FINAL

ENVIRONMENTAL ASSESSMENT

For

DEVELOPMENT OF THE P205 ALERT FORCE COMPLEX PROJECT

At

TRAVIS AIR FORCE BASE, CALIFORNIA

JANUARY 2020

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Abstract

Designation:	Environmental Assessment
Title of Proposed Action:	P205 Alert Force Complex Project
Project Location:	Travis Air Force Base, Fairfield, California
Lead Agency for the EA:	Department of the Navy
Co-lead Agency:	Department of the Air Force
Affected Region:	Solano County, California
Action Proponent:	Naval Facilities Engineering Command - Southwest
Point of Contact:	Hiphil S. Clemente Naval Facilities Engineering Command - Southwest 937 North Harbor Drive San Diego, CA 92132 hiphil.clemente@navy.mil
Date:	January 2020

The Naval Facilities Engineering Command – Southwest, a Command of the U.S. Navy (hereinafter, jointly referred to as the Navy), along with the U.S. Air Force as a co-lead agency, has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA), as implemented by the Council on Environmental Quality (CEQ) Regulations, Navy regulations for implementing NEPA, and Air Force regulations articulated in 32 C.F.R. 989 Environmental Impact Analysis Process (EIAP). The Proposed Action would demolish the existing Fleet Air Reconnaissance Squadron Three Detachment Travis (VQ-3 Det Travis) Alert Force Complex (Complex) located within the Travis Air Force Base (Travis AFB or Base) runway clear zone and construct a new Complex north of the Base runways. Project implementation would begin June 2020 and occur over a 30-month period. This Environmental Assessment evaluates the potential environmental impacts associated with the two action alternatives, Alternative 1 – Complete Alert Force Complex Relocation and Alternative 2 – Partial Alert Force Complex Relocation, and the No Action Alternative to the following resource areas: Air Quality, Water Resources, Geological Resources, Cultural Resources, Biological Resources, Land Use, and Infrastructure.

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EXECUTIVE SUMMARY

ES.1 Proposed Action

The United States Department of the Navy (Navy) proposes to replace and locate the existing Alert Force Complex (Complex) outside the runway safety clear zone at Travis Air Force Base (AFB) in Fairfield, California. The Proposed Action includes the demolition of existing facilities near the southern boundary of Travis AFB and construction of a new Complex north of the Travis AFB runways.

ES.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide a secure Alert Force Complex for the VQ-3 Det Travis. The Proposed Action is needed because the majority of the existing facilities are currently within the Travis AFB runway safety clear zone, and new building construction within the clear zone is prohibited. Travis AFB has requested relocation and may eliminate the existing clear zone waiver that the operations are currently operating under. Recent studies conducted by the Air Force have identified significant Anti-Terrorism/Force Protection (AT/FP) concerns regarding the existing complex boundary fence. In addition, analyses have identified a lack of appropriate high-altitude electromagnetic pulse hardened power for critical command, control, and alerting circuits.

ES.3 Alternatives Considered

Alternatives were developed for analysis based upon the following reasonable alternative screening factors: (1) correct critical capacity, condition, and configuration issues that currently degrade mission capability and threaten continuity of communication capabilities; (2) meet the around-the-clock (i.e., "24/7") operational requirements; (3) location of support facilities and aircraft parking must meet the security requirements; and, (4) siting of support facilities and aircraft parking must allow Navy personnel to meet national security "on alert" time constraints.

Under the No Action Alternative, the Proposed Action would not occur, and Navy personnel would continue to work in the current facilities.

The Navy is considering two action alternatives that meet the purpose of and need for the Proposed Action, as well as a No Action Alternative. Alternative 1 – Complete Alert Force Complex Relocation (Preferred Alternative or Alternative 1) would construct a new Complex outside of the runway safety clear zone at Travis AFB. Alternative 1 includes the demolition of fourteen existing facilities (Buildings 1162, 1165, 1167,1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894) near the southern boundary of Travis AFB. Buildings 1164, 1177, and 1179 would not be demolished as part of Alternative 1 and would revert to the Air Force for their use.

Alternative 2 – Partial Alert Force Complex Relocation (Alternative 2) would be similar to Alternative 1; however, under Alternative 2, the Navy would continue to utilize Buildings 1164, 1177, and 1179 (which are outside the runway safety clear zone) and construct new facilities at the proposed Complex site described in Alternative 1.

ES.4 Summary of Environmental Resources Evaluated in the EA

The following resource areas have been addressed in this EA: Air Quality, Water Resources, Geological Resources, Cultural Resources, Biological Resources, Land Use, and Infrastructure. Because potential impacts were considered to be negligible or nonexistent, the following resources were not evaluated in

this EA: Agricultural Land, Airspace, Noise, Hazardous Materials and Wastes, Visual Resources, Transportation, Public Health and Safety, Socioeconomics, and Environmental Justice.

ES.5 Summary of Potential Environmental Consequences of the Action Alternatives and Major Mitigating Actions

Table ES-1 provides a tabular summary of the potential impacts to the resources associated with each of the alternative actions analyzed. Both action alternatives would result in direct impacts to 0.0046 acre and indirect impacts to 1.01 acres of jurisdictional waters of the U.S. Project impacts to waters of the U.S. would be mitigated, and no significant impact would occur. The No Action Alternative would result in adverse impacts to land use as the VQ-3 Det Travis mission and Navy personnel would continue to operate within the Travis AFB runway clear zone.

