federal Aviation Administration (FAA) (2000) determined that aircraft operations at or above the average mixing height of 3,000 feet above ground level (AGL) have a very small effect on ground level concentrations and could not directly result in a violation of the National Ambient Air Quality Standards (NAAQS) in a local area. Emissions associated with MQ-9 aircraft take-off and landing operations below 3,000 feet AGL would be below the *de minimis*/Prevention of Significant Deterioration thresholds for all pollutants and would therefore not trigger the requirement for a Conformity Determination under the General Conformity Rule. Consequently, implementation of the Proposed Action would result in overall *less than significant* impacts to air quality.

Noise. Proposed construction activities would result in localized noise exposure above typical ambient levels at March ARB; however, noise generation would be short-term and would be restricted to normal working hours (i.e., between 7:00 AM and 5:00 PM). Given the type of construction activities (e.g., sporadic, during daytime hours, short-term, etc.), implementation of the Proposed Action would not be expected to substantially alter the noise environment over the short-term. The MQ-9 aircraft operations at March ARB associated with the Proposed Action would represent an overall negligible increase, and consequently, would not have a measurable effect on the existing 65 Community Noise Equivalent Level (CNEL) contour. Similarly, establishment of the proposed travel corridor would have a negligible effect on the noise environment in underlying areas do to the flight altitude and low number of daily operations. There would be no sensitive receptors that would be impacted by the Proposed Action. Therefore, potential long-term operational related noise impacts would be *less than significant*.

Land Use. Implementation of the Proposed Action would result in the construction as well as interior renovations to existing facilities that would support the Proposed Action. All component projects included in the Proposed Action are inherently consistent with established planning policies as well as land use and safety guidelines. The Proposed Action would not require any changes to off-site land use patterns. No new incompatible land uses would be introduced and no adverse changes to current land use as a result of the Proposed Action. Further, the consolidation of equipment and operations at March ARB would result in beneficial impacts with regard to fire staff operations and training and Anti-Terrorism/Force Protection (AT/FP) standards. Therefore, implementation of any alternative of the Proposed Action would result in *less than significant* impacts on land use.

Geological Resources. Potential impacts to geological resources associated with the Proposed Action at the base would be limited to ground-disturbing activities (i.e., construction). All project sites are relatively flat, with slopes of less than 1 percent, and do not present any topographical constraints. Minor impacts would result from grading activities associated with the proposed construction; however, these projects would occur on previously disturbed land which is surrounded by industrial activity. Therefore, impacts to geological resources would be *less than significant*.

Water Resources. Under the Proposed Action, proposed construction and interior renovation activities would occur within the developed portion of the base. None of these activities would be located near the vicinity of any surface water feature on the base, including jurisdictional wetlands. Standard BMPs would be incorporated during construction to minimize erosion, runoff, and sedimentation. Implementation of the Proposed Action would result in a slight increase in impermeable surfaces on the installation; however, because the construction projects would be sited on previously disturbed land (and in some cases on areas with existing paved surfaces), it would result in a negligible change in on-site groundwater percolation and recharge. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the entire installation is located in Zone D or Zone X, indicating that extensive floodplain mapping has not occurred, or that the area is determined to be outside the 100- or 500-year floodplain, respectively. Therefore, implementation of the Proposed Action would not result in any activity within or within 2 feet of the base elevation for the 100-year floodplain. The proposed construction activities would not introduce any new obstructions that would impede or divert overland floodwater flow and would not alter the existing hydrologic regime at March ARB. Therefore, impacts to water resources would be *less than significant* for the Proposed Action.

Biological Resources. The majority of March ARB lands have been previously disturbed and support very few native plant communities. Native vegetation at the base has been removed or permanently altered for construction and maintenance activities related to airport operations with the exception of small remnants along the south, east, and northeastern boundaries of the installation. The proposed construction and interior renovation activities under the Proposed Action would occur on previously disturbed ground within the developed cantonment portion of the installation. Implementation of the Proposed Action could potentially affect wildlife indirectly through permanent habitat alteration and temporary disturbance due to noise and human presence. However, any wildlife present are likely already acclimated to similar disturbances given the developed and industrial nature of the site, and wildlife disturbed by construction activities or displaced by habitat loss could temporarily or permanently relocate to similar habitat nearby. The Proposed Action involves development or renovation of previously-disturbed areas on March ARB and would not affect any vernal pools that provide potential habitat for the only known federally protected species previously documented on the base, Riverside fairy shrimp (*Streptocephalus woottoni*). Implementation of the Proposed Action would not remove any high-quality habitat that would be suitable for federally listed species. Therefore, activities associated with the Proposed Action would not be likely to have a substantial effect on vegetation or wildlife, and impacts to biological resources would be *less than significant*.

Transportation and Circulation. Implementation of the Proposed Action would include delivery of construction materials to and removal of debris from project sites on March ARB for a period of four years, beginning in Fiscal Year (FY) 2016 and ending in FY 2020. Therefore, the implementation of proposed projects and the associated potential increases in traffic volume would be distributed over a long time period, reducing acute impacts. Construction traffic would comprise only a small portion of the total existing traffic volume on the base transportation network and vicinity roadways, and associated activities would be short-term in duration and would occur only during non-peak traffic hours in coordination with applicable agencies. Operationally, implementation of the Proposed Action would not increase the personnel at March ARB. Vehicle trips to and away from the base as well as parking availability would remain the same under the Proposed Action. Therefore, impacts to transportation and circulation would be *less than significant*.

Visual Resources. The proposed construction and interior renovation activities under the Proposed Action within the boundaries of March ARB would be consistent with the general visual character of the base. Interior renovations would not affect the exterior viewshed of the buildings at March ARB. Proposed structures would be located in an area that is considered to have a low visual sensitivity and would be in the vicinity of similar industrial uses. Consequently, *less than significant* impacts to visual resources would result from implementation of the Proposed Action.

Cultural Resources. The proposed construction and interior renovation activities under the Proposed Action would not affect cultural resources at March ARB. None of the buildings potentially impacted by the Proposed Action are eligible for listing on the National Register of Historic Places (NRHP). According to previous archaeological surveys, no archaeological resources are present on March ARB, and the installation has been characterized as having a low potential for containing archaeological resources. In the event that cultural deposits are uncovered during regular inspection of the construction site, however unlikely, activities would be suspended until a qualified archaeologist could determine the significance of the resource(s). Therefore, cultural resource impacts from implementation of the Proposed Action are anticipated to be *less than significant*.

Socioeconomics. The proposed construction and interior renovation activities under the Proposed Action would include short-term economic benefits as a result of temporary construction employment and materials-related expenditures. There would be no increase of personnel under the Proposed Action; the same personnel would continue to support the MQ-9 Reaper LRE mission but would do so at March ARB instead of at SLCA. No long-term changes in economic activity associated with the 163 ATKW related to payroll and employee service expenses would occur. Likewise, there would be no impacts to the surrounding community. Therefore, implementation of the Proposed Action would have *less than significant* socioeconomic impacts.

Environmental Justice and Protection of Children. There are no minority or low-income populations in the area potentially impacted by the Proposed Action. Under the Proposed Action, no minority or low-income populations would be disproportionately affected on- or off-base. Any potential short-term impacts associated with the Proposed Action would be confined to the base and the immediate surrounding vicinity. Additionally, no impacts would be expected to occur in areas where children would be impacted. Consequently, as it relates to Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, implementation of the Proposed Action, with the implementation of standard safety measures, would result in *less than significant* impacts to environmental justice and protection of children.

Hazardous Materials and Wastes. The Proposed Action would result in a short-term minor increase in the storage of construction-related hazardous materials and waste. However, the proposed construction and interior renovation activities under the Proposed Action would cause only a temporary increase in storage of hazardous materials and waste and would not constitute a significant impact. The safe handling, storage, and use procedures currently managed under the Hazardous Waste Management Plan for March ARB, in accordance with all Federal, state, and local regulations, would continue to be implemented with regard to additional hazardous materials and petroleum products. One site under the Environmental Restoration Program (ERP), Flightline Shop Zone (ERP Site 8), underlies several buildings in the cantonment area along the flightline, including Building 1246. Contaminated soils from this ERP site have been removed; however, groundwater contamination associated with this ERP site is still being treated as part of a base-wide remediation. None of the proposed construction projects would likely affect contaminated groundwater beneath the project site. Nevertheless, a site-specific Health and Safety Plan would be drafted with the implementation of the Proposed Action, which would describe potential exposure scenarios/paths and recommendations to protect the health of workers. Additionally, consistent with AFI 32-7066, *Environmental Baseline Surveys in Real Estate Transactions*, an EBS would be prepared prior to transfer and use of Building 1244 and any other property currently managed by the 452d Air Mobility Wing (452 AMW). This EBS would document the existing conditions of the facility and would provide a description of any potentially hazardous materials or contaminants, including asbestos and lead-based paint. Therefore, construction activities associated with the Proposed Action would not likely expose workers to contamination during ground disturbing activities or during interior renovations. Impacts associated with hazardous materials and wastes would be *less than significant*.

Safety. The Proposed Action would increase aircraft operations at March ARB by four additional airport operations daily and an additional two during UTA drill weekend days (24 days per year). However, these are only a slight increase over existing conditions at March ARB and operations would adhere to all established flight safety guidelines and protocol. There would be no change to the ground safety procedures and activities at March ARB, and safety policies and procedures currently in place for MQ-9 operations currently in place at SCLA would continue at March ARB under the Proposed Action. Additionally, 163 ATKW aircrews operating at March ARB and within airspace associated with unit training would continue to follow applicable procedures outlined in the March ARB Integrated Bird/Wildlife Air Strike Hazard (BASH) Plan. Further, proposed construction and renovation activities have been designed and sited to meet all airfield safety criteria, and implementation of the Proposed Action would not result in adverse impacts to explosives safety or Explosive Safety Quantity Distance (ESQD) arcs at March ARB. Therefore, safety impacts associated with implementation of the Proposed Action would be *less than significant*.

4.0 PUBLIC NOTICE

NEPA, 40 CFR §§1500-1508, and 32 CFR Part 989 requires public review of the Draft EA before approval of the Draft Finding of No Significant Impact (FONSI) and implementation of the Proposed Action. A Notice of Availability (NOA) for public review of the Draft EA was published in the *Press Enterprise* on 19 August 2016 and the Draft EA was made available for public review at the Moreno Valley Public Library Central Library, located at 25480 Alessandra Boulevard, Moreno Valley, CA 92553 as well as the 163 ATKW website and March ARB website. Through the agency coordination process, NGB notified relevant Federal, state, and local agencies (listed in Appendix A) and allowed them sufficient time to make known their environmental concerns specific to the Proposed Action. The total review period for public and agency comments was 30 days, ending on 18 September 2016. All public, agency, and Native American comments received on the Draft EA will be incorporated into the Final EA.

5.0 FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the facts and analysis presented in the attached EA, conducted under the provisions of NEPA, CEQ regulations, and 32 CFR Part 989, I conclude that the Proposed Action would not have a significant environmental impact, either by itself or cumulatively. Accordingly, an Environmental Impact Statement (EIS) is not required. This signing of this Finding of No Significant Impact completes the Environmental Impact Analysis Process.

______________________________	______________________________
BENJAMIN W. LAWLESS, P.E., GS-15 Chief, Asset Management Division	Date
______________________________	______________________________
RUSSELL A. MUNCY, Brig Gen, USAF Commander	Date

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ACRONYMS AND ABBREVIATIONS

163 ATKW	163d Attack Wing
452 AMW	452d Air Mobility Wing
AADT	Annual Average Daily Traffic
ACC	Air Combat Command
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
AETC	Air Education and Training Command
AFB	Air Force Base
AFFF	Aqueous Film Forming Foam
AFI	Air Force Instruction
AFM	Air Force Manual
AFRC	Air Force Reserve Command
AFS	Flight Standards Service
AGE	Aerospace Ground Equipment
AGL	above ground level
AGM	Air to Ground Missile
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
AMP	Asbestos Management Plan
ANG	Air National Guard
ANGH	Air National Guard Handbook
AOPA	Aircraft Owners and Pilots Association
APZ	Accident Potential Zone
ARB	Air Reserve Base
ASE	Aerospace Support Equipment
AST	aboveground storage tank
AT/FP	Anti-Terrorism/Force Protection
ATC	Air Traffic Control
ATCAA	Air traffic Control Assigned Airspace
BAQ	Basic Aircraft Qualification
BASH	Bird/Wildlife Aircraft Strike Hazard
BEA	Bureau of Economic Analysis
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BP	Before Present
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CalEPA	California Environmental Protection Agency
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFA	Controlled Firing Areas
CFR	Code of Federal Regulations
CH_4	methane
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
COA	Certificate of Waiver or Authorization
COA	Certificate of Authorization
CWA	Clean Water Act
CZ	Clear Zone
dB	decibel
dBA	A-weighted decibel
DNL	day-night sound level
DNL	day-night average A-weighted sound level
DoD	Department of Defense
DoDI	Department of Defense Instruction
EA	Environmental Assessment
ECP	Entry Control Point
EIPA	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESQD	Explosive Safety Quantity Distance
FAA	Federal Aviation Administration
FAAST	Federal Aviation Administration Safety Training
FAR	Federal Aviation Regulation
FEMA	Federal Emergency Management Agency
FICON	Federal Interagency Committee on Noise
FIRM	Federal Insurance Rate Map
FL	Flight Level
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FTD	Field Training Detachment
FTP	Flight Termination Point
FTU	Flying Training Unit

FY	Fiscal Year
GCA	Ground Controlled Approach
GCS	Ground Control Station
GDT	Ground Data Terminal
GHG	greenhouse gas
GNSS	Global Navigation Satellite System
HAP	hazardous air pollutant
HEF	High Expansion Foam
HUD	Housing and Urban Development
Hz	hertz
I-	Interstate
IDP	Installation Development Plan
IFR	Instrument Flight Rules
INM	Integrated Noise Model
INRMP	Integrated Natural Resources Management Program
IPaC	Information, Planning, and Conservation System
IR	instrument route
JPA	Joint Powers Authority
kW	kilowatt
LAMS	Large Area Maintenance Structures
LEED	Leadership in Energy and Environmental Design
lf	linear feet
LLP	Lost Link Procedure
LOA	Letter of Agreement
LOP	Letter of Procedure
LRE	Launch and Recovery Element
MACA	March ARB Mid Air Collision Avoidance
MBTA	Migratory Bird Treaty Act
MCE	Mission Control Element
MDAQMD	Mojave Desert Air Quality Management District
MFHD	March Field Historic District
MOA	Military Operations Area
MSL	mean sea level
MTR	Military Training Routes
MTS	Multi-Spectral Targeting System
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAS	National Airspace System
NAVAID	navigational aid
NCDC	National Climatic Data Center

NDI	Non-Destructive Inspection
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NM	nautical miles
NMFS	National Marine Fisheries Services
NO_2	nitrogen dioxide
NOI	Notice of Intent
NOTAM	Notice to Airmen
NO_x	nitrogen oxides
NPDES	National pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O_3	ozone
°F	degrees Fahrenheit
OHP	Office of Historic Preservation
OSS	Operations Support System
PAA	Primary Authorized Aircraft
Pb	lead
PCA	Positive Control Area
PL	Public Law
PM_{10}	particulate matter less than 10 microns
$PM_{2.5}$	particulate matter less than 2.5 microns
POL	petroleum, oils, and lubricants
PPE	personal protective equipment
R-	Restricted Area
RCR	Runway Condition Reading
RCRA	Resource Conservation and Recovery Act
RNAV	Area Navigation
ROC	Reaper Operations Center
RPA	remotely piloted aircraft
RWQCB	Regional Water Quality Control Board
SAP	Satellite Accumulation Point
SCAQMD	South Coast Air Quality Management District
SCLA	Southern California Logistics Airport
SDD	Sustainable Design and Development
SEL	Sound Exposure Level
SETTS	Satellite Earth Terminal Sub-System
sf	square feet

SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOCAL TRACON	Southern California Terminal Radar Approach Control
SOF	Supervisor of Flying
SPCC	Spill Prevention, Control, and Countermeasure
SR-	State Route
SRS	Same Runway Separation
SSC	Species of Special Concern
SUA	Special Use Airspace
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Tactical
TERPS	Terminal Instrument Procedures
TFR	Temporary Flight Restriction
tpy	tons per year
UAV	unmanned aerial vehicle
UFC	Unified Facilities Criteria
UHF	Ultra High Frequency
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USC	U.S. Code
USCCSP	U.S. Climate Change Science Program
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGBC	U.S. Green Building Council
USGS	U.S. Geological Survey
UST	Underground storage tank
UTA	Unit Training Assembly
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOC	volatile organic compounds
VORTAC	VHF Omnidirectional Range/Tactical Aircraft Control
VR	visual route
W-	Warning Area
WTS	Wake Turbulence Separation
ZLA	Los Angeles Air Route Traffic Control Center

SECTION 1
INTRODUCTION

1.1 INTRODUCTION

An Environmental Assessment (EA) was prepared in 2008 for the beddown of 14 MQ-1 Predator unmanned aerial vehicles (UAVs) as well as the associated short-term construction of approximately 25,000 total square feet (sf) of classroom, administrative, and hangar space in support of the 163d Reconnaissance Wing of the California Air National Guard (ANG). That EA evaluated basing the MQ-1 aircraft at the Southern California Logistics Airport (SCLA), in Victorville, California or El Mirage Airport in El Mirage, California, with key mission elements including remote in-flight operations, classroom training, and administrative functions occurring at March Air Reserve Base (ARB) (California ANG 2008). The primary reason that March ARB was originally eliminated as a potential Launch and Recovery Element (LRE) location in 2008 was because at the time, the Federal Aviation Administrative (FAA) was not prepared to issue a Certificate of Waiver or Authorization (COA)[1] for flying MQ-1 aircraft out of March ARB (California ANG 2008). Since that time the wing has transitioned to MQ-9 Reaper remotely piloted aircraft (RPA) (see Section 1.2, *Location and Unit Background*) and at this time the FAA is willing to consider the authorization of a COA for MQ-9 aircraft operations based at March ARB (see Section 2.2.1.6, *FAA Coordination and Communication*).

The U.S. Air Force (USAF) is proposing relocation of MQ-9 aircraft from SCLA to March ARB including the beddown of the MQ-9 Reaper LRE and associated short-term construction and interior renovation projects at the March ARB. Requirements for environmental documentation under the National Environmental Policy Act (NEPA) necessitate the preparation of an EA to address the potential environmental impacts from the proposal to relocate the MQ-9

[1] A COA is an authorization issued by the FAA to a public operator for specific RPA activity. Each COA has a specified time period for which the authorization is active, typically two years, and can be rescinded by the FAA at any time. The FAA currently allows RPAs to operate without a COA only when operations are conducted within active Restricted Area (R-) or Warning Area (W-) airspace, or approved prohibited areas with permission from the appropriate authority or using agency of that airspace (FAA Order 8900.1 Change 351, Volume 16). RPA operation in all other airspace requires a COA issued by the FAA.

aircraft from SCLA to March ARB. This EA has been prepared to evaluate the action proposed by the USAF and to address potential environmental impacts of the proposed beddown and associated construction and interior renovation required to support the proposed MQ-9 Reaper LRE.

The Environmental Impact Analysis Process (EIAP) for the Proposed Action has been conducted in accordance with the Council on Environmental Quality (CEQ) regulations to comply with NEPA, 32 Code of Federal Regulations (CFR) 989, and Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*.

1.2 LOCATION AND UNIT BACKGROUND

The California ANG's 163d Attack Wing (163 ATKW), one of five California Air National Guard units, is a tenant unit located at March ARB, which is federally owned and is operated by the U.S. Air Force Reserve 452d Air Mobility Wing (452 AMW). March ARB is located in Moreno Valley approximately 10 miles southeast of the City of Riverside in Southern California (see Figure 1-1). The primary Entry Control Point (ECP) at March ARB is located at the intersection of Cactus Avenue and Elsworth Street off of Interstate (I-) 215. Elsworth Street becomes Graeber Street and serves as primary northwest-southeast access roadway for the base.

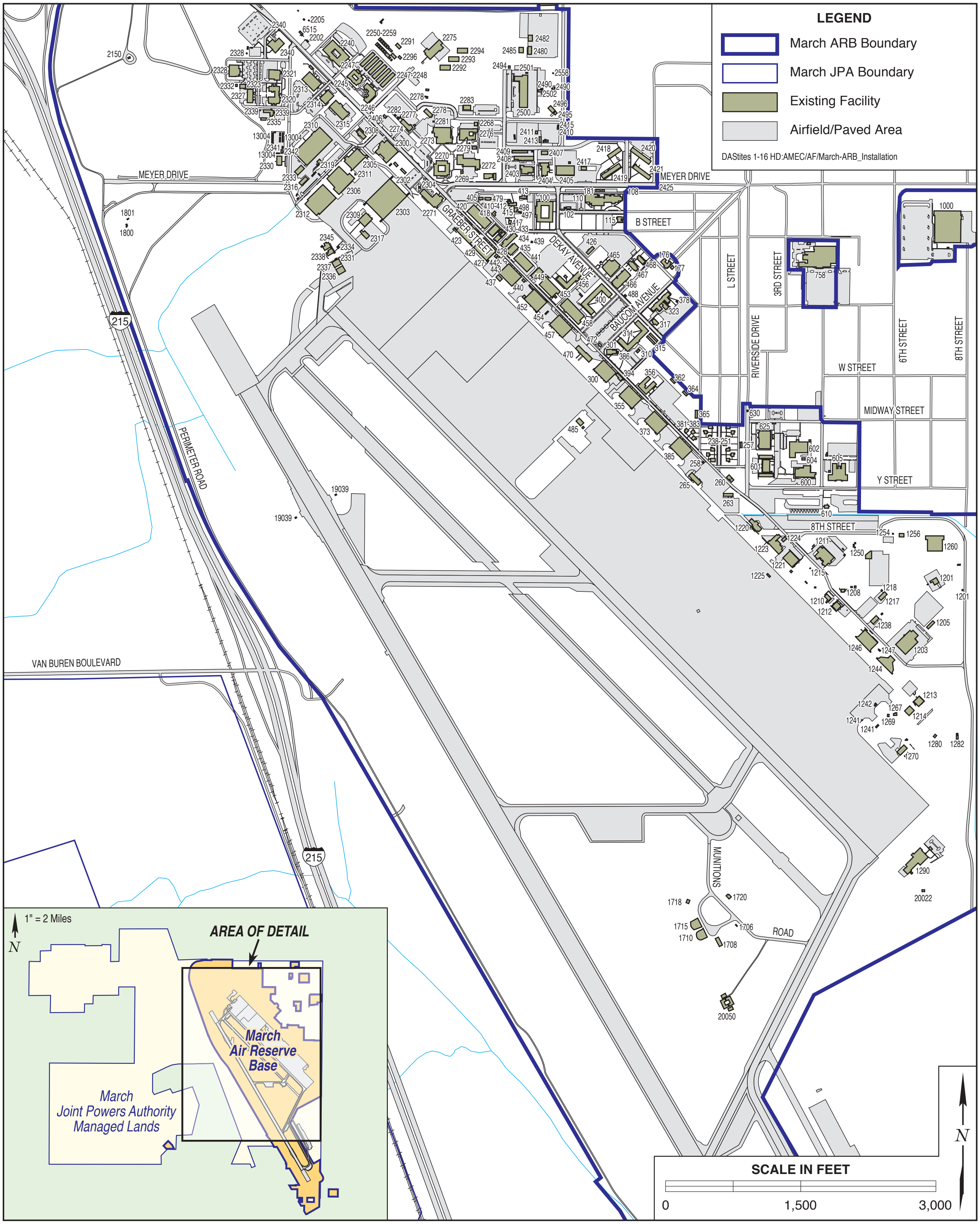
The 163 ATKW originally began as the 196th Fighter Squadron, which was founded in 1948 and was located at nearby Norton Air Force Base (AFB), in San Bernardino, California before moving operations to Ontario International Airport in Ontario, California (California ANG 2015b). In 1958, the USAF reorganized and expanded the 196th Fighter Interceptor Squadron into the 163d Fighter Interceptor Group. Following numerous mission changes, aircraft changes, and the relocation to March ARB in 1982, the unit was re-designated in 1993 as the 163d Air Refueling Wing and operated KC-135 aircraft in support of the Air Mobility Command commitment to Global Reach (California ANG 2015b). However, in 2006 the wing was re-designated as the 163d Reconnaissance Wing and received MQ-1 aircraft, which were operated remotely from March ARB, but launched from and recovered at SCLA. The 163d Reconnaissance Wing was the first ANG unit to receive the MQ-1 aircraft and was the first to become a fully functional ANG Flying Training Unit (FTU) and to operate a Field Training Detachment (FTD) for

EA

Regional Location Map

FIGURE 1-1

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.



EA

March ARB

FIGURE 1-2

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.

Table 1-1. Existing 163 ATKW Facilities at March ARB

Building Number[1]	Current Use	Building Area (sf)	Date Constructed
1208	PETR OPS BLDG	1,200 sf	1993
1246	SHP ACFT GEN PURP	26,294 sf	1967
2250	CAMP TROOP	504 sf	2003
2251	CAMP TROOP	504 sf	2003
2252	CAMP TROOP	504 sf	2003
2253	CAMP TROOP	504 sf	2003
2254	CAMP TROOP	504 sf	2003
2255	CAMP TROOP	504 sf	2003
2256	CAMP TROOP	504 sf	2003
2257	CAMP TROOP	504 sf	2003
2258	CAMP TROOP	504 sf	2003
2259	CAMP TROOP	504 sf	2003
2265	MONUMENTS/MEM	N/A	1991
2266	FLAG POLE	N/A	1991
2268	VEH OPS PRKNG SHED	1,400 sf	1991
2269	CEN PLT	600 sf	1984
2270	RES FORCES PL TNG	20,000 sf	1983
2271	SQ OPS	22,727 sf	1983
2272	RES FORCES OPL TNG	23,372 sf	1983
2273	WHSE SUP & EQUIP BSE	31,869 sf	1983
2274	VEH MAINT SHOP	5,935 sf	1983
2275	SP OPERATIONS	17,082 sf	1983
2276	BE MAINT SHOP	20,455 sf	1986
2277	VEH MAINT SHOP	315 sf	1993
2278	SP OPERATIONS	4,000 sf	1991
2279	REC PAVILION	473 sf	1991
2282	VEH MAINT SHOP	315 sf	1996
2283	BE STOR SHED	4,000 sf	1999
2291	SAN LATRINE	1,495 sf	2002
2292	SHED SUP & EQUIP BSE	5,940 sf	1999
2293	SHED SUP & EQUIP BSE	5,940 sf	1999
2294	SHED SUP & EQUIP BSE	5,940 sf	1999
2295	TNG AID	N/A	1999
2296	SHED SUP & EQUIP BSE	640 sf	2003
2297	WHSE SUP & EQUIP BSE	8,000 sf	2015

Table 1-1. Existing 163 ATKW Facilities at March ARB (Continued)

Building Number[1]	Current Use	Building Area (sf)	Date Constructed
1208	PETR OPS BLDG	1,200 sf	1993
2304	TRAFFIC CHK HSE	92 sf	1929
2305	HG MAINT	26,384 sf	1965
2315	SHP ACFT GEN PURP	21,420 sf	1982
2316	RES FORCES G/TNG SPT	4,000 sf	1983
2335	SHP A/SE STOR FCLTY	1,448 sf	2003
9010	EXTERIOR AR LTG	N/A	1983
13003	VEH PKING N/ORGN	12,996 sf	1982
13014	CE STOR OPEN	9,405 sf	1983
13015	OPEN STOR BSE SUP	24,435 sf	1983
13016	CE STOR OPEN	1,611 sf	1994
13017	CE STOR OPEN	9,423 sf	1986
16008	ROAD	16,497 sf	1996
16015	CURBS AND GUTTERS	2,372 lf	1996
16030	VEH PKING OPS	130,725 sf	1995
16032	VEH PKING N/ORGN	236,187 sf	1996
16035	DRIVEWAY	298,719 sf	1995
18005	SIDEWALK	76,113 sf	1997
20030	PAD, EQUIP	29,681 sf	2004
21002	FENCE SCTY/BEH BAR	6,985 lf	1997
21024	FENCE INTERIOR	239 lf	1997
23002	FENCE SCTY/BEH BAR	766 lf	1996
23065	RETAINING WALL	3,249 sf	2004
24000	CHW EX DIST LINE	2,306 lf	2004

Source: California ANG 2015b.
Notes: sf – square feet; lf – linear feet; N/A – Not Applicable

the MQ-1 aircraft. The wing's FTU falls under Air Combat Command (ACC) and trains pilots and sensor operators. The FTD, which falls under Air Education and Training Command (AETC), trains enlisted personnel to build, maintain, and repair the aircraft. However, the FTD is scheduled to end on 30 September 2016, and will no longer be operated by the 163 ATKW.

During the 163rd Reconnaissance Wing era, the wing flew more than 5,500 sorties, exceeding 100,000 flight hours in support of operations Enduring Freedom, Iraqi

Freedom, New Dawn, and Freedom Sentinel with up to three 24/7 combat air patrols during surge operations. The wing also flew more than 1,070 training sorties, exceeding 6,000 flight hours in support of Total Force MQ-1B Predator programmed flight training. Recently in July 2015, the wing converted from the remotely-piloted MQ-1B Predator to the MQ-9A Reaper and was re-designated as the 163 ATKW to reflect this conversion. The active-duty USAF has adopted the term "Attack" for its units that fly the MQ-9 aircraft. The wing launched its last flight of the Predator on 1 April 2015 (California ANG 2015c).

1.3 CURRENT MISSION AND OPERATIONS

The mission of the 163 ATKW is to "*be one team providing dedicated, disciplined and diverse Guardsmen ready to defend our state, nation, and local communities from any threats that compromise the safety, security and well-being of our citizens and allies*." On the Federal level, the unit is available for mobilization and immediate integration into the USAF in time of war or national emergency. The 163 ATKW's Federal mission includes providing rapid combat support in times of war, as well as providing assistance during national emergencies. The wing's wartime mission also includes maintaining support and combat-ready units assigned to most USAF major and combatant commands to carry out missions compatible with training, mobilization readiness, humanitarian, and contingency operations. When the 163 ATKW is not mobilized or under Federal control, it reports to the California Governor. The wing is supervised by the Adjutant General of the state. Under state law, the wing provides protection of life and property and preserves peace, order, and public safety. These missions are accomplished through emergency relief support during natural disasters such as floods, earthquakes, and forest fires (e.g., joint collaboration with California Department of Forestry in 2013 to provide aerial intelligence and imagery during the Rim Fire in Stanislaus National Forest); search and rescue operations; support to civil defense authorities; and maintenance of vital public services.

1.4 BACKGROUND OF THE MQ-9 AIRCRAFT

The MQ-9 aircraft is a multi-mission, medium-altitude, long-endurance RPA that is employed primarily as an intelligence-collection asset and secondarily against dynamic targets. Given its significant loiter time (i.e., the time it can remain airborne), wide-range sensors, multi-mode communications suite, and precision weapons, it provides a unique capability to perform strike, coordination, and reconnaissance against high-value fleeting, and time-sensitive targets.

The USAF proposed the MQ-9 Reaper RPA system in response to the Department of Defense (DoD) directive to support initiatives of overseas contingency operations. Manufactured by General Atomics Aeronautical Systems, the MQ-9 is larger and more powerful than the MQ-1, and is designed to execute time-sensitive targets with persistence and precision, and destroy or disable those targets.

The MQ-9 is a medium-altitude RPA, measuring 36 feet long, with a 66-foot wingspan and powered by a Honeywell TPE-331-10T turboprop engine (670 kilowatts [kW], or 950-shaft-horsepower). Remotely controlled, the MQ-9 aircraft can deploy for 24-hour operations (or longer, depending on external fuel stores and munitions being carried), with a range of up to 1,150 miles. The MQ-9 aircraft has an operational ceiling of 50,000 feet above mean sea level (MSL).

The MQ-9 aircraft is fitted with six stores pylons, which are under-wing attachments for carrying munitions and/or external fuel tanks. The inner stores pylons can carry a maximum of 1,500 pounds each and allow carriage of external fuel tanks. The mid-wing stores pylons can carry a maximum of 600 pounds each, while the outer stores pylons can carry a maximum of 200 pounds each. An MQ-9 aircraft with two 1,000 pound external fuel tanks and 1,000 pounds of munitions can remain airborne without refueling for 24 hours. Fully loaded with munitions, the MQ-9 aircraft can fly 14 hours before refueling. The MQ-9 aircraft is capable of carrying a variety of weapons, including the Guided Bomb Unit (GBU)-12 Paveway II laser-guided bomb and the Air to Ground Missile (AGM)-114 Hellfire.

The MQ-9 aircraft carries the Multi-Spectral Targeting System (MTS), which has a robust suite of visual sensors for targeting. The MTS integrates an infrared sensor, color/monochrome daylight television camera, image-intensified television camera, laser designator, and laser illuminator. The full-motion video from each of the imaging sensors can be viewed as separate video streams or fused. The unit also incorporates a laser range finder/designator, which precisely designates targets for employment of laser-guided munitions, such as the GBU-12 Paveway II. The MQ-9 aircraft is also equipped with a synthetic aperture radar to enable future GBU-38 Joint Direct Attack Munitions targeting. The MQ-9 aircraft can also employ four laser guided missiles, AGM-114 Hellfire, which possess highly accurate, low-collateral damage, anti-armor and antipersonnel engagement capabilities.

The MQ-9 aircraft can be disassembled and loaded into multiple containers for deployment worldwide. The entire system can be transported in the C-130 Hercules, or larger aircraft. The MQ-9 aircraft operates from standard U.S. airfields with clear line-of-sight to the Ground Data Terminal (GDT) antennas, which provide redundant line-of-sight communications for take-off and landing.

The typical MQ-9 Reaper RPA system includes several components, a Ground Control Station (GCS), a Satellite Earth Terminal Sub-System (SETTS), a GDT, the MQ-9 aircraft, and all associated power and maintenance equipment. The GCS is built into a single Conex shipping container and functions as the aircraft cockpit where pilots control the aircraft either within line-of-sight or beyond line-of-sight via a combination of satellite relay and ground-based communications. All GCS are backed up with multiple generators in case of a power loss. The GDT consists of an antenna with scissor jacks that provide the data links between the GCS and the MQ-9 aircraft.

The basic aircrew for the MQ-9 aircraft consists of a pilot in command and a sensor operator. The pilot and sensor operator control the aircraft from a station near the aircraft for take-off and landing and from a remotely located GCS in the airspace for the Mission Control Element (MCE). The maintenance team is responsible for maintaining the GCS and the RPA.

Additionally, there is a Reaper Operations Center (ROC), which consists of a team of specialists supporting both the LRE and MCE. Mission specialists within the ROC include mission commander, mission support analysts, mission intelligence analysts, mission coordinator, and a weather analyst. The ROC is located within a building and resembles a mission control setting.

The LRE team consists of a pilot and sensor operator that are specially trained for the take-off and landing of the aircraft. This is a specialized capability that requires extensive training given the unique situation of remotely piloting an aircraft.

Shortly after takeoff, the LRE crew hands control of the aircraft over to the MCE crew and the MCE crew hands control back to the LRE crew prior to landing. For training purposes, the LRE and MCE can be collocated to increase efficiencies in training and operation; however, in combat, the LRE and MCE can be geographically separated by thousands of miles. For example the existing MCE for the 163 ATKW is currently located at March ARB, while the LRE is located at SCLA, approximately 60 miles to the north.

The MCE looks much the same as the LRE, with a pilot and a sensor operator conducting the mission from a GCS. The MCE crew operates the aircraft throughout the remainder of the mission until the aircraft returns to home station and is handed back off to the LRE team for landing.

1.5 DESCRIPTION OF FTU MQ-9 TRAINING OPERATIONS

1.5.1 FTU Training Operations

The FTU's mission is to provide fully trained pilots and sensor operators to support unmanned aerial reconnaissance and armed reconnaissance operations. The 163 ATKW operational objective is to provide Initial Qualification Training, Mission Qualification Training, and Continuation Training to pilots and sensors of the MQ-9 aircraft through the FTU. Initial qualification training includes classroom instruction, ground training accomplished through simulator missions in an MQ-9 Aircrew Training Device, and flight training under the supervision of a qualified instructor until completing the initial qualification check ride and obtaining Basic Aircraft Qualification (BAQ) status. The FTU flying training requires both the launch and recovery of multiple MQ-9 aircraft by the LRE operation, and several flying training hours conducted as part of the MCE operation.

All in-flight operations during FTU training missions are conducted from the ROC located at March ARB. The MQ-9 aircraft is launched from SCLA and followed by a chase plane that flies out of Apple Valley Airport to meet the MQ-9 aircraft and escort it from SCLA to Restricted Area (R-) 2515 within the confines of the Edwards AFB R-2508 Complex (see Section 2.2.1.4, *Special Use Airspace Description*). After the completion of the training mission the chase plane meets the MQ-9 aircraft at R-2515 and escorts it back to SCLA.

1.6 PURPOSE AND NEED

Purpose. The *purpose* of the Proposed Action is two-fold: 1) to consolidate the MQ-9 Reaper LRE with the rest of the 163 ATKW at March ARB to address the inefficiencies associated with the separation of the MQ-9 Reaper MCE at March ARB and the MQ-9 LRE at SCLA; and 2) to construct supporting infrastructure and operational support facilities in order to maximize operations and maintenance facility efficiency as well as respond to physical needs associated with the beddown of the proposed MQ-9 Reaper LRE.

Need. The *need* for the Proposed Action is driven by the inefficiencies associated with the separation of MQ-9 Reaper MCE, including remote in-flight operations, classroom training, and administrative functions, at March ARB and the MQ-9 Reaper LRE at SCLA. Relocation of the MQ-9 aircraft to March ARB would 1) reduce the MQ-9 aircraft operating costs (e.g., personnel costs and vehicle maintenance costs) associated with traveling to and from SCLA; 2) reduce the time associated with maintenance and petroleum, oils, and lubricants (POL) personnel commuting to SCLA; 3) increase overall training time for the FTU; and 4) provide for increased safety of personnel.

1.7 SUMMARY OF ENVIRONMENTAL STUDY REQUIREMENTS

1.7.1 National Environmental Policy Act

NEPA requires that Federal agencies consider potential environmental consequences of proposed actions. The law's intent is to protect, restore, or enhance the environment through well-informed Federal decisions. The CEQ was established under NEPA for the purpose of implementing and overseeing Federal policies as they relate to this process. In 1978, the CEQ issued *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR § 1500-1508 [CEQ 1978]). These regulations specify that an EA be prepared to:

- Briefly provide sufficient analysis and evidence for determining whether to prepare an Environmental Impact Statement (EIS), Finding of No Practicable Alternative (FONPA), or a Finding of No Significant Impact (FONSI);
- Aid in an agency's compliance with NEPA when no EIS is necessary; and
- Facilitate preparation of an EIS when one is necessary.

Further, to comply with other relevant environmental requirements (e.g., the Safe Drinking Water Act, Endangered Species Act [ESA], and National Historic Preservation Act [NHPA]) in addition to NEPA, and to assess potential environmental impacts, the EIAP and decision-making process for the proposed action involves a thorough examination of all environmental issues pertinent to the Proposed Action.

1.7.2 The Environmental Impact Analysis Process

The EIAP is the process by which the Air Force facilitates compliance with environmental regulations (32 CFR Part 989, *Environmental Impact Analysis Process*). The primary legislation affecting these agencies' decision-making process is the NEPA of 1969. This act and other facets of the EIAP are described below.

1.7.3 Endangered Species Act

The ESA (16 U.S. Code [USC] §§ 1531–1544, as amended) established measures for the protection of plant and animal species that are federally listed as threatened and endangered, and for the conservation of habitats that are critical to the continued existence of those species. Federal agencies must evaluate the effects of their proposed actions through a set of defined procedures, which can include the preparation of a Biological Assessment and can require formal consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the ESA.

1.7.4 Clean Air Act and Conformity Requirements

The Clean Air Act (CAA) (42 USC §§ 7401–7671, as amended) provided the authority for the U.S. Environmental Protection Agency (USEPA) to establish nationwide air quality standards to protect public health and welfare. Federal standards, known as the National Ambient Air Quality Standards (NAAQS), were developed for six criteria pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). The CAA also requires that each state prepare a State Implementation Plan (SIP) for maintaining and improving air quality and eliminating violations of the NAAQS. Under the CAA Amendments of 1990, Federal agencies are required to determine whether their undertakings are in conformance with the applicable SIP and demonstrate that their actions will not cause or contribute to a new violation of the NAAQS; increase the frequency or severity of any existing violation; or delay timely attainment of any standard, emission reduction, or milestone contained in the SIP. The South Coast Air Quality Management District (SCAQMD) administers the General Conformity rule where these operations will be conducted through SCAQMD Rule 1901, adopted in 1994. The rule implements 40 CFR Part 51, Subpart W, as in effect at the time of adoption in 1994.

1.7.5 Water Resources Regulatory Requirements

The Clean Water Act (CWA) of 1977 (33 USC §§ 1251 et seq.) regulates pollutant discharges that could affect aquatic life forms or human health and safety. Section 404 of the CWA, and EO 11990, *Protection of Wetlands*, regulate development activities in or near streams or wetlands. Section 404 also regulates development in streams and wetlands and requires a permit from the U.S. Army Corps of Engineers (USACE) for dredging and filling in wetlands. EO 13690, *Floodplain Management*, requires Federal agencies to take action to reduce the risk of flood damage; minimize the impacts of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains. Federal agencies are directed to consider the proximity of their actions to or within floodplains. DoD has implemented storm water requirements under Section 438 (42 USC § 17094) of the Energy Independence and Security Act (EISA) to maintain the hydrologic functions of a site and mitigate the adverse impacts of storm water runoff from DoD construction projects. Section 438 requires that Federal facility projects greater 5,000 sf must "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow" (DoD 2010).

1.7.6 Cultural Resources Regulatory Requirements

The NHPA of 1966 (16 USC § 470) established the National Register of Historic Places (NRHP) and the Advisory Council on Historic Preservation (ACHP) which outlined procedures for the management of cultural resources on Federal property. Cultural resources can include archaeological remains, architectural structures, and traditional cultural properties such as ancestral settlements, historic trails, and places where significant historic events occurred. The NHPA requires Federal agencies to consider potential impacts to cultural resources that are listed, nominated to, or eligible for listing on the NRHP; designated a National Historic Landmark; or valued by modern Native Americans for maintaining their traditional culture. Section 106 of NHPA requires Federal agencies to consult with the appropriate State Historic Preservation Office (SHPO) if their undertaking might affect such resources. *Protection of Historic and Cultural Properties* (36 CFR 800) provides an explicit set of procedures for Federal agencies to meet their obligations under the NHPA, which includes inventorying of resources and consultation with SHPO.

EO 13007, *Indian Sacred Sites*, directs Federal land (any land or interests in land owned by the U.S., including leasehold interests held by the U.S., except Indian trust lands) managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites (any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe [an Indian or Alaska Native tribe, band, nation, Pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe pursuant to Public Law No. 103-454, 108 Stat. 4791, an "Indian" refers to a member of such an Indian tribe] or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion) provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.

The American Indian Religious Freedom Act (AIRFA) (42 USC § 1996) established Federal policy to protect and preserve the rights of Native Americans to believe, express, and exercise their traditional religions, including providing access to sacred sites. The Native American Graves Protection and Repatriation Act

(NAGPRA) (25 USC §§ 3001–3013) requires consultation with Native American Tribes prior to excavation or removal of human remains and certain objects of cultural importance.

In addition, Air Force Instruction (AFI) 90-2002 implements DoD Instruction (DoDI) 4710.02, *DoD Interactions with Federally-Recognized Tribes*, assigns responsibilities and provides procedures for DoD interactions with federally recognized tribes in accordance with EO 13175, *Consultation and Coordination with Indian Tribal Governments*. This DoDI requires that all DoD components shall consult with tribes whenever proposing an action that may have the potential to significantly affect protected tribal resources, tribal rights, or Indian lands.

1.7.7 Anti-Terrorism/Force Protection

The DoD has developed Anti-Terrorism/Force Protection (AT/FP) standards that are designed to reduce the likelihood of physical damage and mass casualties from potential terrorist attacks. Unified Facilities Criteria (UFC) 4-010-01, *DoD Minimum Anti-terrorism Standards for Buildings,* outlines various planning, construction, and operational standards to address potential terrorist threats. A key element of AT/FP standards is the establishment of minimum setbacks and other security standoffs between mass gathering facilities and potentially non-secure adjacent uses (e.g., parking lots, off-installation property). AT/FP setbacks typically extend outward from the sides and corners of facilities for a prescribed distance (i.e., 25 meters); development is either limited or altogether prohibited in such setback areas. Additional AT/FP standards address other facility design and operational considerations, including internal building layout, facility access and security, site circulation, and emergency mass notification.