ES.6 Public Involvement

The Navy and Air Force solicited advance public comment on the proposed project in accordance with Executive Order 11990, Protection of Wetlands, because approximately 0.05 acre of wetlands would be directly impacted by the proposed project. The public notice was published in the *Vacaville Reporter*, *The Daily Republic* (Fairfield/Suisun), and *Travis AFB Tailwind* starting June 8, 2018 through June 10, 2018, and public comments were accepted between June 18, 2018 and July 19, 2018. No comments were received during the advance public notice period.

The Draft EA was circulated for public review from October 4, 2019 through November 4, 2019, and the review period began with a public notice published in the *Vacaville Reporter*, *The Daily Republic* (Fairfield/ Suisun), and *Travis AFB Tailwind* indicating the availability of the Draft EA and the locations where public review copies are available. No comments were received on the Draft EA.

ES.7 Real Estate Agreement

A real estate agreement and associated environmental baseline study between the Navy and Air Force would also be part of the Proposed Action for the construction and operation of the proposed Complex. This real estate agreement would allow the Navy to operate the Alert Force Complex for the VQ-3 Det Travis on Travis AFB for a yet-to-be-determined period of time.

Table ES-1 Summary of Potential Impacts and Avoidance/Minimization Measures

Resource Area	*No Action Alternative*	*Alternative 1 - Complete Alert Force Complex Relocation*	*Alternative 2 – Partial Alert Force Complex Relocation*
3.1 Air Quality			
Impact Summary	No Impact Under the No Action Alternative, no demolition or new development would occur, and there would be no change to baseline air quality. Therefore, no impacts to air quality or air resources would occur.	No Significant Impact Implementation of Alternative 1 would result in emissions of air pollutants during demolition and construction. Demolition and construction emissions would be below *de minimis* levels. Therefore, implementation of Alternative 1 would not result in a significant impact related to air quality.	No Significant Impact Alternative 2 would have similar or less impacts as those described under Alternative 1. Therefore, implementation of this action alternative would not result in significant impacts to air quality.
Avoidance/Minimization Measures	No measures identified.	No measures identified.	No measures identified.
3.2 Water Resources			
Impact Summary	No Impact No ground disturbing activities would occur, and there would be no change to baseline water resources. Therefore, no impacts would occur.	No Significant Impact Best management practices required by the Construction Site Storm Water National Pollutant Discharge Elimination System (NPDES) permit and Storm Water Pollution Prevention Plan (SWPPP) would be implemented during project demolition and construction to further reduce the less-than-significant impacts. Compensatory mitigation for fill of 0.0046 acre of jurisdictional waters of the U.S. may be required. Section 401 and 404 permit applications would be submitted to the California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, and the USACE, San Francisco District, for their review and approval. Approval of the Section 401 and 404 permit applications would be obtained prior to commencement of any demolition or construction activities. Once acquired, the applicant would comply with all conditions outlined in the Section 404 and 401 Clean Water Act permits. Therefore, no significant impacts to water resources would occur.	No Significant Impact Impacts would be similar to or less than those described under Alternative 1 and would not result in significant impacts to water resources.

Table ES-1 Summary of Potential Impacts and Avoidance/Minimization Measures

Resource Area	*No Action Alternative*	*Alternative 1 - Complete Alert Force Complex Relocation*	*Alternative 2 – Partial Alert Force Complex Relocation*
Avoidance/Minimization Measures	No measures identified.	No measures identified.	No measures identified.
3.3 Geological Resources			
Impact Summary	No Impact Under the No Action Alternative, there would be no demolition or new developments, and there would be no change to baseline geology, topography, or soils. Therefore, no impacts to geological resources would occur.	No Significant Impact Because management practices required by the Construction Site Storm Water NPDES permit and SWPPP would be implemented during demolition and construction activities, no significant impacts to soils are anticipated.	No Significant Impact Impacts would be similar to or less than those described under Alternative 1 and would not result in significant impacts to geology or soils.
Avoidance/Minimization Measures	No measures identified.	No measures identified.	No measures identified.
3.4 Cultural Resources			
Impact Summary	No Impact Under the No Action Alternative, no ground disturbing activities would occur. Therefore, there would be no impact to cultural resources.	No Significant Impact Implementation of Alternative 1 is not anticipated to result in significant impacts to cultural resources. However, if cultural or archaeological resources should inadvertently be disturbed during demolition or construction, action would be taken in accordance with the following contingency plan: • All activities are performed in compliance with the *Integrated Cultural Resources Management Plan* (Travis AFB, 2016a). • If human remains or archaeological or cultural artifacts are discovered during demolition or construction, work would cease, and the Air Force cultural resources manager would be contacted. • If any new information or cultural items were to be found, Travis AFB would notify local Native American tribes.	No Significant Impact Impacts would be similar to or less than those described under Alternative 1 and would not result in significant impacts to cultural resources.

Table ES-1 Summary of Potential Impacts and Avoidance/Minimization Measures

Resource Area	*No Action Alternative*	*Alternative 1 - Complete Alert Force Complex Relocation*	*Alternative 2 – Partial Alert Force Complex Relocation*
Avoidance/Minimization Measures	No measures identified.	No measures identified.	No measures identified.
3.5 Biological Resources			
Impact Summary	No Impact Under the No Action Alternative, no demolition or new development would occur, and there would be no change to biological resources. Therefore, no impacts to biological resources would occur.	No Significant Impact Section 7 consultation has been completed for California tiger salamander (CTS), vernal pool fairy shrimp (VPFS), vernal pool tadpole shrimp (VPTS), and Delta green ground beetle (DGGB). Suitable habitat exists within the Alternative 1 action area for CTS (upland habitat), VPFS, and VPTS. Implementation of Mitigation Measures BIO-01, BIO-02, and BIO-04 would reduce the potential for Alternative 1 to adversely affect CTS, VPFS, and VPTS. Alternative 1 would result in permanent loss of 8.37 acres and temporary disturbance of 1.48 acres of suitable habitat for CTS. Alternative 1 would also result in direct impacts to 0.0046 acre and indirect impacts to 1.01 acres of suitable habitat for VPFS and VPTS. Implementation of Mitigation Measures BIO-03 and BIO-05 would provide compensation for these losses sufficient to offset potential adverse impacts to those species. Additionally, Base personnel would continue to manage habitats according to the Integrated Natural Resources Management Plan (INRMP), which is designed to protect and benefit threatened and endangered species. Alternative 1 is within 1 mile of known locations of DGGB, which is presumed absent from the main base at Travis AFB. Because of proximity to known locations of DGGB and the possibility of unknown populations of DGGB occurring in vernal pool habitat, Alternative 1 has potential to affect DGGB in the absence of avoidance and minimization	No Significant Impact Impacts would be similar to or less than those described under Alternative 1 and, with the implementation of Mitigation Measures BIO-01 through BIO-09, would not result in significant impacts to biological resources.

Table ES-1 Summary of Potential Impacts and Avoidance/Minimization Measures

Resource Area	*No Action Alternative*	*Alternative 1 - Complete Alert Force Complex Relocation*	*Alternative 2 – Partial Alert Force Complex Relocation*
		measures. Implementation of Mitigation Measure BIO-06 would reduce the potential for Alternative 1 to adversely affect DGGB. Wildlife on Travis AFB is currently exposed to high levels of ambient noise from ongoing air operations, and Alternative 1 would not result in any temporal or spatial change to noise levels from existing conditions except during demolition and construction which would be short-term and temporary. Noise impacts from demolition and construction of Alternative 1 would be localized, and potential for adverse impacts to nesting birds would be reduced by implementation of Mitigation Measures BIO-07, BIO-08, and BIO-09. Operation of Alternative 1 would result in no change to existing noise impacts on nesting birds on Travis AFB. With implementation of Mitigation Measures BIO-01 through BIO-09, impacts from Alternative 1 would not be significant.	
Avoidance/Minimization Measures	No measures identified.	**Mitigation Measure BIO-01:** Alternative 1 would implement avoidance and minimization measures MM-01 – MM-03, MM-05 – MM-14, and MM-17, as presented in Sections 4.2.1 through 4.2.3 of the Biological Assessment (BA) (Navy 2019). **Mitigation Measure BIO-02:** Alternative 1 would implement species-specific conservation measures CTS-01 – CTS-03, CTS-05 – CTS-13, and CTS-15 – CTS-19, as presented in Section 4.2.4 of the BA (Navy 2019). **Mitigation Measure BIO-03:** Alternative 1 would compensate for permanent impacts to 8.37 acres of upland CTS habitats in the proposed Complex through preservation	Alternative 2 would apply all avoidance/minimization measures identified for Alternative 1.

Table ES-1 Summary of Potential Impacts and Avoidance/Minimization Measures

Resource Area	*No Action Alternative*	*Alternative 1 - Complete Alert Force Complex Relocation*	*Alternative 2 – Partial Alert Force Complex Relocation*
		of upland CTS habitat at a 2:1 ratio for a total of 16.74 acres of upland preservation. Alternative 1 would compensate for temporary effects to up to 1.48 acre of upland CTS habitats in the existing Complex through the reestablishment of 0.74 acre of suitable habitat on-base and preservation of upland CTS habitat for the remaining 0.74 acre at a 0.5:1 ratio, for a total of up to 0.37-acre of upland preservation. Compensation for permanent and temporary impacts to CTS habitat would be provided through a combination of on-base reestablishment of 0.74 acre and purchase and permanent preservation of habitat off-base, including purchase of 17.11 credits at a United States Fish and Wildlife Service (USFWS)-approved mitigation bank. **Mitigation Measure BIO-04:** Alternative 1 would implement species-specific conservation measures VP-01, VP-03, and VP-04 as presented in Section 4.2.5 of the BA (Navy 2019). **Mitigation Measure BIO-05:** Alternative 1 would compensate for direct effects to 0.0046 acre of potential VPFS and VPTS habitat at a 3:1 ratio and indirect effects to 1.01 acres of potential VPFS and VPTS habitat at a 1:1 ratio through preservation of existing VPFS and VPTS habitat, for a total of 1.0238 acres of vernal pool preservation. Compensation would be provided through purchase of vernal pool conservation credits at a USFWS-approved mitigation bank**.** **Mitigation Measure BIO-06:** During project activities in the existing Complex, Alternative 1 would implement species-specific conservation measures DGGB-6 and DGGB-7, as presented in Section 4.2.5 of the BA (Navy 2019).	