1.7.8 Sustainability and Greening

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance,* strives to improve efficiency and environmental performance of Federal agencies by setting goals in the areas of energy efficiency, greenhouse gas emission mitigation, water conservation, waste management and recycling, green procurement, pollution prevention, and livable communities, among others. The EO specifies that every Federal organization and agency must make the reduction of greenhouse gas emissions a priority and establishes specific goal-setting, inventorying, and reporting requirements for Federal agencies. This includes an order for each agency to develop, implement, and update a Strategic Sustainability Performance Plan, which should work toward continual improvement of sustainable practices associated with Federal actions.

Sustainable green building and development practices can be recognized through sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. The U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is a third-party certification program and the nationally-accepted benchmark for the design, construction, and operation of high-performance green buildings (USGBC 2010). LEED rating systems are based on a set number of prerequisites and credits in six major categories: 1) sustainable sites; 2) water efficiency; 3) energy and atmosphere; 4) materials and resources; 5) indoor environmental quality; and 6) innovation and design process (USGBC 2009). In the most recent LEED rating system (version 2.2), buildings can qualify for four levels of certification, in order from highest to lowest: platinum, gold, silver, and certified. Benefits of constructing LEED-certified facilities include lower operating costs and increased asset value, reduced waste sent to landfills, conservation of energy and water, healthier and safer facilities for occupants, reduction of harmful greenhouse gas emissions that incrementally contribute to global climate change, and the demonstration of an owner's commitment to environmental stewardship and social responsibility.

In addition, the USAF issued a memorandum on 31 July 2007, *Air Force Sustainable Design and Development (SDD) Policy*. The goal of the policy memo is to: reduce the environmental impact and total ownership cost of facilities; improve energy efficiency and water conservation; and provide safe, healthy, and productive built environments. It requires that all USAF construction projects, regardless of scope or funding source, shall endeavor to use the USGBC's LEED rating system as their self-assessment metric and shall incorporate LEED principles where financially feasible.

1.7.9 Other Executive Orders

Additional regulatory legislation that potentially applies to the implementation of this Proposed Action includes guidelines promulgated by EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, to ensure that citizens in either of these categories are not disproportionately affected. Additionally, potential health and safety impacts that could disproportionately affect children are considered under the guidelines established by EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, acts as additional protection for migratory birds.

1.7.10 Intergovernmental Review of Federal Programs

EO 12372, Intergovernmental Review of Federal Programs, structures the Federal government's system of consultation with state and local governments on its decisions involving grants, other forms of financial assistance, and direct development. Under EO 12372, states, in consultation with local governments, design their own review processes and select those federally supported development activities that they wish to review. As detailed in 40 CFR § 1501.4(b), CEQ regulations require intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the consultation under EO 12372, the USAF notifies relevant Federal, state, and local agencies and allows them sufficient time to make known their environmental concerns specific to a proposed action. Comments and concerns submitted by these agencies are subsequently incorporated into the analysis of potential environmental impacts conducted as part of the EA.

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SECTION 2
DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The California Air National Guard's (ANG's) 163d Attack Wing (163 ATKW) currently conducts their MQ-9 Reaper remotely piloted aircraft (RPA) Flying Training Unit (FTU) missions based out of March Air Reserve Base (ARB); however, the MQ-9 aircraft are stationed at the Southern California Logistics Airport (SCLA) in Victorville, California. As described in Section 1, *Introduction* the FTU mission is conducted with two primary elements, the Mission Control Element (MCE) and the Launch and Recovery Element (LRE). The Ground Control Station (GCS) and Reaper Operations Center (ROC) used for the MCE is currently located and operated out of March ARB while the LRE is located at SCLA. The primary reason that March ARB was originally eliminated as a potential LRE location in 2008 was because at the time, the Federal Aviation Administrative (FAA) was not prepared to issue a Certificate of Waiver or Authorization (COA) for flying MQ-1 Predator unmanned aerial vehicle (UAV) out of March ARB (California ANG 2008).

This Environmental Assessment (EA) addresses the potential environmental consequences that could result following the proposed relocation of the MQ-9 aircraft from SCLA to March ARB including the beddown of the MQ-9 Reaper LRE and the implementation of associated construction and interior renovation projects at March ARB. Two alternatives for the proposed construction are addressed in this EA, the Proposed Action and Alternative 1, which are described in detail below. Additionally, Council on Environmental Quality (CEQ) regulations stipulate that the No-Action Alternative must also be analyzed to assess any environmental consequences that may occur if the Proposed Action is not implemented.

2.2 PROPOSED ACTION

There are two primary elements of the Proposed Action: one comprises the proposed beddown of the MQ-9 Reaper LRE; the other is the series of proposed facility and infrastructure improvements necessary to maximize operations and maintenance facility efficiency as well as respond to physical needs associated with the beddown of the proposed MQ-9 Reaper LRE.

2.2.1 Proposed MQ-9 Reaper LRE

2.2.1.1 Ground Operations at March ARB

The U.S. Air Force (USAF) is proposing to relocate six MQ-9 aircraft and the MQ-9 Reaper LRE for all training sorties from SCLA to March ARB. Under the Proposed Action, the 163 ATKW would fly an average of two 10- to 12-hour sorties per day, five days per week and one weekend per month. The 163 ATKW would typically fly two MQ-9 aircraft at the same time, resulting in an average of four additional airport operations daily (i.e., two arrivals and two departures). An additional two sorties would be accomplished during typical Unit Training Assembly (UTA) drill weekend days (24 days per year). The first launch would occur at 0700 and second launch at 0900. Each sortie would include one takeoff, one low approach, one touch and go, and one full stop landing on average. Approximately 75 to 80 percent of the total flying time would occur within R-2515, R-2502, and R-2501, with the remainder including transit operations from March ARB to R-2515 and limited approach/departure operations at March ARB (see Figure 2-2). Most sorties would be conducted from March ARB with captive inert training devices installed that allow aircraft to simulate combat profiles. These devices are not releasable from the aircraft. Some mission profiles require releasable inert loads. Specific instructions for carrying these loads would be contained in the FAA COA. Live fire weapons loads are currently not authorized by the FAA and are not contained in the current COA application. Each sortie would be used for continuation training and to support the 163 ATKW and other MQ-9 FTUs around the country to include Active Duty Air Force and ANG units.

Chase aircraft operations would continue to be based out of Apple Valley Airport in Apple Valley, California. Currently the chase aircraft meet the MQ-9 aircraft at SCLA and escorts it to Restricted Area (R-) 2515. After the completion of the training mission the chase plane meets the MQ-9 aircraft at R-2515 and escorts it back to SCLA. Under the Proposed Action the chase aircraft would perform the same operations; however, it would meet the MQ-9 aircraft at March ARB rather than SCLA.

The MQ-9 aircraft would utilize a short taxi route at March ARB, necessary to minimize potential aircraft oil temperature increases, using Taxiways Alpha, Bravo, and Delta. Taxi operations would be conducted in line-of-sight mode using the Ground Data Terminal (GDT) (refer to Section 1.4, *Background of the MQ-9 Aircraft*). Radio communication would be conducted between the pilot and the March ARB Air Traffic Control (ATC) using Ultra High Frequency (UHF)/Very High Frequency (VHF) radios and Land Line (i.e., telephone) as back-up. The MQ-9 aircraft would utilize Runway 32 or Runway 14 based on wind direction; however, it is anticipated that Runway 32 would be more heavily utilized given prevailing wind conditions. The GCS would have direct radio and back-up telephone communications with March ARB ATC for ground and in-flight operations. Communications for taxi and takeoff clearance would be accomplished using standard ATC assigned frequencies.

The MQ-9 aircraft's onboard sensors and the GCS's ability to display near-instantaneous air traffic information from ATC radars would allow the aircrew ensure safe transit from March ARB Class C airspace to R-2515 within the confines of the Edwards AFB R-2508 Complex. The intent is transit to and from R-2515 along a predetermined altitude and travel corridor and then conduct training operations in existing R-2515 airspace (see Section 2.2.1.3, *Proposed Travel Corridor to R-2515*).

Operations will only be conducted during Visual Meteorological Conditions (VMC). The MQ-9 aircraft would hold at a designated safe position if weather conditions deteriorate while a mission is being conducted. The aircraft is released to return to base as the weather conditions improve back to VMC.

The maximum wind conditions for MQ-9 aircraft, per Technical Order, are:

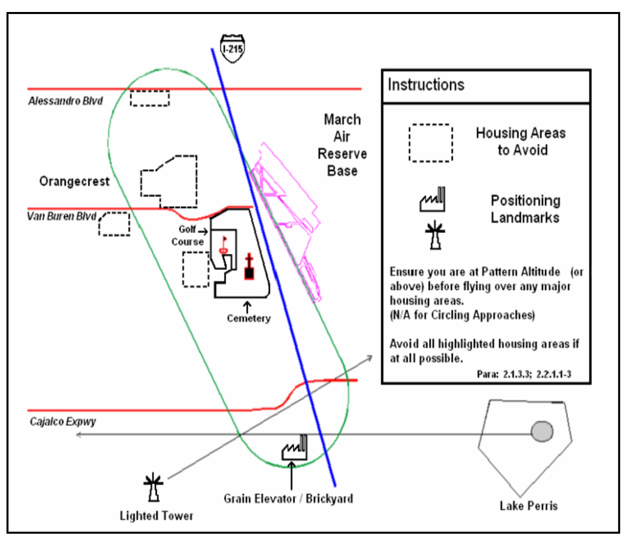
- 30 knots – all aircraft operations (ground)
- 20 knots – gust factor
- 15 knots – crosswind

The weather requirements for takeoff and landing include a cloud base 1,500 feet above ground level (AGL) and a horizontal visibility of at least 3 nautical miles (NM) of visibility. Similar to exceeding operating procedures at SCLA, pilots would not takeoff if forecast or reported turbulence at the departure field is greater than moderate. Precipitation adversely affects aircraft performance and reduces visibility. If conditions permit, pilots would minimize exposure to all types of precipitation during all phases of flight. Pilots would not conduct flight into forecast icing greater than moderate and would not conduct flight into known icing conditions. Pilots would not taxi with a Runway Condition Reading (RCR) less than five and will not takeoff or land with RCR less than 12.

2.2.1.2 March ARB Class C and Class D Operations

March ARB Terminal Airspace is joint-use airspace that extends out 21 NM south and 13 NM east and west of March ARB from surface to 9,000 feet above mean sea level (MSL), including March Class C airspace and March Class D airspace. All in-flight MQ-9 aircraft operations in the March ARB Terminal Airspace would be conducted under VMC as specified in 14 Code of Federal Regulations (CFR) Part 91. However, these flights would be under Instrument Flight Rules (IFR) clearance for procedural separation and traffic notifications. The GCS would have direct radio and backup telephone communications with March ARB ATC for in-flight operations. Communications for would be accomplished using standard ATC assigned frequencies.

After takeoff from March ARB the aircraft would follow standard published departure patterns at March ARB. Takeoff would involve turning left over either Alessandro Boulevard (Runway 32 Departure) or Ramona Expressway (Runway 14 Departure) to cross the runway at mid-field. The aircraft would climb to and maintain an altitude of 4,000 feet MSL and would report to March ARB ATC at 5 NM. Similarly, the aircraft would follow standard tactical arrival patterns into March ARB. From the Tactical (TAC) East Point the aircraft would cross the runway at mid-field and turn right or left depending on wind direction and runway assignment. Due to the



large speed differential between the MQ-9 and the C-17 and KC-135 aircraft, a separate standard visual flight rules (VFR) pattern east of March ARB at 3,000 feet MSL would be used during times of increased jet activity. Entry into the Eastern VFR pattern would follow standard VFR arrival procedures with the MQ-9 proceeding directly to March ARB from Point Golf and making a normal downwind entry into either the Runway 32 or Runway 14 pattern, as appropriate, at 3,000 feet MSL.

In additional to departure and arrival operations, the MQ-9 aircraft would also utilize March ARB Terminal Airspace for limited closed pattern operations. The MQ-9 aircraft would follow a standard circuit avoiding housing areas and other potential sensitive land uses. On average, each sortie would include one low approach, one touch and go, and one full stop. Pattern operations would be conducted in line-of-sight, VMC (under IFR, March ARB ATC control). Radio communication would be maintained between the pilot and March ARB ATC via UHF/VHF radios and telephone back-up.

The following procedures would be followed while operating in the March ARB Terminal Airspace:

- During MQ-9 aircraft in-flight operations, the 163 ATKW would maintain a Supervisor of Flying (SOF) on the airfield during launch, recovery, and transition to the operating airspace, and when aircraft are within Class C and Class D airspace. The SOF would readily have access to all applicable aircraft technical and regulatory documents. The SOF would also be able to conduct direct communications with the aircrews and March ARB ATC. During the landing phase, the SOF or a duly designated representative would observe the landing and confirm with the aircrew via two-way radio that the aircraft has touched-down.
- The MQ-9 aircraft would be considered a Category I aircraft for Same Runway Separation (SRS) and a Small aircraft for Wake Turbulence Separation (WTS).
- The MQ-9 aircraft would fly the Wolfskill VFR Departure and Tactical VFR Arrivals from the east.
- Closed Traffic Patterns would require approval by March ARB ATC; however, manned aircraft operations would have priority.

- Manned aircraft emergencies would take priority over MQ-9 aircraft emergencies.
- MQ-9 aircraft would adhere to standard traffic patterns as directed by ATC and in accordance with the FAA COA. MQ-9 aircraft would avoid overflight of populated areas to the maximum extent possible.
- MQ-9 aircraft would remain at March ARB ATC assigned altitudes while in the pattern.
- Multiple low approach or touch and go landings for formal MQ-9 aircraft syllabus aircrew training, pilot currency, and requirements, or for functional, maintenance checks of the aircraft and its components may be performed with March ARB ATC approval.
- Unless otherwise directed by March ARB ATC, standard climb-out instructions will be climbing left turn to the VFR pattern altitude of 3,000 feet MSL on a downwind leg for Runway 32.
- Unless specifically prohibited, MQ-9 aircraft and manned aircraft may be allowed to operate concurrently in the Class D airspace. However, only one MQ-9 aircraft would be in the traffic pattern at any one time.
- The MQ-9 aircraft would adhere to March ARB ATC direction for holding operations to remain clear of runway arrival and departure courses and clear of populated and congested areas.

2.2.1.3 Proposed Travel Corridor to R-2515

The U.S. military has two primary means for flying RPAs in the National Airspace (NAS). First, the RPA may be flown within Special Use Airspace (SUA), defined as Restricted Areas or Warning Areas controlled by the Department of Defense (DoD). When operating in SUA, the FAA allows the military to assume responsibility for the safety of any RPA flights within that airspace. Alternatively, RPAs may be segregated from normal manned air traffic through the use of FAA designated Temporary Flight Restriction (TFR) areas. RPA operators may also apply for permission to fly elsewhere by means of the COA process with the FAA.

MQ-9 aircraft operations at March ARB would be under an FAA COA where authorization to fly is granted for a specific platform, for a specific mission, in a given piece of airspace. Currently, the FAA utilizes a COA as the means of authorizing RPA operations in the NAS with certain specific provisions including escort by manned chase aircraft.

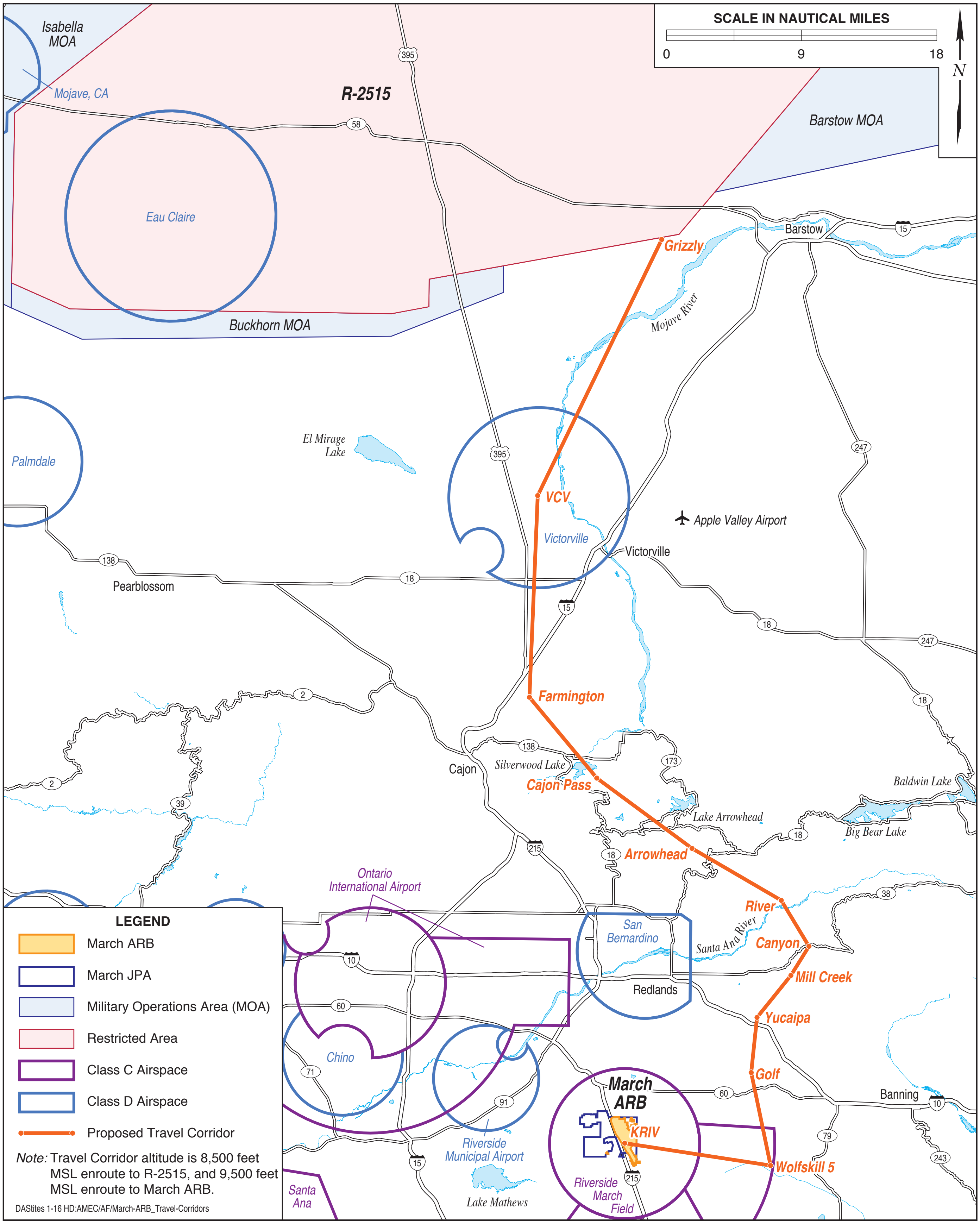
To enable NAS access, the 163 ATKW would utilize March Ground Controlled Approach (GCA) radar and Southern California Terminal Radar Approach Control (SOCAL TRACON) radar to climb to 8,500 feet MSL and transit via an assigned flight travel corridor to R-2515 (see Figure 2-1).

A manned chase aircraft would escort the MQ-9 aircraft to and from the working SUA. The aircrew would utilize the MQ-9 aircraft sensor ball to scan for traffic and use tactical situation displays in the GCS to identify possible traffic conflicts which they will report to the chase aircraft for deconfliction. Additionally, March GCA, SOCAL TRACON, and Los Angeles Air Route Traffic Control Center (ZLA) would provide normal IFR separation service to the MQ-9 aircraft to include traffic calls that will allow the aircrew to cue the camera to the traffic.

To facilitate transit to the R-2515 the 163 ATKW would:

- Maintain a SOF on the airfield during all transits.
- Provide radial/DME and Latitude/Longitude coordinates for all proposed flight paths to/from R-2515 in the COA application and Letter of Agreement (LOA).
- Utilize March ARB ATC, March GCA, and SOCAL TRACON radar to climb to 8,500 feet MSL and then SOCAL TRACON and Joshua Approach to transit to R-2515. Return routing will be along the same pre-coordinated flightpath.
- Utilize chase aircraft when operating outside of March ARB ATC-controlled airspace or SUA.
- Use the onboard camera array to conduct a 180 degree forward hemisphere sweep every 60 seconds and a 360 degree sweep once every 3 minutes as a means of see and avoid for non-cooperative traffic. Transit would be at 8,500 feet MSL.

Upon return to base the chase aircraft would escort the MQ-9 aircraft at 9,500 feet MSL along the same travel corridor.



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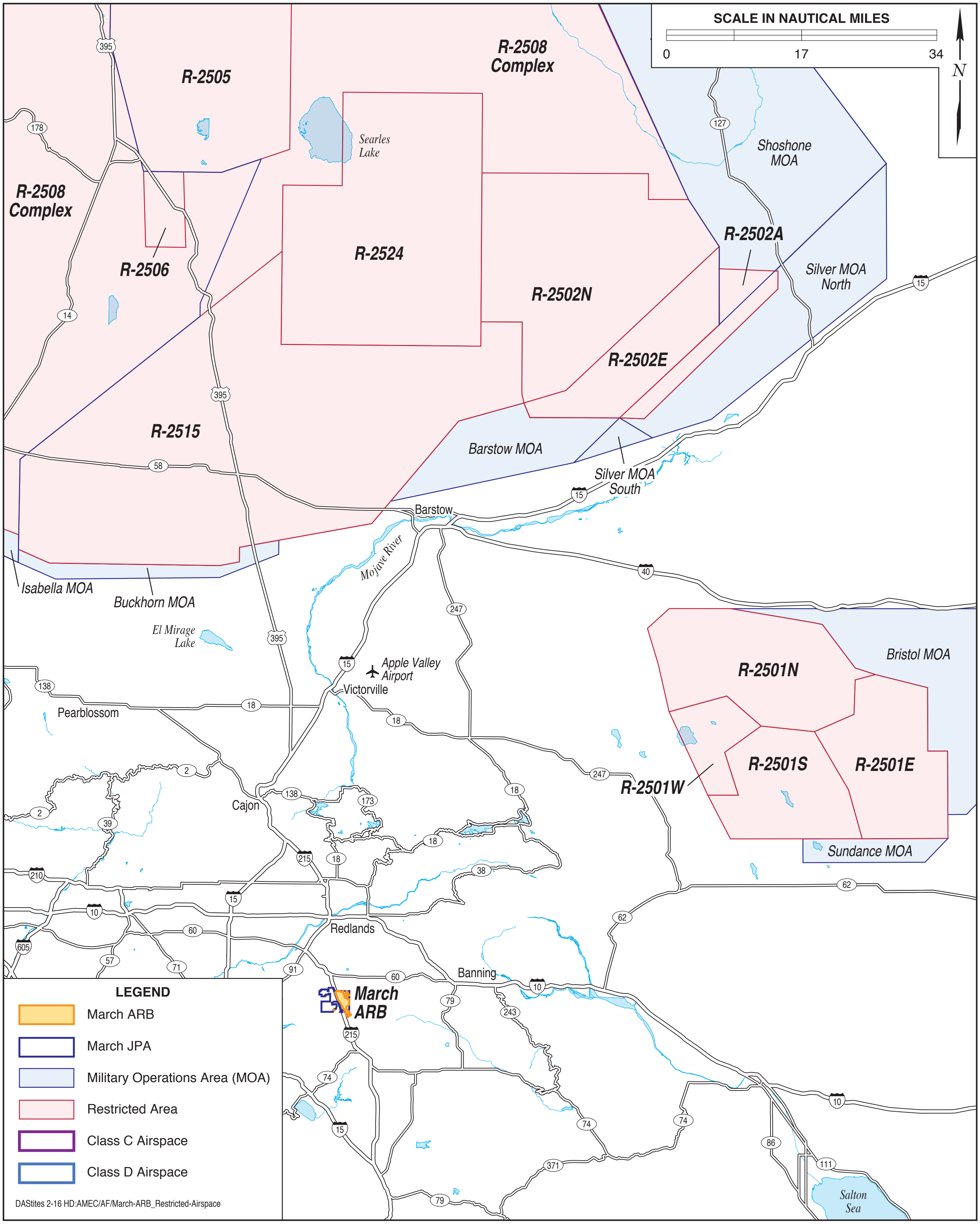
Proposed Travel Corridor from March ARB to R-2515

FIGURE 2-1

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.



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Restricted Airspace

FIGURE 2-2

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.

2.2.1.4 Special Use Airspace Description

SUA operations would follow the procedures outlined in the existing COAs currently used by the 163 ATKW for MQ-9 Reaper RPA operations currently based out of SCLA. MQ-9 Reaper RPA training activities are currently conducted in R-2515, R-2502, and R-2501 respectively with R-2515 acting as the transition point from chased operations in the NAS below Flight Level (FL) 180 (i.e., 18,000 feet MSL) to single aircraft operations in SUA or in the NAS above FL 180. R-2515 is located approximately 70 NM north of March ARB. It has a complex shape approximately 30 NM by 60 NM in size, with the airspace floor starting at ground level and an unlimited ceiling. Both R-2515 and R-2502 are located within the confines of the Edwards AFB R-2508 Complex. R-2502 is operated in conjunction with the National Training Center. In order to use R-2501, which is part of the Twenty Nine Palms Training Area, aircraft are required to climb above FL 180 in R-2515 and then transition unchased to/from R-2501 via the Daggett and Hector VHF Omnidirectional Range/Tactical Aircraft Controls (VORTACs). Normally two MQ-9 aircraft operate in the scheduled SUA at the same time and are deconflicted by altitude. Training missions and flight operations within SUA would not change under the Proposed Action.

To facilitate operations in SUA, the 163 ATKW would:

- Maintain a SOF on the airfield while the RPA is in the Restricted Area.
- Conduct RPA operations in the SUA under VMC conditions as specified in 14 CFR § 91.155.

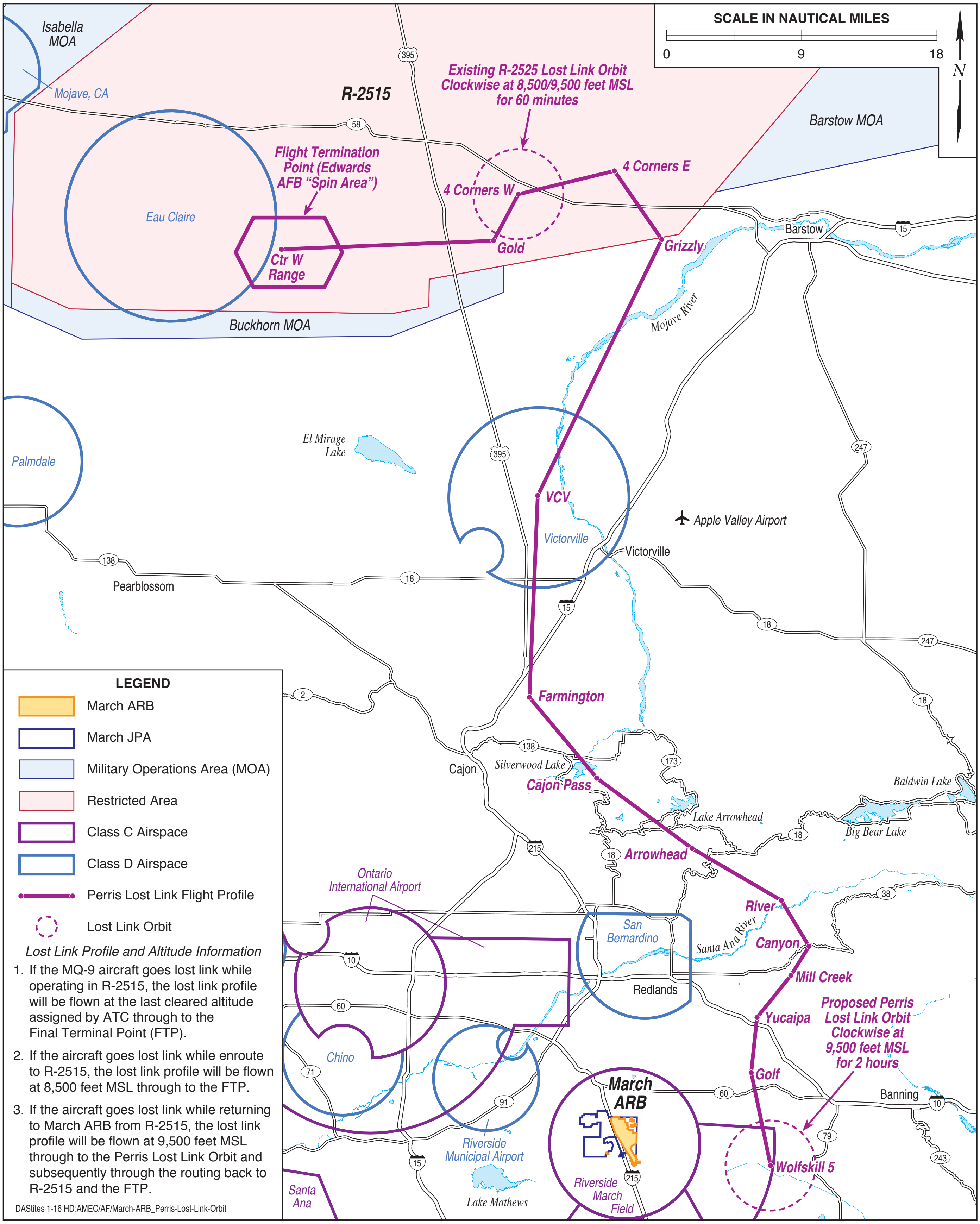
All MQ-9 aircraft operations in SUA would be conducted as specified in 14 CFR § 91.133 and in accordance with the 412 Test Wing/163 ATKW Letter of Procedure (LOP). The GCS would have direct radio communications with High Desert TRACON/Joshua Approach/Sport Control and any assigned ATC agency for MQ-9 aircraft flight operations.

2.2.1.5 Lost Link Flight Profile and Emergency Procedures

Operators use C-Band and Ku-Band links to communicate with and operate the MQ-9 aircraft. However, all RPAs are pre-programmed with a flight profile that the aircraft flies when it is no longer under control of a ground control station (Lost Link). Lost Link Procedures (LLPs) are defined as a point, or sequence of points where the aircraft would proceed and hold at a specified altitude for a specified period of time, in the event the command and control link to the aircraft is lost. The aircraft would loiter at the LLP location until the communication link with the aircraft is restored or the specified time elapses. If the time period elapses, the aircraft would proceed as pre-programmed either to another LLP location in an attempt to regain the communication link, or to the Flight Termination Point (FTP).

The Perris Lost Link Orbit would be a new pattern that would be flown as a result of relocating the MQ-9 Reaper LRE from SCLA to March ARB. In the event that the C-Band and Ku-Band links are lost with the aircraft between R-2515 and March ARB, the MQ-9 would fly a pre-programmed route to the Perris Lost Link Orbit where it would fly in clockwise circles at 9,500 feet MSL at 95 to 105 knots above an uninhabited area (only one farming structure is located in the vicinity of the Perris Lost Link Orbit). If a link cannot be re-established with the aircraft after 2 hours, the MQ-9 aircraft would fly back to the existing R-2515 Lost Link Orbit where it would fly at in a similar orbit at 9,500 feet MSL for another 60 minutes. In the rare event that a link could not be re-established by this time, the aircraft would fly to a FTP on Edwards AFB known the "spin area" (see Figure 2-3). Edwards AFB would respond to the crash site to retrieve the aircraft and collect mishap information/data.

Additionally, in the rare event of a dual generator failure, the aircrew has a mission profile that would take the MQ-9 aircraft immediately to the FTP at the Edwards AFB "spin-area." The SOF would designate the GenFail mission as active and the aircrew would turn the satellite link off to maximize available battery time. Grey Butte Field Airport would attempt recovery of these aircraft in the event the MQ-9 aircraft is not coming from too far away and has at least 30 minutes or more of battery available.



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Lost Link Procedures and Perris Lost Link Orbit

FIGURE 2-3

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.

2.2.1.6 FAA Coordination and Communication

A COA is an authorization issued by the FAA to a public operator for specific RPA activity. Each COA has a specified time period for which the authorization is active, typically two years, and can be rescinded by the FAA at any time. The FAA currently allows RPAs to operate without a COA only when operations are conducted within active Restricted Area or Warning Area airspace, or approved prohibited areas with permission from the appropriate authority or using agency of that airspace (FAA Order 8900.1 Change 351, Volume 16). RPA operation in all other airspace requires a COA issued by the FAA. The COA would include all of the requirements, crew certifications, and special provisions necessary to operate the MQ-9 aircraft at March ARB. After a complete application is submitted, the FAA will conduct a comprehensive operational and technical review. If necessary, additional provisions or limitations may be imposed as part of the approval to ensure the RPA can operate safely with other airspace users.

In most cases, FAA provides a formal response within 60 days from the time a completed application is submitted. Current FAA RPA policy is specified in Flight Standards Service (AFS) 400 Unmanned Aircraft Systems Policy 05-01, published on September 16, 2005. Because the DoD certifies military aircraft of airworthiness, an Airworthiness Certification from the FAA is not required. The 163 ATKW has been coordinating with the FAA as this proposal has been developed and any anticipated requirements are being incorporated into this analysis proactively.

The 163 ATKW participated in the FAA Safety Training (FAAST) gathering – conducting a demo flight/mission – at which both the Los Angeles Center and SOCAL TRACON were present. SOCAL TRACON has approved the travel corridor for the MQ-9 aircraft from March ARB to R-2515 (refer to Figure 2-1).

The Interdepartmental Radio Advisory Council/Spectrum Management Subcommittee is currently reviewing and assigning the C-band frequencies for March ARB. Per conversation with the DoD Western Area Frequency Coordinator, the 163 ATKW may use the same C-Band line-of-sight frequencies into and out of March ARB that are currently used at SCLA provided that the 163 ATKW continue to comply with all Rainbow Schedule Frequency Deconfliction procedures. Formal assignment of frequencies would be completed prior to MQ-9 operations at March

ARB. The FAA provided a COA for MQ-9 operations at March ARB on 23 June 2016.

2.2.1.7 Public Outreach

Leadership from the 452d Air Mobility Wing (452 AMW) and the 163 ATKW have proactively reached out to the surrounding communities to provide information regarding the capabilities of the MQ-9 aircraft and its support to operations overseas as well as domestic support for firefighting, search and rescue, etc. In addition the leadership from the cities of Corona, Moreno Valley, and Riverside were given tours of base and were given an overview of MQ-9 operations and the plans to move the aircraft to March ARB. Continued community outreaches are a part of the relocation plan to bring MQ-9 Reaper LRE from SCLA to March ARB. The tours and operations overviews given to date include:

- Cal State San Bernardino Leadership – Nov 2014
- Department of Homeland Security – Dec 2014
- 701st Air Operations Center – Dec 2014
- Air and Marine Operations Center – Feb 2015
- 452d Maintenance Group – June 2015
- 452d Operations Group – Sep 2015
- Riverside County Hospital – Oct 2015
- Riverside County Sheriff, Sheriff Sniff– Oct 2015
- ABC News Interview on Domestic Operations – Oct 2015
- Appeared on Smithsonian Channel's "Air Warriors" – Nov 2015
- SOCAL TRACON, Los Angeles Center, Joshua Approach, FAA Headquarters – Nov 2015
- FAAST Meeting (including 156 local area pilots) – Feb 2016

The tours that are being planned are:

- March ARB Flying Units – scheduled for Fiscal Year (FY) 2016
- Aircraft Owners and Pilots Association (AOPA) (with possible article) – scheduled for FY 2016
- Local Airfields – ongoing

- Local Community Groups – ongoing

There are 38 airports within the operational volume of airspace, defined as within 25 NM of the transit corridor or within the boundaries of R-2515. Though the Southern California airspace is extremely complex and contains several large commercial airports, most airports in the local area have a low volume of traffic. The 163 ATKW and the 163d Operations Support System (OSS) Airfield Operations Flight have been in contact with local airport managers and the AOPA as part of an outreach program. They will continue that outreach program as part of the March ARB Mid Air Collision Avoidance (MACA) Program. Additionally, 24-hour Notices to Airmen (NOTAMs) will be published for all MQ-9 aircraft operations.

Known airspace users that will require additional coordination or airspace deconfliction include:

- **Perris Soaring Window and Jump Zone.** The Perris Valley Airport is an extremely active skydiving location. MQ-9 aircrew would avoid flight into the Jump Zone or Soaring Window whenever active.
- **Elsinore Soaring Window and Jump Zone.** Originally located along the southern portion of the March GCA radar pattern, the airport is being closed with a proposed relocation site west of Lake Elsinore for parachute operations only.
- **Hemet Soaring Window.** Located 3 NM West of Hemet/Ryan Airport, there is a proposal to relocate the former Elsinore glider operations to Hemet/Ryan. Aircrew would be vigilant during departure and arrival into March ARB for gliders operating in this vicinity.

2.2.2 Proposed Facility Construction

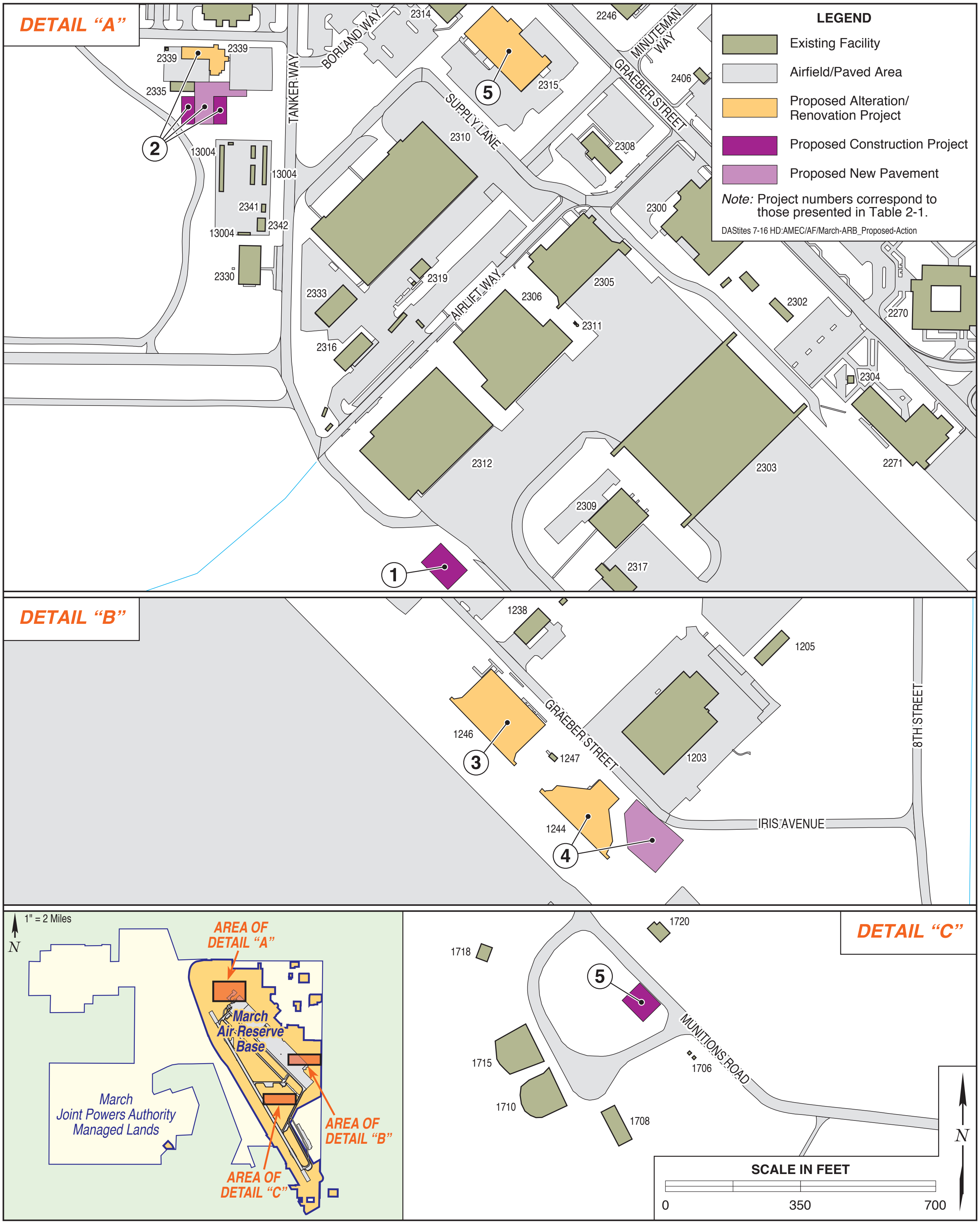
Under the Proposed Action, all aircraft storage and maintenance functions would be moved from the existing 1.63-acre and 5.33-acre lease areas at SCLA to March ARB. The Proposed Action would include a series of facility and infrastructure improvements necessary at March ARB in order to maximize operations and maintenance facility efficiency as well as respond to physical needs associated with the beddown of the proposed MQ-9 Reaper LRE. Under the Proposed Action, the 163 ATKW would assume the use of Building 1244 (most recently used as a KC-135 Fuel Dock), which is currently underutilized, but functional in terms of

MQ-9 requirements. Three Primary Authorized Aircraft (PAA) MQ-9 aircraft would be parked in Building 2305. Two PAA MQ-9 aircraft would be parked in Building 1246 and three PAA MQ-9 aircraft would be parked in Building 1244. The majority of these proposed facilities projects would be limited largely to interior renovation, repair, or add/alter of existing facilities. Each of the proposed construction or interior renovation project would be developed to provide maximum efficiency, adequate stormwater runoff, and compliance with all relevant safety regulations. All constructed or modified facilities would be permanent and would be built in a style consistent with existing architecture at the installation.

Table 2-1. Proposed Construction and Interior Renovation Projects

Key[1]	Project Number	Project Title	Fiscal Year[2]	Area/ Size	Key Components
1	PDPG152997	Construct Site for GDT Install	2017	7,000 sf	– Construction of 2,000 sf concrete equipment pad, 5,000 sf asphalt paving, utilities, communications, and fencing – Installation of 50-foot antenna
2	PDPG159052	Construct AGE Shop & Covered Storage	2019	14,300 sf	– Renovation of Building 2339 – Construction of pavements and covered storage – Addition of fire suppression, utilities, fencing
3	PDPG122785	Repair Building 1246	2018	26,127 sf	– Parking for two PAA MQ-9s – Construction of aircraft maintenance avionics shops in Building 1246 – Connection to existing pumphouse – Construction of utilities and communications
4	N/A	Repair Building 1244	2020	16,500 sf	– 163 ATKW assumes use of Building 1244 – Parking for three PAA MQ-9s – Construction of 0.36-acre POV parking lot
5	PDPG149150	Construct Weapons Maintenance Facility	2020	5,000 sf	– Administrative munition functions relocated to Building 2315 – Construction of new 5,000-sf munitions and inspection facility within the arc along munitions road, including pavements, fire protection, utilities, and communications

[1] Key refers to locations depicted on Figure 2-1.
[2] Fiscal Years (FYs) provided are estimates based on foreseeable project design and construction timelines.
sf - square feet
lf – linear feet



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Proposed Construction Projects at March ARB

FIGURE 2-4

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.

1) ***FY 2017 – Construct Site for GDT Install (PDPG152997).*** As described in Section 1.4, *Background of the MQ-9 Aircraft*, the GDT is responsible for providing the line-of-sight flying capabilities of the MQ-9 aircraft. The GDT must be located where the extended 50-foot antenna would have line-of-sight contact with the operating MQ-9 aircraft on the ground and well into the flight track. The existing GDT used by the 163 ATKW is located at SCLA to support the current MQ-9 Reaper LRE. In order to support the MQ-9 Reaper LRE at March ARB a new GDT would be constructed near Building 2312 adjacent to the 144th Fighter Wing Det Alert Facility. The proposed GDT would include a 2,000-sf equipment pad concrete, 5,000 sf of asphalt paving, and 450 linear feet of fencing as well as lighting, underground utilities, and communication infrastructure.

2) ***FY 2019 – Construct AGE Shop & Covered Storage (PDPG159052)***. Currently, Building 2339 provides Aerospace Ground Equipment (AGE) and Aerospace Support Equipment (ASE) maintenance and storage space in support of flying operations at March ARB. The facility was originally used for the MQ-1 aircraft, and while the facility is well-maintained it is lacking in space for the proposed MQ-9 aircraft. Air National Guard Handbook (ANGH) 32-1084 authorizes up to 10,700 sf of AGE facility to support the proposed MQ-9 Reaper MCE and LRE. Currently at March ARB, there is 6,698 sf of existing adequate AGE facility space and 7,380 sf of AGE storage yard pavements. Because of the lack of space at Building 2339 for the new mission equipment, various types of equipment is currently stored in maintenance hangars and alongside airfield parking ramps and taxiways, cluttering areas which should remain safe and clear of obstacles. Additionally, the AGE/ASE covered storage building and yard near Building 2339 is also filled over capacity with various carts and generators making safety of movement a concern. The proposed project would renovate Building 2339 and include the construction 4,000 sf of additional shop space and covered storage adjacent to Building 2339.

3) ***FY 2018 – Repair Building 1246 (PDPG122785).*** Under the Proposed Action, two PAA MQ-9 aircraft would be parked in Building 1246. Approximately 10,000 sf would be used for MQ-9 hangar space, while the remainder of the facility would be used for aircraft maintenance shop space. Building 1246 was built in 1969 as a hangar and repurposed and converted to an aircraft fuel cell

maintenance hangar in 1987. The building systems are due for life cycle repairs. Additionally, the Aqueous Film Forming Foam (AFFF) fire suppression system has been out of service since the wing lost its KC-135 aircraft in 2008 (only a portion of the building is sprinkler protected). The 163 ATKW requires adequate shop space and maintenance bays for the proposed MQ-9 Reaper LRE. This proposed project would renovate Building 1246 to include 16,000 sf for jet engine maintenance space, general purpose shops, avionics, and corrosion control. Additionally, this proposed project would connect Building 1246 to the newly constructed pumphouse located adjacent to the facility and would construct a High Expansion Foam (HEF) System.

4) ***FY 2020 – Repair Building 1244 (N/A).*** Under the Proposed Action the 163 ATKW would assume use of Building 1244 for fuel cell maintenance and additional parking. No interior renovations or add/alter would be required for this facility.

5) ***FY 2020 – Construct Weapons Maintenance Facility (PDPG149150).*** After the MQ-9 Reaper LRE returns to March ARB, the munitions shop would have no space to store equipment, inert munitions movement gear, or spares. Under the Proposed Action administrative munitions functions would be relocated to Building 2315. Additionally, the 163 ATKW would construct a new 5,000-sf munitions and inspection facility within an existing Explosive Safety Quantity Distance (ESQD)-arc for storage and handling of inerts (i.e., non-explosive training weapons) along Munitions Road. Construction would include pavements, fire protection, utilities, and communications.

2.3 ALTERNATIVES TO THE PROPOSED ACTION

2.3.1 Alternatives Considered but Eliminated

2.3.1.1 Beddown of the MQ-9 Reaper LRE at another Airport

An alternative to the Proposed Action would be to relocate the MQ-9 Reaper LRE from SCLA to another Federal military installation or civilian airport rather than

March ARB. Other Federal military installations and civilian airports within Southern California include Edwards Air Force Base (AFB) and Los Alamitos Joint Forces Training Base as well as Riverside Municipal, Perris Valley, French Valley, and Flabob airports. Each of these airports support military or civilian aircraft operations and could feasibly accommodate the MQ-9 Reaper LRE. However, the FAA would have to approve a COA and C-Band line-of-sight frequencies for these installations or civilian airports, which could be challenging due to existing airspace, air traffic, and/or land use constraints at each of the installations. Additionally, this alternative would not meet the purpose and need of the Proposed Action to address the inefficiencies associated with the separation of the MQ-9 Reaper MCE at March ARB and the MQ-9 LRE at SCLA. Consequently, relocation of the MQ-9 Reaper LRE to another Federal military installation or civilian airport in the region would not reduce aircraft operating costs, reduce travel time, or improve safety conditions for maintenance and POL personnel. As a result, implementation of this alternative could potentially decrease overall training time for the FTU; therefore, this alternative was not carried forward for analysis.

2.3.1.2 163 ATKW Use of Runway 12/30

Under this alternative, the MQ-9 Reaper LRE would be relocated from SCLA to March ARB; however, the 163 ATKW would use Runway 12/30 rather than Runway 14/32 to launch the MQ-9. Use of this runway would reduce taxi duration, which would help prevent engine cooling issues during protracted MQ-9 ground operations. However, Runway 12/30 is only 3,059 feet in length, which does not meet the required length of 5,000 feet necessary to launch and recover the MQ-9 aircraft. Therefore, under implementation of this alternative Runway 12/30 would have to be repaired and lengthened. Additionally, use of this runway would trigger land use planning concerns including Clear Zone incompatibility as well as operational noise issues. Consequently, this alternative was not carried forward for analysis.

2.3.1.3 163 ATKW Use of Pride Hangar for MQ-9 Storage

Initial planning and discussion of alternatives to the Proposed Action included the proposed use of the Pride Hangar (Building 2303), which includes 100,000 sf of hangar space and four aircraft bays.

Under this alternative, the 163 ATKW would assume 49 percent use of the Pride Hangar (approximately 50,000 sf). A PAA inventory of five MQ-9 aircraft would be parked in the Pride Hangar and the remainder of the space would be repurposed for jet engine maintenance, general purpose shops, avionics, non-destructive inspection (NDI) shop, fuel cell maintenance, corrosion control, and/or weapons and release systems shops. Under this alternative the 163 ATKW would not park MQ-9 aircraft in Building 1246 or assume use of Building 1244. With the exception of the GDT location, which would be located adjacent to the 144th Fighter Wing Det Alert Facility, all of the other proposed construction and interior renovation projects would be implemented as described for the Proposed Action. However, based on further discussions with 452 AMW in November 2015, it was determined to be highly unlikely for the 452 AMW or Air Force Reserve Command (AFRC) to approve the use of the Pride Hangar for storage of 163 ATKW MQ-9 aircraft. Consequently, this alternative was not carried forward for analysis.

2.3.2 Alternatives Considered for Analysis

2.3.2.1 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

Under Alternative 1, the proposed beddown of the MQ-9 Reaper LRE and associated ground and in-flight operations would remain the same as described for the Proposed Action.

The key difference between the Proposed Action and Alternative 1, is the proposed construction of new hangar for MQ-9 aircraft storage. Under Alternative 1, the 163 ATKW would not occupy Building 1244 and would instead construct a new 17,000-sf hangar with general purpose shops, fuel cell shop, NDI and additional hangar space to park three PAA MQ-9 aircraft. All other proposed aircraft storage and construction and interior renovation elements would remain the same as described for the Proposed Action. In addition to the three PAA MQ-9 aircraft parked in the new hangar, three PAA MQ-9 aircraft would be parked in Building 2305. Further, as described for the Proposed Action, two PAA MQ-9s would be parked in Building 1246. Space in Building 1246 would be repurposed for jet engine maintenance, general purpose shops, avionics, NDI shop, fuel cell maintenance, and corrosion control. Building 2339 would be renovated to provide additional AGE shop space and covered storage. Building 2315 would be renovated to support the administrative munitions functions associated with the MQ-9 Reaper LRE.

2.3.2.2 No-Action Alternative

Under the No-Action Alternative, the proposed beddown of the MQ-9 Reaper LRE and associated construction and interior renovation projects would not be implemented. The MQ-9 Reaper MCE would continue to be operated out of March ARB and the LRE would continue to be operated out of SCLA. Because CEQ regulations stipulate that the No-Action Alternative be analyzed to assess any environmental consequences that may occur if the Proposed Action is not implemented, the No-Action Alternative will be carried forward for analysis in the EA. The No-Action Alternative provides a baseline against which the Proposed Action can be compared.

SECTION 3
AFFECTED ENVIRONMENT

This section describes pertinent existing environmental conditions for resources potentially affected by the Proposed Action and identified alternatives. In compliance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, Air Force Instruction (AFI) 32-7061, and Title 32, Code of Federal Regulations (CFR) Part 989 (32 CFR 989), and Unified Facilities Criteria (UFC) 3-260-01, the description of the affected environment focuses on only those aspects potentially subject to impacts. In some cases this also includes the proposed travel corridor that would be used by MQ-9 aircraft to transit to Restricted Area (R-) 2515 (refer to Section 2.2.1.3, *Proposed Travel Corridor to R-2515*) and the proposed Perris Lost Link Orbit (refer to Section 2.2.1.5, *Lost Link Flight Profile and Emergency Procedures*).

In the case of the Proposed Action at March Air Reserve Base (ARB), the affected environment description is limited primarily to the base, and, regionally, to Riverside County, California. Resource descriptions focus on the following areas:

- Airspace Management;
- Air Quality;
- Noise;
- Land Use;
- Geological Resources;
- Water Resources;
- Biological Resources;
- Transportation and Circulation;
- Visual Resources;
- Cultural Resources;
- Socioeconomics;
- Environmental Justice and Protection of Children;
- Hazardous Materials and Wastes; and
- Safety.

3.1 AIRSPACE MANAGEMENT

3.1.1 Definition of Resource

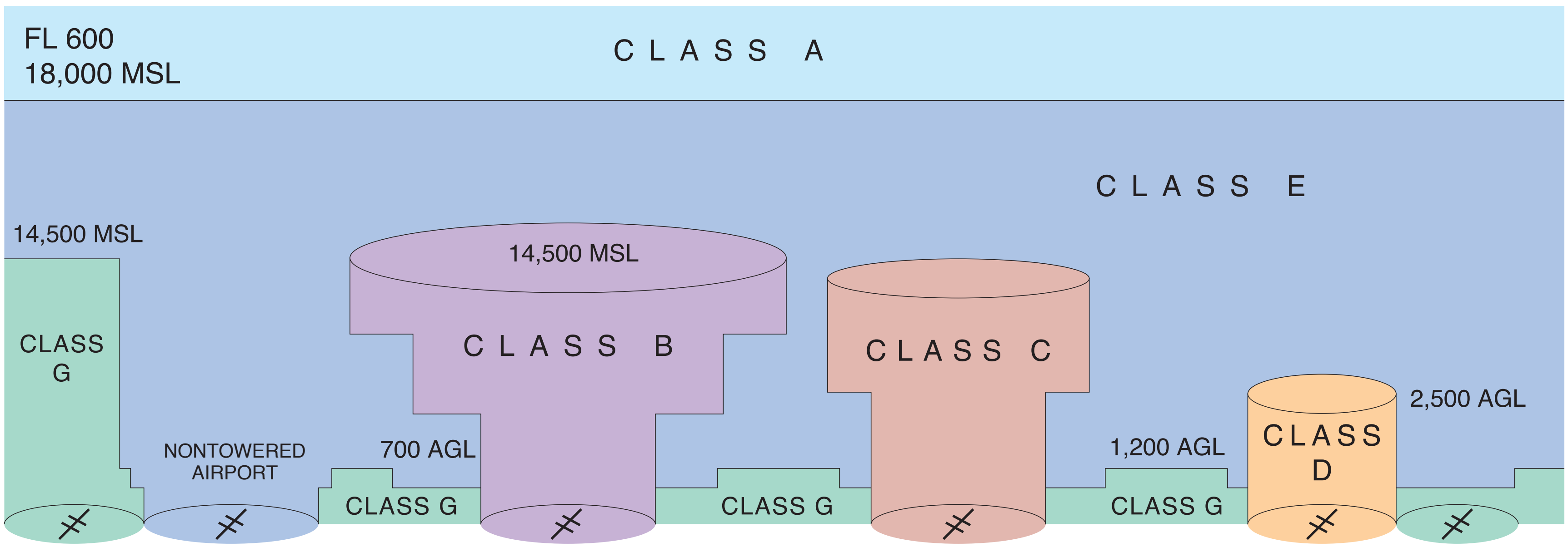
Airspace management is defined by the U.S. Air Force (USAF) as the coordination, integration, and regulation of the use of airspace of defined dimensions. The objective is to meet military training requirements through the safe and efficient use of available navigable airspace in a peacetime environment while minimizing the impact on other aviation users and the public (AFI 13-201, *Airspace Management*). There are two categories of airspace or airspace areas: regulatory and nonregulatory. Within these two categories, further classifications include *controlled*, *uncontrolled*, *special use*, and *other airspace*. The categories and types of airspace are dictated by: 1) the complexity or density of aircraft movements; 2) the nature of the operations conducted within the airspace; 3) the level of safety required; and 4) national and public interest in the airspace. As discussed in Section 4.1, *Airspace Management*, the Proposed Action would not require any modification to the current terminal airspace structure or operational procedures, or any changes to the departure and arrival route structure of any airport or the Victor Routes used to transition between airports.

3.1.1.1 Controlled Airspace

Controlled airspace is a generic term that encompasses the different classifications of airspace (Class A, B, C, D, and E airspace shown in Figure 3-1) and defines dimensions within which air traffic control service is provided to Instrument Flight Rules (IFR) flights and to Visual Flight Rules (VFR) flights (U.S. Department of Transportation 1994). All military and civilian aircraft are subject to Federal Aviation Regulations (FARs).

<u>Class A Airspace</u>

Class A airspace includes all flight levels or operating altitudes over 18,000 feet mean sea level (MSL). Formerly referred to as a Positive Control Area (PCA), Class A airspace is dominated by commercial aircraft utilizing routes between 18,000 and 60,000 feet MSL.



AGL – above ground level
FL – flight level
MSL – mean sea level

NOTE: Altitudes not to scale.
Source: FAA 1993.

EA

FAA Airspace Classification

FIGURE 3-1

Class B Airspace

Class B airspace typically comprises contiguous cylinders of airspace, stacked upon one another, extending from the surface up to 14,500 feet MSL. To operate in Class B airspace, pilots must contact appropriate controlling authorities and receive clearance to enter the airspace. Additionally, aircraft operating within Class B airspace must be equipped with specialized electronics that allow air traffic controllers to accurately track aircraft speed, altitude, and position. Class B airspace is typically associated with major metropolitan airports.

Class C Airspace

Airspace designated as Class C can generally be described as controlled airspace that extends from the surface or a given altitude to a specified higher altitude. Class C airspace is designed and implemented to provide additional Air Traffic Control (ATC) into and out of primary airports where aircraft operations are periodically at high-density levels such as March ARB. All aircraft operating within Class C airspace are required to maintain two-way radio communication with local ATC entities.

Class D Airspace

Class D airspace encompasses a 5-statute-mile radius of an operating ATC-controlled airport, extending from the ground to 2,500 feet above ground level (AGL) or higher. All aircraft operating within Class D airspace must be in two-way radio communication with the ATC facility.

Class E Airspace

Class E airspace, which can be described as general controlled airspace, includes designated Federal airways consisting of the high altitude (J or "Jet" Route) system and low altitude (V or "Victor" Route) system. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. Also included in this class of airspace are Federal Airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to or from the terminal or enroute environment and enroute domestic and offshore airspace, designated below 18,000 feet MSL.

3.1.1.2 Uncontrolled Airspace

Uncontrolled airspace (Class G) is not subject to restrictions that apply to controlled airspace. Limits of uncontrolled airspace typically extend from the ground surface to 700 feet AGL in urban areas and from the ground surface to 1,200 feet AGL in rural areas. Uncontrolled airspace can extend above these altitudes to as high as 14,500 feet MSL if no other types of controlled airspace have been assigned. ATC does not have authority to exercise control over aircraft operations within uncontrolled airspace. Primary users of uncontrolled airspace are general aviation aircraft operating in accordance with VFR.

3.1.1.3 Special Use Airspace

Special Use Airspace (SUA) consists of airspace within which specific activities must be confined, or wherein limitations are imposed on aircraft not participating in those activities. With the exception of Controlled Firing Areas (CFAs), special use airspace is depicted on aeronautical charts, including hours of operation, altitudes, and the agency controlling the airspace. All special use airspace descriptions are contained in Federal Aviation Administration (FAA) Order 7400.8.

Prohibited and Restricted Areas are regulatory special use airspace and are established in FAR Part 73 through the rulemaking process. Warning Areas (W-), CFAs, and Military Operations Areas (MOAs) are nonregulatory SUA.

Warning Areas are airspace of defined dimensions over international waters that contain activity that may be hazardous to nonparticipating aircraft. Because international agreements do not provide for prohibition of flight in international airspace, no restrictions to flight are imposed. As such, Warning Areas are established in international airspace to alert pilots of nonparticipating aircraft to potential danger.

CFAs are established to contain activities that, if not conducted in a controlled environment, would be hazardous to nonparticipating aircraft. The approval of a CFA shall only be considered for those activities that are either of short duration or of such a nature that they could be immediately suspended upon notice that such activity might endanger nonparticipating aircraft. Examples of such activities include: firing of missiles, rockets, anti-aircraft artillery, and field artillery; static testing of large rocket motors; blasting; and ordnance or chemical disposal.

MOAs are airspace areas designated outside of Class A airspace, to separate or segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted. When a MOA is active, IFR traffic may be cleared to enter and pass through the area if adequate IFR separation criteria can be met and procedures are described in a Letter of Agreement between the unit and the ATC controlling agency (FAA Order 7400.2K). Nonparticipating VFR aircraft are not prohibited from entering an active MOA; however, extreme caution is advised when such aircraft transit the area during military operations. All MOAs within the U.S. are depicted on sectional aeronautical charts identifying the exact area, the name of the MOA, altitudes of use, published hours of use, and the corresponding controlling agency.

3.1.1.4 Air Traffic Control Assigned Airspace

Air Traffic Control Assigned Airspace (ATCAA) is airspace above 18,000 feet MSL designed to accommodate non-hazardous high-altitude military flight training activities; this airspace remains in the control of the FAA and, when not in use by military aircraft, may be used to support civil aviation activities. ATCAA permits military aircraft to conduct high-altitude air-to-air combat training, practice evasive maneuvers, perform aerial refueling, and initiate or egress from attacks on targets within a range. ATC routes IFR traffic around this airspace when activated; ATCAA does not appear on any sectional or enroute charts.

3.1.1.5 Military Training Routes

Military Training Routes (MTRs) are flight paths that provide a corridor for low-altitude navigation and training. Low altitude navigation training is important because aircrews may be required to fly at low altitudes for tens or hundreds of miles to avoid detection in combat conditions. To train realistically, the military and the FAA have developed MTRs. This system allows the military to train for low-altitude navigation at air speeds in excess of 250 knots. There are two types of MTRs, instrument routes (IR) and visual routes (VR).

3.1.2 Existing Conditions

3.1.2.1 March ARB Airspace and Aircraft Operations

March ARB is designated as Class C controlled airspace. The base operates using both IFR and VFR. March ARB Class C airspace is controlled by Southern California (SOCAL) Terminal Radar Approach Control (TRACON) and March ARB ATC. The inner area of this airspace is centered on March ARB starting at ground level, continues upward to a ceiling elevation of 5,500 feet MSL, and extends horizontally for 5 nautical miles (NM). The outer area of the airspace ring is between 5 and 10 nautical miles that begins at 3,900 feet MSL and continues up to 5,500 feet MSL (USAF 2004, 2015b). While airspace in the Southern California region is congested, the airspace at March ARB is not restricted. March ARB ATC is responsible for providing Class C airspace services at and below 4,000 feet MSL in the northern inner core as well as at and below 5,000 feet MSL in the remaining Class C airspace. It is mandatory for all aircraft to establish two-way radio communication by contacting March ARB ATC on 119.25 or 284.0 prior to entering the Class C airspace (USAF 2015b). SOCAL TRACON provides aircraft separation services above the Class C airspace. Military aircraft based at March ARB include KC-135, C-17, and F-16. Additionally, U.S. Customs and Border Protection operates PC-12 and AS-350 and the Aero Club operates C-172/T-4, T-34, and C-182 aircraft out of March ARB (USAF 2015b).

There are four other airports located adjacent to the March ARB Class C airspace, including Riverside Municipal, Perris Valley, French Valley, and Flabob (USAF 2015b). The largest fleet of skydiving aircraft in the West Coast is located at Perris Valley Airport. The majority of parachute jumps happen on weekends between sunrise and sunset, with operations occurring up to 18,000 feet MSL. March ATC primarily deconflicts aircraft between March ARB and Perris Valley (USAF 2015b). Additionally, March ARB maintains a Midair Collision Avoidance (MACA) Pilot Controller Liaison Pamphlet, which is intended to set forth standard operating procedures to reduce the potential for midair collisions for March ARB and non-March ARB users (USAF 2015b).

Aircraft operations consist of takeoffs, touch-and-gos, and closed pattern flights. Since a pilot performing a touch-and-go or a closed pattern flight essentially performs a landing and a takeoff, touch-and-gos and closed pattern flights are each counted as two operations. On average, in 2015 there were approximately 188 total aircraft operations per day at March ARB. Military aircraft operations comprise approximately 34.8 percent of daily aircraft operations. Air carrier and air cargo operations account for approximately 3 percent of daily operations, while the remaining operations include approximately 62.2 percent for air taxi and general aviation operations. Historic military aircraft operations at March ARB reached a high of 68,913 in 2015 (USAF 2016).

3.1.2.2 March ARB Runways

March ARB operates two active runways. Runway 14/32 (longer runway) and Runway 12/30 (shorter runway) are both oriented in a northwest-southwest direction. Runway 14/32 is a concrete runway with dimensions of approximately 13,300 feet by 200 feet. This runway is equipped with an approach lighting system as well as an Instrument Landing System (AirNav 2016). Runway 12/30, which is closed to public use, is an asphalt runway with dimensions of approximately 3,059 by 100 feet (AirNav 2016).

3.1.2.3 Military Training Routes

MTRs include airspace of defined vertical and lateral dimensions established for military flight training. One established MTR traverses the proposed travel corridor VR 1257-1265.

3.1.2.4 Jet Routes and Victor Airways

The enroute phase of flight is defined as that segment of flight from the termination point of a departure procedure to the origination point of an arrival procedure. The procedures employed in the enroute phase of flight are governed by a set of specific flight standards established by 14 CFR, FAA Order 8260.3, and

U.S. Standard for Terminal Instrument Procedures (TERPS), as well as other related publications. Enroute IFR navigation is evolving from the ground-based navigational aid (NAVAID) airway system to a sophisticated satellite and computer-based system that can generate courses to suit the operational requirements of almost any flight. The FAA Global Navigation Satellite System (GNSS) provides satellite-based positioning, navigation, and timing services in the U.S. to enable performance-based operations for all phases of flight, to include enroute navigation (FAA 2014).

The enroute airspace structure of the National Airspace System (NAS) consists of three strata. The first stratum low altitude airways in the U.S. can be navigated using NAVAIDs, have names that start with the letter V, and are called Victor Airways. They cover altitudes from approximately 1,200 feet AGL up to, but not including 18,000 feet MSL. The second stratum high altitude airways in the U.S. all have names that start with the letter J, and are called Jet Routes. These routes run from 18,000 feet MSL to 45,000 feet MSL. The third stratum allows random operations above Flight Level (FL) 450 (FAA 2014).

New low altitude Area Navigation (RNAV) routes have been created by the FAA. RNAV routes provide more direct routing for IFR aircraft and enhance the safety and efficiency of the NAS. In order to utilize these routes, aircraft must be equipped with IFR approved GNSS. RNAV routes not based on VOR routes at both low and high altitudes are given the prefix "T" and "Q" (FAA 2014).

Nine Victor Airways (V) pass through the proposed travel corridor and Perris Lost Link Orbit: V 12, V 386, V 210, V 137, VR 1257-1265, V 442, V 8-21, V 283-587, V 388, V 16-370. Existing civilian operations along these Victor Airways are relatively low. Currently, only one T-route (T-306) and one Q-route (Q 2-4) pass through the proposed travel corridor. Only T-306 passes through the proposed Perris Lost Link Orbit.

3.1.2.5 163 ATKW Aircraft Inventory

Following the unit's relocation to March ARB, the 163d Attack Wing (163 ATKW) operated KC-135 aircraft in support of the Air Mobility Command commitment to Global Reach (California Air National Guard [ANG] 2015b). However, in 2006 the wing was re-designated as the 163d Reconnaissance Wing and received MQ-1 aircraft, which were operated remotely from March ARB, but launched from and recovered at the Southern California Logistics Airport (SCLA). Recently in July 2015, the wing converted from the remotely-piloted MQ-1B Predator to the MQ-9A Reaper and was re-designated as the 163 ATKW to reflect this conversion. (California ANG 2015b; refer to Section 1.2, *Location and Unit Background*).

The 163 ATKW operates six MQ-9 Reaper aircraft and conducts unmanned launch and recovery element (LRE) operations at the Southern California Logistics Airport (SCLA) in Victorville, CA. The MQ-9 aircraft is launched from SCLA and followed by a chase plane that flies out of Apple Valley Airport to meet the MQ-9 aircraft and escort it from SCLA to R-2515 within the confines of the Edwards Air Force Base (AFB) R-2508 Complex (refer to Section 2.2.1.4, *Special Use Airspace Description*). After the completion of the training mission the chase plane meets the MQ-9 aircraft at R-2515 and escorts it back to SCLA. The chase plane generally trails the MQ-9 aircraft within 2 NM and 1,000 feet and accompanies the aircraft during any operations between R-2508 and SCLA below FL 180 (USAF 2015b). The MQ-9 normally transitions to the R-2508 airspace at 8,500 feet MSL northbound, and returns to SCLA at 9,500 feet MSL southbound while maintaining contact with Joshua and SCLA ATC. The MQ-9 aircraft operates at the same traffic pattern altitude as fixed wing aircraft and only while tower is open. The majority of flying occurs Monday through Friday and the FAA currently limits operations from sunrise to sunset with no more than one MQ-9 aircraft in the traffic pattern. The MACA Pilot Controller Liaison Pamphlet recommends that pilots always contact Joshua and squawk IFF mode 3/A and C when transiting the airspace in the vicinity of SCLA and Edwards AFB (USAF 2015b).

3.2 AIR QUALITY

3.2.1 Definition of Resource

Air quality in a given location is determined by the concentration of various pollutants in the atmosphere. National Ambient Air Quality Standards (NAAQS) are established by the U.S. Environmental Protection Agency (USEPA) for criteria pollutants, including: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter equal to or less than 10 microns in diameter (PM_{10}) and 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). NAAQS represent maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect public health and welfare.

3.2.1.1 Criteria Pollutants

Air quality is affected by stationary sources (e.g., industrial development) and mobile sources (e.g., motor vehicles). Air quality at a given location is a function of several factors, including the quantity and type of pollutants emitted locally and regionally as well as the dispersion rates of pollutants in the region. Primary factors affecting pollutant dispersion include wind speed and direction, atmospheric stability, temperature, topography, and the presence or absence of inversion layers.

Ozone (O_3). The majority of ground-level (or terrestrial) O_3 is formed as a result of complex photochemical reactions in the atmosphere involving volatile organic compounds (VOC), nitrogen oxides (NO_x), and oxygen. At low altitudes, O_3 is a highly reactive gas that damages lung tissue, reduces lung function, and sensitizes the lung to other irritants. Although *stratospheric* O_3 shields the earth from damaging ultraviolet radiation, *terrestrial* O_3 is a highly damaging air pollutant and is the primary source of smog.

The USEPA completed its most recent review of the NAAQS for O_3 in 2008. Base on this review, as of October 2015, the USEPA revised the primary and secondary standards for O_3 to 0.070 parts per million (ppm) to address public health and welfare concerns.

Carbon Monoxide (CO). CO is a colorless, odorless, poisonous gas produced by incomplete burning of carbon in fuel. The health threat from CO is most serious for those who suffer from cardiovascular disease, particularly those with angina and peripheral vascular disease.

Nitrogen Dioxide (NO_2). NO_2 is a highly reactive gas that can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Repeated exposure to high concentrations of NO_2 may cause acute respiratory disease in children. Because NO_2 is an important precursor in the formation of O_3 (i.e., smog), control of NO_2 emissions is an important component of overall pollution reduction strategies. The two primary sources of NO_2 in the U.S. are fuel combustion and transportation.

Sulfur Dioxide (SO_2). SO_2 is emitted primarily from stationary source coal and oil combustion, steel mills, refineries, pulp and paper mills, and from non-ferrous smelters. High concentrations of SO_2 may aggravate existing respiratory and cardiovascular disease; asthmatics and those with emphysema or bronchitis are the most sensitive to SO_2 exposure. SO_2 also contributes to acid rain, which can lead to the acidification of lakes and streams and damage vegetation. As of June 2010, the USEPA issued a final rule for 1-hour SO_2, revoking the annual and 24-hour standards during that same rulemaking. However, these previous standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated *nonattainment* for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Particulate Matter (PM_{10} and $PM_{2.5}$). Particulate matter is a mixture of tiny particles that vary greatly in shape, size, and chemical composition, and can be comprised of metals, soot, soil, and dust. PM_{10} includes larger, coarse particles, whereas $PM_{2.5}$ includes smaller, fine particles. Sources of coarse particles include crushing or grinding operations, and dust from paved or unpaved roads. Sources of fine particles include all types of combustion activities (e.g., motor vehicles, power plants, wood burning) and certain industrial processes. Exposure to PM_{10} and $PM_{2.5}$ levels exceeding current standards can result in increased lung- and heart-related respiratory illness. The USEPA has concluded that finer particles are more likely to contribute to health problems than those greater than 10 microns in diameter.

Airborne Lead (Pb). Airborne lead can be inhaled directly or ingested indirectly by consuming lead-contaminated food, water, or non-food materials such as dust or soil. Fetuses, infants, and children are most sensitive to Pb exposure. Pb has been identified as a factor in high blood pressure and heart disease. Additionally, direct exposure to Pb can lead to poisoning in fetuses, infants, and children and can cause permanent neurological disorders and damage to internal organs. Exposure to Pb has declined dramatically in the last 10 years as a result of the reduction of Pb in gasoline and paint, and the elimination of Pb from soldered cans.

3.2.1.2 Clean Air Act Amendments

The Clean Air Act (CAA) Amendments (CAAA) of 1990 place most of the responsibility to achieve compliance with NAAQS on individual states. To this end, USEPA requires each state to prepare a State Implementation Plan (SIP). A SIP is a compilation of goals, strategies, schedules, and enforcement actions that will lead the state into compliance with all NAAQS. Areas not in compliance with a standard can be declared *nonattainment* areas by USEPA or the appropriate state or local agency. In order to reach *attainment*, NAAQS may not be exceeded more than once per year. A *nonattainment* area can reach *attainment* when NAAQS have been met for a period of 10 consecutive years. During this time period, the area is in *transitional attainment*, also termed *maintenance*.

Under the CAAA, the Title V Operating Permit Program imposes requirements for air quality permitting on emission sources of air pollutants. The base would be categorized as a major source under the Title V program if its potential emissions from stationary sources exceed 100 tons per year (tpy) of any of the criteria pollutants; or ten or 25 tpy of any single or combination of hazardous air pollutants (HAPs), respectively. Also under the CAAA, the National Emission Standards for Hazardous Air Pollutants (NESHAP) program specifies various provisions for regulated sources, including limits on HAP emissions, compliance demonstrations and performance testing, monitoring, record keeping, and reporting. The base would be subject to the NESHAP program if potential emissions of any HAP equals or exceeds 10 tpy or any combination of HAPs equals or exceeds 25 tpy.

3.2.1.3 Climate Change

Global climate change is a transformation in the average weather of the Earth, which can be measured by changes in temperature, wind patterns, and precipitation. Scientific consensus has identified human-related emission of greenhouse gases (GHGs) above natural levels as a significant contributor to global climate change (U.S. Climate Change Science Program [USCCSP] 2009). GHGs trap heat in the atmosphere and regulate the Earth's temperature. They include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ground-level O_3, and fluorinated gases such as chlorofluorocarbons and hydrochlorofluorocarbons.

On 1 August 2016, the CEQ released Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. This guidance on describes how and when Federal agencies should account for the effects of greenhouse gas emissions and climate change impacts under NEPA. The guidance uses projected greenhouse gas emissions as a proxy for assessing an action's potential climate change impacts. The guidance also directs agencies to consider the direct, indirect, and cumulative effects of the greenhouse gas emissions from an action, and take into account the effects of connected actions (CEQ 2016).

3.2.2 Existing Conditions

3.2.2.1 Climate

March ARB is located within Riverside County, which has an arid climate, characterized by cool winters and hot summers. Average temperatures in Riverside County range from an average minimum of approximately 43.1 degrees Fahrenheit (°F) in the winter months to an average maximum of 93.2 °F in the summer months with an average annual temperature of 66.7 °F (National Climatic Data Center [NCDC] 2010). Average annual precipitation for Riverside County is

10.3 inches, with the majority of the precipitation occurring in November through April (NCDC 2010).

3.2.2.2 Local Air Quality

March ARB is located within the South Coast Air Basin, under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The South Coast Air Basin consists of Orange County, the western portion of Los Angeles County, the southwestern portion of San Bernardino County, and the western portion of Riverside County. The air basin is currently in extreme *nonattainment* for 8-hour O_3 and moderate *nonattainment* for $PM_{2.5}$. Additionally the air basin is in maintenance for CO, NO_2, and PM_{10} (USEPA 2016a). The South Coast Air Basin is currently designated by the USEPA as an *attainment* area for all other NAAQS criteria pollutants.

The proposed travel corridor for MQ-9 aircraft from March ARB to R-2515 crosses the boundary of South Coast Air Basin into the Mojave Desert Air Basin which is monitored by the Mojave Desert Air Quality Management District (MDAQMD) (refer to Section 2.2.1.3, *Proposed Travel Corridor to R-2515*). Similar to the SCAQMD, the MDAQMD monitors air quality and emissions generated within its jurisdiction. The Mojave Desert Air Bain is currently in severe *nonattainment* for 8-hour O_3 (USEPA 2016a).

3.2.2.3 Emissions at March ARB

According to the Title V major source thresholds, March ARB would be categorized as a major source and would be required to obtain a Title V General Permit from the SCAQMD if the potential emissions from its sources exceed: 100 tpy for SO_x, 70 tpy for PM_{10}, 50 tpy for CO, 10 tpy VOCs or NO_x, or 10 or 25 tpy of any single or combination of HAPs, respectively (SCAQMD 2014).

Table 3-1. National Ambient Air Quality Standards

Pollutant [Final Rule Citation]	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]	P	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]	P & S	Rolling 3 month average	0.15 μg/m³	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]	P	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	P & S	Annual	53 ppb	Annual Mean
Ozone [80 FR 65291, Oct 26, 2015]	P & S	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution [78 FR 3086, Dec 14, 2012] — $PM_{2.5}$	P	Annual	12 μg/m³	annual mean, averaged over 3 years
$PM_{2.5}$	S	Annual	15 μg/m³	annual mean, averaged over 3 years
PM_{10}	P & S	24-hour	35 μg/m³	98th percentile, averaged over 3 years
PM_{10}	P & S	24-hour	150 μg/m³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]	P	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	S	3-hour	0.5 ppm	Not to be exceeded more than once per year

Notes:
FR = Federal Register
ppm = parts per million
ppb = parts per billion
μg/m³ = micrograms per cubic meter
Source: USEPA 2015.

The base currently emits HAPs during the course of operational activities, which include storing fuel, using paints, and running generators. However, with respect to NESHAP and Urban Air Toxics regulations, March ARB is considered to be an area source, as it is not a major source with the potential to emit 10 tpy or more of

HAPs. Consequently, the NESHAP program developed for major industrial/manufacturing categories would not apply to the base.

Stationary Sources

Stationary emission sources at the March ARB include:

- Combustion sources (e.g., jet engine tests, natural-gas-fired generators, water heaters, aircraft arresting barrier engines, diesel-fired generators, and fire pumps, etc.);
- Fuel storage and fuel transfer operations (e.g., fuel storage tanks); and
- Operational sources (e.g., solvents, cleaners, antifreeze, and other materials containing VOCs and HAPs).

The most recent air emissions inventory data available for the base evaluates actual and potential stationary source emissions from the base for calendar year 2014 (USAF 2015a).

Table 3-2. 2014 Stationary Source Criteria Pollutant Emissions at March ARB

Category	Annual Emissions (tons)				
	CO	NO_x	PM	SO_x	VOCs
Permitted Emissions	2.91	0.01	0.13	0.00	1.63
Non-Permitted Emissions	0.48	0.00	0.11	0.01	1.26
Total Emissions	3.39	0.01	0.24	0.01	2.89
Major Source Thresholds	**100**	**100**	**100**	**100**	**10**

Notes: Major source thresholds apply to stationary sources only.
Sources: USAF 2015a; SCAQMD 2014.

Mobile Sources

Mobile emission sources at March ARB include:

- On- and off-road vehicles and equipment, Aerospace Ground Equipment (AGE), and aircraft operations.

Although mobile sources are a component of the total base emissions and a major consideration in performing the conformity analysis, these emissions are not considered under the CAAA Title V Operating Permit Program.

3.3 NOISE

3.3.1 Definition of Resource

Noise is defined as unwanted sound or, more specifically, as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise [FICON] 1992). Human response to noise can vary according to the type and characteristics of the noise source, the distance between the noise source and the receptor, the sensitivity of the receptor, and the time of day.

Due to the wide range in sound levels, sound is expressed in decibels (dB), a unit of measure based on a logarithmic scale. A 10-dB increase in noise level corresponds to a 100-percent increase (or doubling) in perceived loudness. As a general rule, a 3-dB change is necessary for noise increases to be noticeable to humans (Bies and Hansen 1988). Sound measurement is further refined by using an A-weighted decibel (dBA) scale that emphasizes the range of sound frequencies that are most audible to the human ear (i.e., between 1,000 and 8,000 cycles per second). Sound frequency is measured in terms of hertz (Hz), and the normal human ear can detect sounds ranging from approximately 20 to 15,000 Hz. However, because all sounds in this wide range of frequencies are not heard equally well by the human ear, which is most sensitive to frequencies in the 1,000 to 4,000 Hz range, the very high and very low frequencies are adjusted to approximate the human ear's lower sensitivity to those frequencies. This is called "A-weighting" and is commonly used in measurement of community environmental noise. Unless otherwise noted, all decibel measurements presented in the following noise analysis are dBA.

Day-night average A-weighted sound level (DNL) is a noise metric that averages all A-weighted Sound Exposure Level (SEL) values over a 24-hour period, with an additional 10-dB penalty added to noise events occurring between 10:00 P.M. and 7:00 A.M. This penalty is intended to compensate for generally lower background noise levels at night and the additional annoyance of nighttime noise events. DNL is the preferred noise metric of the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation, FAA, USEPA, Veterans Affairs, and Department of Defense (DoD).

The State of California has selected Community Noise Equivalent Level (CNEL) as its preferred noise metric for use in land use planning and has promulgated a set of airport noise regulations based on this metric (California Code of Regulations, Title 21, Divisions 2.5, Chapter 6). Under these regulations, 65 dB CNEL is established as the threshold above which residences are not normally compatible. The definition of CNEL is similar to DNL except that the daytime hours are defined from 7:00 A.M. to 7:00 P.M. and the evening hours are introduced and defined from 7 p.m. to 10 p.m., with a 5-dB adjustment added to those noise events which occur during the evening hours. The nighttime hours (10:00 P.M. to 7:00 A.M.) adjustment of 10 dB is identical to that of DNL.

Analyses of aircraft noise exposure and compatible land uses around DoD facilities are normally accomplished using a group of computer-based programs, collectively called NOISEMAP (USAF 1992). NOISEMAP, through its program BASEOPS, allows entry of runway coordinates, airfield information, flight tracks, flight profiles (i.e., engine thrust settings, altitudes, and speeds) along each flight track for each aircraft, numbers of flight operations, run-up coordinates, run-up profiles, and run-up operations. The FAA's Integrated Noise Model (INM) also allows entry of all of the aforementioned parameters and is used to analyze aircraft at public/civilian airports.

In airport noise analyses, noise contours are used to help determine compatibility of aircraft operations and local land uses. Although noise resulting from aircraft flight operations represents the greatest contribution to the overall noise environment near the airfield, other noise sources (e.g., highway traffic) may also influence total ambient noise levels. Other activities that may generate substantial amounts of noise at an airport include engine preflight run-ups and aircraft maintenance activities, industrial operations, and construction activities.

Although aircraft maintenance actions and industrial operations may generate large amounts of noise, they are typically confined to the airfield and industrial areas. Construction activities, on the other hand, may occur anywhere on the site and result in disturbance to on-site personnel or off-site noise-sensitive receptors (e.g., housing areas and schools). However, construction noise tends to be localized and temporary and may be reduced through use of special equipment or scheduling restrictions.

Table 3-3 identifies noise levels associated with some common indoor and outdoor activities and settings. Table 3-3 also indicates the subjective human judgments of noise levels, specifically the perception of noise levels doubling or being halved. For reference purposes, a baseline noise level of 70 dB is described as moderately loud. As can be seen in the table illustrating the logarithmic dB scale, humans perceive an increase of 10 dB as a doubling of loudness, while an increase of 30 dB corresponds with an eight-fold increase in perceived loudness.

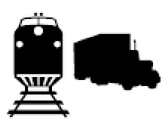
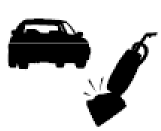
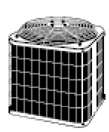
3.3.1.1 Land Use Guidelines and Ambient Noise

Guidelines established by FICON are used by HUD to determine acceptable levels of noise exposure for various land use categories. Land use categories most sensitive to ambient noise are residential, institutional, cultural, and some recreational uses. Industrial land uses are the least sensitive to surrounding noise, largely due to the inherently high levels of ambient noise associated with industrial activities.

According to FICON, the following communities have the indicated typical ranges of outdoor DNL noise levels: *Quiet Suburban*, 48 to 52 dB; *Normal Suburban*, 48 to 57 dB; and *Urban Residential* 58 to 62 dB (FICON 1992). Noise levels from flight operations exceeding ambient background noise typically occur beneath main approach and departure corridors, under local air traffic patterns around the airfield, and in areas immediately adjacent to parking ramps and aircraft staging areas. As departing aircraft gain altitude, their noise contribution drops to levels indistinguishable from the ambient background.

The proposed travel corridor from March ARB to R-2515 is described in detail in Section 2.2.1.3, *Proposed Travel Corridor to R-2515*. MQ-9 aircraft traveling along this route would fly at an altitude of 8,500 feet MSL during transit to R-2515 and at an altitude of 9,500 feet MSL returning to March ARB. The proposed Perris Lost Link Orbit is described in Section 2.2.1.5, *Lost Link Flight Profile and Emergency Procedures*. Under the Proposed Action MQ-9 aircraft utilizing the Perris Lost Link Orbit would fly in clockwise circles above a rural, uninhabited area at an altitude of 9,500 feet MSL. As described in Section 4.3, *Noise* the proposed travel corridor

Table 3-3. Sound Levels of Typical Noise Sources and Noise Environments

	Over-all Level (Noise level, dB(A))		**Community** (Outdoor)	**Home or Industry** (Indoor)	**Loudness** (Human Judgement of Different Sound Levels)
	120-130	Uncomfortably Loud	Military Jet Aircraft Take-Off With After-Burner From Aircraft Carrier @ 50 ft. (130)	Oxygen Torch (121)	32 times as loud as 70 dB(A)
	110-119		Turbo Fan Aircraft @ Take-Off Power @ 200 ft. (118)	Riveting Machine (110) Rock and Roll Band (108-114)	16 times as loud as 70 dB(A)
	100-109		Boeing 707, DC-8 @ 6080 ft. Before Landing (106), Jet Flyover @ 1000 ft. (103), Bell J-2A Helicopter @ 100 ft. (100)		8 times as loud as 70 dB(A)
	90-99	Very Loud	Power Mower (96) Boeing 707, CD-8 @ 6080 ft. Before Landing (97) Motorcycle @ 25 ft. (90)	Newspaper Press (97)	4 times as loud as 70 dB(A)
	80-89		Car Wash @ 20 ft. (89) Propellor Plane Flyover @ 1000 ft. (88) Diesel Truck, 40 mph @ 50 ft. (84) Diesel Train, 45 mph @ 100 ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	2 times as loud as 70 dB(A)
	70-79	Moderately Loud	High Urban Ambient Sound (80) Passenger Car, 65 mph @ 25 ft. (77) Freeway @ 50 ft. From Pavement Edge @ 10 a.m. (76 +/- 6)	Living Room Music (76) TV-Audio, Vacuum Cleaner (70)	
	60-69		Air Conditioning Unit @ 100 ft. (60)	Cash Register @ 10 ft. (65-70)	1/2 as loud as 70 dB(A)
	50-59	Quiet	Large Transformers @ 100 ft. (50)		1/4 as loud as 70 dB(A)
	40-49		Bird Calls (44) Lower Limit of Urban Ambient Sound in daytime (40)		1/8 as loud as 70 dB(A)
		Just Audible	**dB(A) Scale Interrupted**		
	0-10	Threshold of Hearing			

Source: Branch and Beland 1970.

and Perris Lost Link Orbit would not have any discernable impacts on noise levels at the ground level. Therefore, ambient noise beneath the proposed travel corridor and Perris Lost Link Orbit is not described in detail for this resource area.