Table ES-1 Summary of Potential Impacts and Avoidance/Minimization Measures

Resource Area	*No Action Alternative*	*Alternative 1 - Complete Alert Force Complex Relocation*	*Alternative 2 – Partial Alert Force Complex Relocation*
		Mitigation Measure BIO-07: To protect birds under the MBTA, a pre-construction survey must be performed by a qualified biologist no more than 14 calendar days before construction to determine whether any protected species are present on or near the site. If protected birds are present or nesting on or near the site, construction may be temporarily postponed until the nesting season is over. Contact 60th Civil Engineering Squadron/Installation Management Flight/Environmental (60 CES/CEIE) at least 30 calendar days in advance to arrange the pre-construction site survey. **Mitigation Measure BIO-08:** Other measures which may be necessary if protected species are found on or near the site during the pre-construction survey include: (1) the construction crew may be prohibited from disturbing areas within a specified distance of owl burrows or bird nests according to guidelines for burrowing owl (California Department of Fish and Wildlife [CDFW] 2012) or consultation with CDFW; (2) the construction crew may be required to shut down or restrict activities during breeding and nesting seasons; (3) construction may be temporarily delayed while birds are encouraged to relocate away from the construction area. The construction crew should be advised of these possibilities in contract documents. **Mitigation Measure BIO-09:** If the project includes removal of any trees, the construction crew is advised to remove the trees or tree limbs between September and January, outside of the bird nesting season. Trees may not be removed or limbed during nesting season unless a qualified biologist determines there are no active bird nests present.	

Table ES-1 Summary of Potential Impacts and Avoidance/Minimization Measures

Resource Area	*No Action Alternative*	*Alternative 1 - Complete Alert Force Complex Relocation*	*Alternative 2 – Partial Alert Force Complex Relocation*
3.6 Land Use			
Impact Summary	Significant Impact Under the No Action Alternative, no demolition or new development would occur, and VQ-3 Det Travis operations would continue at the existing Complex within the Travis AFB runway clear zone. However, the VQ-3 Det Travis operations are an incompatible land use, and Travis AFB has requested relocation and may eliminate the existing clear zone waiver that the VQ-3 Det Travis are currently operating under. Therefore, the No Action Alternative would result in a significant adverse impact to land use.	No Significant Impact Implementation of Alternative 1 would remedy the incompatible land use of the existing operations and would not result in significant impacts to land use.	No Significant Impact Under Alternative 2, most project impacts would be similar as those described under Alternative 1. In contrast to Alternative 1, risk of wildfire from continued use of Buildings 1164, 1177, and 1179 near private agricultural land would continue to be a concern for Navy personnel. However, implementation of Alternative 2 would relocate the existing facilities outside of the runway clear zone and would not result in significant impacts to land use.
Avoidance/Minimization Measures	No measures identified.	No measures identified.	No measures identified.

Table ES-1 Summary of Potential Impacts and Avoidance/Minimization Measures

Resource Area	*No Action Alternative*	*Alternative 1 - Complete Alert Force Complex Relocation*	*Alternative 2 – Partial Alert Force Complex Relocation*
3.7 Infrastructure			
Impact Summary	No Significant Impact Under the No Action Alternative, no demolition or new development would occur, and there would be no change to the infrastructure at the existing Complex. The electrical and communication systems at the existing Complex are in poor condition and would require upgrades. Temporary, short-term disruption of the electrical and communication system would be expected from system upgrades at the existing Complex. Therefore, the No Action Alternative would have minor impacts to infrastructure. No significant impacts to infrastructure are anticipated.	No Significant Impact Adherence to dig permit issued by 60 CES/Asset Management (CEA) would ensure project impacts to infrastructure would not be significant. Therefore, implementation of Alternative 1 would have no significant impact to infrastructure.	No Significant Impact Alternative 2 would have similar or less impacts as those described under Alternative 1. Therefore, implementation of Alternative 2 would have no significant impact to infrastructure.
Avoidance/Minimization Measures	No measures identified.	No measures identified.	No measures identified.

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Environmental Assessment
P205 Alert Force Complex
Travis Air Force Base, California