3.3.2 Existing Conditions

3.3.2.1 Regional Setting

March ARB is located in Southern California within western Riverside County. The City of Riverside is located to the northwest of the base, the City of Moreno Valley is located to the north and east, and the City of Perris is located to the south. Additionally, unincorporated Riverside County lands are located to the west. As described in further detail in Section 3.4, *Land Use*, March Joint Powers Authority (JPA) has land use authority for the land immediately surrounding March ARB, which consists of residential, commercial, and light industrial development (USAF 2005). Much of the area surrounding March ARB is moderately populated, with noise levels of correspondingly moderate magnitude. The noise environment of communities surrounding March ARB is characteristic of a quiet suburban environment–setting that typically experiences noise associated with vehicles on local highways and aircraft activities. Major transportation routes in the vicinity include the Interstate (I-) 215, which is located to the west of March ARB and has Annual Average Daily Traffic (AADT) between 51,000 and 89,000 vehicles (Federal Highway Administration 2002).

3.3.2.2 March ARB Operations

Aircraft noise dominates the noise environment in the vicinity of March ARB. Several types of based, transient, contract, and civilian aircraft operate at March ARB. However, the majority of military aircraft operations are conducted by KC-135R “Stratotanker” and C-17 “Globemaster III” aircraft. Table 3-4 describes L_{max} noise levels associated with direct overflight of KC-135R and C-17 aircraft in takeoff, landing, and cruise configurations. Aircraft typically utilize takeoff and landing configurations during initial ascent from and final descent to the runway. Cruise configuration is typically used when aircraft are flying at pattern altitude or engaged in maneuvers outside of March ARB Class C airspace.

Table 3-4. L_{max} Associated With Direct Overflight of KC-135R and C-17 Aircraft

Aircraft	Engine Power Setting	Airspeed (knots)	Altitude (feet AGL)					
			500	1,000	2,000	7,000	10,000	20,000
KC-135R								
Takeoff	89.6 %NF	300	93.9	87.1	79.8	64.4	59.1	47.0
Landing	66.5 %NF	150	90.4	83.4	75.8	59.7	54.2	42.1
Cruise	75.0 %NF	240	91.5	84.6	77.0	61.0	55.5	43.1
C-17								
Takeoff	95.0 %NC	200	103.7	96.1	88.1	70.7	67.6	57.2
Landing	86.0 %NC	120	97.4	89.0	79.4	59.0	55.5	44.3
Cruise	86.0 %NC	230	95.7	87.1	77.1	55.4	51.8	40.4

Notes: L_{max} was calculated under standard acoustic atmospheric conditions (70°F and 59% relative humidity). %NF = Fan Speed; %NC = Core Engine Fan Speed
Source: USAF 2010a.

Military and civilian aircraft operations at March ARB were modeled in 2010 using NOISEMAP and the FAA's INM as a part of the *Environmental Assessment for Proposed Military Construction and Total Force Integration* (USAF 2010a). As shown in Figure 3-2, proposed aircraft operations generated noise contours of 60, 65, 70, 75, 80, and 85+ CNEL. The 80 and 85+ 80 CNEL contours remained within March ARB property; however, the 60, 65, 70, and 75 CNEL contours extended beyond March ARB property.

Table 3-5 Land Area Affected by CNEL Noise Levels Greater Than 60 dB

Noise Level (CNEL)	Off-Base (acres)	On-Base (acres)	Total (acres)
60-64	3,875.2	347.9	4,223.2
65-69	1,429.3	315.8	1,745.2
70-74	388.6	506.9	895.5
75-79	28.9	317.2	346.1
80-84	0.0	185.3	185.3
Greater than 85	0.0	122.4	122.4
Total	**5,722.0**	**1,795.6**	**7,517.6**

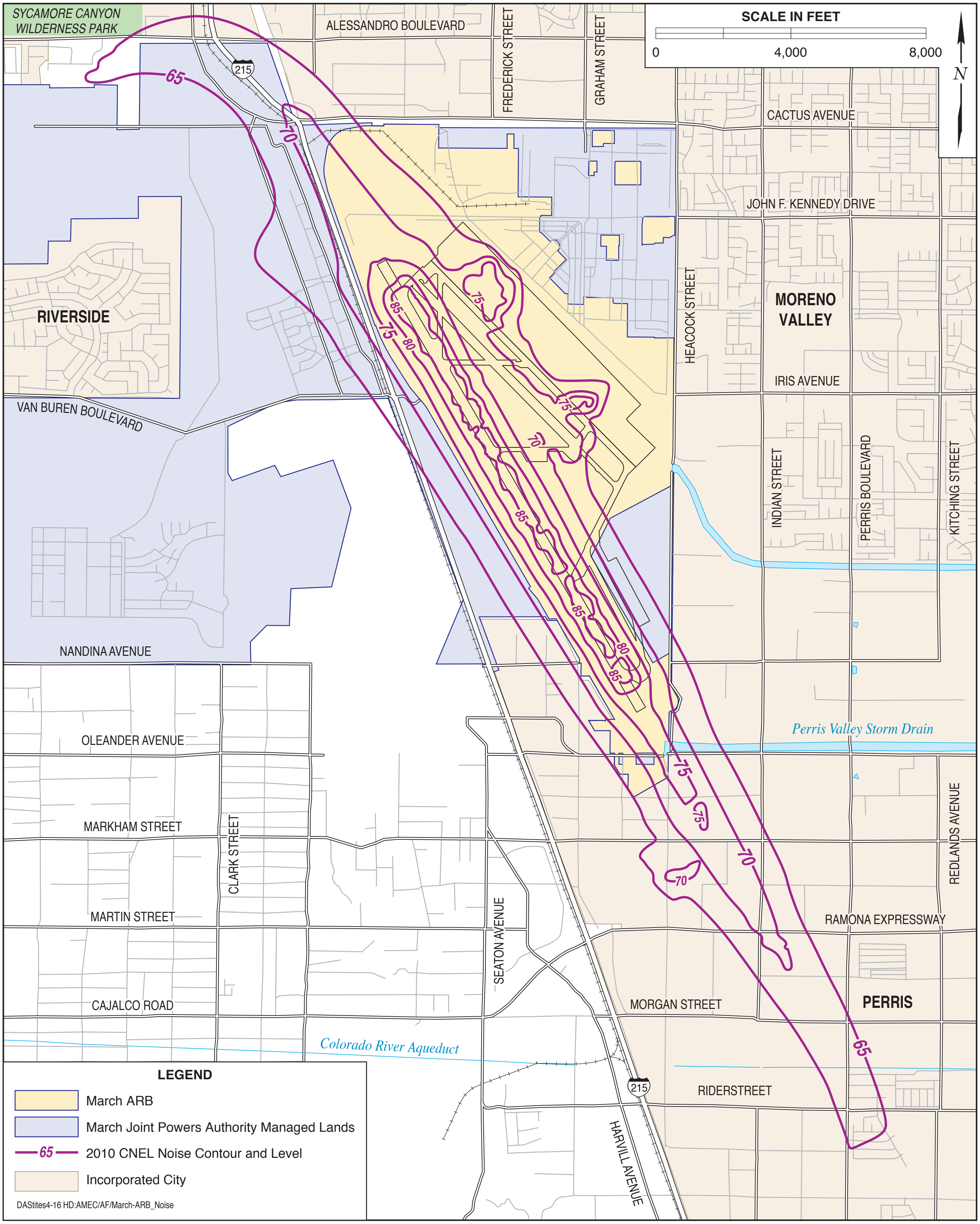
Source: USAF 2010a.

Public annoyance is the most common concern associated with exposure to elevated noise levels. The DNL noise metric has been strongly correlated to public annoyance (Finegold et al. 1994). When subjected to DNL levels of 65 dB, approximately 12 percent of the persons exposed will be "highly annoyed" by the noise. At levels below 60 dB, the percentage of annoyance is substantially lower (less than 8 percent), and at levels above 70 dB, it is substantially higher greater than 25 percent). The CNEL metric itself is essentially the same as DNL except for the method of treating nighttime noises. For most time distributions of aircraft noise around airports, the numerical difference between a two-period and three-period day are not significant, being of the order of several tenths of a dB at most (USEPA 1974).

Land uses in the vicinity of March ARB exposed to aircraft noise levels exceeding 60 dB CNEL include agricultural, commercial, industrial, mixed, public, residential, and transportation (roads). Areas to the north of March ARB that are exposed to noise levels exceeding 60 CNEL are primarily commercial, industrial, and residential. To the south, the majority of areas affected by 60 CNEL or greater are agricultural, industrial, and commercial, with some residential development.

It should be noted that some additional noise results from day-to-day activities associated with operations, maintenance, and the industrial functions associated with the operation of March ARB. These noise sources include the operation of ground-support equipment, and other transportation noise from vehicular traffic; however, this noise is generally localized in industrial areas on or near the Base. Noise resulting from aircraft operations remains the dominant noise source in the base vicinity.

March ARB maintains an Air Installation Compatible Use Zone (AICUZ) Program intended to promote compatible land uses in nongovernment areas adjacent to March ARB (USAF 2005). The AICUZ study outlines the location of runway clear zones, aircraft accident potential zones, and noise contours. In addition, incompatible land uses are identified and compatible land use recommendations are provided for areas in the vicinity of the base. Three types of planning controls (e.g., compatible zoning, building code modifications, and avigation easements) have been developed to minimize conflicts between military and civilian airfields nearby communities (USAF 2005).



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2010 Noise Contours March ARB

FIGURE 3-2

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.

3.4 LAND USE

3.4.1 Definition of Resource

Land use can be separated into two primary categories: *natural* and *human-modified*. *Natural* land cover includes woodlands, rangeland, grasslands, and other open or undeveloped areas. *Human modified* land use includes residential, commercial, industrial, agricultural, institutional, and recreational developments as well as communications and utilities, and any other areas altered from a natural land cover condition. Land use is regulated by management plans, policies, regulations, and ordinances (e.g., zoning) that determine the type and extent of land use allowable in specific areas and that protect specially-designated or environmentally-sensitive areas.

Several siting criteria have been established specific to land development and use at commercial and military airfields. To maintain safety, the USAF has established siting criteria in AFI 32-1026, *Planning and Design of Airfields*, and Air Force Manual (AFM) 32-1013, *Airfield and Heliport Planning Criteria*, for land development of USAF military installations. These criteria include clear zones, obstruction zones relative to runways, and Explosive Safety Quantity Distance (ESQD) criteria relative to storage of munitions. While these criteria are related to safety, they are used to assist decision-makers and planners with appropriate siting of facilities on ANG installations. FAA airfield criteria are used at commercial airports and are generally the same as the USAF criteria. In addition, several regulations address security requirements for military bases (e.g., Anti-Terrorism/Force Protection [AT/FP] criteria) and have implications on the physical layout and design of installations.

The DoD has developed AT/FP standards which are designed to reduce the likelihood of mass casualties from potential terrorist attacks. UFC 4-010-01, *DoD Minimum Anti-terrorism Standards for Buildings*, and the 9 February 2012 update (UFC 4-010-02) outline various planning, construction, and operational standards to address potential terrorist threats. A key element of AT/FP standards is the establishment of minimum setbacks and other security standoffs between mass gathering facilities and potentially non-secure adjacent uses (e.g., parking lots, areas outside of security fences, etc.). AT/FP setbacks typically extend outward from the sides and corners of facilities for a prescribed distance (e.g., 45 meters); development is either limited or altogether prohibited in such setback areas. Additional AT/FP standards address other facility design and operational considerations, including internal building layout, facility access and security, site circulation, and emergency mass notification.

In general, land use along the proposed travel corridor is a mix of open space (e.g., U.S. Forest Service [USFS] National Forest land), agriculture, and residential areas (i.e., small cities and towns). The proposed travel corridor from March ARB to R-2515 would avoid ground features by 2,000 feet or more and would not result in ground disturbing activities or measurable increases in long-term noise (see Section 4.3, *Noise*) or air quality impacts (see Section 4.2, *Air Quality*). Further, the proposed travel corridor was developed with the FAA in order to avoid overflight of populated areas to the maximum extent possible. The Perris Lost Link Corridor is situated above a rural, uninhabited agricultural area. Therefore, land use beneath the proposed travel corridor or lost link orbit would not be impacted by the implementation of the Proposed Action, and therefore, existing regional land uses beneath these areas are not described in detail.

3.4.2 Existing Conditions

3.4.2.1 Regional Characterization

March ARB is located in Southern California within western Riverside County. The City of Riverside is located to the northwest of the base, the City of Moreno Valley is located to the north and east, and the City of Perris is located to the south. Unincorporated Riverside County lands are located to the west. Economic and population growth in Riverside County is driven, in part, by its proximity to the Los Angeles, which lies 70 miles east of March ARB.

3.4.2.2 Local Land Use

March ARB comprises approximately 2,303 acres in the vicinity of residential, industrial, and agricultural land uses. March ARB itself is mostly developed, with ornamental or landscape plantings or impervious surface covering the majority of land within its boundaries (USAF 2012a). The existing runway at March ARB is a joint-use runway, and it is utilized by the military and the March JPA for civilian air traffic.

The majority of land surrounding March ARB is owned by March JPA. Smaller and more distant land use areas in the vicinity of the base include agriculture and parks (USAF 2004). More specifically land use in the areas surrounding March ARB consists of a redevelopment project to the south called March Inland Port, which is adjacent to the runway and contains commercial air cargo facilities and is part of a larger, planned business and industrial transportation center (USAF 2004). Housing units and other industrial and commercial ventures surround the base. Several small and isolated parcels of March ARB are located west of the base, which have been impacted by March JPA annexations and real estate development.

3.4.2.3 Land Use at March ARB

March ARB currently occupies 2,303 acres between the cities of Riverside and Moreno Valley, approximately 70 miles east of Los Angeles and 100 miles north of San Diego. Long- and short-range planning for the base has been outlined in the March ARB General Plan Update (USAF 2004) as well as the 163 ATKW Installation Development Plan (IDP) (California ANG 2015b). The purpose of these plans is to provide an inventory and analysis of March ARB facilities, identify goals and objectives for ongoing operations, and analyze constraints and opportunities for development. The intent of the IDP, in particular, is to accurately reflect and to support the 163 ATKW's current mission while allowing the maximum amount of flexibility to accommodate and support any future missions. The limited undeveloped acreage on March ARB, its Historic District, and AT/FP setbacks restrict future development. Off-base constraints to military operations and development is primarily due to ongoing real estate development.

Land Use Inventory

At a typical military base, land use categories include airfield pavements, aircraft operations and maintenance, industrial, administrative, community support, medical, unaccompanied and/or accompanied housing, and outdoor recreation and open space. The majority of March ARB is characterized by airfield pavements that are mostly on the western portion of the base. Command and support uses and aircraft operations and maintenance areas are scattered throughout the base but are concentrated around the airfield pavement areas. Generally, the majority of open space on the base is located near the northwestern boundary of the base and in a strip around the airfield pavement area in the southwestern portion of the base (see Figure 3-3) (USAF 2004).

Table 3-6. Land Use at March ARB

Land Use	Acres
Airfield Pavement Areas	1,280.12
Aircraft Operations & Maintenance	358.32
Industrial	67.74
Administrative	42.43
Community Support	18.81
Medical	5.58
Housing (Unaccompanied)	67.74
Outdoor Recreation	119.94
Open Space	341.33
Total	**2,303.01**

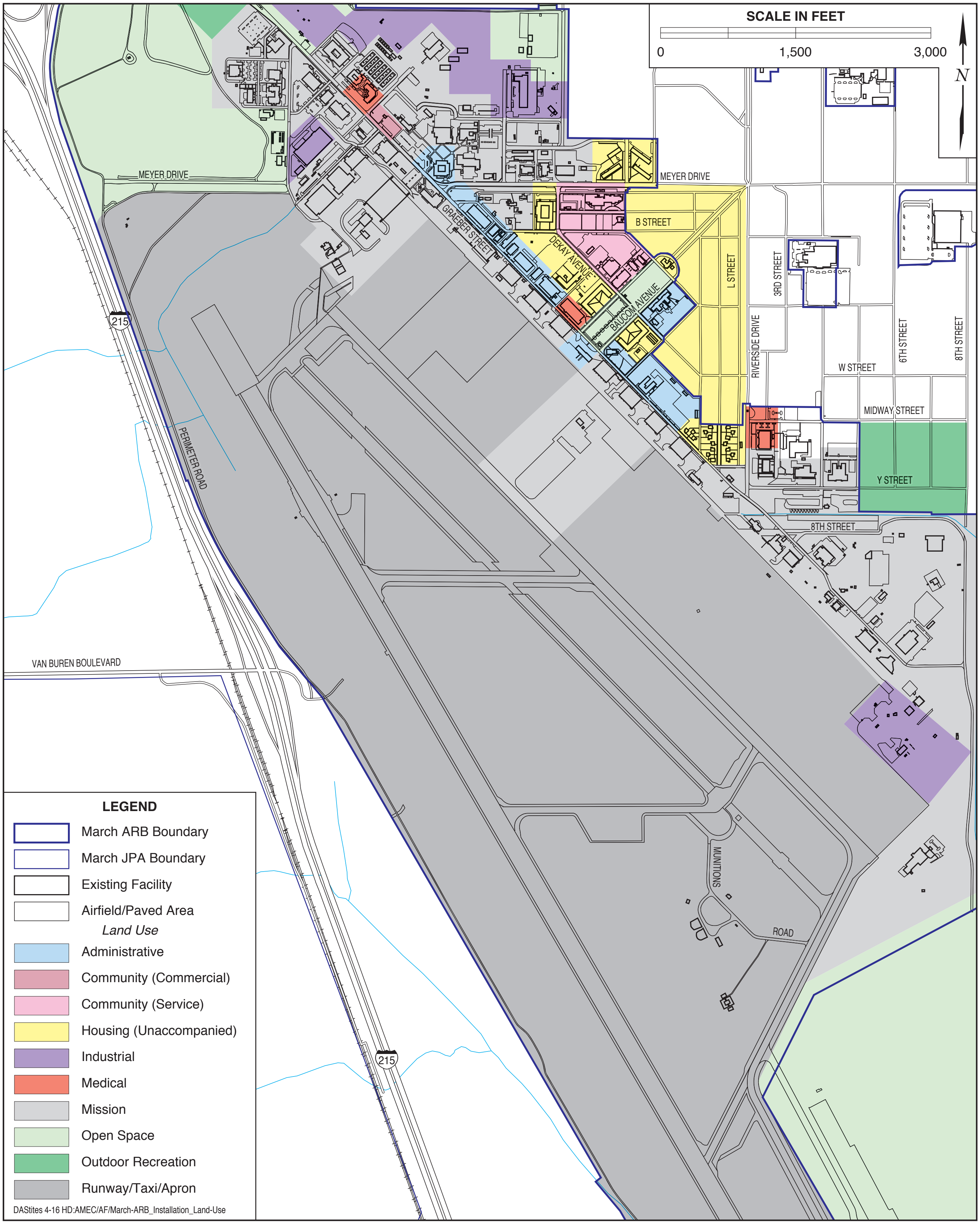
Notes: Land use acreages are approximate and based on GIS calculations.
Source: USAF 2004.

The overwhelming majority of land use at the base consists of airfield pavement areas, which comprise more than half of the land use within the entire base. Airfield pavement uses generally include runways, taxiways, aircraft parking aprons, alert areas, and arm/disarm areas. Aircraft operations and maintenance (approximately 358 acres) is the second largest land use category, followed closely by open space (approximately 341 acres) (USAF 2004).

3.4.2.4 Anti-Terrorism/Force Protection

March ARB has a controlled perimeter that achieves the 45-meter standoff requirements along the north, south, and west boundaries; however, the east boundary fence is less than 45 meters from existing structures on the base. The realignment of the base boundary in this area has created AT/FP vulnerabilities related to the close proximity of residential housing and other civilian functions adjacent to March ARB. There are known AT/FP and physical security issues at

March ARB, including building setbacks, parking lots, and streets, with conflicts that impact 11 parking spaces (California ANG 2015b). Parking and building setback requirements limit the feasibility of developing the remaining parcels on the base (USAF 2004). The March ARB AT/FP Plan includes guidelines for facility access, facility characteristics, facility standoff/separation, parking and roadways, and building layouts (California ANG 2015b). AT/FP standards must be followed for all new development and redevelopment at March ARB. To avoid inefficient and land-intensive development, building materials and methods that minimize the required AT/FP standoff distances for facilities are given top consideration in the design-build process (California ANG 2015b).



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Land Use on March ARB

FIGURE 3-3

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.

3.5 GEOLOGICAL RESOURCES

3.5.1 Definition of Resource

Geological resources consist of surface and subsurface materials and their properties. Principal geologic factors affecting the ability to support structural development are seismic properties (i.e., potential for subsurface shifting, faulting, or crustal disturbance), soil stability, and topography. The term *soil*, in general, refers to unconsolidated materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support man-made structures. Soils typically are described in terms of their complex type, slope, physical characteristics, and relative compatibility or constraining properties with regard to particular construction activities and types of land use. *Topography* is the change in elevation over the surface of a land area. An area's topography is influenced by many factors, including human activity, underlying geologic material, seismic activity, climatic conditions, and erosion. A discussion of topography typically encompasses a description of surface elevations, slope, and distinct physiographic features (e.g., mountains) and their influence on human activities.

As discussed in Section 4.5, *Geological Resources*, implementation of the Proposed Action would not result in any substantial impacts to geology, topography, or soils at March ARB. Additionally, the establishment of the proposed travel corridor from March ARB to R-2515 would avoid all steep topographical features by 2,000 feet or more and would not result in any ground disturbing activities. Therefore, geological resources beneath the proposed travel corridor and lost link orbit are not described in detail for this resource area.

3.5.2 Existing Conditions

3.5.2.1 Regional Setting

The western portion of Riverside County is located on Tertiary alluvial fan deposits derived from local terrains of plutonic rocks, sand, and minor gravel as well as Quaternary alluvium and marine deposits dated from the Pliocene to Holocene periods (between 65 and 180 million years old). Additionally, there are deposits of metasedimentary rocks interspersed in the alluvial fields from the Paleozoic age (between 250 million and 540 million years ago). Geologic units in the area consist of: alluvial gravel and sand, sandstone, quartz diorite, granite, and biotite quartz (Morton and Cox 2001).

The topography of Riverside County has pronounced grades from both the Transverse and Peninsular mountain ranges. Topography within the City of Riverside area ranges from 750 feet MSL in the southeast to 1,600 feet MSL in the northwest, and is part of a topographical features which separate the high desert elevations to the east and lower coastal elevations to the west. Distinct landforms in the region include the Santa Ana, San Bernardino, San Gabriel, and San Jacinto Mountains.

3.5.2.2 March ARB

Geology

March ARB is located in the northern portion of the Perris Plain, a north-south trending alluvial valley, bounded by low-lying granitic bedrock and a series of tributary valleys defined by four surrounding mountain ranges. Perris Plain alluvial deposits are largely composed of alternating layers of clay, silt, sand, and gravel of mixed composition. Alluvial fill at and around March ARB can vary from only a few feet to approximately 300 feet in thickness. The western region of March ARB includes hilly terrain offset by small canyons (i.e., the Perris Erosional Surface), whereas other parts of the base are located on the valley floor. Formations underlying March ARB are generally composed of monzonite or granodiorite granites, primarily consisting of quartz, plagioclase, and feldspar (USAF 1996).

Topography

Topography on March ARB is generally flat and elevations range from 1,480 feet MSL in the southeast portion of the base and 1,550 feet MSL in the northwest portion of the base. In the main cantonment area, topography is relatively flat, with slopes of less than 1 percent.

<u>Soils</u>

Soils information for March ARB is largely derived from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey of Western Riverside (Knecht 1971) as well as USDA NRCS Official Soil Series Descriptions (USDA 2016a).

March ARB has seven distinct soil series (see Table 3-7 and Figure 3-4). The majority of the March ARB can be described as Monserate sandy loam (0 to 5 percent slopes), occurs predominantly in the north and central portions of the base (USDA 2016b). This soil unit is found on terraces and old alluvial fans at elevations from 700 to 2,500 feet MSL. Monserate sandy loam is moderately well to well-drained, formed in alluvium derived primarily from granitic materials, and is associated with Fallbrook, Greenfield, Hanford, Placentia, Ramona, and Vista soils. Monserate sandy loam has very slow to moderately slow permeability, slow runoff, and a slight erosion hazard. Potential limitations to construction are moderate shrink-swell potential and relatively shallow depth to hardpan (Knecht 1971). The Exeter, Fallbrook, Greenfield, Hanford, and Ramona Sandy Loam soils occur intermittently in the southern and southeastern regions of the base. Characteristics of each soil unit or soil series are summarized below and in Table 3-7.

<u>Natural Hazards</u>

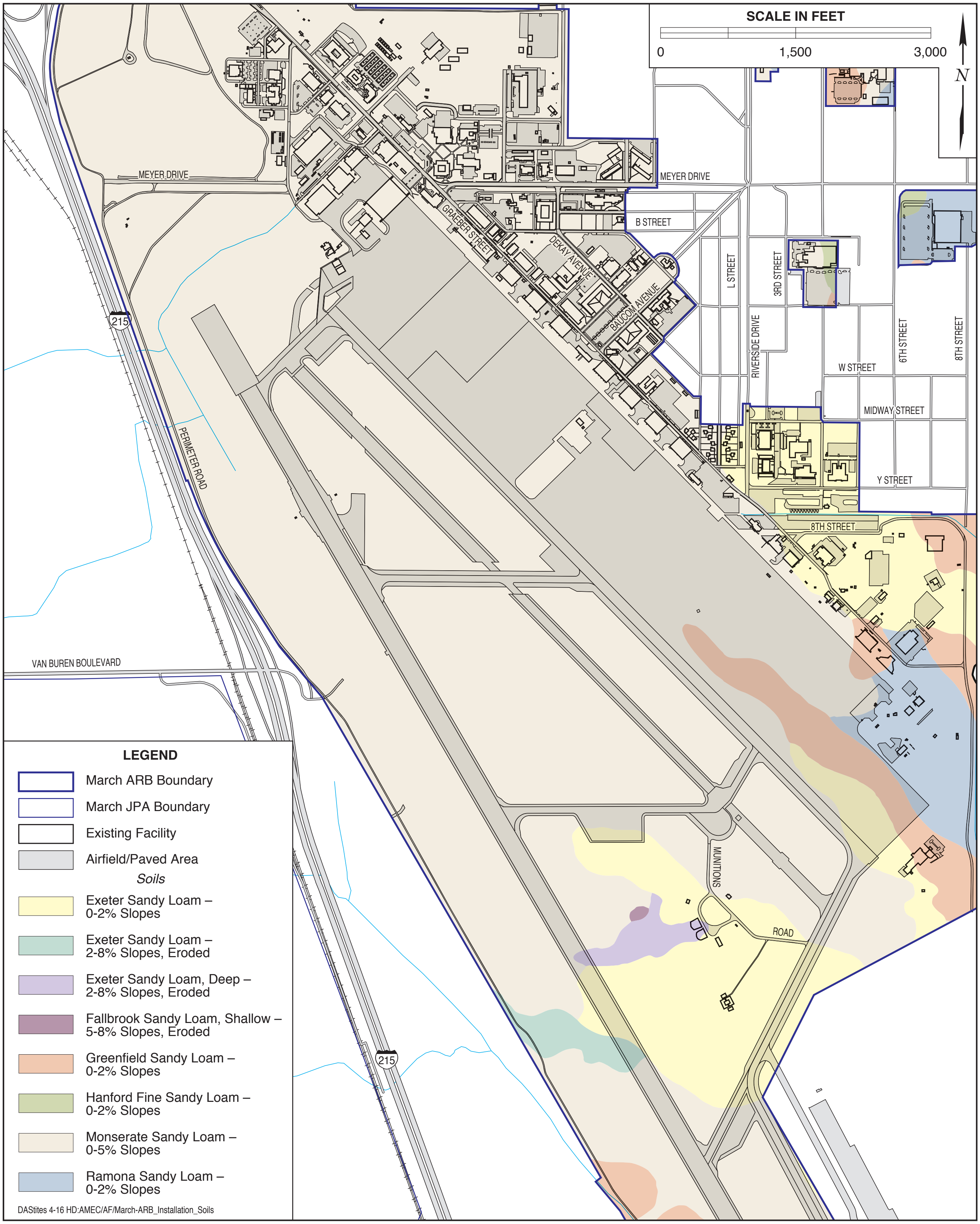
March ARB is located near two major active fault zones: the Elsinore-Whittier (approximately 13 miles to the southwest), and the San Jacinto (approximately 7 miles to the northeast). Due to its proximity to these fault zones, March ARB is located in Seismic Hazard Zone IV, indicating that the area is characterized by the potential for earthquakes capable of producing damage corresponding to intensities of VII or higher on the Modified Mercalli Intensity Scale (which roughly corresponds to a magnitude 6 earthquake on the Richter Scale). No active fault zones are known to be located within the boundaries of March ARB (USAF 2003).

Table 3-7. Soil Types and Characteristics

Soil Map Unit	% Land Area	Permeability	Available Water Capacity	Runoff	Erosion Hazard	Limitation for Shallow Excavations
Exeter Sandy Loam Series	11.7	Moderate to moderately slow	Low to moderate	Slow to medium	Slight to moderate	Moderate shrink-swell potential; depth to hardpan
Fallbrook Sandy Loam Series	0.3	Moderate	Low	Medium to rapid	Moderate to high	Moderate shrink-swell potential' depth to rock; erosion hazard
Greenfield Sandy Loam	5.0	Moderately rapid	Moderate to High	Slow	Low to slight	Soil is favorable
Hanford Sandy Loam	1.5	Moderately rapid	Moderate to high	Slow	Slight	Moderate shrink-swell potential; depth to hardpan
Monserate Sandy Loam	70.2	Very slow to moderately slow	Low to moderate	Slow	Slight	Moderate shrink-swell potential' depth to hardpan
Ramona Sandy Loam	10.5	Moderately slow	High	Slow	Slight	Soil is favorable

Sources: USDA 2016a, 2016b.

Another potential seismic-related hazard is from liquefaction of soils during a seismic event; however, the relative density and cohesive nature of the underlying alluvium results in a much lower probability of liquefaction on March ARB than in other parts of the region.



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Soils on March ARB

FIGURE 3-4

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.

3.6 WATER RESOURCES

3.6.1 Definition of Resource

Water resources evaluated in this analysis include surface water and groundwater. The quality and availability of surface and groundwater and potential for flooding are addressed in this section. Surface water resources comprise lakes, rivers, and streams and are important for a variety of reasons including ecological, economic, recreational, aesthetic, and human health. Groundwater comprises the subsurface hydrologic resources of the physical environment and is an essential resource in many areas; groundwater is commonly used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition.

Wetlands are defined by the U.S. Army Corps of Engineers (USACE) and USEPA as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR § 328.3 [b]). Wetlands provide a variety of functions including groundwater recharge and discharge; flood flow alteration; sediment stabilization; sediment and toxicant retention; nutrient removal and transformation; support of aquatic and terrestrial diversity and abundance; and uniqueness. Three criteria are necessary to define wetlands: vegetation (hydrophytes), soils (hydric), and hydrology (frequency of flooding or soil saturation). *Hydrophytic vegetation* is classified by the estimated probability of occurrence in wetland versus upland (non-wetland) areas throughout its distribution. *Hydric soils* are those that are saturated, flooded, or ponded for sufficient periods during the growing season and that develop anaerobic conditions in their upper horizons (i.e., layers). *Wetland hydrology* is determined by the frequency and duration of inundation and soil saturation; permanent or periodic water inundation or soil saturation is considered a significant force in wetland establishment and proliferation. Jurisdictional wetlands are those subject to regulatory authority under Section 404 of the Clean Water Act (CWA) and Executive Order (EO) 11990, *Protection of Wetlands.*

Other issues relevant to water resources include watershed areas affected by existing and potential runoff and hazards associated with 100-year floodplains. Floodplains are belts of low, level ground present on one or both sides of a stream channel and are subject to either periodic or infrequent inundation by flood water. Inundation dangers associated with floodplains have prompted Federal, state, and local legislation that limits development in these areas largely to recreation and preservation activities. EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input* amends EO, 11988, *Floodplain Management* with the intent of improving the resilience of communities and Federal assets against the impacts of flooding, which is anticipated to intensify over time due to the effects of climate change and other threats.

As discussed in Section 4.6, *Water Resources*, implementation of the Proposed Action would not result in any substantial impacts to surface water resources at March ARB. Additionally, the establishment of the proposed travel corridor from March ARB to R-2515 or the proposed Perris Lost Link Orbit would not result in any ground disturbing activities that could potentially affect underlying water resources. Therefore, water resources beneath the travel corridor and proposed lost link orbit are not described in detail for this resource area.

3.6.2 Existing Conditions

3.6.2.1 Regional Setting

<u>Surface Water</u>

Water resources in California are under the jurisdiction of the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs), which enforce water quality standards and requirements and implement state and Federal laws and regulations related to water resources. Each of the nine Regional Boards has adopted a Water Quality Control Plan, or Basin Plan, which recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions and problems.

Riverside County, which spans 18 watersheds, is located within the jurisdiction of the Santa Ana and Colorado River RWQCBs (California Department of Conservation 2016; SWRCB 2013). There are five primary rivers in Riverside County. The western portion of the county primarily drains to the Santa Ana River and Santa Margarita River while the eastern region of the county drains to the Colorado River. In central Riverside County, the San Jacinto River drains to Lake Elsinore, and Whitewater River empties to the Salton Sea (County of Riverside 2016).

The Santa Ana River watershed is Southern California's largest watershed, covering nearly 3,000 square miles. The Santa Ana River begins in the San Bernardino Mountains and discharges into the ocean at Huntington Beach. It contains 50 tributaries. Within Riverside County, the following 10 water features assist in flood control, provide water supply, and recreational use: Lake Matthews, Lake Elsinore, Canyon Lake, Perris Reservoir, Mystic Lake, San Jacinto Reservoir, Diamond Valley Lake, Lake Hemet, Vail Lake, and Lake Skinner (USEPA 2016b).

<u>Groundwater</u>

The California Coastal Basin aquifer and Basin and Range basin-fill aquifers underlay Riverside County (U.S. Geological Survey [USGS] 2003). The Riverside Groundwater Basin is a sub-basin of the California Coastal aquifer and drains from alluvial fill that is bounded by major faults and topographic barriers. Groundwater in the subbasin is found chiefly in Quaternary age alluvial deposits of sand, gravel, silt, and clay deposited by the Santa Ana River and its tributaries. Near the City of Riverside, the upper 50 feet of deposits are principally clay (California Department of Water Resources 2004). Recharge to the basin occurs by the underflow from basins to the north, contributions from the Santa Ana River, and from percolation of surface water runoff from the surrounding uplands, in particular the Box Spring Mountains to the east. The City of Riverside currently produces about 18,000 acre-feet per year of water from the southern portion of the Riverside Basin (Santa Ana Watershed Project Authority 2016).

3.6.2.2 Water Resources at March ARB

Surface Water

March ARB is located within the 770 square-mile San Jacinto watershed sub-basin, part of the Santa Ana River Basin (USEPA 2016b). The most significant drainage feature in the San Jacinto watershed is the San Jacinto River. The San Jacinto River drains approximately 540 square miles to the Railroad Canyon Reservoir (Canyon Lake), which discharges into Lake Elsinore, and ultimately drains into a tributary of the Santa Ana River (City of Moreno Valley 2006).

No permanent surface water bodies are located within 2.5 miles of the March ARB boundary, with the exception of small impoundments used for agricultural purposes. A portion of the Colorado River Aqueduct passes approximately one mile south of the Base. The aqueduct is a part of the California State Water Project, which carries water from the Colorado River in eastern California to be stored in Lake Matthews and is the primary source of potable water for the base and surrounding municipalities. Lake Matthews is approximately 10 miles west of the Base and Lake Perris, a man-made reservoir that is the southern terminus of the California State Water Project, is approximately 5 miles to the east (USAF 2004).

Streams on and around March ARB are ephemeral, flowing only during and immediately following precipitation events. During heavier precipitation events on the base, ground saturation/flooding may occur. A large percentage of March ARB is covered with impermeable, man-made features that reduce infiltration and increase surface runoff. In general, drainage on the base flows in a southeasterly direction and surface water runoff on the base is dominated by a network of manmade ditches, storm drains, drainage swales, and underground sewer lines. Drainage occurs by overland flow to storm drain inlets connected to a series of underground pipes, or percolates into the groundwater system. All base drainage flows into the Heacock Channel on the eastern boundary of the base and the Oleander Avenue Channel to the south. The system drains into the Perris Valley Storm Drain channel, which flows to the San Jacinto River, 6 miles to the southeast and then eventually to Lake Elsinore (USAF 2014c).

The State of California, through the SWRCB, has adopted final stormwater permits for industrial discharges under the National Pollutant Discharge Elimination System (NPDES) program. March ARB has an individual permit, NPDES No. CA 0111007, to discharge stormwater associated with industrial activity from four outfalls (identified in the permit as Discharge Serial Nos. 001, 002, 003 and 004).

Groundwater

March ARB is underlain by the northwestern portion of the San Jacinto Groundwater Basin, which also underlies portions of the San Jacinto, Perris, Moreno, and Menifee Valleys in western Riverside County. The San Jacinto Groundwater Basin is bounded by the San Jacinto Mountains to the east, the San Timoteo Badlands to the northeast, the Box Mountains to the north, the Santa Rosa Hills and Bell Mountain to the south, and unnamed hills to the west. The San Jacinto Groundwater Basin contains sediments that have filled valleys and underlying canyons to maximum depths of 900 feet in the western parts of the basin. The valley fill deposits are generally divided into younger and older alluvium. Younger alluviums in the northwestern part of the San Jacinto Groundwater Basin have an estimated groundwater yield of 5 to 10 percent, while older alluviums in the San Jacinto Groundwater Basin generally contain more fine material and have a lower groundwater yield (City of Moreno Valley 2006).

The groundwater under March ARB is typical of Basin and Range basin-fill aquifer systems – primarily unconsolidated sand and gravel of Quaternary and Tertiary age – highly permeable systems capable of yielding large quantities of water under unconfined conditions (USGS 2003). The groundwater system for March ARB is almost entirely surrounded by non-water bearing rocks, so that the amount of water flowing in and out of the basin is considered negligible.

Natural recharge comes via infiltration and precipitation and regional groundwater movement appears to follow surficial topology (USAF 1996). Groundwater quality in the vicinity of the base is generally considered good, with total dissolved solid concentrations ranging from 350 ppm to 1,000 ppm; however, in some parts of the Perris Plain, total dissolved solid concentrations can be as high as 12,000 ppm. Past groundwater monitoring on the base has identified contamination by various VOCs, including trichloroethylene and tetrachloroethylene (see Section 3.13, *Hazardous Materials and Wastes*); however, water services to the base rely on an outside supplier and groundwater from the base is not used for potable purposes (USAF 2004).

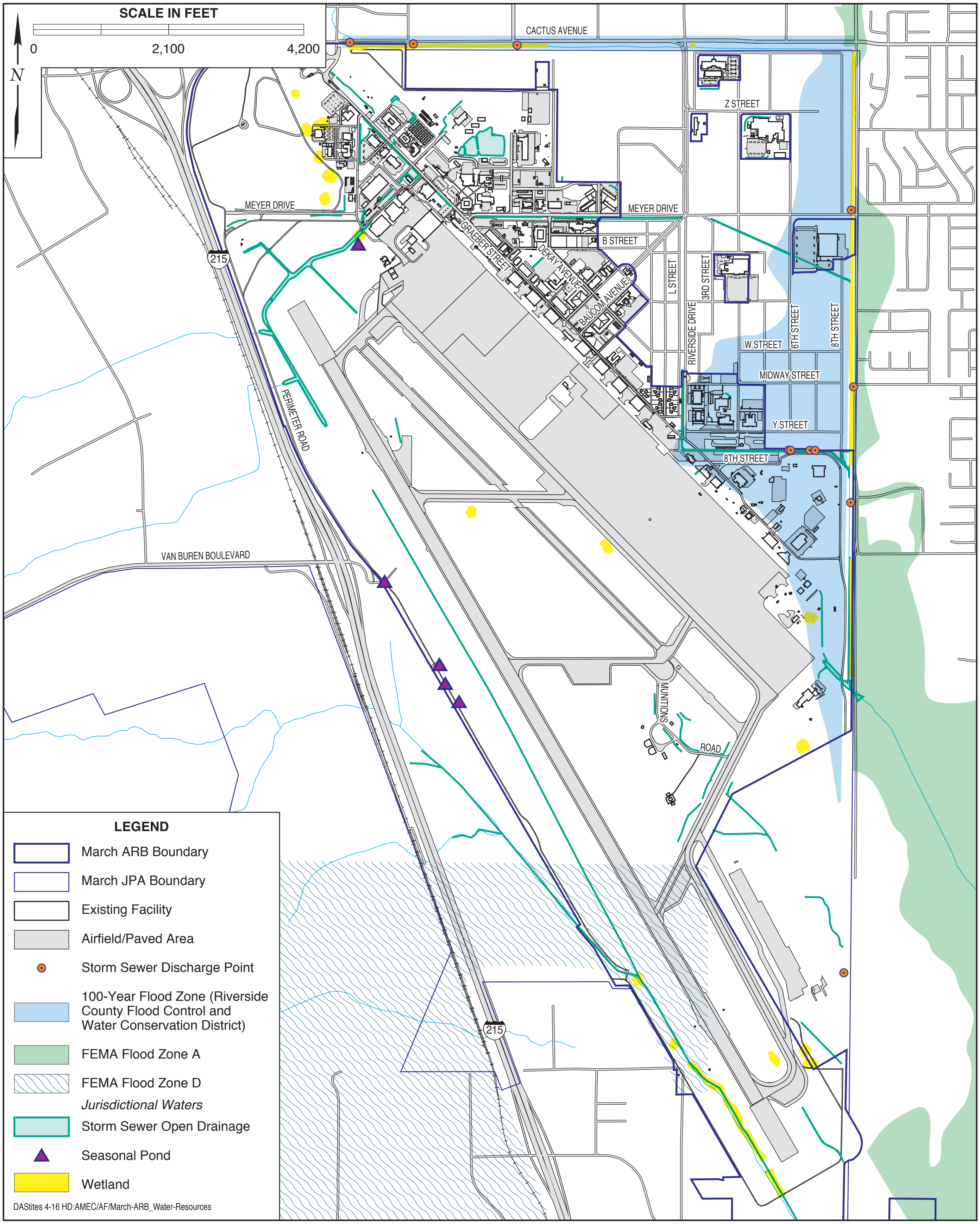
Wetlands

According to the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), which relies on interpretation of aerial imagery, there are no potential wetland areas within the boundaries of March ARB (USFWS 2016b). However, jurisdictional wetlands have been identified and delineated on March ARB as a part of the 2010 Wetland Habitat Assessment and Delineation Report for March ARB and the 2011 USACE Jurisdictional Determination for March ARB (USAF 2012a). A formal USACE Jurisdictional Determination resulted in a Preliminary Jurisdictional Determination finding for 19,200 linear feet of drainages and 28 seasonally ponded features on Base. In addition, four seasonally ponded features that are not under USACE jurisdiction but may be regulated by other Federal, state, or local laws were determined to occur. These wetlands generally occur in the northwestern region of the base and along the base's boundaries to the northwest and southeast (see Figure 3-5). Most of the seasonal ponds were small depressions that supported wetland vegetation and had indications of seasonal or temporary ponding. Some of the ponds were located within or adjacent to drainages and swales, and some were isolated (a sub-set of the isolated ponds had characteristics typical of vernal pools) (USAF 2012a). One wetland plant species commonly observed was dwarf woolly marbles (*Psilocarphus brevissimus* var. *brevissimus*), a small, annual herbaceous plant found in seasonal/vernal pool habitats in western Riverside County (California Department of Fish and Wildlife [CDFW] 1998). Dwarf woolly marbles is an obligate wetland plant species, meaning it is almost always found in wetland habitats in this region.

Floodplains

Per 2008 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panels 06065C0745G, 06065C0765G, and 06065C1410G, the entire area covering March ARB is categorized as either Zone D or Zone X, indicating that extensive floodplain mapping has not occurred, or the area is determined to be outside the 100- or 500-year floodplain, respectively (FEMA 2008)

Areas of Zone A (indicating the area is inside a 100-year floodplain area) lie parallel to the eastern boundary of the base on the east side of 8th Street, and in a small area located north of Alessandro Boulevard, north of the base (FEMA 2008). Preliminary floodplain delineations conducted by the Riverside County Flood Control and Water Conservation District in 1994 found that the eastern portions of the Base are within the 100-year floodplain; however, the modeling has not been subsequently validated and the 2008 FEMA FIRM panels do not reflect this floodplain study. The FEMA Map Assistance Center confirmed that the base has not been mapped (USAF 2012a).



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Water Resources on and near March ARB

FIGURE 3-5

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.

3.7 BIOLOGICAL RESOURCES

3.7.1 Definition of Resources

Biological resources include native or naturalized plants and wildlife species and the habitats in which they occur. Sensitive biological resources are defined as those plant and animal species listed as threatened or endangered, or proposed as such, by the USFWS or CDFW, and designated or known critical habitat for these species. Plants and wildlife species listed as threatened or endangered by the USFWS are formally protected under the Federal Endangered Species Act (ESA) of 1973. This law prohibits any action, administrative or real, that results in a "taking" of a listed species, or adversely affects habitat. State listed plants and wildlife species are protected under the California Endangered Species Act (CESA). Additionally a number of sensitive species are protected under California Fish and Game Code. Additionally, the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (Public Law [PL] 87-884; 16 U.S. Code [USC] §668a-d) prohibits the taking or harming (i.e. harassment, sale, or transportation) of bald eagles or golden eagles, including their eggs, nests, or young, without appropriate permit.

Migratory birds, as listed in 50 CFR 10.13, are ecologically and economically important to the U.S. Recreational activities, including bird watching, studying, feeding, and hunting, are practiced by many Americans. The Migratory Bird Treaty Act (MBTA) of 1918 (PL 65-186; 16 USC §703 et seq.) provides for regulations to control taking of migratory birds, their nests, eggs, parts, or products without the appropriate permit and provides enforcement authority and penalties for violations. Additionally, in 2001, EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, was issued to focus attention of Federal agencies on the environmental effects to migratory bird species and, where feasible, implement policies and programs, which support the conservation and protection of migratory birds.

For purposes of this analysis, these resources are divided into three major categories: vegetation, wildlife, and threatened and endangered species.

3.7.2 Existing Conditions

3.7.2.1 Regional Setting

March ARB and the proposed travel corridor (refer to Section 2.2.1.3, *Proposed Travel Corridor to R-2515*) are located within the California Coastal Chaparral Forest and Shrub Province Ecoregion (USEPA 2011). These ecoregions are characterized by hot, dry summers and mild, rainy winters (refer to Section 3.2, *Air Quality*). Several tree species are endemic to the area, and the coastal plains and larger valleys contain sagebrush and grassland communities; riparian areas in the region support a diverse flora (Bailey et al. 1995).

This region is characterized by scrub vegetation commonly known as chaparral, a community of woody plants prone to fire and adapted to the climatic conditions of Southern California. Coastal Sage Scrub was historically the most prevalent chaparral community in the area surrounding March ARB (Schoenherr 1992). Coastal Sage Scrub occurs is dominated by California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and prickly pear cactus. To the north within San Bernardino County, plant communities include mixed conifer forests (*Pinus* spp.), oak woodlands (*Quercus* spp.), and pinyon juniper stands (*Juniperus* spp. and *Pinus* spp.).

3.7.2.2 Vegetation

<u>March ARB</u>

The majority of March ARB has been highly developed and is characterized by impervious surfaces and landscaped vegetation. The dominant plant community within the main cantonment area of March ARB and in the areas immediately surrounding the airfield, is open non-native grasslands, which regularly mowed to reduce Bird/Wildlife Aircraft Strike Hazard (BASH) potential (see Section 3.14, *Safety*). The original vegetation on the eastern half of the main cantonment area has been removed or significantly altered by development, construction, landscaping, and other disturbances resulting from its use over the years. Very few native plant communities occur on the base (USAF 2012a).

Five general vegetation communities and land cover types have been documented on March ARB during biological resources surveys. These include non-native grassland, seasonal wetlands/vernal pools, disturbed, landscaped, and developed. Non-native grasslands are dominated by short grasses 0.6 to 1.6 inches in height, such as Bermuda grass (*Cynodon dactylon*), with native shrubs such as goldenbush (*Isocoma menziesii*) occasionally present but limited in due to frequent mowing. Seasonal wetlands and vernal pools and are an important and unique habitat for a number of native plants; species observed in this vegetative community include valley popcorn flower (*Plagiobothrys canescens*) and California plantain (*Plantago erecta*), among others. Landscaped communities on the base are composed of common grasses and planted garden species, both native and non-native. Examples of plant species found in landscaped areas include Kentucky bluegrass (*Poa pratensis*) and ornamental pine (*Pinus* spp.). Developed areas are devoid of vegetation, and include buildings and paved areas (USAF 2012a).

Proposed Travel Corridor and Perris Lost Link Orbit

Although no systematic or comprehensive vegetation surveys have been conducted beneath the proposed travel corridor and Perris Lost Link Orbit, vegetation in undeveloped areas beneath the proposed travel corridor and the Perris Lost Link Orbit are similar to the undeveloped areas in the vicinity of March ARB, including California Chaparral, dominated by brittlebrush (*Encelia farinosa*), California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and interior live oak (*Quercus wislizeni*) (California State Parks 2013). These plant communities shift as the proposed travel corridor passes into San Bernardino County and the San Bernardino National Forest. In addition to chaparral, this area is composed of mixed conifer forests, oak woodlands, and pinyon juniper stands (USFS 2016).

3.7.2.3 Wildlife

March ARB

As described above, March ARB is situated on lands with very few undeveloped areas, and suitable habitat for wildlife is limited. Most wildlife species that have been document at the base are adapted to disturbed areas in close proximity to human activities. Non-native European starlings (*Sturnus vulgaris*) and native house finches (*Carpodacus mexicanus*) are found throughout the base. Mourning dove (*Zenaida macroura*), black phoebe (*Sayornis nigricans*), common raven (*Corvus corax*), northern mockingbird (*Mimus polyglottos*), and Brewer's blackbird (*Euphagus cyanocephalus*) are common species (USAF 2012a). The non-native grasslands on the airfield attract many seasonal songbirds such as white-crowned sparrow (*Zonotrichia leucophrys*), western meadowlark (*Sturnella neglecta*), and savannah sparrow (*Passerculus sandwichensis*). Some of the common raptors that utilize the non-native grasslands for hunting include American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), prairie falcon (*Falco mexicanus*), ferruginous hawk (*Buteo regalis*), and golden eagle.

Common mammals documented on base are generalists and include coyote (*Canis latrans*) and striped skunk (*Mephitis mephitis*). Typical small grassland mammals that are present or have the potential to inhabit March ARB include California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and Audubon's cottontail (*Sylvilagus audubonii*).

The most common of the several reptile species on base is the side-blotched lizard (*Uta stansburiana*). Other common reptiles observed on March ARB include the western fence lizard (*Sceloporus occidentalis*), granite spiny lizard (*Sceloporus orcutti*), southern alligator lizard (*Elgaria multicarinata*), gopher snake (*Pituophis catenifer*), and southern Pacific rattlesnake (*Crotalus viridis helleri*).

BASH is a challenge for many air fields, and March ARB is no exception. It has been noted that several areas on the base attract bird and mammal species that may impact flying operations, and an Integrated BASH Program is being implemented to minimize these threats (USAF 2012a; see Section 3.14, *Safety*).

<u>Proposed Travel Corridor and Perris Lost Link Orbit</u>

The chaparral community in undeveloped and rural areas beneath the proposed travel corridor and the Perris Lost Link Orbit are habitat for species such as mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), roadrunners (*Geococcyx californianus*), osprey (*Pandion haliaetus*), and California quail (*Callipepla californica*) (California State Parks 2013). In addition, as the proposed travel corridor heads north into San Bernardino County, wildlife found in these habitats could include bighorn sheep (*Ovis canadensis*), house finch, California black bear (*Ursus americana californiensis*), and California spotted owl (*Strix occidentalis*) (USFS 2016).

3.7.2.4 Threatened and Endangered Species

Initial scoping for the Proposed Action included a review of the USFWS Information, Planning, and Conservation System as well as the California Natural Diversity Database to document observance or potential of occurrence for special-status wildlife species within the Proposed Action area (USFWS 2016a; CDFW 2016).

The nature of the Proposed Action is either entirely above ground or involving redevelopment of previously-disturbed areas on March ARB. Therefore, this discussion is limited to special status birds, mammals, reptiles, and amphibians that could potentially experience construction-related or operations-related impacts.

<u>March ARB</u>

March ARB is largely developed and can be characterized as a typical airfield environment that experience substantial amounts of noise associated with aircraft operations. However, March ARB does include habitat that has the potential to support several federally listed and state-listed wildlife species. As described in the Integrated Natural Resources Management Plan (INRMP) for March ARB, 11 surveys have been conducted to verify and document the occurrence of any federally or state-listed threatened, endangered, and candidate species, as well as California Fish and Wildlife Fully Protected species, which are protected under California Fish and Game Code, and California Species of Special Concern (SSC), which do not have formal legal protection under Federal or state law (USAF 2012a). Of all of these surveys, only one federally listed resident species has been documented on base, the Riverside fairy shrimp (*Streptocephalus woottoni*), which was documented in 1995. However, the potential for this species to occur on base is low as it has not be found in subsequent surveys (USAF 2012a).

Table 3-8. Federal and State Special Status Species with Potential to Occur on March ARB

Common Name	Scientific Name	Federal Status	State Status	Potential for Occurrence
Invertebrates				
Riverside fairy shrimp	*Streptocephalus woottoni*	FE	-	May be present. A 1995 survey documented a historic population of fairy shrimp on March ARB. However, this species has not been detected in any subsequent surveys or studies.
Amphibians				
Western spadefoot toad	*Spea hammondii*	-	SSC	Moderate. Suitable habitat for this species exists on March ARB. However, this species has not been observed onsite.
Birds				
Bald eagle	*Haliaeetus leucocephalus*	BGEPA	SE, FP	Present. Rare, transient.
Burrowing owl	*Athene cunicularia*	-	SSC	Present
California brown pelican	*Pelecanus occidentalis californicus*	-	FP	Present. Rare, transient.
California horned lark	*Eremophila alpestris actia*	-	WL	Present
Cooper's hawk	*Accipiter cooperii*	-	WL	Present
Ferruginous hawk	*Buteo regalis*	-	WL	Present
Golden eagle	*Aquila chrysaetos*	BGEPA	FP	Present
Loggerhead shrike	*Lanius ludovicianus*	-	SSC	Present
Mountain plover	*Charadrius montanus*	PT	SSC	Present. Transient.
Northern harrier	*Circus cyaneus*	-	SSC	Present
Peregrine falcon	*Falco peregrinus anatum*	-	SE, FP	Present. Migrates through March ARB.
Tricolored blackbird	*Agelaius tricolor*	-	SSC	Present
White-tailed kite	*Elanus leucurus*	-	FP	Present
Mammals				
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	-	SSC	Present

Federal Status
FE = Federally Endangered
FT = Federally Threatened
PT = Potentially Threatened
BGEPA = Bald and Golden Eagle Protection Act

State Status
SE = State Endangered
ST = State Threatened
SSC = Species of Special Concern
WL = Watch List
FP = Fully Protected

Sources: USAF 2012a; USFWS 2016a; CDFW 2016.

Proposed Travel Corridor and Perris Lost Link Orbit

No formal surveys have been conducted in the areas beneath the proposed travel corridor or the Perris Lost Link Orbit; however, database searches were conducted for records of observation and potential for occurrence of special-status wildlife species in these areas that could have the potential to be impacted by the Proposed Action (USFWS 2016a; CDFW 2016).[1] There is potential for 14 federally threatened or endangered species to occur in the region beneath the proposed travel corridor and 9 federally threatened or endangered species to occur area underlying the Perris Lost Link Orbit (see Table 3-9). Two state listed wildlife species, which are not federally listed, have the potential to occur beneath the proposed travel corridor and are listed in Table 3-9. Additionally 40 SSC and 18 SSC were determined to have potential to occur beneath the proposed travel corridor and Perris Lost Link Orbit, respectively (CDFW 2016).

[1] The nature of the Proposed Action is either entirely above ground or involving redevelopment of previously-disturbed areas on March ARB. Therefore, this discussion is limited to special status birds, mammals, reptiles, and amphibians that could potentially experience construction-related or operations-related impacts.

Table 3-9. Federally and State Listed Species with Potential to Occur beneath the Proposed Perris Lost Link Orbit or Travel Corridor

Common Name	Scientific Name	ESA Status	CESA Status	Potential to Occur?	
				Perris Lost Link Orbit	Proposed Travel Corridor
Invertebrates					
Quino checkerspot butterfly	*Euphydryas editha quino (=E. e. wrighti)*	T	-	✓	✓
Riverside fairy shrimp	*Streptocephalus woottoni*	E	-	✓	✓
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	-	✓	✓
Amphibians					
Arroyo (=arroyo southwestern) toad	*Anaxyrus californicus*	E	-	✓	✓
California red-legged frog	*Rana draytonii*	T	-	-	✓
Mountain yellow-legged frog	*Rana muscosa*	E	E	-	✓
Reptiles					
Desert tortoise	*Gopherus agassizii*	T	T	-	✓
Southern rubber boa	*Charina umbratica*	-	T	-	✓
Birds					
Bald eagle*	*Haliaeetus leucocephalus*	-	E	-	✓
California condor	*Gymnogyps californianus*	E	E	-	✓
Coastal California gnatcatcher	*Polioptila californica californica*	T	-	✓	✓
Least bell's vireo	*Vireo bellii pusillus*	E	E	✓	✓
Southwestern willow flycatcher	*Empidonax traillii extimus*	E	E	✓	✓
Western snowy plover	*Charadrius alexandrinus nivosus*	T	-	-	✓
Mammals					
San Bernardino Merriam's kangaroo rat	*Dipodomys merriami parvus*	E	-	✓	✓
Stephens' kangaroo rat	*Dipodomys stephensi (incl. D. cascus)*	E	T	✓	✓

Notes: The bald eagle was delisted from the Federal ESA; however, this species continues to receive Federal protection under the Bald and Golden Eagle Protection Act.
Sources: USFWS 2016a; CDFW 2016.

3.8 TRANSPORTATION AND CIRCULATION

3.8.1 Definition of Resource

Transportation and circulation refer to the movement of vehicles throughout a road and highway network. Primary roads are principal arterials, such as major interstates, designed to move traffic and not necessarily to provide access to all adjacent areas. Secondary roads are arterials such as rural routes and major surface streets, which provide access to residential and commercial areas, hospitals, and schools.

The establishment of the proposed travel corridor from March ARB to R-2515 and the Perris Lost Link Orbit would not result in any activities relating to road and highway networks. Therefore, transportation and circulation issues beneath these areas are not described in detail.

3.8.2 Existing Conditions

3.8.2.1 Regional Setting

March ARB is located at the confluence of two major transportation arteries making it readily accessible to the San Diego Metropolitan Area, Los Angeles Basin, and to destinations northeast. Arterial streets in the Downtown Riverside area, located to the north of March ARB, primarily follow an east-west orientation. I-15 and California State Route (SR-) 60 (Moreno Valley Freeway) follow a north-south orientation connecting Downtown Riverside to the adjacent communities of Moreno Valley and Perris. Regional access to March ARB is provided by I-215 which connects with I-15 approximately 11 miles to the west by State Route 91.

3.8.2.2 March Air Reserve Base

<u>Access and Circulation</u>

Regional access to the base is provided via I-215 and SR-60. Cactus Avenue, a four-lane arterial, provides direct access to March ARB and is the primary east-west arterial providing connectivity with I-215 and the Moreno Valley. I-215 is a six-lane north south freeway, which defines the western boundary of the base.

The transportation network on-base is delineated according to the road classifications outlined in AFI 32-7062, *Air Force Comprehensive Planning*. This AFI classifies the road network into three groups: arterial, collector, and local. The primary arterial serving March ARB's cantonment area is Graeber Avenue, a two lane industrial arterial originating at the Main Gate at Cactus Avenue, running parallel to the flightline, and terminating at the south-side flightline facilities (USAF 2004).

Prior to the base realignment, three gates provided access to March ARB. The former main gate at Cactus Avenue and Riverside Drive is now located outside the redefined cantonment area. The second gate at Meyers Drive and Heacock Drive is closed to the base. The West Gate at Cactus Avenue and Graeber Avenue remains the only point of access to the cantonment area. This point of entry has a gatehouse that is staffed 24 hours per day, 7 days a week (USAF 2004).

Redesign of the main gate is underway and will provide inspection areas and a separate commercial access road to the base. While the other gateways remain closed to the public, Base Security and the Fire Department retain access. Due to Security Forces staffing limitations the Riverside Drive gate, which provides access to the Base Exchange and Commissary, is open only during lunch hours and Unit Training Assembly (UTA) weekends (USAF 2004).

<u>Parking</u>

The USAF has established guidelines intended to ensure that adequate parking is available at USAF and ANG facilities. According to these guidelines, the ratio of available parking spaces to personnel should be no less than 0.75 spaces per person.

During the week, parking on March ARB is adequate to fill the demand with the exception of a few key areas. A rough calculation of existing parking areas was completed to determine parking availability at March ARB. Parking demand was calculated at 60 percent of peak demand, which typically occurs during UTA weekends. During UTA weekends, parking areas on March ARB are completely filled (USAF 2004).

Based on this calculation, March ARB has approximately 4,000 parking spaces available for base personnel and visitors. The primary issue related to parking at March ARB is that larger lots are not conveniently located to areas of highest use, such as the northern end of the flightline. Proposed parking additions and roadway realignments in this area will provide additional parking in this area. Other lots could be expanded to accommodate need and smaller, less used lots should be considered for reuse (USAF 2004).

3.9 VISUAL RESOURCES

3.9.1 Definition of Resource

Visual resources are defined as the natural and manufactured features that comprise the aesthetic qualities of an area. These features form the overall impressions that an observer receives of an area or its landscape character. Landforms, water surfaces, vegetation, and manufactured features are considered characteristic of an area if they are inherent to the structure and function of a landscape.

The establishment of the proposed travel corridor from March ARB to R-2515 and the proposed Perris Lost Link Orbit would not result in any activity related to the long-term viewshed of the areas underlying them due to the altitude at which the aircraft would be operating (2,000 feet AGL or greater). Therefore, visual resources beneath the proposed travel corridor and lost link orbit are not described in detail.

3.9.2 Existing Conditions

3.9.2.1 Regional Setting

March ARB is located approximately 11 miles southeast of downtown Riverside and 5 miles south from Moreno Valley. The City of Riverside is primarily comprised of urban and suburban development, with the Santa Ana River, which generally flows in a southwest-northeast direction, serving the city's dominant natural feature. As described in Section 3.4, *Land Use*, the region surrounding March ARB is characterized by light industrial and commercial uses; undeveloped land and residential neighborhoods.

3.9.2.2 March Air Reserve Base

The visual environment at March ARB is characteristic of a military base and airfield, thus visual sensitivity in the immediate area is low; however, a portion of March ARB designated as the March Field Historic District is included on the National Register of Historic Places (NRHP). The district is a significant example of a pre-World War II Army Air Corps installation. Features include the formal layout of streets and buildings, unity of the Mission Revival architectural style, and use of hollow concrete construction techniques (USAF 2004). Further explanation of cultural and historic sites located on March ARB is provided in Section 3.10, *Cultural Resources*.

The topography of March ARB is relatively flat, with slopes less than 1 percent in the cantonment area; elevations range from 1,480 feet to 1,550 feet MSL. The site is located within an alluvial plain, which is framed by gently sloped hills to the west, the San Jacinto Mountains to the east, and the Box Spring Mountains to the north (USAF 2004). Overall, the base and neighboring facilities are typical of the region and do not constitute unique or sensitive viewsheds.

3.10 CULTURAL RESOURCES

3.10.1 Definition of Resource

Cultural resources represent and document activities, accomplishments, and traditions of previous civilizations and link current and former inhabitants of an area. Depending on their conditions and historic use, these resources may provide insight to living conditions in previous civilizations and may retain cultural and religious significance to modern groups.

Archaeological resources comprise areas where prehistoric or historic activity measurably altered the environment or deposits of physical remains (e.g., lithic materials, ceramics, and historic refuse) discovered therein. Architectural resources include standing buildings, districts, bridges, dams, and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for inclusion in the NRHP, an inventory of culturally significant resources identified in the U.S. More recent structures, such as Cold War-era resources, may warrant protection if they have the potential to gain significance in the future. Traditional cultural resources can include archaeological resources, structures, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other groups consider essential for the persistence of traditional culture.

The principal Federal law addressing cultural resources is the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC §470 et seq.), and its implementing regulations (36 CFR Part 800). Compliance with these regulations, commonly referred to as the Section 106 process, involves identifying and evaluating historic or potentially historic properties; assessing the effects of Federal actions on historic properties; and consulting to avoid, reduce, or minimize adverse effects. As part of the Section 106 process, agencies are required to consult with the State Historic Preservation Office (SHPO).

The term "historic properties" refers to cultural resources that meet specific criteria for eligibility for listing on the NRHP; historic properties need not be formally listed on the NRHP. According to the *National Register Bulletin #15, How to Apply the National Register Criteria for Evaluation,* historical significance is assigned to a property based on its association with individuals or events significant in local, state, or national history (Criterion A and B); its ability to embody the distinctive characteristics of a type, period, or method of construction (Criterion C); or its potential to yield information important to prehistory or history (Criterion D). Properties less than 50 years of age must possess exceptional historical importance to be included on the NRHP (Criteria Consideration G). Section 106 of the NHPA does not require the preservation of historic properties, but ensures that the decisions of Federal agencies concerning the treatment of these places result from meaningful considerations of cultural and historic values and of the options available to protect the properties. The Proposed Action is an undertaking as defined by 36 CFR 800.3 and is subject to requirements outlined in Section 106.

The California State's Historical Building Code (Health and Safety Code, Division 13, Part 2.7, Sections 18950-18961) gives permitting authority for archaeological investigations to the California Office of Historic Preservation (OHP). It also is responsible for administering federally and state mandated historic preservation programs and establishes the need for a review of any undertaking by both the SHPO and the OHP in order to complete the Section 106 process. The Section 106 process is used for undertakings that may potentially affect historic properties on March ARB and requires historic properties to be identified and adverse effects to be assessed. The Section 106 process can include both consulting parties and interested parties. Under 36 CFR 800, consulting parties can include SHPO; federally recognized Native American tribes with an interest in a historic property; representatives of local governments with jurisdiction over the area in which the effects of an undertaking may occur; applicants for Federal assistance, permits, licenses, and other approvals as well as additional individuals and organizations with a demonstrated interest in the undertaking.

Air Force Instruction (AFI) 90-2002 implements DoD Instruction (DoDI) 4710.02, *DoD Interactions with Federally-Recognized Tribes*, which governs the department's interactions with federally recognized tribes. The policy outlines DoD trust obligations, communication procedures with tribes on a government-to-government basis, consultation protocols, and actions to recognize and respect the significance that tribes ascribe to certain natural resources and properties of traditional cultural or religious importance. The policy requires consultation with federally recognized tribes for proposed activities that could significantly affect tribal resources or interests.

The establishment of the proposed travel corridor from March ARB to R-2515 and the Perris Lost Link Orbit would not result in any ground disturbing activity that could potential affect buried cultural resources. Additionally, MQ-9 aircraft transiting along this proposed travel corridor would fly at an altitude of 8,500 feet MSL during transit to R-2515 and at an altitude of 9,500 feet MSL returning to March ARB. Under the Proposed Action MQ-9 aircraft utilizing the Perris Lost Link Orbit would fly in clockwise circles above a rural, uninhabited area at an altitude of 9,500 feet MSL. As described in Section 4.3, *Noise* the proposed travel corridor and Perris Lost Link Orbit would not have any discernable impacts on noise levels at the ground level. Consequently, the Proposed Action would not have any short-term or long-term impact on noise and vibration associated with historic or potentially historic built resources. Therefore, the existing cultural resources located beneath the travel corridor and lost link orbit are not described in detail.

3.10.2 Existing Conditions

3.10.2.1 Regional Prehistory

At the end of the early Pleistocene (12,000-11,000 Before Present [BP]), humans in Southern California were highly mobile hunter-fisher-gatherers. In the beginning of the middle Holocene (8,500 BP), populations appear to have become more sedentary, with evidence of beads, ornaments, and other objects and an increase of seeds in the diet. Late Holocene sites in southwestern California typically contain bedrock milling stations, arrow points, pottery, and tools. The archaeological record in many areas of Southern California does not contain much evidence for large changes until around 1,500 years ago. At that time, humans in the area adopted bow-and-arrow technology and pottery, probably reflecting influences and/or migrations into the area (USAF 2011).

In the vicinity of March ARB, the majority of investigated archaeological sites date to the late prehistoric period. Earlier sites are rare, probably due to the fact that the inland valleys in the region flood very often. This has caused repeated deposition of sediments that very likely are obscuring part of the archaeological record. Deep alluvial deposits near the Lakeview Mountains, a few kilometers east/southeast of Moreno Valley, might contain buried cultural remains dating from the earliest period of human occupation. No assessment has been done of the potential for buried archaeological deposits on the March ARB (USAF 2011).

It is surmised that the relatively barren region occupied by current-day March ARB was a boundary zone between prehistoric groups. Prehistoric groups identified by various studies in the region include the peoples of the Moreno Valley, including the Cahuilla, Gabrielino, Luiseño, Serrano, and Cahuilla. The prehistoric people of the Moreno Valley were greatly disrupted by the Spanish settlers, followed by Mexicans and Euro-Americans. The ethnographers of the beginning of the twentieth century, when most native peoples of this region were living in or near reservations, had difficulty establishing which groups existed in which part of the state, partly for this reason (USAF 2011).

3.10.2.2 Regional History

California was settled by a variety of Native American tribes before it was explored by Europeans in the 16th and 17th centuries. It was claimed by the Spanish Empire and became part of Mexico during its fight for independence in 1821. After the Mexican-American War, it became part of the U.S. in 1850. The California Gold Rush, which began in 1848, led to very sudden and dramatic changes in the immigration of people to the state and its economic activity. The arrival of tens of thousands of immigrants from the west displaced Native American tribes and resulted in clashes, illnesses and relocations (USAF 2011).

3.10.2.3 History of March ARB

What is currently March ARB began as the Alessandro Flying Training Field, an airstrip used by pilots on cross-country flights in the early 20th century. On March 20, 1918, it was officially designated March Field by the Army Air Service and the original facility was 640 acres (USAF 2011). The facility functioned throughout the first World War, was shuttered, and reopened again in 1927 to serve as a permanent training center for the Army Air Service (March JPA 2016). In 1934, the first permanent buildings were completed, and the facility began to gain regional notoriety (March JPA 2016).

From 1947-1996, the facility was known as March AFB, and served as an active duty aerial refueling and deployment base on 6,700 acres. It was recommended for realignment in 1993 and was converted to March ARB in 1996, resulting in the reduction of the facility by 4,397 acres. Base realignment resulted in a direct loss of military and civilian jobs, loss of contract spending by the base, and loss of indirect economic activity as a result of the changes (March JPA 2016).

March ARB now occupies 2,303 acres of the 6,700 acres formerly occupied by military facilities. It exists within the boundaries of what was formerly referred to as “East March” (USAF 2011).

3.10.2.4 History of 163 ATKW

As described in Section 1.2, *Location and Unit Background* the 163 ATKW originally began as the 196th Fighter Squadron. In 1958, the USAF reorganized and expanded the 196th Fighter Interceptor Squadron into the 163d Fighter Interceptor Group. Following numerous mission changes, aircraft changes, and the relocation to March ARB in 1982, the unit was re-designated in 1993 as the 163d Air Refueling Wing and operated KC-135 aircraft in support of the Air Mobility Command commitment to Global Reach (California ANG 2015b). However, in 2006 the wing was re-designated as the 163d Reconnaissance Wing and received MQ-1 aircraft, which were operated remotely from March ARB, but launched from and recovered at SCLA. During the 163rd Reconnaissance Wing era, the wing flew more than 5,500 sorties, exceeding 100,000 flight hours in support of operations Enduring Freedom, Iraqi Freedom, New Dawn, and Freedom Sentinel with up to three 24/7 combat air patrols during surge operations. Recently in July 2015, the wing converted from the remotely-piloted MQ-1B Predator to the MQ-9A Reaper and was re-designated as the 163 ATKW to reflect this conversion. The wing launched its last flight of the Predator on 1 April 2015 (California ANG 2015b).

3.10.2.5 Historic Built Resources at March ARB

March ARB has been fully surveyed for historic properties by a number of cultural resources studies (USAF 2011). The only historic property identified during these studies that is currently within the boundary of the base is the March Field Historic District (MFHD), which encompasses a total of 158 acres comprised of a group of buildings and landscape elements built between 1928 and 1943. MFHD includes a total of 228 buildings, structures and objects with 199 of them contributing to the historical significance of the site, only, only 71 of which are currently within the base boundary (USAF 2011).

The MFHD was nominated and listed in the NRHP at the state level of significance under Criterion A for its significance in the areas of military history and under Criterion C for its architectural significance. The period of significance of the district is 1928-1943, the period during which the buildings were constructed and generally laid out according to the 1928 master plan for the base. In addition, the district is an important example of the work of architect Myron Hunt, being the only known military base designed by him. Lastly, March Field represents an extraordinarily large assemblage of buildings constructed using hollow wall concrete construction methods, illustrating the range of applications for that technology better than any other property in California. MFHD was listed in the NRHP in 1994 (#94001420) (USAF 2011).

Other historic resources inventories conducted at March ARB identified World War II-era buildings and structures and Cold War-era structures; however, following the BRAC, these facilities are no longer within the boundary of March ARB.

3.10.2.6 Archaeological Resources at March ARB

Archaeological sites in the vicinity of March ARB date to the late prehistoric period. The fact that early or late Holocene sites are rare has led some to think that there was little human activity in the region until the prehistoric period, but frequent flooding has been pointed to as a reason for the lack of evidence in the archaeological record. The entire base has been surveyed for surface archaeological resources. To date, 56 archaeological studies have been conducted within the current boundaries of March ARB and the former boundaries of March AFB (USAF 2011).

No eligible or potentially eligible archaeological resources have been identified on the base. The 2006 Programmatic Agreement between the Air Force and the SHPO notes that "the Air Force, in consultation with the California SHPO and Regional Native American Tribes, has conducted archaeological surveys and ethnographic and ethnohistoric studies to determine the presence of NRHP-listed or –eligible prehistoric or historic archaeological sites or traditional cultural properties within the boundary of March AFB [which includes the current March ARB] and has determined that the entirety of the base is devoid of these types of historic properties and the California SHPO has concurred" (USAF 2011).

3.11 SOCIOECONOMICS

3.11.1 Definition of Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Human population is affected by regional birth and death rates as well as net in- or out-migration. Economic activity typically comprises employment, personal income, and industrial growth. Impacts on these two fundamental socioeconomic indicators can also influence other components such as housing availability and public services provision.

Socioeconomic data in this section are presented at the county, state, and national level to analyze baseline socioeconomic conditions in the context of regional, state, and national trends. Data have been collected from previously published documents issued by Federal, state, and local agencies (e.g., U.S. Census Bureau) and from state and national databases (e.g., U.S. Bureau of Economic Analysis' [BEA] *Regional Economic Information System*).

Due to the proposed flight altitudes and the corresponding negligible impacts on noise the establishment of the proposed travel corridor from March ARB to R-2515 and the proposed Perris Lost Link Orbit would not result in any activities directly or indirectly related to socioeconomics of the underlying areas. Therefore, the existing socioeconomic conditions beneath the travel corridor and lost link orbit are not described in detail.

3.11.2 Existing Conditions

3.11.2.1 Population

Riverside County is one of 58 counties in the State of California, which has a total population of 38,802,500 (U.S. Census Bureau 2016). The population of Riverside County in 2014 was 2,329,271, approximately 6.0 percent of the state's total population (U.S. Census Bureau 2016). The population of the state, Riverside County, and the City of Riverside (the largest city within Riverside County) all increased between 2000 and 2014. Population growth during this period was most substantial in Riverside County, which increased by 51 percent. The City of Riverside experienced lower percentage of growth than Riverside County, 25 percent, whereas growth in the state of California was similar to national growth, 15 percent and 13 percent, respectively (see Table 3-10).

Table 3-10. Population Overview

Jurisdiction	Census 2000	Census 2010	Estimate 2014	Total % Change (2000-2014)
U.S.	281,421,906	308,745,538	318,857,056	13%
California	33,871,648	37,253,956	38,802,500	15%
Riverside County	1,545,387	2,189,641	2,329,271	51%
Riverside City	255,166	303,871	319,504	25%

Source: U.S. Census Bureau 2016.

3.11.2.2 Job Growth and Unemployment

<u>Employment</u>

Table 3-11 below depicts the composition of jobs by employment sector in Riverside County during 2005, 2010, and 2015. The employment sectors providing the greatest number of jobs in Riverside County in 2014 included: *state and local government; retail trade, health care and social assistance; accommodation and food services;* and *construction* (U.S. BEA 2016). Combined, these five sectors provided jobs for approximately 50 percent of the workforce, which totaled 933,752 people in 2014. Of the industrial employment sectors, the largest percentage increase in jobs were experienced in Mining, quarrying, and oil and gas extraction, transportation and warehousing, health care and social assistance (U.S. BEA 2016). During this same time period *management of companies and enterprises* and *construction* experienced a net decrease of 2,382 jobs and 29,919 jobs, respectively (U.S. BEA 2016).

Table 3-11. Jobs by Industrial Sector, Riverside County (2005, 2010, and 2014)

Industrial Sector	Total Number of Jobs			Percent Change 2005-2014
	2005	2010	2014	
Forestry, fishing, and related activities	8,016	7,519	7,025	-12.4%
Mining, quarrying, and oil and gas extraction	1,154	1,843	2,173	88.3%
Utilities	1,869	1,772	1,713	-8.3%
Construction	100,936	55,757	71,017	-29.6%
Manufacturing	58,930	42,102	46,827	-20.5%
Wholesale trade	23,477	24,733	29,751	26.7%
Retail trade	103,272	99,824	110,062	6.6%
Transportation and warehousing	21,217	27,751	38,198	80.0%
Information	10,085	12,913	9,064	-10.1%
Finance and insurance	26,349	31,254	34,072	29.3%
Real estate and rental and leasing	48,007	51,854	61,106	27.3%
Professional, scientific, and technical services	38,575	39,545	44,869	16.3%
Management of companies and enterprises	6,094	3,135	3,712	-39.1%
Administrative and support and waste management and remediation services	55,338	5,8967	72,721	31.4%
Educational services	8,290	10,532	12,015	44.9%
Health care and social assistance	62,933	72,251	99,359	57.9%
Arts, entertainment, and recreation	16,712	18,707	20,801	24.5%
Accommodation and food services	63,109	64,142	75,650	19.9%
Other services (except public administration)	54,312	55,776	67,382	24.1%
Federal, civilian	6,606	7,684	6,849	3.7%
Military	3,333	3,656	3,892	16.8%
State and local	108,263	115,139	115,494	6.7%
Total	826,877	806,856	933,752	N/A

Sources: U.S. BEA 2016. Data selected for 2005, 2010, and 2014.

<u>Unemployment</u>

In 2015, the unemployment rate in Riverside County was 7.0 percent, slightly higher than the State of California's unemployment rate of 5.8 percent (U.S. Bureau of Labor Statistics 2016b), and slightly higher than the national rate of 5.0 percent (U.S. Bureau of Labor Statistics 2016a). Between 2005 and 2015, the unemployment rate in Riverside County rose from 5.4 percent to 7.0 percent, although it reached a maximum in 2010 at 13.8 percent. Table 3-12 below shows annualized labor and employment rates for the Riverside County.

Table 3-12. Annualized Labor and Employment in Riverside County

Year	Labor Force	Employed	Unemployed	Unemployment Rate
2005	852,600	806,900	45,700	5.4
2006	881,200	836,900	44,400	5.0
2007	902,000	847,600	54,400	6.0
2008	911,500	833,300	78,200	8.6
2009	915,800	795,800	120,000	13.1
2010	976,200	841,100	135,200	13.8
2011	978,200	849,400	128,800	13.2
2012	989,100	873,900	115,200	11.6
2013	998,600	899,800	98,800	9.9
2014	1,010,700	927,300	83,400	8.2
2015	1,023,317	955,608	67,708	7.0

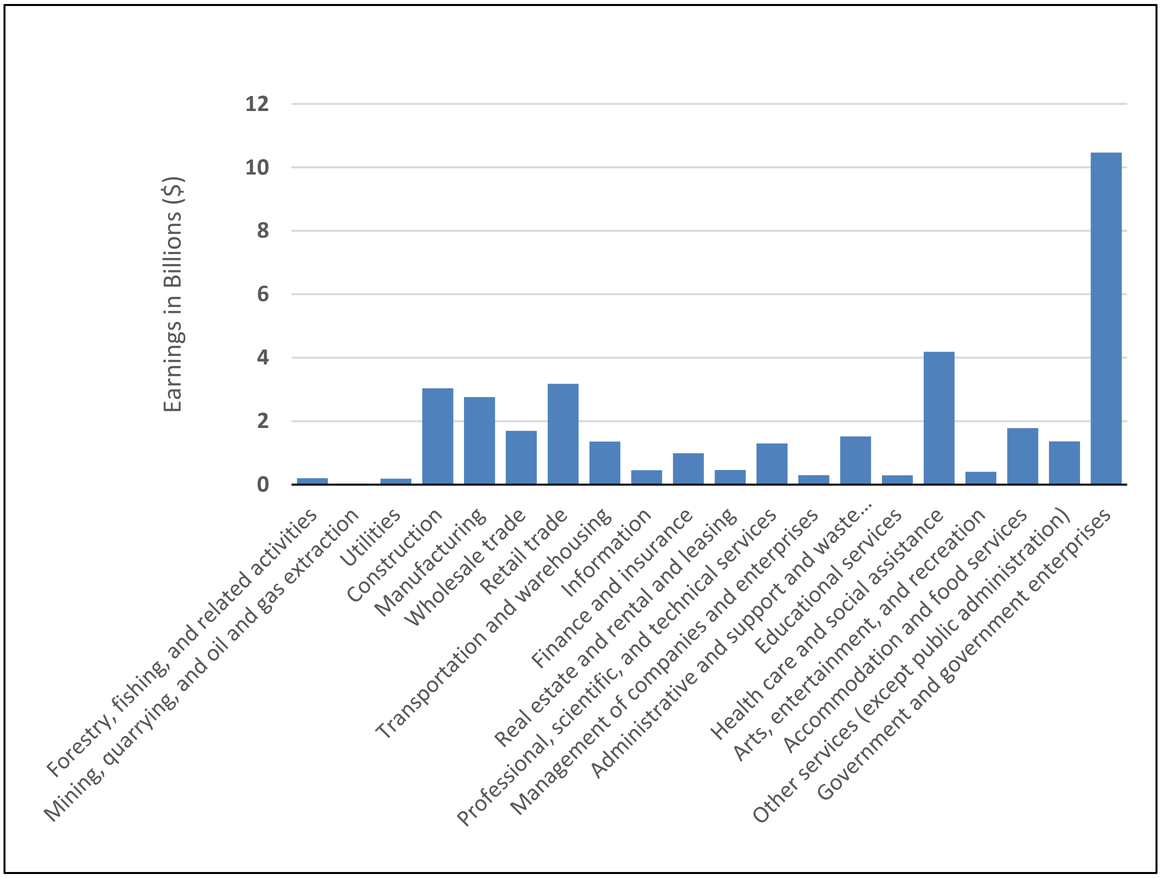
Note: *Data not seasonally adjusted.
Source: State of California Employment Development Department 2016.

<u>Earnings</u>

Figure 3-6 presents annual earnings per industrial sector in Riverside County in 2014. In 2014, total earnings for Riverside County were approximately $36.1 billion. The greatest earnings in 2014 were reported in *government and government enterprises* ($10.5 billion); *health care and social assistance* ($4.2 billion); *retail trade* ($3.2 billion); and *construction* ($3.0 billion) (U.S. BEA 2015).

Per capita personal income in Riverside County for 2014 was $53,717, which is greater than the state average ($43,637) as well as the national average ($46,049) (U.S. BEA 2016).

Figure 3-6.
Annual Earnings in Dollars per Industrial Sector, Riverside County (2014)



Source: U.S. BEA 2016.

3.11.2.3 163 ATKW Employment

Authorized personnel levels for the 163 ATKW at March ARB in 2014 totaled 772 personnel.

3.12 Environmental Justice and Protection of Children

3.12.1 Definition of Resource

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations,* was issued to focus attention of Federal agencies on human health and environmental conditions in minority and low-income communities and to ensure that disproportionately high and adverse human health or environmental effects on these communities are identified and addressed.

Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, *Protection of Children From Environmental Health and Safety Risks,* was introduced in 1997 to prioritize the identification and assessment of environmental health risks and safety risks that may affect children and to ensure that Federal agencies' policies, programs, activities, and standards address environmental health risks and safety risks to children.

Data used for the environmental justice and protection of children analyses were collected from the 2010-2014 *American Community Survey* and the 2014 *American Community Survey One-Year Estimates.*

Due to the proposed flight altitudes and the corresponding negligible impacts on noise and air quality the establishment of the proposed travel corridor from March ARB to R-2515 and the proposed Perris Lost Link Orbit would not result in any activities directly or indirectly related to human health or environmental justice of the underlying areas. Therefore, the existing communities beneath the proposed travel corridor and lost link orbit are not described in detail for this resource area.

3.12.2 Existing Conditions

3.12.2.1 Minority and Low-Income Population

In order to comply with EO 12898, ethnicity and poverty status in the vicinity of March ARB were examined and compared to regional, state, and national data to determine if any minority or low-income communities could potentially be disproportionately affected by implementation of the Proposed Action.

Based on data obtained from the U.S. Census Bureau's *2014 American Community Survey One-Year Estimates*, the percentage of the population in the City of Moreno Valley living below the poverty level in 2014 was 20.1 percent. This poverty rate was higher than that of Riverside County (16.9 percent), the State of California (16.4 percent), and the nation (15.9 percent) (U. S. Census Bureau 2016).

Minority population data for this analysis was obtained from the U.S. Census Bureau's *2010-2014 American Community Survey Five-Year Estimates*. According to this data, the percentage of minority residents in the City of Moreno Valley (46.5 percent) is slightly less than the percentage of minority residents in Riverside County (61.7 percent) and the State of California (60.8 percent). By comparison, the percentage of minority residents of the total population nationwide (37.2 percent) is lower than that of the City of Moreno Valley, Riverside County, and the State of California (see Table 3-13) (U.S. Census Bureau 2016).

3.12.2.2 Protection of Children

In order to comply with EO 13045, the number of children under age 18 in the vicinity of March ARB was compared to city, county, state, and national levels. The percentage of the total population represented by children under age 18 in City of Moreno Valley is similar to that of the four geographic areas considered in this analysis. In 2014, approximately 35.5 percent of the city's total population was comprised of children under age 18. This is slight higher relative to 27.2 percent for Riverside County, 24.2 percent for the State of California, and 23.5 percent for the nation (U.S. Census Bureau 2016).

Table 3-13. Comparison of Minority Populations for the City of Moreno Valley, Riverside County, and the State of California

	City of Moreno Valley		Riverside County		State of California	
	Population	**%**	**Population**	**%**	**Population**	**%**
Total Population	198,872	100	2,266,899	100	38,066,920	100
Race						
White	106,421	53.5%	1,480,532	65.3%	23,650,913	62.1%
Racial Minority	92,451	46.5%	786,367	34.7%	14,416,007	37.9%
Black	35,357	17.8%	141,350	6.2%	2,262,323	5.9%
Asian	11,694	5.9%	138,538	6.1%	5,130,536	13.5%
Native American and Alaskan Native	1,530	0.8%	22,045	1.0%	287,360	0.8%
Native Hawaiian and Other Pacific Islander	1,151	0.6%	7,152	0.3%	147,286	0.4%
Other	35,182	17.7%	379,932	16.8%	4,890,329	12.8%
Two or More	7,537	3.8%	97,350	4.3%	1,698,173	4.5%
Origin						
Hispanic[1]	110,357	55.5%	1,055,027	46.5%	14,534,449	38.2%

Notes:
[1] Hispanic is considered an origin and not a race; therefore, individuals who are Hispanic are also classified under one of the race categories listed above.
[2] The minority population is comprised of individuals who are either a minority by race (i.e., not white) or by origin (i.e., Hispanic)
Source: U.S. Census Bureau 2016.

3.13 HAZARDOUS MATERIALS AND WASTES

3.13.1 Definition of Resource

Hazardous materials are defined as substances with strong physical properties of ignitability, corrosivity, reactivity, or toxicity, which may cause an increase in mortality, a serious irreversible illness, incapacitating reversible illness, or pose a substantial threat to human health or the environment. Hazardous wastes are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes, which pose a substantial present or potential hazard to human health or the environment.