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Abbreviations and Acronyms

ACM	Asbestos-Containing Materials
AFB	Air Force Base
AGL	Above Ground Level
AICUZ	Air Installation Compatible Use Zone
Air Force	United States Department of the Air Force
APE	Area of Potential Effect
APZ	Accident Potential Zone
AT/FP	Antiterrorism Force Protection
BA	Biological Assessment
BASH	Bird/Wildlife Aircraft Strike Hazard
BMP	Best Management Practices
BO	Biological Opinion
CAA	Clean Air Act
CEA	Asset Management
CEI	Installation Management Flight
CEIE	Environmental Management Element
CES	Civil Engineering Squadron
CARB	California Air Resources Board
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon dioxide equivalent
Complex	Alert Force Complex
CTS	California tiger salamander
CWA	Clean Water Act
DERP	Defense Environmental Restoration Program
DoD	United States Department of Defense
DWR	Department of Water Resources
EA	Environmental Assessment
ECP	Entry Control Point
EFH	Essential Fish Habitat
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FR	Federal Register
FY	Fiscal Year
G2G	Government-to-Government
GHG	Greenhouse Gas
gpm	Gallons Per Minute
GSE	Ground Support Equipment
GSU	Geographically Separated Units
Hz	Hertz
ICRMP	Integrated Cultural Resources Management Program
INRMP	Integrated Natural Resources Management Program
ITN	Information Transfer Node
km	Kilometer
kV	Kilovolt
LBP	Lead-Based Paint
MBTA	Migratory Bird Treaty Act
mgd	Millions of Gallons/Day
MILCON	Military Construction
MM	Mitigation Measure
NAAQS	National Ambient Air Quality Standards
NAVFAC	Naval Facilities Engineering Command
Navy	United States Navy
NEPA	National Environmental Policy Act

NGA	National Geospatial-Intelligence Agency
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NIPTS	Noise Induced Permanent Threshold Shift
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NOS	Nitrous Oxide System
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Office of the Chief of Naval Operations Instruction
OSHA	Occupational Safety and Health Administration
Pb	Lead
PBA	Programmatic Biological Assessment
PCB	Polychlorinated Biphenyl
PM_{10}	Fine Particulate Matter
$PM_{2.5}$	Very Fine Particulate Matter
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
RWQCB	Regional Water Quality Control Board
SATCOM	Satellite Communications
sf	Square Feet
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur Dioxide
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traditional Cultural Properties
THPO	Tribal Historic Preservation Office
TMDL	Total Maximum Daily Load
tpy	Tons per Year
Travis AFB	Travis Air Force Base
TSCA	Toxic Substances Control Act
US	United States
USC	United States Code
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coastal Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Compound
VPFS	Vernal Pool Fairy Shrimp
VPTS	Vernal Pool Tadpole Shrimp
VQ-3 Det Travis	Fleet Air Reconnaissance Squadron Three

1 Purpose of and Need for the Proposed Action

1.1 Introduction

The Naval Facilities Engineering Command (NAVFAC) Southwest, a Command of the United States (U.S.) Navy (hereinafter, jointly referred to as the Navy), proposes to construct a new Alert Force Complex (Complex) and locate the VQ-3 Det Travis operations outside of the runway clear zone on Travis Air Force Base (Travis AFB or Base) in Fairfield, California. The Proposed Action includes the demolition of fourteen existing facilities (Buildings 1162, 1165, 1167, 1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894) and construction of a new Complex north of the Travis AFB runways. The Proposed Action would also include a real estate agreement between the Navy and the Air Force for the construction and operation of the proposed new facilities. Two existing aircraft parking spaces would be made available to the Navy for E-6B Mercury aircraft parking near the new facilities. Occasionally, a third E-6B Mercury aircraft may be present at Travis AFB, and it can be parked in any existing airplane parking space on base.

The Navy has prepared this Environmental Assessment (EA) in accordance with Navy Regulation 32 Code of Federal Regulations (CFR) Part 775, Procedures for Implementing the National Environmental Policy Act (NEPA), as implemented by the Council on Environmental Quality (CEQ) Regulations. The United States Department of the Air Force (Air Force) is a co-lead agency in the preparation of this document and has participated to ensure this document meets the requirements of Air Force Regulation 32 CFR 989, Environmental Impact Analysis Process.

1.2 Background

The existing Complex includes a fenced inner compound that houses the main alert facility, fitness room, maintenance facility, security entry control point, MILSTAR antenna, and aircraft parking ramp. The outer compound includes privately owned vehicle parking, security facility, ground support equipment (GSE) rework shop, and aircraft spares storage. The VQ-3 Det Travis has been operating from this facility since 1988.

The VQ-3 Det Travis operation provides around-the-clock base operating support and requires an airfield, back shop maintenance, and refueling, deicing, and liquid oxygen utilization capabilities. The operation supports up to three E-6B Mercury aircrafts which are on alert “24/7” to ensure survivable, endurable, and reliable communications from the President of the United States and the Secretary of Defense to the nation’s nuclear force. The existing Complex provides 24 hour/365 day support to alert aircraft and aircrew and include: a Command Center and Communications Center to provide hardened aircrew alerting; berthing and shower facilities for alert aircrew and maintenance personnel; food preparation and dining area; physical security for alert aircrafts and aircrew; maintenance support, including servicing, spare parts and support equipment; lounge, fitness, briefing and mission planning space; alert vehicles; and spare parts storage, aircraft and individual material readiness list maintenance spaces, training spaces, and offices for detachment personnel.

The VQ-3 Det Travis’s mission serves two primary roles: (1) to provide a U.S. Strategic Command Airborne Command Post and (2) to relay emergency action messages to the nuclear powered, ballistic missile carrying submarines, bombers and inter-continental ballistic missiles. The airborne command post ensures that there is an aircraft “on alert” and ready to communicate emergency action messages to the nation’s nuclear force from the air should ground-based command centers become inoperable. As

of 1991, "on alert" means ready in the air or on the ground. For national security purposes, the support facilities must be located where the Navy personnel can meet time constraints to have at least one E-6B Mercury "on alert." The Navy's personnel must be able to reach the E-6B Mercury aircraft from the barracks in a matter of minutes, by foot.