Issues associated with hazardous materials and wastes typically center around underground storage tanks (USTs); aboveground storage tanks (ASTs); and the storage, transport, and use of pesticides, bulk fuel, and petroleum, oils, and lubricants (POL). When such resources are improperly handled, they can threaten the health and well-being of wildlife species, botanical habitats, soil systems, water resources, and people.

To protect habitats and people from inadvertent and potentially harmful releases of hazardous substances, DoD has dictated that all facilities develop and implement *Hazardous Waste Management Plans* and *Spill Prevention and Response Plans*. Also, DoD has developed the Environmental Restoration Program (ERP), intended to facilitate thorough investigation and cleanup of contaminated sites located at military installations. These plans and programs, in addition to established legislation (e.g., the Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] and Resource Conservation and Recovery Act [RCRA]) effectively form the "safety net" intended to protect the ecosystems on which most living organisms depend.

The establishment of the proposed travel corridor from March ARB to R-2515 and the Perris Lost Link Orbit would not result in any off-base activities related to the storage or use of hazardous materials and wastes of the areas underlying them. Potential impacts related to safety and aircraft mishaps are addressed in Section 4.14, *Safety*.

3.13.2 Existing Conditions

3.13.2.1 Hazardous Materials

Hazardous materials and petroleum products are used throughout the March ARB to support aircraft maintenance, aerospace ground equipment maintenance, ground vehicle maintenance, and POL management and distribution. Types of hazardous substances found at March ARB include oils, lubricants, solvents, batteries, aerosols, recovered fuels, hydraulic fluid, paints, and paint strippers. Handling of hazardous materials is in accordance with DoD, Federal, state, and local regulations. Jet fuel (JP-8), diesel, hydraulic fluid, transmission fluid, and various oils are stored in ASTs and USTs on the base.

3.13.2.1 Fuel Storage Tanks

There are 52 ASTs located on March ARB, with a total storage capacity of approximately 7.7 million gallons (USAF 2010b).

In addition to the ASTs identified above, March ARB also maintains eight USTs, with a total storage capacity of approximately 38,000 gallons (USAF 2012b).

3.13.2.2 Hazardous Waste Management

The March ARB *Spill Prevention, Control, and Countermeasure (SPCC) Plan* (USAF 2010b) establishes responsibilities, actions, and responses to spills of hazardous materials that March ARB will implement to comply with the requirements of 40 CFR 112, Oil Pollution Prevention. Further, the Hazardous Substances Spill Prevention and Response Plan meets the DoD Directive 5030.41, *Oil and Hazardous Substances Pollution Prevention and Contingency Program*, and AFI 10-2501, *Emergency Management Program Planning and Operations*. The *Hazardous Waste Management Plan* for March ARB outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all Federal, state, and local regulations pertaining to hazardous waste (USAF 2012b). Hazardous and petroleum wastes are generated throughout the base during various operations, including aircraft maintenance and repair, painting and corrosion prevention operations, and vehicle maintenance and repair. These hazardous and petroleum wastes include paints, solvents, lubricants, oils, jet fuel, and fuel oil. The March ARB is permitted as a Large Quantity Generator of hazardous waste by the USEPA (Permit No. CA4570024527). Large Quantity Generators generate more than 1,000 kilograms of hazardous waste in a calendar month (USAF 2012b).

A hazardous waste generation point is where a waste is initially created or generated. A Satellite Accumulation Point (SAP) is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Hazardous wastes initially accumulated at an SAP are accumulated in appropriate containers before being transferred to the base's Central Holding Point, where hazardous wastes can be accumulated for up to 90 days before they are shipped off site to a permitted Hazardous Waste Transportation, Storage, and Disposal facility. There are 33 SAPs located in 15 buildings at March ARB (i.e., Buildings 420, 440, 600, 1238, 1250, 1270, 1290, 2274, 2315, 2339, 2342, 2409, 2500, 2310, 2319) and one Central Holding Point on the March ARB. The Central Holding Point for hazardous waste collected on the base is located at Building 2333 (USAF 2012b).

3.13.2.3 Environmental Restoration Program Sites

The DoD Environmental Restoration Program (ERP), formerly known as the Installation Restoration Program, is designed to identify, evaluate, and remediate sites where activities may threaten public health, welfare, or the environment. As previously described, March AFB was realigned in 1993 and became March ARB; however, March ARB is still responsible for the surface and groundwater environmental restoration in the 4,533 acres no longer belonging to March ARB (USAF 2014a).

The March ARB has been undergoing cleanup under the ERP since 1983. Since the beginning of the program, 49 sites have been investigated. Of the 49 sites, 8 are still undergoing cleanup and the others have completed active cleanup, though land use restrictions may be in place (USAF 2014a). All of these sites have completed cleanup as of 2014, with the exception of Site 49, which consists of a southeasterly-moving groundwater plume containing low levels of trichloroethylene and tetrachloroethylene. This plume extends off base and is being monitored and treated.

Table 3-14. Active ERP Sites at March ARB

Site Name	Map Key	Characteristics
Landfill	Site 4	• Capped and closed landfill. Ongoing cap maintenance and groundwater extraction.
Fire Protection Training Area	Site 7	• Surface soil contamination removed. Soil vapor extraction is ongoing in order to remove sub-surface solvent and fuel contamination.
Flightline Shop Zone	Site 8	• Contaminated soils removed. Groundwater solvent contamination at this site is being handled with Site 49 (groundwater plume).
Engine Test Cell	Site 18	• Jet fuel removed. Ongoing groundwater monitoring.
Solvent Spill	Site 31	• Final soil remedy being investigated. Groundwater solvent issues being handled with Site 49 (groundwater plume).
Panero Aircraft Refueling System	Site 33	• Jet fuel removed. Ongoing groundwater monitoring.
Pritchard Aircraft Refueling System	Site 34	• Fuel contamination removed. Ongoing mitigation for PAH contamination.
Leach Pit	Site 36	• Some solvents removed and final remedy plan ongoing.
Basewide Groundwater	Site 49	• Groundwater contamination is being treated at the base boundary. • The size and shape of the groundwater plume is being tracked.

Source: USAF 2014a.

3.13.2.4 Asbestos & Lead-Based Paint

AFI 32-1052, *Facility Asbestos Management* (22 March 1994), establishes requirements and assigns responsibilities to incorporate facility asbestos management principles and practices. Installations must remove asbestos-containing material (ACM) likely to release airborne asbestos fibers that cannot be reliably maintained, repaired, or isolated. All facilities must be closely monitored to ensure ACM does not become airborne. Additionally, each installation must develop a written management and operating plan to carry out the objectives of facility asbestos management. The March ARB Asbestos Management Plan (AMP) was updated in 1999 and provides management responsibilities and procedures for managing asbestos and exposure to asbestos, a known carcinogen (USAF 2004). No systematic surveys of buildings for asbestos has taken place on March ARB. According to the 163 ATKW IDP (California ANG 2015b), Buildings 2305 and 1246, both undergoing renovation, contain asbestos in their roofing (California ANG 2015a).

The March ARB Lead-Based Paint Management Plan was updated in 2002 and outlines management responsibilities, procedures, and practices related to lead-based paint removal. Similar to facilities with ACM at March ARB, no systematic survey has taken place on the base for lead-based paint.

3.13.2.5 Pesticides

The pest management program at March ARB is managed by the 452 MSG/CEV. March ARB's pest management program is based on an integrated pest management program that emphasizes non-chemical control whenever possible. The Pest Management Program incorporates the provisions of DoDI 4150.7 and AFI 32-1053. It is aimed at control of mosquitoes, weeds, and household, nuisance, health-related, and structural pests. Most pesticides are utilized for grounds maintenance and pest management on an as-needed basis, such as pest management at military family housing; weed control on parking lots, sidewalks, aircraft parking aprons, and taxiways; and rodent control (USAF 2012a).

3.14 SAFETY

3.14.1 Definition of Resource

The primary concern with regard to military training flights is the potential for aircraft mishaps (i.e., crashes), which may be caused by mid-air collisions with other aircraft or objects, weather difficulties, or bird-aircraft strikes.

Siting requirements for explosive materials storage (e.g., munitions) and handling facilities are based on safety and security criteria. AFM 91-201, *Explosives Safety Standards*, requires that defined distances, known as ESQD arcs, be maintained between these and a variety of other types of facilities. These ESQD arcs are determined by the type and quantity of explosive materials to be stored; each explosive material storage or handling facility has ESQD arcs extending outward from its sides and corners for a prescribed distance. Within ESQD arcs, development is either restricted or altogether prohibited in order to maintain safety of personnel and minimize the potential for damage to other facilities in the event of an accident. ESQD arcs for multiple facilities at a single site may overlap, leaving a series of arcs as edges of the safety zone. Explosive materials storage and build-up facilities must be located in areas where security can be assured. For description of issues surrounding AT/FP, please refer to Section 3.4, *Land Use*.

3.14.2 Existing Conditions

3.14.2.1 Aircraft Mishaps at March ARB

The objective of the flight safety program at March ARB is to protect the public, airspace participants, and military and civilian property from the risk associated with aircraft operations. Such mishaps, while rare, may occur as a result of mid-air collisions, collisions with manmade structures or terrain, weather-related accidents, mechanical failure, pilot error, or bird/wildlife aircraft collisions. Flight risks apply to all aircraft; they are not limited to the military.

Five mishap classifications have been defined by the USAF. Class A mishaps result in a fatality or permanent total disability; total cost in excess of $2 million for injury, occupational illness, and property damage; or destruction or damage beyond repair to military aircraft. Class B mishaps result in a permanent partial disability; total cost in excess of $500,000 but less than $2 million for injury, occupational illness, and property damage; or hospitalization of five or more personnel. Class C mishaps result in total damages between $50,000 and $500,000, and Class D mishaps result in total damages between $20,000 and $50,000. The fifth mishap category, Class E, include occurrences that do not meet reportable mishap classification criteria, but are deemed important to investigate and/or report for mishap prevention.

Aircraft mishaps are classified as A, B, C, or D, with Class A mishaps being the most severe, with total property damage of $2 million or more, total aircraft loss, and a fatality and/or permanent total disability. Based on historical data on mishaps at all installations, and under all conditions of flight, the military services calculate Class A mishap rates per 100,000 flying hours for each type of aircraft in the inventory. Combat losses are excluded from these mishap statistics.

In the most recent five-year period beginning October 2010 and ending Oct 2015, March ARB had 1 Class A mishap, 128 Class E BASH events across multiple airframes (KC-135R, C-17A, and F-16), 4 Class E Controlled Movement Area Violations (i.e., vehicles on taxiways/runways without clearance) events, and 7 Class E Hazardous Air Traffic Reports events. There were no Class B, C, or D flight mishaps reported during this timeframe.

3.14.2.2 MQ-1 and MQ-9 Aircraft Mishaps

Flight safety is generally associated with the containment of manned aircraft flight within approved operational areas. The unique aspect of remotely piloted aircraft (RPA) flying operations is that the aircraft is unmanned. This means that an RPA mishap has no risk to aircrew. An external pilot flies the aircraft via a data-link from a ground control station. In flight, if malfunctions occur and the data link (i.e., either communication or GPS) is lost, the aircraft is pre-programmed to return to a predetermined unpopulated area (e.g., Perris Reservoir), or the Flight Termination Point, currently within restricted airspace R-2515; it then orbits while attempts are made to restore the datalink.

As described in Section 2.2.1.5, *Lost Link Flight Profile and Emergency Procedures* if an MQ-9 aircraft goes lost link while in transit or operating within R-2515, the lost link profile will be flown at the last cleared altitude to the R-2515 Lost Link Orbit, where it flies an orbit at 9,500 feet MSL. In the rare event that a link cannot be re-established before the aircraft runs out of fuel, the aircraft would fly to a FTP on Edwards AFB known the "spin area" (refer to Figure 2-3). Edwards AFB would respond to the crash site to retrieve the aircraft and collect mishap information/data. However, no RPA aircraft have been lost during operations at SCLA.

In-flight mishaps or failures associated with the MQ-9s are extremely rare; the only known recurrent MQ-9 failures include generator failure. To mitigate this, the 163 ATKW MQ-9s have all been modified and are now equipped with a Direct Drive Brushless Alternator (DDBA) in addition to the existing generator to provide electrical redundancy. In the rare event of a dual generator failure, the aircrew has a mission profile that would take the MQ-9 aircraft immediately to the FTP at the Edwards AFB "spin-area." The Supervisor of Flying (SOF) would designate the GenFail mission as active and the aircrew would turn the satellite link off to maximize available battery time. Grey Butte Field Airport would attempt recovery of these aircraft in the event the MQ-9 aircraft is not coming from too far away and has at least 30 minutes or more of battery available.

MQ-9 RPA aircraft have flown more than 468,000 hours in 13 years for the USAF program. Over that period, 20 Class A and 3 Class B mishaps have occurred, and a total of 7 aircraft have been destroyed across the entire USAF program (USAF 2014b). The 163 ATKW has been flying the MQ-9 at SCLA for over a year and has only had one Class D fuel leak mishap (USAF 2016c).

3.14.2.3 Clear Zones and Accident Potential Zones

Airfield clearance requirements are designed to minimize the potential for accidents during take-offs and landings. Airfield clearance zones consist of two- and three-dimensional areas which are associated with specific runways. Restrictions also center around taxiways and parking aprons. The USAF and the FAA regulate airfield clearances for the facilities under their jurisdictions. Applicable regulations criteria may be found in the following documents: AFM

32-1123, *Airfield and Heliport Planning Criteria*; FAA Advisory Circular 150/5300-13, Airport Design; and FAR Part 77, paragraph 77.28.

Table 3-15. Clearance Area Descriptions

Clearance Area	Description
Primary Surface	The required width for the lateral clearance line is 1,000 feet on either side of the extended runway. No structure should be located above ground level within this lateral clearance distance and all aircraft parking beyond the lateral clearance will not violate the 7:1 ratio for tail height (Setback will be 7 feet for each foot in height.)
Transitional Surface	Development is constrained by approach, departure and transitional surfaces. Approach and departure surfaces are three-dimensional imaginary surfaces that begin 200 feet beyond the end of the runway and slope upward directly beyond following the runway centerline. Transitional surfaces extend laterally away from the sides of the primary flight surface rising at a rate of 1 vertical foot per 7 horizontal feet until reaching a height of 150 feet.
Taxiway Clearances	Obstructions or obstacles are also prohibited within the clearance zones associated with taxiways, taxi lanes, and parked aircraft. Development within the airfield is restricted to only structures required such as airfield lighting and navigational aids. According to Air Force airfield safety clearance requirements for a Class B Runways, with certain exceptions, construction of airfield obstructions is also prohibited within 200 feet of aircraft taxiway centerlines and within 125 feet of aircraft apron boundary markings.
Emergency Runway Clear Zones	The Clear Zone is an area 3,000 feet long and 3,000 feet wide extending off both ends of each runway. Any new construction in this area would not be permissible without a waiver.
Accident Potential Zone (APZ) 1	APZ 1 beings at the end of each Clear Zone and extends 3,000 feet wide and 5,000 feet along the axis of the runway. Land use compatible with APZ 1 is limited to light industrial manufacturing, transportation, communications utilities, wholesale trade, open space, and agricultural use. Uses that concentrate people in small areas are considered unacceptable.
APZ 2	APZ 2 is 3,000 feet long and extends 7,000 feet along the runway centerline, beginning at the end of APZ 1. Recommended land uses within APZ 2 include all of those listed for APZ, as well as low density residential, service, and retail trade. Uses or activities that create high densities of people are not considered compatible.

Source: USAF 2004.

Runways 14/32 and 13/31 and their associated clear zones are both located adjacent to facilities at March ARB. Building setbacks are required to protect aircraft moving under their own power on runways, taxiways, and aircraft parking aprons. Development in Clear Zones and Accident Potential Zones 1 and 2 are restricted to prevent property damage and limit flightline obstructions related to airfield operations (USAF 2004).

The Clear Zone is historically known to have the highest accident potential of the three zones; it does not allow for any development within its boundaries. March ARB no longer has facilities located within the Clear Zones that would require relocation (USAF 2004).

3.14.2.4 BASH-related Safety

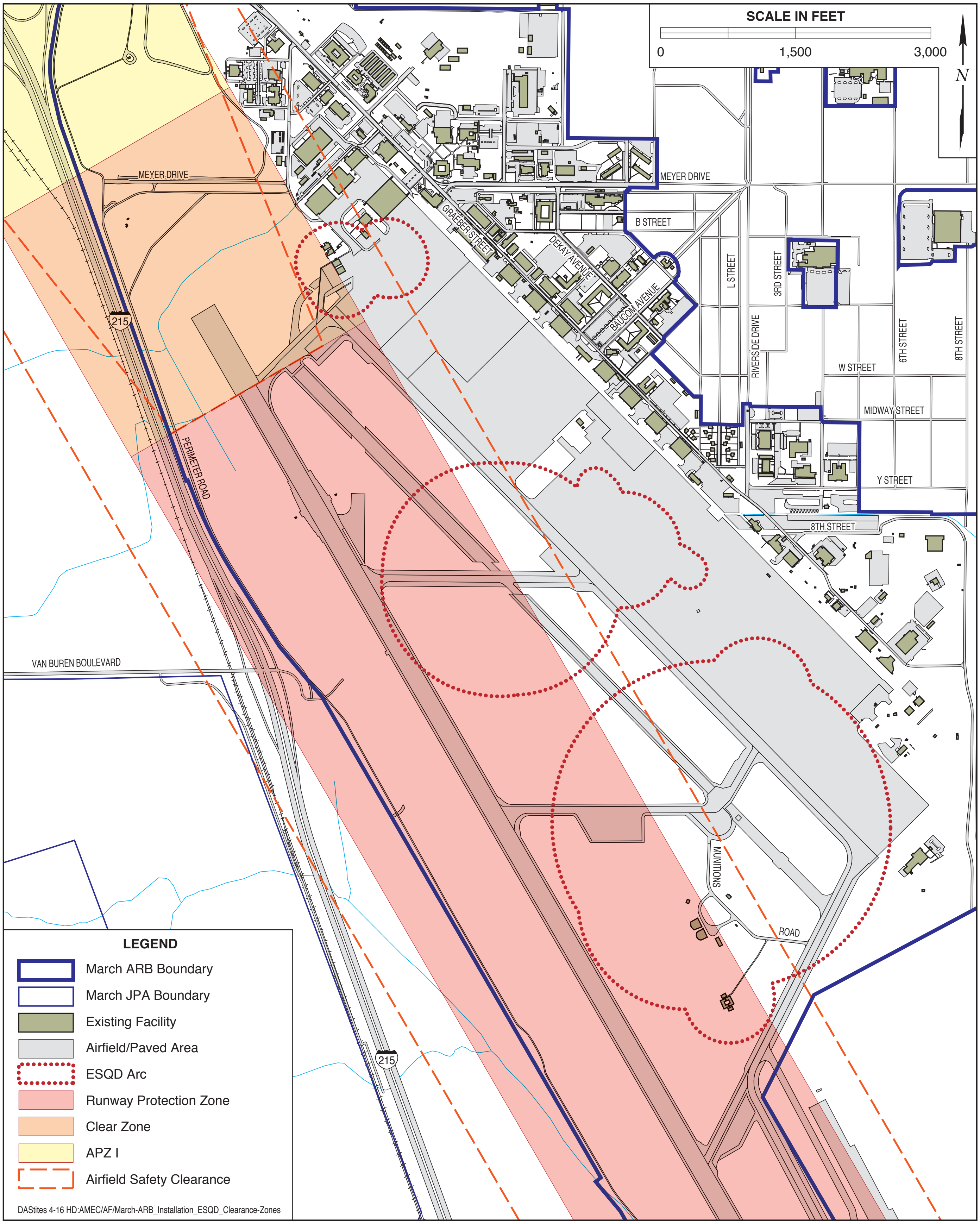
BASH is defined as the threat of aircraft collision with birds or wildlife during flight operations and it is a safety concern at all airfields due to the frequency of aircraft operations and the possibility of encountering birds at virtually all altitudes. At most military bases, approximately half of reported bird-strikes occur in the immediate vicinity of the airfield and another 25 percent occur during low-altitude local training exercises. In particular, bird-strikes present an operational constraint along migratory bird flyways during peak migration periods (i.e., mid-November through March). Four primary flyways are generally recognized in the U.S.: the Atlantic, Mississippi, Central (or Rocky Mountain), and Pacific Flyways. During the spring and autumn migratory seasons, migratory birds can often be found in higher concentrations along these routes than elsewhere in the country. Although flyways are often referred to and sometimes depicted as single pathways with well-defined boundaries, they are in reality composed of numerous smaller migratory routes that are subject to change based on environmental factors. Consequently, it is difficult to accurately determine the precise physical boundaries of flyways at a given point in time and the highest numbers or concentrations of migrating birds are not always confined within the boundaries of mapped flyways.

The Pacific Flyway is the principal flyway in closest proximity to March ARB. The Pacific Flyway is generally understood to follow the west coast of the U.S., including Washington, Oregon, and California. Many species of waterfowl, passerines, and raptors migrate through this flyway, with migration altitudes varying by species, migration distance (long distance migrants fly higher to reduce drag and conserve energy), time of day (nocturnal migrants typically fly at higher altitudes), and weather (poor weather conditions can cause migrants to fly lower). Inland waterfowl commonly migrate at lower altitudes (near the surface to several hundred feet AGL), while migratory shorebirds will fly over the ocean as high as 15,000 to 20,000 feet MSL (Lincoln et al. 1998).

Because migratory bird species are considered of special ecological value, EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds,* was introduced in 2001 to ensure that Federal agencies focus attention on the environmental effects to migratory bird species and, where feasible, implement policies and programs, which support the conservation and protection of migratory birds. March ARB has an effective, on-going Integrated BASH Program providing guidelines to reduce these incidents, outlining reporting requirements, communicating about specific hazards or incidents, and reduce or eliminate environmental conditions attracting birds and dispersing them when they congregate (USAF 2012a). Class E BASH incidents at March ARB in the last five years include: 4 mishaps in 2010, 9 mishaps in 2011, 15 mishaps in 2012, 30 mishaps in 2013, 44 mishaps in 2014, and 26 mishaps in 2015 (USAF 2015c).

3.14.2.5 Explosive Safety Quantity-Distance

Ordinance is handled and stored in accordance with USAF explosives safety directives (AFI 91-201, *Explosives Safety Standards*) and all munitions maintenance is carried out by trained, qualified personnel using USAF-approved technical procedures. ESQD arcs are required on the base where explosives are stored or handled in order to minimize damage in the case of a mishap. Areas with ESQD arcs at March ARB include the Munitions Storage Area, F-16 Alert Facility, and the Primary and Alternative Hot Cargo Pad/Suspect Vehicle Areas (USAF 2004; see Figure 3-7).



EA

ESQD Arcs and Clearance Zones at March ARB

FIGURE 3-7

No warranty is made by the USAF as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document," in that it is intended to change as new data become available and are incorporated into the GIS database.

SECTION 4
ENVIRONMENTAL CONSEQUENCES

Environmental impacts that could potentially result from the implementation of the proposed relocation of MQ-9 Reaper Launch and Recovery Element (LRE) aircraft from the Southern California Logistics Airport (SCLA) to March Air Reserve Base (ARB), including associated construction and interior renovation projects, are evaluated in this section. Analyses are presented by resource area, as presented in Section 3, *Affected Environment.*

4.1 AIRSPACE MANAGEMENT

4.1.1 Approach to Analysis

The significance of potential impacts to airspace management depends on the degree to which the proposed aircraft and their operations would affect the structure, use, or management of the regional military, commercial, and general aviation airspace environment. Significant impacts could result if the action would: 1) impose major restrictions on air commerce opportunities; 2) significantly limit airspace access to a large number of users; or 3) require modifications to Air Traffic Control (ATC) systems.

4.1.2 Impacts

4.1.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Operational Impacts</u>

Under the Proposed Action the 163d Attack Wing (163 ATKW) would relocate the MQ-9 Reaper LRE from SCLA to March ARB resulting in an increase in the number of operations at March ARB and a corresponding reduction in the number of operations at SCLA. As described in Section 2.2.1.1, *Ground Operations at March ARB*, the 163 ATKW would fly an average of two 10- to 12-hour sorties per day, five days per week and one weekend per month. The 163 ATKW would typically fly two MQ-9 aircraft at the same time, resulting in an average of four additional airport operations daily (i.e., two arrivals and two departures) at March ARB. An additional two sorties would be accomplished during typical Unit Training Assembly (UTA) drill weekend days (24 days per year). Operations associated with the Proposed Action (approximately 1,064 sorties per year) would represent a negligible increase (approximately 1.5 percent) over the existing conditions at March ARB (refer to Section 3.1.2.1, *March ARB Airspace and Aircraft Operations*). Approximately 75 to 80 percent of the total MQ-9 flying time would occur within the existing training areas (i.e., Restricted Area [R-] 2515, R-2502, and R-2501), with the remainder including transit operations from March ARB to R-2515 along the proposed travel corridor and limited approach/departure operations at March ARB. Chase aircraft operations would continue to be based out of Apple Valley Airport in Apple Valley, California.

The MQ-9 aircraft would utilize a short taxi route at March ARB, using Taxiways Alpha, Bravo, and Delta. The MQ-9 aircraft would utilize Runway 32 or Runway 14 based on wind direction; however, it is anticipated that Runway 32 would be more heavily utilized given prevailing wind conditions. After takeoff from March ARB the aircraft would follow standard published departure patterns at March ARB. Similarly, the aircraft would follow standard tactical arrival patterns into March ARB. From the Tactical (TAC) East Point the aircraft would cross the runway at mid-field and turn right or left depending on wind direction and runway assignment. Due to the large speed differential between the MQ-9 and the C-17 and KC-135 aircraft, a separate standard VFR pattern east of March ARB at 3,000 feet MSL would be used during times of increased jet activity. Entry into the Eastern VFR pattern would follow standard VFR arrival procedures with the MQ-9 proceeding direct to March ARB from Point Golf and making a normal downwind entry into either the Runway 32 or Runway 14 pattern, as appropriate, at 3,000 feet MSL. In addition to departure and arrival operations, the MQ-9 aircraft would also utilize March ARB Terminal Airspace for limited closed pattern operations. The MQ-9 aircraft would follow a standard circuit avoiding housing areas and other potential sensitive land uses. On average, each sortie would include one low approach, one touch and go, and one full stop.

Aircraft operating in Class C airspace must establish and maintain two-way radio communication while in the airspace (14 Code of Federal Regulations [CFR] Part 91.130). MQ-9 aircraft operating in the local airport environment would be under the direct control of a certified pilot who would maintain communications with air traffic controllers in the same manner as they would if they were in a manned aircraft. As an additional safety precaution, see-and-avoid services for local training would be accomplished by a qualified visual observer located on the airfield. Additional procedures for operating in March ARB Terminal Airspace are identified in Section 2.2.1.2, *March ARB Class C and Class D Operations*.

The Proposed Action would not require any modification to the current terminal airspace structure or operational procedures, or any changes to the departure and arrival route structure of any airport or the Victor Routes used to transition between airports. Pilots would be expected to fly standard instrument departures and arrivals as directed by March ARB ATC and in the same manner as other aircraft using the airport. Other airports in the area would not be directly affected by the Proposed Action. MQ-9 aircraft would transition to and from Class C airspace in the same manner as other aircraft using March ARB and would not loiter in March ARB Terminal Airspace. Pilots operating MQ-9 aircraft for local patterns would remain within the March ARB Class C airspace and would not interfere with the Class E airspace associated with the other airports.

All airspace flight operations would continue to be conducted in accordance with procedures established by the Federal Aviation Administration (FAA) and in the applicable U.S. Air Force (USAF) regulations and orders with the safety of its pilots and people in the surrounding communities as the primary concern. Strict control and use of established safety procedures would minimize the potential for safety risks (see Section 3.14, *Safety*).

The proposed MQ-9 aircraft operations would have no significant impact on the use and management of the March ARB Class C airspace or the airspace surrounding public and private airports in the region. As a result, impacts to airports under the Preferred Alternative would not be significant.

<u>Proposed Travel Corridor and Perris Lost Link Orbit</u>

As described in Section 2.2.1.3, *Proposed Travel Corridor to R-2515*, MQ-9 aircraft operations at March ARB would be under an FAA Certificate of Authorization (COA) where authorization to fly is granted for a specific platform, for a specific mission, in a given piece of airspace. Currently, the FAA utilizes a COA as the means of authorizing remotely piloted aircraft (RPA) operations in the National Airspace System (NAS) with certain specific provisions including escort by manned chase aircraft.

To enable NAS access, the 163 ATKW would utilize March Ground Controlled Approach (GCA) radar and Southern California Terminal Radar Approach Control (SOCAL TRACON) radar to climb to 8,500 feet above mean sea level (MSL) and transit via an assigned flight travel corridor to R-2515 (refer to Figure 2-1). A manned chase aircraft would escort the MQ-9 aircraft to and from the working Special Use Airspace (SUA). The aircrew would utilize the MQ-9 aircraft sensor ball to scan for traffic and use tactical situation displays in the Ground Control Station (GCS) to identify possible traffic conflicts which they will report to the chase aircraft for deconfliction. Additionally, March GCA, SOCAL TRACON, and Los Angeles Air Route Traffic Control Center (ZLA) would provide normal Instrument Flight Rules (IFR) separation service to the MQ-9 aircraft to include traffic calls that would allow the aircrew to cue the camera to the traffic.

Procedures for aircraft transit operations from March ARB to R-2515 are identified in Section 2.2.1.3, *Proposed Travel Corridor to R-2515*. The chase aircraft or visual observer would maintain communications with the pilot and ATC to ensure that the pilot is aware of all aircraft operating in the area. As described in Section 2.2.1.5, *Lost Link Flight Profile and Emergency Procedures s*hould a lost link be experienced during flight, the MQ-9 aircraft would follow a pre-programmed flight profile to a remote lost link orbit where the aircraft would hold at a specified altitude for a specified period of time until the communication link is restored or the specified time elapses.

The Perris Lost Link Orbit would be a new pattern that would be flown as a result of relocating the MQ-9 Reaper LRE from SCLA to March ARB. In the event that the C-Band and Ku-Band links are lost with the aircraft between R-2515 and March ARB, the MQ-9 would fly a pre-programmed route to the Perris Lost Link Orbit where it would fly in clockwise circles at 9,500 feet MSL at 95 to 105 knots above an uninhabited area (only one farming structure is located in the vicinity of the Perris Lost Link Orbit). If a link cannot be re-established with the aircraft after 2 hours, the MQ-9 aircraft would fly back to the existing R-2515 Lost Link Orbit where it would fly at in a similar orbit at 9,500 feet MSL for another 60 minutes. In the rare event that a link could not be re-established by this time, the aircraft would fly to a Flight Termination Point (FTP) on Edwards AFB known the "spin area" (refer to Figure 2-3). Edwards Air Force Base (AFB) would respond to the crash site to retrieve the aircraft and collect mishap information/data (see Section 3.14, *Safety*).

4.1.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

Under this alternative, the 163 ATKW would not assume use of Building 1244 for MQ-9 aircraft storage and would instead construct a new 17,000-sf hangar. The new hangar would be constructed adjacent to Building 1246. Long-term operational impacts under this alternative would be identical to those described for the Proposed Action. Beddown of the MQ-9 Reaper LRE and associated aircraft operations would result in less than significant impacts on airspace management.

4.1.2.3 No-Action Alternative

If the No-Action Alternative were selected, March ARB would not beddown the MQ-9 Reaper LRE and the associated construction and interior projects would not occur. Consequently, there would be no construction-related or operational aircraft operations impacts associated with the selection of this alternative. Conditions would remain as described in Section 3.1, *Airspace Management*.

4.2 AIR QUALITY

4.2.1 Approach to Analysis

The 1990 Amendments to the Clean Air Act (CAA) require that Federal agency activities conform to the State Implementation Plan (SIP) with respect to achieving and maintaining attainment of National Ambient Air Quality Standards (NAAQS) and addressing air quality impacts. An air quality impact would be considered significant if it would exceed one or more of the NAAQS for any of the time periods analyzed. The U.S. Environmental Protection Agency (USEPA) General Conformity Rule requires that a conformity analysis be performed which demonstrates that an action does not: 1) cause or contribute to any new violation of any NAAQS in the area; 2) interfere with provisions in the SIP for maintenance or attainment of any NAAQS; 3) increase the frequency or severity of any existing violation of any NAAQS; or 4) delay timely attainment of any NAAQS, any interim emission reduction, goals, or other milestones included in the SIP for air quality. Provisions in the General Conformity Rule allow for exemptions from performing a conformity determination only if total emissions of individual nonattainment area pollutants resulting from the action fall below the *de minimis* (i.e., significant) threshold values.

With respect to the General Conformity Rule, effects on air quality would be considered significant if an action would result in an increase of the Regional Emissions Inventory above the *de minimis* threshold levels established in 40 CFR §93.153(b) for individual nonattainment or maintenance pollutants. As described in Section 3.2.2.2, *Local Air Quality*, the South Coast Air Basin, which encompasses the western portion of Riverside County where March ARB is located, is currently designated as an extreme *nonattainment* area for 8-hour ozone (O_3) and moderate *nonattainment* area for particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Additionally, the air basin is in *maintenance* for carbon monoxide (CO), nitrogen dioxide (NO_2), and particulate matter less than 10 microns in diameter (PM_{10}) (USEPA 2016a). The South Coast Air Basin is currently designated by the USEPA as an *attainment* area for all other NAAQS criteria pollutants.

The proposed travel corridor for MQ-9 aircraft from March ARB to R-2515 crosses the boundary of South Coast Air Basin into the Mojave Desert Air Basin which is monitored by the Mojave Desert Air Quality Management District (MDAQMD) (refer to Section 2.2.1.3, *Proposed Travel Corridor to R-2515*). Similar to the South Coast Air Quality Management District (SCAQMD), the Mojave Desert Air Quality Management District (MDAQMD) monitors air quality and emissions generated within its jurisdiction. The Mojave Desert Air Bain is currently in severe *nonattainment* for 8-hour O_3 (USEPA 2016a).

4.2.2 Impacts

4.2.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Short-term Construction Impacts</u>

Pollutant emissions associated with the proposed construction activities at March ARB would include fugitive dust emissions during site preparation and relate ground disturbing activities. Additionally, the proposed construction projects included in the Proposed Action, including the proposed interior renovation projects, would result in combustion emissions from vehicles and heavy-duty equipment.

Fugitive Dust Emissions

Under the Proposed Action, fugitive dust would be generated during facility construction activities, including site preparation, clearing, and grading. Dust emissions generated by such activities can vary substantially depending on levels of activity, specific operations, and prevailing meteorological conditions. The standard dust emission factor for general non-residential construction activity is conservatively estimated at 0.19 tons of PM_{10} generated per acre per month of activity (USEPA 2006). Per procedures documented in the National Emissions Inventory (USEPA 2006), $PM_{2.5}$ emissions are estimated by applying a particle size multiplier of 0.10 to PM_{10} emissions. The USEPA National Emission Inventory documentation assumes that the emissions resulting from construction-related activities are uncontrolled. However, fugitive dust resulting from activities related to implementation of the Proposed Action could be reduced through standard dust minimization practices (e.g., regularly watering exposed soils, soil stockpiling, etc.). These dust minimization measures can reduce dust generation by up to 50 percent (USEPA 2006).

It has been conservatively estimated that the proposed construction projects included in the Proposed Action would disturb a total area of approximately 0.9 acres (refer to Table 2-1; see Appendix B, *Air Quality*). This conservative estimate accounts for site preparation activities, materials staging, and heavy equipment storage, which may occur outside of the existing or proposed building footprints. The total amount of uncontrolled dust (including both PM_{10} and $PM_{2.5}$) generated by the proposed construction activities would be approximately 8.0 tons. However, this could be reduced to approximately 4.0 tons with the implementation of standard dust minimization practices (e.g., regularly watering exposed soils, soil stockpiling, etc.) (USEPA 2006). The greatest fugitive dust emissions would occur during Fiscal Year (FY) 2020, during which time approximately 3.95 tons of fugitive dust would be generated as a result of the renovation of the repair of Building 1244 (including the construction of 0.36-acre POV parking lot) and the construction of the 5,000-sf Weapons Maintenance Facility. These fugitive dust emissions could be reduced to approximately 1.50 tons with the implementation of standard dust minimization practices (see Appendix B, *Air Quality*). Calculations assume ground disturbance would occur continuously over 6 months from FY 2017 through FY 2020.

Table 4-1. Construction-Related Dust Emissions per Fiscal Year under the Proposed Action at March ARB

Fiscal Year	Total Disturbed Area (acres)	Potential Dust Generated (tpy)	Potential Dust Generated per Year with BMPs (tpy)
2017	0.24	1.34	0.67
2019	0.49	2.73	1.37
2020	0.71	3.95	1.97

Note: Total disturbed area per year is calculated by multiplying the total surface area of proposed new construction projects by 1.5, to account for site preparation, grading, and staging activities (see Appendix B, Air Quality).

Although any increase in fugitive dust emissions is inherently adverse, increased fugitive dust emissions associated with the Proposed Action would be short-term and temporary, resulting in less than significant impacts to air quality.

Combustion Emissions

Combustion emissions would be associated with construction-related equipment, workers' vehicles, and transport of construction materials. Emissions associated with construction equipment (e.g., grader, backhoe, dozer, etc.) would be minimal because most heavy construction equipment would be driven to and kept at March ARB for the duration of construction activities. Emissions associated with construction worker commutes and the transportation of materials would also be minimal given the temporary nature of the activities. Table 4-2 describes annual combustion emissions that would be anticipated as a result of the Proposed Action. These emissions estimates are conservative given that fewer pieces of heavy construction equipment would be required for proposed interior renovations. Impacts due to combustion emissions from construction are generally not considered significant because they are temporary and of short duration. For a full list of assumptions, emission factors, and emission category subtotals see Appendix B, *Air Quality.* Anticipated combustion emissions during construction activities would remain below *de minimis* threshold values during each year of construction and would result in less than significant short-term impacts to air quality.

Table 4-2. Potential Annual Emissions by Year from Construction Related Combustion under the Proposed Action at March ARB

Year	**CO**	**NO_x**	**PM**	**VOC**	**SO_x**
2017	1.98	3.65	0.21	0.01	0.50
2018	1.98	3.65	0.21	0.01	0.50
2019	1.98	3.65	0.21	0.01	0.50
2020	1.98	3.65	0.21	0.01	0.50
de minimis thresholds (tpy)	100	10	100	10	100
Significant Impact?	**No**	**No**	**No**	**No**	**No**

Notes: Construction activities and interior renovations included in the Proposed Action are assumed to be comparable, therefore a standard set of construction equipment and work durations were used to approximate expected emissions during each year of construction and interior renovation. See Appendix B, *Air Quality*.
Source: USEPA 2016d.

Long-term Operational Impacts

Under the Proposed Action, six MQ-9 aircraft would be relocated from SCLA to March ARB and the 163 ATKW would beddown the MQ-9 Reaper LRE at March ARB. While the location of the MQ-9 Reaper LRE would change under the Proposed Action, aircraft operations would not change from existing conditions. As described in Section 2.2.1.1, *Ground Operations at March ARB* under the Proposed Action, the 163 ATKW would continue to fly an average of two 10- to 12-hour sorties per day, five days per week and one weekend per month. The 163 ATKW would typically fly two MQ-9 aircraft at the same time, resulting in an average of four additional airport operations daily (i.e., two arrivals and two departures). Approximately 75 to 80 percent of the total flying time would occur within R-2515, R-2502, and R-2501, with the remainder including transit operations from March ARB to R-2515 and limited approach/departure operations at March ARB. Chase aircraft operations would continue to be based out of Apple Valley Airport in Apple Valley, California.

A complete air quality analysis was prepared as a part of the 2008 EA supporting the beddown of 14 MQ-1 Predator aircraft by the 163d Reconnaissance Wing at SCLA (California Air National Guard [ANG] 2008). Recently in July 2015, the wing converted from the remotely-piloted MQ-1B Predator to the MQ-9A Reaper and was re-designated as the 163 ATKW to reflect this conversion. Emission rates for criteria pollutants associated with the MQ-9 Reaper were less than or comparable with the MQ-1 Predator aircraft and therefore a complete air quality analysis was not performed.

Table 4-3. Pollutant Emission Rates for MQ-1 and MQ-9 Aircraft

Aircraft	Pollutant Emission Rates (lbs/LTO)				
	CO	VOC	NO_x	SO_x	PM_{10}
MQ-1	17.21	0.28	0.02	0.00	0.02
MQ-9	2.50	1.59	0.56	0.05	0.09

Notes: LTO = Landing and takeoff operation.
Source: California ANG 2008; New York ANG 2015.

Under the Proposed Action aircraft emissions associated with MQ-9 landing and takeoff operations would be relocated from SCLA, within the MDAQMD to March

ARB, within the SCAQMD. However, chase aircraft operations would remain at the Apple Valley Airport in Apple Valley, California.

Table 4-4 summarizes the annual operational emissions that would result from the proposed MQ-9 landing and takeoff operations at March ARB under the Proposed Action. Emissions associated with MQ-9 aircraft operations would be below the *de minimis*/Prevention of Significant Deterioration thresholds for all pollutants and would therefore not trigger the requirement for a Conformity Determination under the General Conformity Rule.

Table 4-4. Annual Air Emissions for MQ-9 Aircraft Operations at March ARB

Aircraft	Pollutant Emission Rates (lbs/LTO)				
	CO	VOC	NO_x	SO_x	PM_{10}
MQ-9	2.50	1.59	0.56	0.05	0.09
Annual Operations	**Total Emissions (tpy)**				
	CO	**VOC**	**NO_x**	**SO_x**	**PM_{10}**
1,064	1.33	0.85	0.30	0.03	0.05

Notes: The emissions produced above the standard mixing height (3,000 feet above ground level [AGL]) have a negligible effect on ground level concentrations and could not directly result in a violation of the NAAQS in a local area (FAA 2000). Therefore, MQ-9 training activities above this altitude have not been quantified in this analysis.

Along with the increase in emissions within at March ARB (as shown in Table 4-4), there would be a corresponding reduction in emissions at SCLA, due to the reduction in training flights at that location. Additionally, there would be a reduction in vehicle mobile emissions resulting from the elimination of the need for personnel to commute between the March ARB and SCLA for training. Overall long-term operational air emissions impacts would be considered less than significant.

Greenhouse Gas Emissions

As described in Section 3.2.1.3, *Climate Change*, the Council on Environmental Quality (CEQ) released final guidance for greenhouse gas (GHG) emissions and climate change impacts on 1 August 2016. CEQ recommends agencies use the projected GHG emissions associated with proposed actions as a proxy for assessing proposed actions' potential effects on climate change in NEPA analysis.

Under the Proposed Action construction activities would result in short-term greenhouse gas (GHG) (i.e., carbon dioxide [CO_2]) emissions from heavy equipment and construction worker vehicles. However, implementation of the Proposed Action would generally renovate existing facilities and incorporate sustainability measures as well as improve energy efficiency per Executive Order (EO) 13514. Consequently, the construction activities associated with the Proposed Action would not result in any measurable long-term increase in GHG emissions.

Operational activities would result in a minor net increase in GHG emissions due to the small increase distance between March ARB and R-2515 relative to the distance between SCLA and R-2515. However, this increase would be well below 25,000 metric tons annually and would not have an appreciable effect on global climate change. Additionally, the elimination of the need for personnel to commute between the March ARB and SCLA for training, would reduce vehicle GHG emissions and would offset, at least partially, any increases in aircraft-related GHG emissions. Consequently impacts related to greenhouse gas emissions would be less than significant.

In addition the final guidance requires that NEPA-compliant analyses also consider the impacts of climate change effects on the Proposed Action (e.g., increasing sea level, drought, high intensity precipitation events, increased fire risk, or ecological change). The majority of construction-related activities included under the Proposed Action would renovate existing facilities at March ARB (refer to Table 2-1). Consequently, these facilities would not be any more susceptible to the effects of climate change than the existing facilities at March ARB. Further, all facilities under the Proposed Action would be located within the base boundaries and would not be impacted by an increased risk of wildfire associated with climate change. New facilities that would be constructed under the Proposed Action (e.g., Ground Data Terminal [GDT]), would not be located within a floodplains or along other areas subject to flooding or sea level rise (e.g., coastline). Further, these facilities would be served by existing potable water sources at March ARB and would not be limited or experience the effects of potential increased or prolonged droughts. Consequently impacts of climate change on the Proposed Action would be less than significant.