Due to the size of the aircrafts used for their missions, the Navy's VQ-3 tends to populate Air Force bases instead of Navy bases. The E-6B Mercury aircraft is a modified Boeing 707, and there are sixteen of these aircrafts nationwide.

1.3 Location

Travis AFB is located approximately 7 miles north of the City of Fairfield, in Solano County, California. The Base occupies approximately 5,137 acres near Interstate 80, between the cities of Sacramento and San Francisco (Figure 1-1). The existing Complex is located in the southeast portion of the Base, north of Perimeter Road (Figure 1-2). The site of the proposed new Complex is in the northeast portion of the Base at the airfield. The site is bordered by Vandenberg Drive on the south and east, Napa Street on the north, and Airlift Drive on the west. The proposed new Complex would be constructed within the vacant portion of the property.

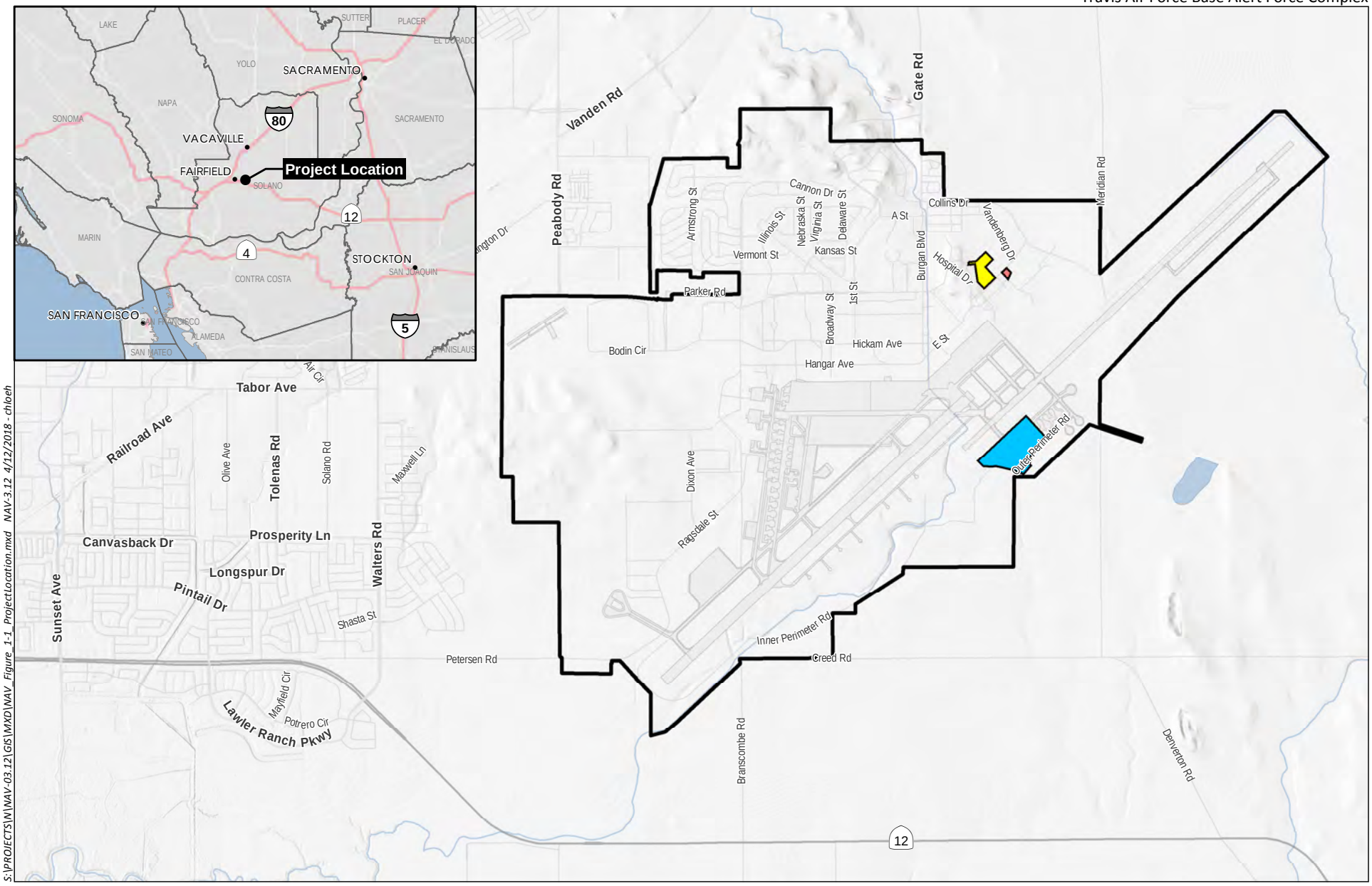
1.4 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide a secure Alert Force Complex for the VQ-3 Det Travis. The Proposed Action is needed because the existing facilities have reached the end of their serviceable life, can no longer support the operational requirements, and require waivers for multiple safety and security requirements that have been established since the compound was given to VQ-3 Det Travis for their use.

Recent studies, including a Balanced Survivability Assessment, Critical Infrastructure Protection assessment, and Integrated Nuclear Survivability and Endurability Report analysis indicate significant Anti-Terrorism/Force Protection (AT/FP) concerns resulting from the proximity to Travis AFB's installation boundary fence line. The Integrated Nuclear Survivability and Endurability Report analysis documents the lack of appropriate high-altitude electromagnetic pulse hardened power for critical command, control, and alerting circuits. The existing facilities are not sized or configured adequately to accommodate operations requirements as documented in the Basic Facility Requirements. The Navy personnel are currently operating within a 37,500-square-foot (sf) Complex, however, 61,000-sf is needed to adequately support VQ-3 Det Travis operations.

The main alert facility has not been improved to accommodate the VQ-3 Det Travis' operational requirements and larger personnel requirements. The main alert facility is undersized and does not provide appropriate configuration. Personnel support areas most impacted include the inadequate male and female head/shower areas and insufficient space for Alert Force personnel sleeping quarters. Meals and other activities must be conducted in shifts due to the limited dining space and general use areas, which impacts personnel rest and mission efficiency. Operations Control and Communication Center space is constrained and limits watch crews and equipment.

The other existing facilities present significant space shortfalls as the lack of space for security functions impacts training operations and proper storage of security force equipment. Weapons are stored at the Travis AFB armory, which causes a 45-minute transition between personnel shifts.



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Source: ESRI 2017, USGS

0 0.75 Miles

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Travis Air Force Base
Existing Complex Site
Proposed Complex Site
Construction Laydown Area

Regional Location Map

Figure 1-1

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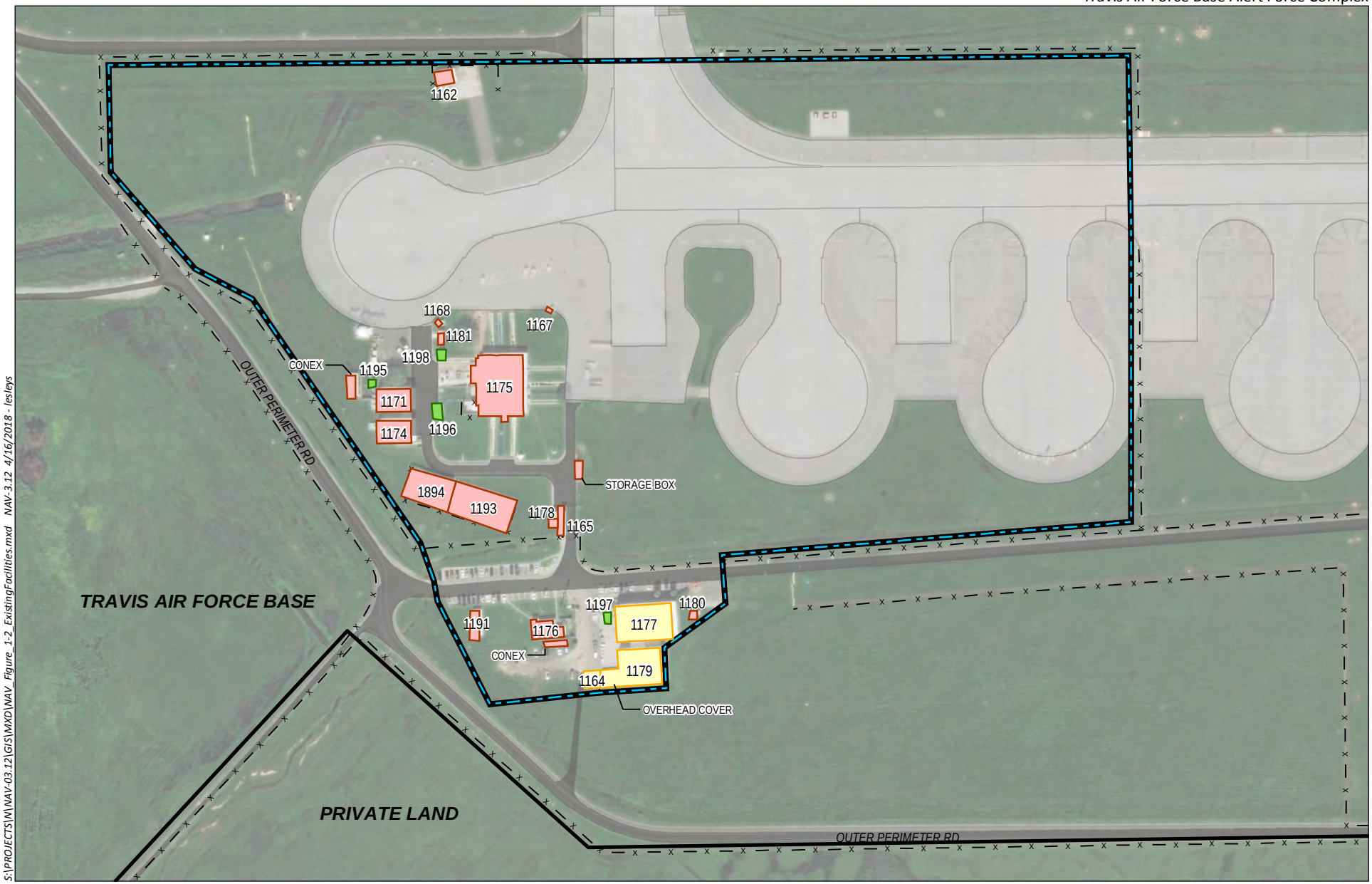

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Source: Travis AFB, Esri 2017

Travis Air Force Base
Existing TACAMO Complex
Airfield
Buildings to remain
Buildings to be demolished
Generators to be relocated
Fence

0 250 Feet

Existing Complex

Figure 1-2

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Construction of the new Complex at the proposed site location would reduce the transition time to approximately 10 minutes.