4.2.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

March ARB Short-term Construction Impacts

Fugitive Dust Emissions

Fugitive dust emissions under this alternative would be similar to those identified for the Proposed Action; however, in addition to the projects included under the Proposed Action, this alternative would include the construction of a proposed new 17,000-square foot (sf) hangar. This additional construction project would result in a slight increase in fugitive dust during site preparation, clearing, and grading, as well as combustion emissions from construction-related vehicles and equipment. However, as described for the Proposed Action, although any increase in fugitive dust emissions is inherently adverse, increased fugitive dust emissions associated with the Proposed Action would be short-term and temporary, resulting in less than significant impacts to air quality

Combustion Emissions

Combustion emissions would be generated from construction-related vehicles and equipment, workers' commute vehicles. Under this alternative additional combustion related emissions would occur as a result of construction of the new hangar. However, similar to the Proposed Action, combustion emissions under this alternative would remain below de minimis threshold values during each year of construction and would result in less than significant short-term impacts to air quality.

Long-term Operational Impacts

Long-term operational impacts under this alternative would be identical to those described for the Proposed Action. Beddown of the MQ-9 Reaper LRE and associated aircraft operations would result in less than significant impacts on air quality.

Greenhouse Gas Emissions

Long-term operational GHG emissions under this alternative would be identical to those described for the Proposed Action. Beddown of the MQ-9 Reaper LRE and associated aircraft operations would result in less than significant greenhouse gas emissions.

4.2.2.3 No-Action Alternative

If the No-Action Alternative were selected, March ARB would not beddown the MQ-9 Reaper LRE and the associated construction and interior projects would not occur. Consequently, there would be no fugitive dust, combustion, or operation emissions associated with the selection of this alternative. Conditions would remain as described in Section 3.2, *Air Quality*.

4.3 NOISE

4.3.1 Approach to Analysis

Noise impact analyses typically evaluate potential changes to existing noise environments that would result from the implementation of an action. These potential changes may be beneficial if they reduce the number of sensitive receptors exposed to unacceptable noise levels. Conversely, impacts may be significant if they result in an introduction to unacceptable noise levels or increased exposure to unacceptable noise levels. Noise associated with an action is compared with existing noise conditions to determine the magnitude of potential impacts.

A noise impact would be considered significant if the action would cause noise-sensitive areas to experience an increase in noise of 1.5 decibels (dB) or more at or above the 65 Day-Night Average A-weighted Sound Level (DNL) noise exposure when compared to the No-Action Alternative for the same timeframe. As a general rule, a 3-dB change is necessary for noise increases to be noticeable to humans (Bies and Hansen 1988).

4.3.2 Impacts

4.3.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Short-term Construction Impacts</u>

Implementation of the Proposed Action would have minor, temporary effects on the noise environment in the vicinity of the proposed construction and interior renovation project sites. Use of heavy equipment for site preparation and development (e.g., vegetation removal, grading, and back fill) for the proposed construction activities between FY 2017 and FY 2020 would generate short-term noise exposure above typical ambient levels at March ARB. However, noise generation would be typical of construction activities, short-term, and confined to normal working hours (i.e., between 7:00 AM and 5:00 PM). Short-term noise generating activities associated with the Proposed Action would primarily occur within the cantonment area or along the airfield, which contain land use that are not considered to be noise sensitive. Given the type of construction activities (e.g., sporadic, during daytime hours, short-term, etc.), implementation of the Proposed Action would not be expected to alter the noise environment over the short-term. Consequently, the impacts of construction-related noise would be negligible.

<u>Long-term Operational Impacts</u>

Facilities

Under the Proposed Action no new facilities would be constructed within incompatible noise contours on March ARB. While the proposed GDT would be constructed within the 65 Community Noise Equivalent Level (CNEL) noise contour this facilities is not inhabitable and is purposed for uses that are compatible with this noise level.

Aircraft Operations

Implementation of the Proposed Action would result in the beddown of the MQ-9 Reaper LRE at March ARB. This would include establishment of the proposed travel corridor from March ARB to R-2515 as well as the Perris Lost Link Orbit. Chase aircraft operations would continue to be based out of Apple Valley Airport in Apple Valley, California. Under the Proposed Action, the 163 ATKW would fly an average of two 10- to 12-hour sorties per day, five days per week and one weekend per month. The 163 ATKW would typically fly two MQ-9 aircraft at the same time, resulting in an average of four additional airport operations daily (i.e., two arrivals and two departures). An additional two sorties would be accomplished during typical UTA drill weekend days (24 days per year).

However, the proposed MQ-9 Reaper LRE operations would be minimal when compared to baseline operations at March ARB. It would take a 25-percent increase in operations of the loudest aircraft at March ARB to result in a 1-dB increase in local noise conditions, which would still be below the 1.5-dB increase threshold criteria at or above 65 CNEL. In the case of March ARB, units at the base operate KC-135s, C-17s, and F-15s, and collectively conduct approximately 68,000 annual operations, and therefore the introduction of MQ-9 Reaper operations by the 163 ATKW would not have the potential to result in measurable noise impacts at that location. Proposed operations would have a negligible effect on the existing 65 CNEL contour and the amount of area where the 65 CNEL contour extends beyond March ARB's property boundary would not be measurably affected. Similarly there would be a correspondingly negligible decrease in operational noise levels at SCLA. The change in MQ-9 aircraft operations due to the Proposed Action would not affect any sensitive receptors or introduce any new residences to the 65 CNEL contour. Additionally, MQ-9 flight operations along the proposed travel corridor would result in negligible noise impacts to underlying areas. Therefore, noise impacts from aircraft operations related to the Proposed Action would be less than significant.

4.3.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

<u>March ARB Short-term Construction Impacts</u>

Under this alternative, the 163 ATKW would not assume use of Building 1244 for MQ-9 aircraft storage and would instead construct a new 17,000-sf hangar. The new hangar would be constructed adjacent to Building 1246 on the northwest side with hangar doors opening to the airfield pavements. Implementation of the Proposed Action would additional have minor, temporary effects on the noise environment in the vicinity of the proposed construction and interior renovation project sites. However, noise generation would negligible and typical of construction activities described under the Proposed Action.

<u>Long-term Operational Impacts</u>

Facilities

Under this alternative the new hangar would not be constructed within incompatible noise contours on March ARB. Consequently, impacts would be consistent with those described for the Proposed Action.

Aircraft Operations

Long-term operational impacts under this alternative would be identical to those described for the Proposed Action. Beddown of the MQ-9 Reaper LRE and associated aircraft operations would result in less than significant impacts on operational noise.

4.3.2.3 No-Action Alternative

If the No-Action Alternative were selected, March ARB would not beddown the MQ-9 Reaper LRE and the associated construction and interior renovation projects would not occur. Consequently, there would be no construction-related or operational noise impacts associated with the selection of this alternative. Conditions would remain as described in Section 3.3, *Noise*.

4.4 LAND USE

4.4.1 Approach to Analysis

Determination of land use impacts is based on the degree of land use sensitivity in the area. In general, land use impacts would be significant if an action would: 1) be inconsistent or non-compliant with applicable land use plans or policies; 2) preclude an existing land use of concern from continuing to exist; 3) preclude continued use of an area; or 4) be incompatible with adjacent or vicinity land use to the extent that public health or safety is endangered. Additionally, a land use impact would occur if a land use was placed into a noise level greater than what it is considered compatible with. In general, for most noise sensitive land uses, a significant impact would occur if noise levels increased by 1.5 dB or more at or above 65 DNL. The analysis of potential impacts to land use includes: 1) identification and description of land use areas that may be affected by implementation of the Proposed Action; 2) examination of the Proposed Action and its potential effects on land use; 3) assessment of the compatibility of the Proposed Action with existing zoning; 4) assessment of the significance of potential impacts to land use based on the criteria described above; and 5) provision of mitigation measures to minimize potential adverse impacts.

This Environmental Assessment (EA) does not provide a Section 4(f) analysis in accordance with the Department of Transportation Act. The Department of Defense (DoD) reauthorization in 1997 provided that "[n]o military flight operations (including a military training flight), or designation of airspace for such an operation, may be treated as a transportation program or project for purposes of Section 303(c) of Title 49, U.S. Code (USC) (Public Law [PL] 105-85)."

4.4.2 Impacts

4.4.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Short-term Construction Impacts</u>

Under the Proposed Action, all MQ-9 aircraft storage and maintenance functions would be relocated from the existing 1.63-acre and 5.33-acre lease areas at SCLA to March ARB. The Proposed Action would include a series of facility and infrastructure improvements necessary at March ARB in order to maximize operations and maintenance facility efficiency as well as respond to physical needs associated with the beddown of the proposed MQ-9 Reaper LRE (refer to Section 2.2.2, *Proposed Facility Construction*). The majority of these proposed facilities projects would be limited largely to interior renovation, repair, or add/alter of existing facilities. The 163 ATKW would occupy Building 1244, which is currently empty but could accommodate storage of three Primary Authorized Aircraft (PAA) MQ-9 aircraft. Building 2339 would be renovated to provide an aerospace ground equipment (AGE) shop and covered storage. A 7,000-sf GDT and 5,000-sf munitions and inspection also would be constructed. Other construction activities associated with the Proposed Action include the addition of concrete pads, asphalt paving, parking structures, fencing, covered storage, aircraft sunshades, and Large Area Maintenance Structures (LAMS).

All of this construction would occur in industrially developed areas already identified as mission or administrative land uses in the March ARB General Plan (refer to Figure 3-3). Implementation of the Proposed Action would be compatible with surrounding uses at March ARB and the proposed construction activities would be consistent with ANG planning policies and guidelines as well as the 163 ATKW Installation Development Plan (IDP) (California ANG 2015b). There would be no adverse changes to land use resulting from the implementation of the proposed construction and interior renovation projects included in the Proposed Action. The facilities projects would be consistent and compatible with the existing land uses at March ARB. Additionally, the consolidation of equipment and operations at March ARB would result in beneficial impacts with regard to fire staff operations and training and Anti-Terrorism/Force Protection (AT/FP) standards. Therefore, impacts to land use associated with the Proposed Action would be less than significant.

<u>Proposed Travel Corridor and Perris Lost Link Orbit</u>

In addition to the proposed facility construction activities at March ARB, the Proposed Action would also include the establishment of the proposed travel corridor from March ARB to R-2515 as well as the proposed Perris Lost Link Orbit. The proposed travel corridor was developed with the FAA to avoid densely populated areas and the proposed lost link corridor is located above uninhabited agricultural lands. MQ-9 aircraft flight operations along the proposed travel corridor and lost link profile would occur at altitudes of 8,500 feet MSL or 9,500 feet MSL, approximately 2,000 feet AGL or more. As a result, indirect impacts to noise (refer to Section 4.3, *Noise*) and air quality (refer to Section 4.2, *Air Quality*) would be negligible and existing land uses beneath the proposed travel corridor and lost link orbit would not be impacted. Therefore, impacts to land use associated with the Proposed Action beneath the proposed travel corridor and lost link orbit would be negligible.

4.4.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

March ARB Short- and Long-term Impacts

Under this alternative, the 163 ATKW would not assume use of Building 1244 for MQ-9 aircraft storage and would instead construct a new 17,000-sf hangar. The new hangar would be constructed adjacent to Building 1246 on the northwest side with hangar doors opening to the airfield pavements. The location of the proposed new hangar is currently undeveloped but situated in a disturbed area that is surrounded by other industrial facilities. Current land use identified in the March ARB General Plan (USAF 2004) categorizes this area as part of the existing mission area and construction of the new hangar under this alternative would not require a re-classification or re-designation of the land use. Therefore, implementation of this alternative would result in similar impacts to those described for the Proposed Action.

Proposed Travel Corridor and Perris Lost Link Orbit

Land use impacts to the areas underlying the proposed travel corridor and lost link orbit would be identical to those described for the Proposed Action. As with the Proposed Action, there would be negligible impacts to the underlying areas regarding land use with the implementation of this alternative.

4.4.2.3 No-Action Alternative

If the No-Action Alternative were selected, the proposed MQ-9 Reaper LRE beddown and associated facility and infrastructure improvements would not occur and land use would remain unchanged from current conditions as described in Section 3.4, *Land Use*.

4.5 GEOLOGICAL RESOURCES

4.5.1 Approach to Analysis

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating impacts of an action on geological resources. Generally, such impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering designs are incorporated into project development.

Analysis of potential impacts to geological resources typically includes: 1) identification and description of resources that could potentially be affected; 2) examination of the action and the potential effects it may have on the resource; 3) assessment of the significance of potential impacts; and 4) provision of mitigation measures in the event that potentially significant impacts are identified.

4.5.2 Impacts

4.5.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Short-term Construction Impacts</u>

Geology

Minor impacts would result from the proposed construction activities associated with the Proposed Action. However, these activities are limited in geographic area and would take place on land areas that are already highly disturbed and/or characterized by surrounding industrial development. The areas designated for construction do not contain unique or problematic natural geologic features and would be capable of supporting such development. Consequently, the Proposed Action would not have adverse impacts on sensitive regional geologic or physiographic features.

Topography

The existing topographical conditions of the proposed project sites are similar to the surrounding development at March ARB. These areas are generally developed or disturbed and have been graded previously. Site preparation as well as construction activities would be similar to past development activities at March ARB, and any additional grading associated with the Proposed Action would not significantly alter the topography of the area given that the cantonment area is relatively flat and has slopes of less than 1 percent (refer to Section 3.5, *Geological Resources*). Additionally, during construction, implementation of standard Best Management Practices (BMPs), such as erosion control, would be implemented where required and needed. Therefore, impacts to topography resulting from implementation of the Proposed Action would be less than significant.

Soils

Under the Proposed Action all construction activities would take place on disturbed urban land, which would be suitable for the proposed development. The proposed construction would occur on Monserate sandy loam, which is the most common soil type in the region (U.S. Department of Agriculture [USDA] 2016a). This soil type has slow to moderately slow permeability and is only slightly susceptible to erosion. There are no development limitations identified for this soil type (USDA 2016a).

During construction, incorporation of standard BMPs would limit any impacts to soils which may result from construction activities. As described in Section 4.2, *Air Quality*, dust from construction activities would be minimized by watering and/or soil stockpiling. As a result, impacts to soils under the Proposed Action would be less than significant.

<u>Proposed Travel Corridor and Perris Lost Link Orbit</u>

Establishment of the proposed travel corridor and the lost link orbit would not result in any ground-disturbing activities. Consequently, the implementation of the Proposed Action would not result in any short- or long-term adverse impacts to geological resources, including soils and topography, beneath these areas.

4.5.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

<u>March ARB Short- and Long-term Impacts</u>

Geology

Under this alternative, the proposed new 14,000-sf hangar would be constructed on a previously graded and developed area adjacent to Building 1246. As described for the Proposed Action, this area, and the surrounding vicinity adjacent to the airfield, does not contain unique or problematic natural geologic features and would be capable of supporting such development. As described for the Proposed Action, this alternative would not have adverse impacts on sensitive regional geologic or physiographic features.

Topography

Grading for the proposed new hangar under this alternative would not significantly alter the dominant topography of the area, which is generally flat and similar in character to the rest of the cantonment area. Additionally, during construction, implementation of standard BMPs, such as erosion control, would be implemented where needed. Therefore, impacts to topography resulting from implementation of this alternative would be less than significant.

Soils

Similar to the Proposed Action, construction of the new hangar under this alternative would take place on Monserate sandy loam. This soil type has slow to moderately slow permeability and is only slightly susceptible to erosion (USDA 2016a). There are no development limitations identified for this soil type and it is considered suitable for the development proposed under this alternative (USDA 2016a). Construction under this alternative would include BMPs identified for the Proposed Action, which would limit any adverse impacts to soils. As a result, impacts to soils under this alternative would be less than significant.

Proposed Travel Corridor and Perris Lost Link Orbit

Similar to the Proposed Action, establishment of the proposed travel corridor and lost link orbit would not result in any ground-disturbing activities to the underlying areas. Consequently, as with the Proposed Action, there would be no short- or long-term adverse impacts to geology, topography, or soils in these areas with the implementation this alternative.

4.5.2.3 No-Action Alternative

If the No-Action Alternative were selected, the proposed MQ-9 Reaper LRE beddown and associated facility and infrastructure improvements would not occur. No construction or interior renovation activities would be implemented, and no changes to existing geological resources at March ARB would occur. Geologic resources at March ARB would remain as described in Section 3.5, *Geological Resources.*

4.6 WATER RESOURCES

4.6.1 Approach to Analysis

Significance of potential impacts to water resources is based on water availability, quality, and use; existence of floodplains and wetlands; and associated regulations. An impact to water resources would be significant if it would: 1) reduce water availability to or interfere with the supply of existing users; 2) create or contribute to overdraft of groundwater basins or exceed safe annual yield of water supply sources; 3) adversely affect water quality or endanger public health by creating or worsening adverse health hazard conditions; 4) threaten or damage unique hydrologic characteristics; or 5) violate laws or regulations that have been established to protect or manage water resources of an area.

A floodplain impact would be significant pursuant to the National Environmental Policy Act (NEPA) if it results in notable adverse impacts on natural and beneficial floodplain values. Significant encroachment on a floodplain would occur if it would: 1) have a high probability of loss of human life; 2) have substantial, encroachment-associated costs or damage, including interrupting aircraft serve or loss of a vital transportation facility (e.g., flooding of a runway or taxiway; important navigational aid out of service due to flooding, etc.); or 3) cause adverse impacts on natural and beneficial floodplain values.

4.6.2 Impacts

4.6.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Short-term Construction Impacts</u>

Surface Water

As described in Section 3.6.2.2, *Water Resources at March ARB*, while there are no permanent surface water bodies at March ARB, there are several ephemeral streams that flow only during and immediately following a rain event (USAF 2012b). Drainage on March ARB is limited due to the fact that the majority of the installation is covered in impermeable surfaces that reduce infiltration and increase surface runoff. Because of this, during times of heavy precipitation ground saturation/flooding on the base may occur. The areas proposed for new construction under the Proposed Action are in disturbed locations that are characterized by dense development. Site preparation and construction activities would not substantially alter drainage in these areas.

None of the proposed construction or interior renovation activities, all of which would occur within the developed portion of the base, would be located in the vicinity of any surface water features. Construction could have localized (i.e., site-specific) temporary effects on hydrology and surface water quality through the installation's stormwater system, and downstream to the San Jacinto River. However, construction BMPs would be incorporated to protect water quality at these downstream sources, minimizing erosion, runoff, and sedimentation, consistent with the installation's site-specific Storm Water Pollution Prevention Plan (SWPPP).

If required, a construction storm water permit, comprised of a SWPPP and Notice of Intent (NOI), would be obtained and implemented from Santa Ana Regional Water Quality Control Board (RWQCB). March ARB has a stormwater permit for industrial discharges, but construction projects that disturb one or more acres of soil or that disturb less than one acre but are part of a larger common plan of development are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity. Further, in accordance with the Energy and Independence and Security Act Section 438 (requiring Federal facility projects over 5,000 sf to maintain or restore the predevelopment hydrology of the property), low-impact development techniques would be incorporated into the proposed construction. These techniques would be required for the activities associated with the Proposed Action, which would be limited to interior renovation, repair, or add/alteration of existing facilities. With appropriate stormwater control measures in place, implementation of the Proposed Action would result in less than significant impacts to surface water resources on and in the vicinity of the March ARB.

Groundwater

As described in Section 3.6.2.2, *Water Resources at March ARB*, the base is underlain by the northwestern portion of the San Jacinto Groundwater Basin. Younger alluviums in the northwestern part of the San Jacinto Groundwater Basin have an estimated groundwater yield of 5 to 10 percent, while older alluviums in the San Jacinto Groundwater Basin generally contain more fine material and have a lower groundwater yield (City of Moreno Valley 2006). Groundwater contamination has occurred at several locations on March ARB in the past (refer to Section 3.13.2.2, *Environmental Restoration Program Sites* and Table 3-14).

Implementation of the Proposed Action would result in a minor increase in impermeable surfaces associated with the proposed construction. However, the proposed construction projects would be sited on previously disturbed land, and in some cased on existing paved surfaces. Therefore, the Proposed Action would have a minor effect on the amount of impermeable surfaces on the base, resulting in negligible change in on-site groundwater percolation and recharge. During construction activities, the safe handling, storage, and use procedures as outlined in the Hazardous Waste Management Plan for March ARB (USAF 2012b), in accordance with all Federal, state, and local regulations, would continue to be implemented with regard to additional hazardous materials and petroleum products (see Section 4.13, *Hazardous Materials and Wastes*). Consequently, impacts to local or regional groundwater resources would be less than significant under the Proposed Action.

Wetlands

Jurisdictional wetlands have been identified and delineated on March ARB (refer to Section 3.6.2.2, *Water Resources at March ARB*) as a part of the 2010 Wetland Habitat Assessment and Delineation Report for March ARB and the 2011 U.S. Army Corps of Engineers (USACE) Jurisdictional Determination for March ARB (USAF 2012a), including 19,200 linear feet of drainages and 28 seasonally ponded features on the base (refer to Figure 3-5). While the wetland areas at March ARB are in some cases located in proximity to the highly developed areas where Proposed Action activities would take place, no construction is proposed within jurisdictional wetlands, drainages, or ponds. Therefore, with the implementation of all standard best management practices, the Proposed Action would not displace, fill, or otherwise adversely impact the functional values of on-site jurisdictional wetlands or associated features.

Floodplains

As described in Section 3.6.2.2, *Water Resources at March ARB*, according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the entire area covering March ARB is categorized as either Zone D or Zone X, indicating that extensive floodplain mapping has not occurred, or that the area is determined to be outside the 100- or 500-year floodplain, respectively. None of the proposed projects included in the Proposed Action would be located within or within 2 feet of the base elevation for 100-year floodplain areas. Additionally, implementation of the Proposed Action would not introduce any new obstructions that would impede or divert overland floodwater flow and would not alter the existing hydrologic regime at March ARB such that increased downstream flood hazards would be created.

<u>Proposed Travel Corridor and Perris Lost Link Orbit</u>

Establishment of proposed travel corridor and the lost link orbit would not result in any ground-disturbing activities. Consequently, the implementation of the Proposed Action would not result in any short- or long-term adverse impacts to water resources, including surface water, groundwater, wetlands, or floodplains, beneath these areas.

4.6.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

<u>March ARB Short- and Long-term Impacts</u>

Surface Water

The facility and infrastructure improvements associated with implementation of this alternative would be similar to those proposed for the Proposed Action with the exception of the proposed construction of a new 17,000-sf hangar. However, as with the proposed construction activities under the Proposed Action, the new hangar would be located on previously disturbed land and would not be located in the vicinity of any surface water features on the installation.

Groundwater

The proposed new hangar associated with this alternative would be located on previously disturbed land. The construction of a new hangar would increase by impermeable surfaces by approximately 17,000 sf compared with the Proposed Action. However, the difference in water groundwater percolation and recharge between the Proposed Action and this alternative would be negligible. Similar to the Proposed Action, implementation of this alternative would result in a negligible impact to groundwater.

Wetlands

The proposed new hangar that would be constructed under this alternative would not be located within or adjacent to any jurisdictional wetlands and would be located in a previously disturbed area that is surrounded by similar industrial development. As described for the Proposed Action, the implementation of this alternative would not result in any direct or indirect impacts to jurisdictional wetlands.

Floodplains

Similar to the Proposed Action, the new hangar under this alternative would not be located within or within 2 feet of the base elevation for the 100-year floodplain. As described for the Proposed Action the proposed construction of the new hangar under this alternative would not result in encroachment of any floodplain or introduction of any new obstructions that would impede or divert overland floodwater flow such that increased downstream flood hazards would be created.

<u>Proposed Travel Corridor and Perris Lost Link Orbit</u>

Impacts to water resources in the areas underlying the proposed travel corridor and lost link orbit would be identical to those described for the Proposed Action. As with the Proposed Action, there would be no ground-disturbing activities and as a result there would no short- or long-term adverse impacts to water resources in the underlying areas with the implementation this alternative.

4.6.2.3 No-Action Alternative

If the No-Action Alternative were selected, none of the proposed construction or interior renovation projects would be implemented, and water resources would remain unchanged from existing conditions, as described in Section 3.6, *Water Resources*. Therefore, selection of this alternative would not impact regional or local water resources.

4.7 BIOLOGICAL RESOURCES

4.7.1 Approach to Analysis

Determination of the significance of potential impacts to biological resources is based on applicable legal protection of sensitive resources (e.g., California State Law under California Fish and Game Code, California Endangered Species Act (CESA), Federal Endangered Species Act [ESA], Migratory Bird Treaty Act [MBTA], and Bald and Golden Eagle Protection Act [BGEPA]). Impacts to biological resources would be considered significant if special status plant or wildlife species or habitats of special concern were adversely affected or if disturbances caused substantial reductions in population size or distribution. The Federal ESA further provides that an impact to biological resources would be considered significant if the U.S. Fish and Wildlife Service (USFWS) determines that the action would: 1) jeopardize the continued existence of a federally listed threatened or endangered species; or 2) result in the destruction or adverse modification of federally designated critical habitat. For federally listed threatened and endangered species and federally designated critical habitat, formal consultation with USFWS under section 7(a)(2) of the ESA is triggered when: 1) it is determined that the proposed action "may affect" federally listed species or designated critical habitat unless the USFWS or National Marine Fisheries Service (NMFS) concur in writing that the proposed action is not likely to adversely affect any listed species or critical habitat; or 2) the USFWS does not concur with the determination that the proposed action is not likely to adversely affect federally listed species or designated critical habitat.

Data from the USFWS Information, Planning, and Conservation System (IPaC) as well as the California Natural Diversity Database (CNDDB) were reviewed to determine the presence or potential occurrence of sensitive species and habitats on March ARB (refer to Section 3.7.2.4, *Threatened and Endangered Species*). Potential physical impacts such as habitat loss, noise, and impacts to surface water were evaluated to assess potential impacts to biological resources resulting from implementation of the Proposed Action and the identified alternatives.

4.7.2 Impacts

4.7.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction March ARB

Vegetation

As described in Section 3.7.7.2, *Vegetation*, the majority of lands at March ARB have been previously disturbed and support very few native plant communities. Virtually all stands of native vegetation at March ARB have been removed or permanently altered for construction and maintenance activities related to airport operations. The few areas of native vegetation that do occur on the base are concentrated on the undeveloped areas along the south, east, and northeastern boundaries of March ARB. Ground-disturbing activities under the Proposed Action, including proposed construction and interior renovation projects, would occur in areas that are already paved and devoid of vegetation or in highly disturbed and/or landscaped areas consisting of non-native vegetation, including non-native grasses. Implementation of the Proposed Action would not result in a substantial loss of sensitive species or native vegetation and overall impacts to vegetation would be less than significant.

Wildlife

Implementation of the Proposed Action could potentially affect wildlife directly through permanent habitat alteration and indirectly thought temporary disturbance due to noise and human presence. Construction activities could temporarily displace wildlife from otherwise marginally suitable habitat in the immediate vicinity of the proposed project sites. However, due to the developed and industrial character of March ARB, any wildlife present on base are likely already acclimated to human presence and indirect disturbance from noise associated with the airfield. Further, as described in Section 3.7.2.3, *Wildlife*, suitable wildlife habitat on the base is very limited, with the majority located away from the airfield and away from the proposed project sites. While smaller, less mobile species and those seeking refuge in burrows could inadvertently be taken during ground-disturbing activities, long-term impacts to population dynamics of such species would not occur.

The proposed beddown of the MQ-9 Reaper LRE at March ARB would result in an overall negligible increase in noise exposure to wildlife on-site and in the surrounding areas (refer to Section 4.3, *Noise*). Additionally, ongoing wildlife hazard management limits the potential for wildlife, particularly bird species, from concentrating in the vicinity of March ARB airfield (refer to Section 3.14.2.5, *Bird-Aircraft Strike Hazard*). The non-native grasslands that surround the runways are mowed and maintained to discourage wildlife (USAF 2012b). Additionally, pest management procedures are in place to remove or prevent the occurrence of species associated with highly developed areas where the activities associated with the Proposed Action would take place (e.g., rodents and pests in housing units, etc.) (refer to Section 3.13.2.3, *Pesticides*). Surrounding habitats that may support a greater relative diversity and abundance of wildlife, including birds and small mammals, are likely already impacted by edge effects resulting from the proximity of residential, commercial, and industrial land uses in the vicinity, in addition to existing flight operations-related noise at March ARB. Therefore, overall impacts to wildlife from the implementation of the Proposed Action would be less than significant.

Threatened and Endangered Species

According to an initial project scoping including review of the USFWS IPaC as well as the CNDDB, only one federally listed species has been documented on March ARB, the Riverside fairy shrimp (*Streptocephalus woottoni*), which was documented in 1995. However, the potential for this species to occur on March ARB is low as it has not be found in subsequent surveys (refer to Section 3.7, *Biological Resources*; USAF 2012b). The Proposed Action involves development or renovation of previously-disturbed areas on March ARB and would not affect any vernal pools that provide potential habitat for Riverside fairy shrimp. Additionally, implementation of the Proposed Action would not remove any high-quality habitats that could be suitable for federally listed species. Therefore, construction activities and aircraft operations associated with the Proposed Action would have no effect on threatened or endangered species at March ARB.

Proposed Travel Corridor and Perris Lost Link Orbit

Vegetation

Plant communities underlying the proposed travel corridor are similar to the Perris Lost Link Orbit, composed of California chaparral species in undeveloped areas and landscaped vegetation in developed areas. However, establishment of the proposed travel corridor and lost link orbit associated with the Proposed Action would not result in ground-disturbing activities that would affect underlying vegetation.

Wildlife

The Chaparral community in undeveloped and rural areas beneath the proposed travel corridor and the Perris Lost Link Orbit provide habitat for a variety of species. However, no ground-disturbing activities would occur as the result of the Proposed Action in these underlying areas. While it is possible for impacts to birds in the flight path to occur, the 163 ATKW would continue to implement the March ARB Integrated Bird/Wildlife Aircraft Strike Hazard (BASH) Program (see Section 4.14, *Safety*) and occasional in-flight incidents would not be likely to cause measurable reductions in population size or distribution. The additional noise that would occur in the area as a result of MQ-9 aircraft activities would be negligible at the ground level given the number and altitude of operations in the corridor (refer to Section 4.3, *Noise*). Consequently, impacts to wildlife beneath the proposed travel corridor and lost link orbit would be less than significant.

Threatened and Endangered Species

According to an initial project scoping and review of the USFWS IPaC as well as the CNDDB, there is potential for 14 federally threatened or endangered wildlife species to occur in the region beneath the proposed travel corridor and 9 federally threatened or endangered species to occur in area underlying the Perris Lost Link Orbit. However, because the establishment of the proposed travel corridor and the Perris Lost Link Orbit would not result in any ground disturbing activities and MQ-9 aircraft activity would occur at high altitudes resulting in negligible noise impacts (refer to Section 4.3, *Noise*), there would be no effect on federally listed species.

4.7.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

March ARB Short- and Long-term Impacts

Vegetation

In addition to the facility and infrastructure improvements described for the Proposed Action, this alternative would include construction of the proposed 17,000 sf new hangar. However, the project site for the new hangar under this alternative is located in a highly disturbed area that is surrounded by pavement and industrial development and does not support native vegetation. Construction of the new hangar under this alternative would remove a minor amount of vegetation in this disturbed area and impacts would be less than significant.

Wildlife

As described in Section 3.7, *Biological Resources*, wildlife on-site and in the surrounding area is limited due to the lack of suitable habitat and the highly developed nature of March ARB. The project site for the new hangar under this alternative is located in a highly disturbed area that is surrounded by pavement and industrial development and does not provide high quality habitat for wildlife. Construction of the proposed new hangar would remove a minor amount of vegetation in this disturbed area and impacts to wildlife would be less than significant.

Threatened and Endangered Species

Similar to the Proposed Action, the proposed new hangar under this alternative would have no effect on federally listed species at March ARB. The project site for the new hangar under this alternative is located in a highly disturbed area that is surrounded by pavement and industrial development and does not provide high quality habitat for special status species (e.g., vernal pools).

Proposed Travel Corridor and Perris Lost Link Orbit

Impacts to biological resources in the areas underlying the proposed travel corridor and lost link orbit would be identical to those described for the Proposed Action. Impacts to biological resources in the underlying areas with the implementation this alternative would be less than significant.

4.7.2.3 No-Action Alternative

If the No-Action Alternative were selected, the MQ-9 Reaper LRE beddown and associated construction and interior renovation projects would not be implemented. Therefore, there would be no changes to existing conditions associated with biological resources. Consequently, no impacts to existing biological resources would result from selection of the No-Action Alternative.

4.8 TRANSPORTATION AND CIRCULATION

4.8.1 Approach to Analysis

Potential impacts to transportation and circulation are assessed with respect to anticipated disruption or improvement of current transportation patterns and systems; deterioration or improvement of existing levels of service; and changes in existing levels of transportation safety. Impacts (beneficial or adverse) may arise from physical changes to circulation (e.g., closing, rerouting, or creating roads), construction activity, introduction of construction-related traffic on local roads, or changes in daily or peak-hour traffic volumes created by either direct or indirect workforce and population changes related to California ANG activities. Adverse impacts on roadway capacities would be significant if roads with no history of capacity exceedance were forced to operate at or above their full design capacity.

4.8.2 Impacts

4.8.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Short-term Construction Impacts</u>

Implementation of the Proposed Action would require delivery of construction materials to and removal of debris from project sites. The facilities and infrastructure improvements would occur over a period of four years, beginning in FY 2017 and ending in FY 2020. Overlap of project construction activities would be limited and associated potential increases in traffic volume at March ARB would be minor. Construction traffic would comprise only a small portion of the total existing traffic volume on the base transportation network and vicinity roadways. Additionally, with the exception of the new munitions building, the facilities and infrastructure improvements associated with the Proposed Action would take place in areas very close to Graeber Avenue, the current main artery through serving March ARB's cantonment area. Construction vehicles would be driven to and kept on-site at March ARB for the duration of construction or renovation activities, resulting in very few actual increased trips. Further, any increases in traffic volumes on the installation associated with construction activity would be temporary. Therefore, implementation of the Proposed Action would have a less than significant short-term impact on traffic within the installation.

March ARB Long-term Operational Impacts

Under the Proposed Action, personnel levels at March ARB would not change, remaining at approximately 772 personnel. Operations and maintenance personnel currently supporting the MQ-9 Reaper LRE at SCLA, report to March ARB before commuting to SCLA. Under the Proposed Action, the same personnel would report to March ARB and support LRE operations and maintenance at the base. Consequently, vehicle trips to March ARB as well as parking availability would not change substantially. Further, overall trips would be reduced, as trips to and from SCLA associated with commutes to support the existing MQ-9 Reaper LRE at SCLA would be eliminated.

As noted in Section 3.8, *Transportation and Circulation*, the USAF has established guidelines intended to ensure that adequate parking is available at USAF and ANG facilities. According to these guidelines, the ratio of available parking spaces to personnel should be no less than 0.75 spaces per person. According to this factor, the 163 ATKW would require a total of 579 parking spots to be in compliance. During the week, March ARB utilizes approximately 60 percent of its approximately 4,000 parking spaces. The facility and infrastructure improvements are to take place in a progression that spans a number of years, and even with temporary increases in parking spaces needed due to activities associated with the Proposed Action, the available parking on March ARB is more than adequate.

Proposed Travel Corridor and Perris Lost Link Orbit

Under the Proposed Action there would be no ground-disturbing activities or changes to land use beneath the proposed travel corridor and lost link orbit. Therefore, there would be no impacts to transportation and circulation associated with the Proposed Action in the areas beneath the proposed travel corridor and lost link orbit.

4.8.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

March ARB Short-term Construction Impacts

In addition to the construction trips associated with activities under the Proposed Action, this alternative would require delivery of construction materials to and removal of debris from the project site for the new hangar. However, as with the Proposed Action, construction traffic under this alternative would comprise only a small portion of the total existing traffic volume. Any increases in traffic volumes on the base associated with construction activity would be short-term and temporary. Consequently, similar to the Proposed Action implementation of this alternative would have a less than significant short-term impact on traffic circulation within the installation.

March ARB Long-term Operational Impacts

Traffic volume and parking impacts associated with this alternative would likely be slightly greater than those described for the Proposed Action due to the fact that additional new construction would take place for the new hangar. However, a small number of parking spaces would also be constructed in association with the new hangar, slightly increasing overall parking capacity relative to the Proposed Action. As described for the Proposed Action, March ARB would continue to be well above the USAF requirement of 0.75 spaces per person.

Proposed Travel Corridor and Perris Lost Link Orbit

As described for the Proposed Action the proposed travel corridor and the Perris Lost Link Orbit would not result in ground-disturbing activities that would impact underlying land uses. As such, implementation of this alternative would not have any adverse impacts on transportation or circulation in these underlying areas.

4.8.2.3 No-Action Alternative

If the No-Action Alternative were selected, none of the proposed construction, interior renovation projects would be implemented. Baseline conditions, as described in Section 3.8, *Transportation and Circulation*, would remain unchanged.

Therefore, implementation of this alternative would have no impacts on transportation or circulation.

4.9 VISUAL RESOURCES

4.9.1 Approach to Analysis

Determination of the significance of impacts to visual resources is based on the level of visual sensitivity in the area. Visual sensitivity is defined as the degree of public interest in a visual resource and concern over adverse changes in the quality of that resource. In general, an impact to a visual resource is significant if implementation of the proposed action would result in substantial alteration to an existing sensitive visual setting.

4.9.2 Impacts

4.9.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

March ARB Short-term Construction Impacts

Short-term visual resources impacts as a result of the Proposed Action would occur during construction and interior renovation activities. The presence of heavy machinery and construction equipment may create a short-term adverse visual impact. However, the visual environment of March ARB is characteristic of a military installation and airfield, thus visual sensitivity in the immediate area is low. The short-term impacts would be time-bound, depending on construction schedules, and would cause temporary alteration to existing visual resources. Consequently, short-term impacts to visual resources associated with the Proposed Action would be minor and less than significant.

March ARB Long-term Operational Impacts

Long-term impacts to visual resources under the Proposed Action would be associated with new construction and exterior additions to existing buildings. However, the construction, renovation, and associated infrastructure improvements under the Proposed Action would be consistent with the general visual character March ARB. Interior renovations would not affect the exterior viewshed of the buildings at March ARB. Therefore, the implementation of

Proposed Action would be expected to have less than significant long-term impacts on visual resources.

Proposed Travel Corridor and Perris Lost Link Orbit

In addition to the proposed facility construction activities at March ARB, the Proposed Action would also include the beddown of the MQ-9 Reaper LRE, including the proposed travel corridor from March ARB to R-2515 as well as the proposed Perris Lost Link Orbit. The proposed travel corridor was developed with the FAA to avoid densely populated areas and the proposed lost link corridor is located above uninhabited agricultural lands. MQ-9 aircraft flying along the travel corridor and lost link profile would operate at altitudes of 8,500 feet MSL or 9,500 feet MSL, approximately 2,000 feet AGL or more. Consequently, impacts to visual resources beneath the proposed travel corridor and lost link orbit would not be impacted by activities associated with the Proposed Action.

4.9.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

March ARB Short-term Construction Impacts

Short-term impacts to visual resources at March ARB as a result of this alternative would be similar to those described for the Proposed Action. The proposed construction of the new hangar under this alternative would result in the temporary presence of slightly more construction equipment; however, as described for the Proposed Action, the visual environment of the surrounding vicinity is characteristic of a military installation and airfield and does not constitute a unique or sensitive viewshed. Consequently, construction-related visual impacts associated with this alternative would be less than significant.

March ARB Long-term Operational Impacts

Long-term impacts to visual resources as a result of this alternative would consist of the presence of the proposed new hangar. Construction of the new hangar adjacent to Building 1246 would result in the development of an area that is currently a disturbed and undeveloped parcel of land surrounded by pavement and industrial development. This structure would represent a change in visual conditions at the project site; however, the structure would be consistent with the existing architecture at March ARB and would be located in an area that is already highly developed with a low scenic value. Therefore, the implementation of this alternative would result in less than significant long-term impacts to visual resources.

<u>Proposed Travel Corridor and Perris Lost Link Orbit</u>

As described for the Proposed Action the proposed travel corridor and the Perris Lost Link Orbit would not result in ground-disturbing activities that would impact underlying land uses. As a result, there would be no adverse impacts on visual resources under this alternative.

4.9.2.3 No-Action Alternative

If the No-Action Alternative were selected, none of the proposed construction or interior renovation projects would be implemented. Baseline visual resources conditions, as described in Section 3.9, *Visual Resources*, would remain unchanged. Therefore, implementation of this alternative would have no impacts on visual resources.

4.10 CULTURAL RESOURCES

4.10.1 Approach to Analysis

Cultural resources are subject to review under both Federal and state laws and regulations. Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, empowers the Advisory Council on Historic Preservation (ACHP) to comment on federally initiated, licensed, or permitted projects that have the potential to affect cultural sites listed or eligible for inclusion in the National Register of Historic Places (NRHP).

Once cultural resources have been identified, the evaluation of their significance is the process by which those resources are assessed in the context of significance criteria for scientific or historic research, for the general public, and for traditional cultural groups (e.g., Native American Tribes). Only cultural resources determined to be significant (i.e., eligible for inclusion in the NRHP) are protected under the NHPA.

Analyses of potential impacts to cultural resources consider both direct and indirect impacts. Direct impacts may occur by any of the following: 1) physically altering, damaging, or destroying all or part of a resource; 2) altering the characteristics of the surrounding environment that contribute to resource significance; 3) introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or 4) neglecting the resource to the extent that it deteriorates or is destroyed. Direct impacts can be assessed by identifying the locations of disturbance and determining if the action would coincide with the locations of identified significant cultural resources and thereby have the potential to result in a direct, adverse impact to that cultural resource.

Indirect impacts can result from the effects of project-induced changes in the local communities or environment. These activities can disturb or destroy cultural resources.

4.10.2 Impacts

4.10.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Short- and Long-term Impacts</u>

Archaeological Resources

As described in Section 3.10.2.6, *Archeological Resources at March ARB*, the entire area of March ARB has been surveyed for archaeological resources. No archaeological resources have been identified during surveys and the installation was characterized as having a low or no potential for containing archaeological resources (USAF 2011). Further, all of the construction under the Proposed Action would occur on or immediately adjacent to developed portions of the base. As it would be unlikely that any construction activities would uncover previously undiscovered archeological resources. While the potential for archaeological resources is low at the March ARB, should it be determined that archaeological or cultural resources are present during regular inspection of the construction site, any project-related construction activities would be suspended until a qualified archaeologist had documented and evaluated the resource for NRHP eligibility, in compliance with Section 106 of the NHPA.

Consultation with appropriate Native American representatives has occurred during the agency coordination process (see Appendix A). Based on information currently available, adverse impacts to archaeological resources under the Proposed Action would be less than significant.

Historic Structures

As described in Section 3.10.2.5, *Historic Built Resources at March ARB* historic built resources at March ARB are limited to the March Field Historic District (MFHD), which is comprised of a group of buildings and landscape elements built between 1928 and 1943. MFHD contains 228 buildings, structures, and objects with 199 of them contributing to the historical significance of the site (USAF 2011). However, none of the buildings potentially affected by the Proposed Action is a contributing element to the MFHD. Additionally, none of the buildings potentially impacted by the Proposed Action is eligible for listing on the NRHP. All buildings potentially impacted by the Proposed Action are either less than 50 years old or have been previously evaluated and been determined not to be eligible for listing on the NRHP.

Table 4-5. Existing Structures at March ARB Affected Under the Proposed Action

Facility	Name	Year Constructed	Past NRHP Determination	Proposed Project
1244	SHP ACFT GEN PURP	1963	Not Eligible	Interior Renovation
1246	SHP ACFT GEN PURP	1967	Not Eligible	Addition / Alteration
2272	RES FORCES OPL TNG	1983	N/A	Addition / Alteration
2339	SHP A/SE STOR FCLTY	1996	N/A	Interior Renovation

Notes: Past NRHP Determinations were made in a *Historic Building Inventory and Evaluation for March Air Force Base* prepared in August 1995. Buildings 2272 and 2339 are less than 50 years of age.

Consultation with the California State Historic Preservation Office (SHPO) under Section 106 of the NHPA is ongoing (see Appendix A). Based on information currently available, there would be no adverse effect on resources under the Proposed Action.

Proposed Travel Corridor and Perris Lost Link Orbit

In addition to the proposed facility construction activities at March ARB, the Proposed Action would also include the beddown of the MQ-9 Reaper LRE, including the proposed travel corridor from March ARB to R-2515 as well as the proposed Perris Lost Link Orbit. The proposed travel corridor was developed with the FAA to avoid densely populated areas and the proposed lost link corridor is located above uninhabited agricultural lands. MQ-9 aircraft flying along the travel corridor and lost link profile would operate at altitudes of 8,500 feet MSL or 9,500 feet MSL, approximately 2,000 feet AGL or more. As a result of the lack of ground-disturbing activities and negligible impacts to the noise environment (refer to Section 4.3, *Noise*), aircraft operations along the proposed travel corridor and lost link orbit would not impact historic cultural resources beneath these areas.

4.10.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

March ARB Short-term Impacts

Implementation of this alternative would result in additional ground disturbing activities associated with construction of the new hangar. However, as described for the Proposed Action, the potential to uncover previously undisturbed archeological resources would be unlikely. Nevertheless, as with the Proposed Action, in the unlikely event that cultural resources were encountered during ground-disturbing activities, all work in the area would stop until a qualified archaeologist had documented and evaluated the resource for NRHP eligibility, in compliance with Section 106 of the NHPA. Based on information currently available, there would be no adverse impacts to archaeological resources and/or historic structures.

Proposed Travel Corridor and Perris Lost Link Orbit

As described for the Proposed Action the proposed travel corridor and the Perris Lost Link Orbit would not result in ground-disturbing activities or increases in noise that would affect historic structures or archeological resources.

4.10.2.3 No-Action Alternative

If the No-Action Alternative were selected, none of the proposed construction and interior renovation projects would be implemented and cultural resources would remain as described in Section 3.10, *Cultural Resources*. Therefore, no impacts to cultural resources would occur under this alternative.

4.11 SOCIOECONOMICS

4.11.1 Approach to Analysis

Significance of population and expenditure impacts are assessed in terms of their direct effects on the local economy and related effects on other socioeconomic resources (e.g., housing). The magnitude of potential impacts can vary depending on the location of a Proposed Action; for example, implementation of an action that creates 20 employment positions may be unnoticed in an urban area but may have significant impacts in a more rural region. If potential socioeconomic impacts would result in substantial shifts in population trends, or adversely affect regional spending and earning patterns, they would be significant. An impact would be considered significant if required or resulted in: 1) extensive relocation of residents, but sufficient replacement housing is unavailable; 2) extensive relocation of community businesses that would create severe economic hardship for the affected communities; 3) disruptions of local traffic patterns that substantially reduce the levels of service of the roads serving the airport and its surrounding communities; or 4) substantial loss in community tax base.

4.11.2 Impacts

4.11.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Short-term Construction Impacts</u>

Implementation of the Proposed Action would involve short-term temporary economic activity associated with proposed construction activities, such as hiring of temporary laborers and purchasing of construction materials. This activity would provide short-term economic benefits to the local economy. However, beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

<u>March ARB Long-term Operational Impacts</u>

Under the Proposed Action, existing personnel staffing for the 163 ATKW would not change relative to existing conditions. The same personnel would continue to support the MQ-9 Reaper LRE mission but would do so at March ARB instead of at SLCA. No long-term changes in economic activity associated with the 163 ATKW related to payroll and employee service expenses, the surrounding community, or supply and demand for goods and services would occur. Consequently, long-term socioeconomic impacts associated with the Proposed Action would be negligible.

Proposed Travel Corridor and Perris Lost Link Orbit

The establishment of the proposed travel corridor and lost link orbit under the Proposed Action would not involve any commerce or activities that would affect the socioeconomics of the underlying communities over the short- or long-term.

4.11.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

March ARB Short- and Long-term Impacts

Implementation of this alternative would include similar short- and long-term increase in local economic activity as described for the Proposed Action. Construction of the new hangar would result in slightly more beneficial short-term impacts associated with construction contractors and materials purchasing for the construction of the new hangar. However, similar to the Proposed Action socioeconomic impacts under this alternative would be slightly beneficial in the short-term and less than significant in the long-term.

Proposed Travel Corridor and Perris Lost Link Orbit

As described for the Proposed Action the proposed travel corridor and the Perris Lost Link Orbit would not result in ground-disturbing activities, increases in noise, or changes in land use that would affect socioeconomics.

4.11.2.3 No-Action Alternative

If the No-Action Alternative were selected, the beddown of the MQ-9 Reaper LRE and associated infrastructure and facilities improvements would not occur and associated minor changes to local and regional socioeconomic characteristics would also not occur. Socioeconomic conditions would remain as described in

Section 3.11, *Socioeconomics*. No impacts to socioeconomics would result from the selection of the No-Action Alternative.

4.12 Environmental Justice and Protection of Children

4.12.1 Approach to Analysis

In order to comply with EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, ethnicity and poverty status in the vicinity of March ARB have been examined and compared to city, regional, state, and national data to determine if any minority or low-income communities could potentially be disproportionately affected by implementation of the Proposed Action or alternatives. Similarly, to comply with EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* the potential effects on children are addressed.

4.12.2 Impacts

4.12.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>March ARB Short-term Construction Impacts</u>

Environmental Justice

The percentage of minority residents living in Riverside County is higher than the State of California and the nation (U.S. Census Bureau 2016). Potential short-term impacts associated with the Proposed Action would be confined to construction and interior renovation activities on the base. Minority or low-income populations would be not be disproportionately impacted by the Proposed Action, and no significant impacts with regard to environmental justice are expected to result.

Protection of Children

The percentage of the total population of the City of Moreno Valley represented by children under age 18 (35.5 percent) is slightly higher than Riverside County (25.2 percent), the State of California (24.2 percent), and the nation (23.5 percent) (U.S. Census Bureau 2016). Additionally, there are 41 schools within a three-mile radius of March ARB (USEPA 2016c). However, any potential short-term construction-related impacts associated with the Proposed Action would be confined to March ARB and would not impact surrounding areas. Further, children would not have access to construction sites, and implementation of any of the Proposed Action would not be expected to result in any adverse long-term increased health or safety risks. Consequently, with the implementation of standard safety and security measures, no significant adverse impacts to children would be expected to occur from implementation of the Proposed Action.

March ARB Long-term Operational Impacts

No significant, adverse long-term environmental impacts associated with the Proposed Action would occur as a result of its implementation through the Proposed Action; no populations (i.e., minority, low-income, or otherwise) would be disproportionately adversely impacted by negligible increases in noise levels associated with the proposed MQ-9 Reaper LRE beddown and/or improvements to facility and infrastructure. In addition, implementation of the Proposed Action would not result in increased long-term environmental health risks or safety risks to children. Therefore, no significant impact with regard to environmental justice or protection of children would result.

Proposed Travel Corridor and Perris Lost Link Orbit

The establishment of the proposed travel corridor and lost link orbit would not cause changes to land use or in any other issues relating to environmental justice and protection of children in the underlying areas. Therefore, impacts to these issues associated with the Proposed Action beneath the proposed travel corridor and lost link orbit would be negligible.

4.12.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

March ARB Short- and Long-term Impacts

Implementation of this alternative would have impacts consistent with those described for the Proposed Action. Short- and long-term impacts to environmental justice and protection of children would be less than significant.

Proposed Travel Corridor and Perris Lost Link Orbit

As described for the Proposed Action the proposed travel corridor and the Perris Lost Link Orbit would not result in impacts to environmental justice or children's health.

4.12.2.3 No-Action Alternative

If the No-Action Alternative were selected none of the proposed construction or interior renovation activities would occur. Therefore, conditions would remain as described in Section 3.12, *Environmental Justice and Protection of Children.* No significant impacts to environmental justice and protection of children would occur with selection of the No-Action Alternative.

4.13 Hazardous Materials and Wastes

4.13.1 Approach to Analysis

Numerous Federal, state, and local laws regulate the storage, handling, disposal, and transportation of hazardous materials and wastes; the primary purpose of these laws is to protect public health and the environment. The severity of potential impacts associated with hazardous substances is based on their toxicity, ignitability, and corrosivity. Impacts associated with hazardous materials and wastes would be considered significant if the storage, use, transportation, or disposal of hazardous substances substantially increases the human health risk or environmental exposure. Impacts to identified contaminated sites would be considered significant if an action disturbed or created additional contamination resulting in adverse effects to human health or the environment.

4.13.2 Impacts

4.13.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

March ARB Short-term Impacts

Hazardous Materials and Wastes

Under the Proposed Action a temporary increase in the storage of hazardous materials and wastes would occur throughout the duration of construction activities as well as during interior renovations of the existing facilities. This increase in construction-related hazardous materials and wastes would be temporary and would not comprise a significant impact or exceed the permitted allowance at March ARB (USAF 2012b). The Hazardous Waste Program Manager would be consulted prior to any increase in hazardous materials and/or waste. The safe handling, storage, and use procedures currently managed under the Hazardous Waste Management Plan for March ARB, in accordance with all Federal, state, and local regulations, would continue to be implemented with regard to additional hazardous materials and petroleum products. This includes the appropriate identification, characterization, handling, and disposal of lead-based paints, polychlorinated biphenyls (PCBs), mercury, and other potentially hazardous materials prior to and during interior renovation activities.

Environmental Restoration Program and Site Contamination

As described in Section 3.13.2.3, *Environmental Restoration and Site Contamination* there are eight active Environmental Restoration Program (ERP) sites being managed by March ARB. All of these sites have completed cleanup as of 2014, with the exception of Site 49, which consists of a southeasterly-moving groundwater plume containing low levels of trichloroethylene and tetrachloroethylene. This plume extends off base and is being monitored and treated. The Flightline Shop Zone (ERP Site 8) underlies several buildings in the cantonment area along the flightline. Contaminated soils from this ERP site have been removed; however, groundwater solvent contamination at this site is being handled with ERP Site 49, which covers base-wide groundwater contamination. The proposed interior renovation projects to Building 1246 included in the Proposed Action would not involve ground-disturbing activities. Therefore, construction activities associated with this alternative would not be anticipated expose workers to contamination during ground-disturbing activities. However, the proposed additions to Building 1246 would occur within the boundaries of ERP Site 8 and would involve site preparation and minor grading. However, while these activities would expose soils, contaminated soils have already been removed and remediated, and construction activities would not affect the underlying contaminated groundwater.

Nevertheless, to reduce worker exposure potential during construction, a Site-Specific Health and Safety Plan would be implemented. The Health and Safety Plan would be designed to evaluate each of the chemicals present in the work area and the potential exposure scenarios/paths. Based on this evaluation, the Health and Safety Plan identifies levels of personal protection through personal protective equipment (PPE), engineering mechanisms or worker practices. The Health and Safety Plan typically requires monitoring of chemicals if available information indicates the chemicals may be present. Further review of ERP documentation would be conducted to identify any need for chemical monitoring. Even if monitoring is not implemented as part of the initial project, the Health and Safety Plan mandates reassessment of the safeguards (i.e., PPE, engineered mechanisms) if changes at the site suspected to be related to hazardous substances occur. This may involve the complete cessation of work and notification of the Environmental Manager.

Upon completion of construction activities, the potential for exposure to (e.g., vapor intrusion) or ingestion of contaminated groundwater is considered highly unlikely. With implementation of standard standards BMPs during construction, it is not anticipated that construction workers, ANG personnel, the public, or the environment would be exposed to hazardous contaminants as a result of the Proposed Action. Further, the Proposed Action would not interfere with or prohibit any currently approved or ongoing remediation efforts for identified contaminated sites. Therefore, impacts associated with ERP and contaminated sites would be less than significant.

Asbestos & Lead-Based Paint

No systematic surveys of buildings for asbestos has taken place on March ARB. According to the 163 ATKW IDP (California ANG 2015b), Buildings 2305 and 1246, which would undergo renovation under the Proposed Action, contain asbestos in their roofing (California ANG 2015b). Additionally, consistent with AFI 32-7066, *Environmental Baseline Surveys in Real Estate Transactions*, an Environmental Baseline Survey (EBS) would be prepared prior to transfer and use of Building 1244 and any other property currently managed by the 452d Air Mobility Wing (452 AMW). This EBS would document the existing conditions of the facility and would provide a description of any potentially hazardous materials or contaminants, including asbestos and lead-based paint. The March ARB Asbestos Management Plan provides management responsibilities and procedures for managing asbestos and exposure to asbestos. The buildings would be examined for asbestos and all potential asbestos-containing materials in the buildings proposed for interior renovation would be handled and disposed of according to all applicable Federal, state, and local regulations, including those found in the March ARB Asbestos Management Plan. Standard BMPs, including the precautions included in the Asbestos Management Plan would be followed during all interior renovation activities. Similar to asbestos, no systematic surveys of buildings for lead-based paint has taken place on March ARB. Impacts associated with asbestos and lead-based paint would be minor and could be managed effectively by adhering to guidelines set for in March ARB hazardous waste and asbestos management plans and by complying with state, Federal and local regulations. Therefore, short-term impacts under implementation of the Proposed Action and impacts would be less than significant.

March ARB Long-term Operational Impacts

The Proposed Action would involve the beddown of MQ-9 Reaper LRE aircraft at the March ARB. The safe handling, storage, and use procedures currently managed under the March ARB Hazardous Waste Management Plan and Spill Prevention and Response Plan (USAF 2012b), in accordance with all Federal, state, and local regulations, would continue to be implemented with regard to hazardous materials and petroleum products generated from the M!Q-9 Reaper LRE. Hazardous waste generated at SCLA is currently transported to March ARB for disposal. Therefore there would be no substantial changes in hazardous waste disposal activities. Rather, there would be a minor beneficial impact resulting from the elimination of trucking hazardous wastes from SCLA to March ARB. Nevertheless, any future changes associated with hazardous materials and waste generation at March ARB would be handled in accordance with updates to the base's hazardous materials plans, policies, and procedures upon implementation of the Proposed Action; therefore, no significant impacts would be anticipated.

Proposed Travel Corridor and Perris Lost Link Orbit

The establishment of the proposed travel corridor and lost link orbit would not result in any ground-disturbing activities or otherwise cause changes in hazardous materials and wastes in the underlying areas. Consequently, there would be no impacts to hazardous materials and wastes beneath the proposed travel corridor and lost link orbit.

4.13.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

March ARB Short-Term Construction Impacts

Similar to the impacts described for the Proposed Action, implementation of this alternative would result in a short-term temporary increase in hazardous materials and wastes resulting from construction activities. Additionally, similar to the addition to Building 1246 described for the Proposed Action, the proposed project site for the new hangar associated with this alternative is also located within ERP Site 8. Impacts related to hazardous materials and groundwater contamination in this area would be consistent with those described for the Proposed Action. Additionally, the asbestos and lead-based paint impacts would be identical to those described for the Proposed Action, as the same buildings would be impacted. Therefore, impacts related to hazardous materials and wastes would be the same as those described for the Proposed Action and would be less than significant.

<u>March ARB Long-term Operational Impacts</u>

Under this alternative, the safe handling, storage, and use procedures currently managed under the March ARB Hazardous Waste Management Plan (USAF 2012b) and Spill Prevention, Control, and Countermeasure Plan (USAF 2010b), in accordance with all Federal, state, and local regulations, would continue to be implemented with regard to additional hazardous materials and petroleum products. Any changes associated with hazardous materials and waste generation at the March ARB would be handled in accordance with updates to the installation's hazardous materials plans, policies, and procedures upon implementation of this alternative; therefore, no significant impacts would be anticipated.

<u>Proposed Travel Corridor and Perris Lost Link Orbit</u>

As described for the Proposed Action, there would be no impacts to hazardous materials and wastes beneath the proposed travel corridor and lost link orbit.

4.13.2.3 No-Action Alternative

If the No-Action Alternative were selected, the 163 ATKW would not implement the proposed beddown of MQ-9 Reaper LRE and none of associated improvements of facilities or infrastructure would occur. Therefore, no impacts with regard to hazardous materials or wastes would occur and conditions would remain as described in Section 3.13, *Hazardous Materials and Wastes*.

4.14 SAFETY

4.14.1 Approach to Analysis

If implementation of an action would substantially increase risks associated with aircraft mishap potential or flight safety relevant to the public or the environment, it would represent a significant impact. For example, if an action involved an increase in aircraft operations such that mishap potential would increase significantly, flight safety would be compromised.

Changes in flight tracks or missions can also result in impacts to safety if the action would increase the risk of bird strikes. The BASH risk is determined by comparing BASH data for the routes previously flown to data projected to occur based on conditions following implementation of the action.

Further, if implementation of the Proposed Action would result in incompatible land use with regard to safety criteria such as Accident Potential Zones (APZs), Explosives Safety Quantity Distance (ESQD) arcs, or Clear Zones (CZs) impacts would be considered to be significant.

4.14.2 Impacts

4.14.2.1 Proposed Action: MQ-9 Reaper LRE and Facility Construction

<u>Ground Safety</u>

Under the Proposed Action, there would be no change to the ground safety procedures and activities at March ARB. All actions would be accomplished by technically qualified personnel and would be conducted in accordance with applicable USAF safety requirements, approved technical data, and standards. The fire and crash response capability currently provided at March ARB is sufficient to meet all requirements.

To support the MQ-9 Reaper LRE mission, new communication antennae would be constructed. However, none of the construction activities would involve any unusual or extraordinary techniques. In addition, the proposed antenna would be located outside of APZs and CZs and would not pose any additional safety risk to aircraft or ground personnel. Unified Facilities Criteria (UFC) 3-260-01, *Airfield and Heliport Planning and Design Criteria*, limits locations and heights of objects and facilities around and in the immediate vicinity of an airfield to minimize hazards to airfield and flight operations. The proposed antennae location at March ARB would conform to UFC requirements. Additionally, the proposed GDT pad would be fenced, so there would be no AT/FP-related safety concern. During construction and modifications, BMPs would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities.

None of the other proposed facilities associated with the MQ-9 Reaper LRE are sited within any of the airfield APZs or CZs at March ARB. Further, proposed construction and renovation activities have been designed and sited to meet all airfield safety criteria. Therefore, implementation of the Proposed Action would have no adverse impacts on airfield safety.

<u>Mishap Potential and Bird-Aircraft Strike Hazard</u>

Safety policies and procedures currently in place for MQ-9 operations at SCLA are designed to ensure that the potential for aircraft mishaps is reduced to the lowest possible level. These safety policies and procedures would continue under the Proposed Action. The 163 ATKW would use the March ARB ATC function, and to work with the FAA to provide separation between military aircraft and civilian aircraft in the airfield area, and during transit to and within training airspace. Civil aircraft operations within the airspace used by the 163 ATKW would not be affected by the 163 ATKW at March ARB or within nearby training airspace due to local ATC procedures, restricted airspace separation rules, and an approved FAA COA. Additionally, the continued use of chase planes would further ensure separation of MQ-9 aircraft activities and civil aviation assets. Lost Link Procedures are in place and would continue to be enforced to prevent conflict with general and civil aircraft operations in the event of communications loss with 163 ATKW MQ-9 aircraft. Additionally, 163 ATKW aircrews operating at March ARB and within airspace associated with unit training would continue to follow applicable procedures outlined in the March ARB Integrated BASH Plan.

MQ-9 RPA aircraft have flown more than 468,000 hours in 13 years for the USAF program. Over that period, 20 Class A and 3 Class B mishaps have occurred, and a total of 7 aircraft have been destroyed across the entire USAF program (USAF 2014b). The 163 ATKW has been flying the MQ-9 at SCLA for more than a year and has only had one Class D fuel leak mishap (USAF 2016c). Consequently, additional mishap risk associated with the relocation of the MQ-9 Reaper LRE from SCLA to March ARB would be negligible.

<u>Explosives Safety</u>

As described in Section 3.14.2.5, *Explosive Safety Quantity-Distance* ordinance at March ARB is handled and stored in accordance with USAF explosives safety directives (Air Force Instruction [AFI] 91-201, *Explosives Safety Standards*) and all munitions maintenance is carried out by trained, qualified personnel using USAF-approved technical procedures. Areas with ESQD arcs at March ARB include the Munitions Storage Area, F-16 Alert Facility, and the Primary and Alternative Hot Cargo Pad/Suspect Vehicle Areas (USAF 2004; refer to Figure 3-7).

Return of the MQ-9 Reaper LRE to March ARB would leave the munitions shop with no space to store equipment, inert munitions, movement gear, or space. Consequently, under the Proposed Action administrative munitions functions would be relocated to Building 1246 and a new 5,000-sf munitions and inspection facility would be constructed for storage and handling of inerts (i.e., non-explosive training weapons) within an existing ESQD-arc along Munitions Road. Construction would include pavements, fire protection, utilities, and communications. Consequently, implementation of the Proposed Action would not result in adverse impacts to explosives safety or ESQD arcs at March ARB.

Most sorties would be conducted from March ARB with captive inert training devices installed that allow aircraft to simulate combat profiles. These devices are not releasable from the aircraft. Some mission profiles require releasable inert loads. Specific instructions for carrying these loads would be contained in the FAA COA. Live fire weapons loads are currently not authorized by the FAA and are not contained in the current COA application.

Proposed Travel Corridor and Perris Lost Link Orbit

In addition to the above activities taking place at March ARB, the Proposed Action includes the establishment of the proposed travel corridor from March ARB to R-2515 as well as the Perris Lost Link Orbit. As described in Section 2.2.1.5, *Lost Link Flight Profile and Emergency Procedures* under existing conditions if an MQ-9 aircraft goes lost link while in transit or operating within R-2515, the lost link profile would be flown at the last cleared altitude to the R-2515 Lost Link Orbit, where the aircraft would fly an orbit at 9,500 feet MSL. In the rare event that a link cannot be re-established before the aircraft runs out of fuel, the aircraft would fly to a FTP on Edwards AFB known the "spin area" (refer to Figure 2-3). Edwards AFB would respond to the crash site to retrieve the aircraft and collect mishap information/data. No RPA aircraft have been lost during operations at SCLA.

The Perris Lost Link Orbit would be a new pattern that would be flown as a result of relocating the MQ-9 Reaper LRE from SCLA to March ARB. In the event that the C-Band and Ku-Band links are lost with the aircraft between R-2515 and March ARB, the MQ-9 would fly a pre-programmed route to the Perris Lost Link Orbit where it would fly in clockwise circles at 9,500 feet MSL at 95 to 105 knots above an uninhabited area (only one farming structure is located in the vicinity of the Perris Lost Link Orbit). If a link cannot be re-established with the aircraft after 2 hours, the MQ-9 aircraft would fly back to the existing R-2515 Lost Link Orbit where it would fly at in a similar orbit at 9,500 feet MSL for another 60 minutes. In the rare event that a link could not be re-established by this time, the aircraft would fly to a FTP on Edwards AFB known the "spin area" (refer to Figure 2-3). Edwards AFB would respond to the crash site to retrieve the aircraft and collect mishap information/data.

In-flight mishaps or failures associated with the MQ-9s are extremely rare; the only known recurrent MQ-9 failures include generator failure. To mitigate this, the 163 ATKW MQ-9s have all been modified and are now equipped with a Direct Drive Brushless Alternator (DDBA) in addition to the existing generator to provide electrical redundancy. In the rare event of a dual generator failure, the aircrew has a mission profile that would take the MQ-9 aircraft immediately to the FTP at the Edwards AFB "spin-area." The Supervisor of Flying (SOF) would designate the GenFail mission as active and the aircrew would turn the satellite link off to maximize available battery time. Grey Butte Field Airport would attempt recovery of these aircraft in the event the MQ-9 aircraft is not coming from too far away and has at least 30 minutes or more of battery available.

4.14.2.2 Alternative 1: Construction of New Hangar to Support MQ-9 Reaper LRE

Under this alternative, the 163 ATKW would not assume use of Building 1244 for MQ-9 aircraft storage and would instead construct a new 17,000-sf hangar. The new hangar would be constructed adjacent to Building 1246. The project site for the hangar would not be sited appropriately with respect to airfield safety criteria and would not intersect a clear zone or ESQD arc. Long-term operational impacts under this alternative would be identical to those described for the Proposed Action. Beddown of the MQ-9 Reaper LRE and associated aircraft operations would result in less than significant impacts on airspace management.

4.14.2.3 No-Action Alternative

If the No-Action Alternative were selected, March ARB would not beddown the MQ-9 Reaper aircraft and the associated construction and interior projects would not occur. Consequently, there would be no construction-related or operational safety impacts associated with the selection of this alternative. Conditions would remain as described in Section 3.14, *Safety*.

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SECTION 5
CUMULATIVE IMPACTS

Cumulative impacts on environmental resources result from incremental impacts of an action when combined with other past, present, and reasonably foreseeable future actions in an affected area. Cumulative impacts can result from minor, but collectively substantial, actions undertaken over a period of time by various Federal, state, or local agencies or persons. In accordance with the National Environmental Policy Act (NEPA), a discussion of cumulative impacts resulting from projects proposed, under construction, recently completed, or anticipated to be implemented in the near future is required.

5.1 APPROACH TO CUMULATIVE IMPACTS ANALYSIS

Per Council on Environmental Quality (CEQ) guidelines for considering cumulative effects under NEPA (CEQ 1997), this cumulative impact analysis includes three major considerations to:

1. Determine the scope of the cumulative analysis, including relevant resources, geographic extent, and timeframe;
2. Conduct the cumulative effects analysis; and
3. Determine the cumulative impacts to relevant resources.

5.2 CUMULATIVE PROJECTS AT MARCH ARB

CEQ guidelines require that potential cumulative impacts be considered over a specified time period (i.e., from past through future). The appropriate time for considering past, present, and reasonably foreseeable future projects can be the design life of a project, or future timeframes used in local master plans and other available predictive data. Determining the timeframe for the cumulative impacts analysis requires estimating the length of time the impacts of a proposed action would last and considering the specific resource in terms of its history of degradation (CEQ 1997). The Proposed Action and alternatives include ongoing and anticipated future military flight training activities. While training and testing requirements change over time – in response to world events and several other factors – the general types of activities addressed in this Environmental

Assessment (EA) are expected to continue indefinitely, and the potential impacts associated with those operations would also occur consistently and indefinitely. Therefore, the cumulative impacts analysis presented herein is not bound by a specific future timeframe.

Per CEQ guidelines, in order to assess the influence of a given action, a cumulative impact analyses should be conducted using existing, readily available data and the scope of the cumulative impact analysis should be defined, in part, by data availability. Consequently, only past projects or reasonably foreseeable future projects with the potential to contribute to cumulative impacts of the Proposed Action or its alternatives have been evaluated in this section. While the cumulative impacts analysis is not limited by a specific timeframe, it should be recognized that available information, uncertainties, and other practical constraints limit the ability to analyze cumulative impacts for the indefinite future. Consequently, future actions that are speculative are not considered in this EA.

5.2.1 Capital Improvement Projects at March ARB

Capital improvement projects at March Air Reserve Base (ARB) are guided by the overarching March ARB General Plan (U.S. Air Force [USAF] 2004). Development for the 163d Attack Wing (163 ATKW), a tenant wing at March ARB, is guided by the installation's Installation Development Plan (California Air National Guard [ANG] 2015b). Short range projects that have either been recently completed or are currently under construction are described in Table 5-1 below.

The majority of the recently completed or ongoing 163 ATKW projects consist of minor interior renovations, however, the ongoing renovation of Building 2305 is more substantial. The renovation includes seismic upgrades and a fully functional High Expansion Foam (HEF) fire suppression system. Additionally, the proposed construction of the 31,800 sf FTU building would also include substantial construction and demolition activities at March ARB. The FTU building, which would support training of up to 80 crews per year, would be sited adjacent to Building 2272 at the intersection of Meyer Drive and Air Guard Way. This proposed construction project would also involve the demolition of the existing 4,000 sf Building 2316, which is temporarily housing the FTU classroom space.

Table 5-1. Proposed Construction and Interior Renovation Projects

Key[1]	Project Number	Key Components
PDPG132031	Renovate Front Restroom	– Facelift to Men's/Women's DV restrooms
PDPG102799	Repair SF Mobility Warehouse-2278	– Fully renovates warehouse, adds FP/additional seismic
PDPG152545	Renovate Flight Training Unit (FTU) Female Restroom 2272	– Renovate the bathroom to match the look of the FTU Men's restroom
PDPG102979	Repair Hangar 2305	– Fully renovates hangar, adds FP/additional seismic upgrades – Construct Shade Structure for Hangar 2305
PDPG169013	Construct West Coast Remotely Piloted Aircraft (RPA) FTU	– 31,800 sf, two-story academic facility – Demolition of 4,000 sf Building 2316

Source: California ANG 2015b.

Other cumulative projects at March ARB include the recent construction of the passenger terminal at March ARB as well as the anticipated Naval Operational Support Center (NOSC), which would bring an additional 500 to 600 personnel to March ARB. The proposed parking area associated with the proposed NOSC could conflict with the new hangar site proposed under Alternative 1.

5.2.2 Proposed Airspace Actions in the Vicinity of March ARB

Cumulative airspace-related projects include the Federal Aviation Administration (FAA) proposal to extend Class C airspace at March ARB. FAA is the initiator of the Class C airspace as part of the SoCal Metroplex Project and the Draft EA for the SoCal Metroplex Project was released and made available for public comment on 10 June 2015 (FAA 2015). The SoCal Metroplex project would improve the efficiency of airspace in the SoCal Metroplex by optimizing aircraft arrival and departure procedures at surrounding airports, including Bob Hope (Burbank) Airport (BUR), Los Angeles International Airport (LAX), and Ontario International Airport (ONT). The extension of Class C airspace would help address commercial/general aviation aircraft transitions and would have nothing to do with military flight operations.

5.3 CUMULATIVE IMPACTS

5.3.1 Cumulative Construction Impacts

Although the exact timing of a number of the development projects described above are not yet known (e.g., NOSC), the potential exists for cumulative environmental impacts to occur with regard to air quality, noise, and transportation and circulation. Cumulative air quality impacts are expected to be negligible since all individual projects at March ARB would be required to implement standard best management practices (BMPs) to reduce air emissions below significance thresholds. In addition, cumulative noise impacts would not be expected to result in significant impacts since noise related to construction activities would be short-term and temporary, and no noise sensitive facilities are proposed for development. With regard to transportation and circulation, if these construction projects occur concurrently with the Proposed Action, short-term impacts to traffic caused by additional construction equipment and construction workers traveling along surrounding roadways could potentially cause a short-term adverse cumulative impact during peak traffic hours. However, construction activities would be temporary and sporadic. Therefore, cumulative impacts are anticipated to be less than significant.

5.3.2 Cumulative Operational Impacts

When considered cumulatively with the proposed modifications of Class C airspace at March ARB as part of the SoCal Metroplex Project the Proposed Action and alternatives would have a limited potential to contribute to potential cumulative impacts with regard to airspace management. Both of these actions have been coordinated with the FAA, and relevant Air Route Traffic Control Centers. Additionally, as described in Section 4.1, *Airspace Management* additional aircraft operations at March ARB as a result of the MQ-9 Reaper Launch and Recovery Element (LRE) would be negligible relative to existing operations at March ARB. Therefore, Proposed Action and alternatives would not be expected to alter regional air traffic patterns, require any changes to military flight procedures, compromise existing regional Air Traffic Control (ATC) facilities, or increase the chance for mid-air collisions with civilian aircraft. As a result, potential cumulative impacts to airspace management regionally would be expected to be less than significant.

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SECTION 6
SUMMARY OF FINDINGS

A summary of environmental impacts anticipated as a result of the implementation of the proposed relocation of MQ-9 Reaper Launch and Recovery Element (LRE) aircraft from the Southern California Logistics Airport (SCLA) to March Air Reserve Base (ARB), including associated construction and interior renovation projects, is provided in this section.

Airspace Management. Under the Proposed Action, approximately 75 to 80 percent of the total flight MQ-9 flight operations would occur within existing training areas (i.e., Restricted Area [R-] 2515, R-2502, and R-2501), with the remainder including transit operations from March ARB to R-2515 along the proposed travel corridor and limited approach/departure operations at March ARB. Implementation of the Proposed Action would not require any modification to the current terminal airspace structure or operational procedures. Further, implementation of the Proposed Action would not require any changes to the departure and arrival route structure of any airport in the vicinity or the Victor Routes used to transition between airports. The proposed MQ-9 aircraft operations would have no significant impact on the use and management of the March ARB Class C airspace or the airspace surrounding public and private airports in the region. Consequently, the Proposed Action would result in *less than significant* impacts to airspace management.

Air Quality. Under the Proposed Action, fugitive dust would be generated from construction activities, including site clearing and grading. Implementation of standard best management practices (BMPs) for dust control (e.g., regularly watering exposed soils, soil stockpiling, and soil stabilization) would reduce potential impacts resulting from fugitive dust generation to *less than significant* levels. Similarly, construction-related combustion emissions would result from the implementation of the Proposed Action; however, these emissions would be short-term and temporary. Mobile operational emissions of criteria pollutants at March ARB would not change significantly as a result of flight operations associated with the Proposed Action. Military aircraft emissions are not currently regulated under the Title V program. Further, as described in Section 2.2.1, *Proposed MQ-9 Reaper LRE*, operating altitudes would range from 8,500 feet to 9,500 feet above mean sea level (MSL) under the Proposed Action. The Federal Aviation Administration (FAA) (2000) determined that aircraft operations at or above the average mixing height of 3,000 feet above ground level (AGL) have a very small effect on ground level concentrations and could not directly result in a violation of the National Ambient Air Quality Standards (NAAQS) in a local area. Consequently, implementation of the Proposed Action would result in overall *less than significant* impacts to air quality.

Noise. Proposed construction activities would result in localized noise exposure above typical ambient levels at March ARB; however, noise generation would be short-term and would be restricted to normal working hours (i.e., between 7:00 AM and 5:00 PM). Given the type of construction activities (e.g., sporadic, during daytime hours, short-term, etc.), implementation of the Proposed Action would not be expected to substantially alter the noise environment over the short-term. The MQ-9 aircraft operations at March ARB associated with the Proposed Action would represent an overall negligible increase, and consequently, would not have a measurable effect on the existing 65 Community Noise Equivalent Level (CNEL) contour. Similarly, establishment of the proposed travel corridor would have a negligible effect on the noise environment in underlying areas do to the flight altitude and low number of daily operations. There would be no sensitive receptors that would be impacted by the Proposed Action. Therefore, potential long-term operational related noise impacts would be *less than significant*.

Land Use. Implementation of the Proposed Action would result in the construction as well as interior renovations to existing facilities that would support the Proposed Action. All component projects included in the Proposed Action are inherently consistent with established planning policies as well as land use and safety guidelines. The Proposed Action would not require any changes to off-site land use patterns. No new incompatible land uses would be introduced and no adverse changes to current land use as a result of the Proposed Action. Further, the consolidation of equipment and operations at March ARB would result in beneficial impacts with regard to fire staff operations and training and Anti-Terrorism/Force Protection (AT/FP) standards. Therefore, implementation of any alternative of the Proposed Action would result in *less than significant* impacts on land use.

Geological Resources. Potential impacts to geological resources associated with the Proposed Action at the base would be limited to ground-disturbing activities (i.e., construction). All project sites are relatively flat, with slopes of less than 1 percent, and do not present any topographical constraints. Minor impacts would result from grading activities associated with the proposed construction; however, these projects would occur on previously disturbed land which is surrounded by industrial activity. Therefore, impacts to geological resources would be *less than significant*.

Water Resources. Under the Proposed Action, proposed construction and interior renovation activities would occur within the developed portion of the base. None of these activities would be located near the vicinity of any surface water feature on the base, including jurisdictional wetlands. Associated construction could have localized (i.e., site specific) temporary effects on hydrology and surface water quality through the base's stormwater system and downstream to the San Jacinto River; however, standard BMPs would be incorporated during construction to minimize erosion, runoff, and sedimentation. Implementation of the Proposed Action would result in a slight increase in impermeable surfaces on the installation; however, because the construction projects would be sited on previously disturbed land (and in some cases on areas with existing paved surfaces), it would result in a negligible change in on-site groundwater percolation and recharge.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), a the entire installation is located in Zone D or Zone X, indicating that extensive floodplain mapping has not occurred, or that the area is determined to be outside the 100- or 500-year floodplain, respectively. Therefore, implementation of the Proposed Action would not result in any activity within or within 2 feet of the base elevation for the 100-year floodplain. The proposed construction activities would not introduce any new obstructions that would impede or divert overland floodwater flow and would not alter the existing hydrologic regime at March ARB. Proposed facilities would be constructed according to the National Flood Insurance Program, state floodplain regulations, and any local floodplain protection laws. Therefore, impacts to water resources would be *less than significant* for the Proposed Action.

Biological Resources. The majority of March ARB lands have been previously disturbed and support very few native plant communities. Native vegetation at the base has been removed or permanently altered for construction and maintenance activities related to airport operations with the exception of small remnants along the south, east, and northeastern boundaries of the installation. The proposed construction and interior renovation activities under the Proposed Action would occur on previously disturbed ground within the developed cantonment portion of the installation. Implementation of the Proposed Action could potentially affect wildlife indirectly through permanent habitat alteration and temporary disturbance due to noise and human presence. However, any wildlife present are likely already acclimated to similar disturbances given the developed and industrial nature of the site, and wildlife disturbed by construction activities or displaced by habitat loss could temporarily or permanently relocate to similar habitat nearby. The Proposed Action involves development or renovation of previously-disturbed areas on March ARB and would not affect any vernal pools that provide potential habitat for the only known federally protected species previously documented on the base, Riverside fairy shrimp (*Streptocephalus woottoni*). Implementation of the Proposed Action would not remove any high-quality habitat that would be suitable for federally listed species. Therefore, activities associated with the Proposed Action would not be likely to have a substantial effect on vegetation or wildlife, and impacts to biological resources would be *less than significant*.

Transportation and Circulation. Implementation of the Proposed Action would include delivery of construction materials to and removal of debris from project sites on March ARB for a period of four years, beginning in Fiscal Year (FY) 2016 and ending in FY 2020. Therefore, the implementation of proposed projects and the associated potential increases in traffic volume would be distributed over a long time period, reducing acute impacts. Construction traffic would comprise only a small portion of the total existing traffic volume on the base transportation network and vicinity roadways, and associated activities would be short-term in duration and would occur only during non-peak traffic hours in coordination with applicable agencies. Operationally, implementation of the Proposed Action would not increase the personnel at March ARB. Vehicle trips to and away from the base as well as parking availability would remain the same under the Proposed Action. Therefore, impacts to transportation and circulation would be *less than significant*.

Visual Resources. The proposed construction and interior renovation activities under the Proposed Action within the boundaries of March ARB would be consistent with the general visual character of the base. Interior renovations would not affect the exterior viewshed of the buildings at March ARB. Proposed structures would be located in an area that is considered to have a low visual sensitivity and would be in the vicinity of similar industrial uses. Consequently, *less than significant* impacts to visual resources would result from implementation of the Proposed Action.

Cultural Resources. The proposed construction and interior renovation activities under the Proposed Action would not affect cultural resources at March ARB. None of the buildings potentially impacted by the Proposed Action are eligible for listing on the National Register of Historic Places (NRHP). According to previous archaeological surveys, no archaeological resources are present on March ARB, and the installation has been characterized as having a low potential for containing archaeological resources. In the event that cultural deposits are uncovered during regular inspection of the construction site, however unlikely, activities would be suspended until a qualified archaeologist could determine the significance of the resource(s). Therefore, cultural resource impacts from implementation of the Proposed Action are anticipated to be *less than significant*.

Socioeconomics. The proposed construction and interior renovation activities under the Proposed Action would include short-term economic benefits as a result of temporary construction employment and materials-related expenditures. There would be no increase of personnel under the Proposed Action; the same personnel would continue to support the MQ-9 Reaper LRE mission but would do so at March ARB instead of at SLCA. No long-term changes in economic activity associated with the 163d Attack Wing (163 ATKW) related to payroll and employee service expenses would occur. Likewise, there would be no impacts to the surrounding community. Therefore, implementation of the Proposed Action would have *less than significant* socioeconomic impacts.

Environmental Justice and Protection of Children. No minority or low-income populations are disproportionately located near March ARB and the proposed construction and interior renovation activities under the Proposed Action. Any potential short-term impacts associated with the Proposed Action would be confined to the base and the immediate surrounding vicinity. Additionally, no impacts would be expected to occur in areas where children would be impacted. Consequently, with the implementation of standard safety measures, impacts with regard to environmental justice and protection of children would be *less than significant.*

Hazardous Materials and Wastes. The Proposed Action would result in a short-term minor increase in the storage of construction-related hazardous materials and waste. However, the proposed construction and interior renovation activities under the Proposed Action would cause only a temporary increase in storage of hazardous materials and waste and would not constitute a significant impact. The safe handling, storage, and use procedures currently managed under the Hazardous Waste Management Plan for March ARB, in accordance with all Federal, state, and local regulations, would continue to be implemented with regard to additional hazardous materials and petroleum products. One site under the Environmental Restoration Program (ERP), Flightline Shop Zone (ERP Site 8), underlies several buildings in the cantonment area along the flightline, including Building 1246. Contaminated soils from this ERP site have been removed; however, groundwater contamination associated with this ERP site is still being treated as part of a base-wide remediation. None of the proposed construction projects would likely affect contaminated groundwater beneath the project site. Nevertheless, a site-specific Health and Safety Plan would be drafted with the implementation of the Proposed Action, which would describe potential exposure scenarios/paths and recommendations to protect the health of workers. Consistent with AFI 32-7066, *Environmental Baseline Surveys in Real Estate Transactions* an Environmental Baseline Survey (EBS) would be prepared prior to transfer and use of Building 1244 and any other property currently managed by the 452d Air Mobility Wing (452 AMW). This EBS would document the existing conditions of the facility and would provide a description of any potentially hazardous materials or contaminates, including asbestos and lead-based paint. Impacts associated with asbestos and lead-based paint would be minor and could be managed effectively by adhering to March ARB management plans and by complying with all applicable state, Federal and local regulations. Therefore, construction activities associated with the Proposed Action would not likely expose workers to contamination during ground disturbing activities. All contaminated media, if encountered, would be managed and disposed of in accordance with all appropriate regulations and guidelines. Therefore, impacts associated with hazardous materials and wastes would be *less than significant*.

Safety. The Proposed Action would increase aircraft operations at March ARB by four additional airport operations daily and an additional two during Unit Training Assembly (UTA) drill weekend days (24 days per year). However, these are only a slight increase over existing conditions at March ARB and operations would adhere to all established flight safety guidelines and protocol. There would be no change to the ground safety procedures and activities at March ARB, and safety policies and procedures currently in place for MQ-9 operations currently in place at SCLA would continue at March ARB under the Proposed Action. Additionally, 163 ATKW aircrews operating at March ARB and within airspace associated with unit training would continue to follow applicable procedures outlined in the March ARB Integrated Bird/Wildlife Air Strike Hazard (BASH) Plan. Further, proposed construction and renovation activities have been designed and sited to meet all airfield safety criteria, and implementation of the Proposed Action would not result in adverse impacts to explosives safety or Explosive Safety Quantity Distance (ESQD) arcs at March ARB. Therefore, safety impacts associated with implementation of the Proposed Action would be *less than significant*.

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SECTION 7
SPECIAL PROCEDURES

Impact evaluations conducted during preparation of this Environmental Assessment (EA) have determined that no significant environmental impacts would result from implementation of the Proposed Action at the March Air Reserve Base (ARB) in Moreno Valley, California. This determination is based on a thorough review of existing resource information, objective analysis of the Proposed Action, and coordination with knowledgeable, responsible personnel from the 163d Attack Wing (163 ATKW), 452d Air Mobility Wing (452 AMW), and relevant Federal, state, and local agencies.

Standard best management practices (BMPs) would be incorporated during construction to minimize erosion, runoff, and sedimentation, consistent with the installation's site specific Storm Water Pollution Prevention Plan (SWPPP). If required, a construction storm water permit, comprised of a SWPPP and Notice of Intent (NOI) would be obtained from the Santa Ana Regional Water Quality Control Board (RWQCB), and implemented. Further, in accordance with the Energy and Independence and Security Act Section 438 (requiring Federal facility projects over 5,000 square feet (sf) to maintain or restore the predevelopment hydrology of the property), low-impact development techniques would be incorporated into the proposed construction.

Other standard BMPs would be implemented as a part of the Proposed Action, including control measures for reducing fugitive dust emissions, conforming to all Federal, state, and local requirements relating to storm water pollution prevention during construction activities, and safe removal any potentially hazardous materials prior to interior renovation activities. Additionally, consistent with Air Force Instruction (AFI) 32-7066, *Environmental Baseline Surveys in Real Estate Transactions* an Environmental Baseline Survey (EBS) would be prepared prior to transfer and use of Building 1244 and any other property currently managed by the 452 AMW. This EBS would document the existing conditions of the facility and would provide a description of any potentially hazardous materials or contaminates, including asbestos and lead-based paint. Further, the areas proposed for ground disturbance under the Proposed Action would be inspected during construction activities to ensure that no subsurface historic or prehistoric materials are present. Should it be determined that archaeological or cultural resources are present during regular inspection of the construction site, any project-related construction activities would be suspended until a qualified archaeologist had documented and evaluated the resource for National Register of Historic Places (NRHP) eligibility, in compliance with Section 106 of the National Historic Preservation Act (NHPA). No other special procedures are would be required prior to implementation of the Proposed Action.

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