Under existing conditions, response times are significantly impeded by the substantial travel distance. Limited maintenance space provides insufficient space for tools, equipment, offices, and storage for maintainers to support alert aircraft. The existing Complex site poses multiple constraints including runway safety clear zone requirements, flooding, and danger of wildfire. The majority of the existing facilities are currently within Travis AFB's runway clear zone, and new building construction within the clear zone is prohibited to reduce exposure to safety hazards. The Travis AFB runway clear zone is defined as an obstruction-free surface (except for features essential for aircraft operations) on the ground symmetrically centered on the extended runway centerline beginning at the end of the runway and extending outward 3,000 feet. When Travis AFB was originally constructed in 1943, it was the Fairfield-Suisun Army Air Base, and the facilities were constructed outside the Army airfield clear zones of 1,000 by 1,000 linear feet. In comparison, Air Force standards for airfield clear zones are 3,000 by 3,000 linear feet, which encompasses the existing Complex. The Travis AFB runway clear zone was developed from analysis of over 830 major Air Force accidents that occurred within 10 miles of an Air Force installation between 1968 and 1995 (Travis AFB, 2009), and the existing Complex was constructed before the Travis AFB safety clear zones were established. Travis AFB has requested relocation and may eliminate the existing clear zone waiver that VQ-3 Det Travis is currently operating under.

Site conditions at Building 1175 direct drainage toward the building, leading to flooding and persistent moisture issues in the Alert Force personnel's sleeping quarters. Therefore, mold remediation due to flooding is a constant concern at the existing facility. The risk of wildfire is increased by the proximity of nonnative grasslands to Travis AFB's exterior fence line. In the recent past, aircraft, aircrew, and detachment personnel have had to evacuate the existing Complex due to wildfires that breached the outer perimeter of the base and entered the Complex.

The Proposed Action would benefit Travis AFB airfield operations because it would provide a secure Alert Force Complex for VQ-3 Det Travis outside of the Travis AFB runway safety clear zone.

1.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with the two action alternatives and the No Action Alternative. The environmental resource areas analyzed in detail in this EA include: air quality; water resources; geological resources; cultural resources; biological resources; land use; and infrastructure.

Nine additional resource areas were considered but were not carried forward for detailed analysis in this EA because there would be no impacts (or only negligible impacts) on these resources from implementation of the alternatives. The introduction to Chapter 3 contains brief descriptions of these resource areas, their relationship to the action alternatives, and the basis for eliminating them from detailed analysis.

1.6 Key Documents

Key documents are sources of information incorporated into this EA. Documents are considered to be key because of similar actions, analyses, or impacts that may apply to this Proposed Action. CEQ

guidance encourages incorporating documents by reference. Documents incorporated by reference in part or in whole include:

- *Air Installation Compatibility Use Zone Study for Travis Air Force Base*; December 2009. This study is an update of the 1995 Travis AFB Air Installation Compatibility Use Zone (AICUZ) Study. The update presents and documents changes to the AICUZ amendment for the period 1995-2009. Specifically, the report documents changes in aircraft operations since the last study and provides noise contours and compatible use guidelines for land areas neighboring Travis AFB based on April 2009 operations.
- *Geoarchaeological Overview and Site Sensitivity Assessment for Travis Air Force Base, Solano County, California*; April 2017. This study was prepared in an effort to provide a geoarchaeological overview for use in ongoing Native American consultation. Far Western Anthropological Research Group, Inc., under contract to Travis AFB, developed site sensitivity models for both surface and subsurface archaeological deposits on the base and outlying facilities managed by the base.
- *Programmatic Biological Assessment: Effects of Activities Conducted at Travis Air Force Base, California, on Six Federally Threatened and Endangered Species*; March 2017. This Programmatic Biological Assessment (PBA) evaluates the potential effects of routine activities conducted at Travis AFB on species that are regulated by the USFWS under the federal ESA. The action area for the routine activities includes Travis AFB, as well as the Geographically Separated Units (GSU) owned by Travis AFB.
- *Biological Assessment for the P205 Alert Force Complex Project at Travis Air Force Base*. June 2019. This study was prepared to assess potential project impacts to federally listed species with the potential to occur near the project impact areas.
- *Biological Opinion on the P205 Alert Force Complex Project at Travis Air Force Base*. April 8, 2019; Amended June 5, 2019. This biological opinion (BO) was issued by the USFWS to conclude Section 7 consultation for CTS, VPFS, VPTS, and DGGB.
- *Travis Air Force Base Integrated Cultural Resources Management Plan* (ICRMP); January 2016. This ICRMP Revision is a five-year plan and covers fiscal years (FY) 2015 through 2020. The revised plan is divided into sections that provide the information and processes for managing cultural resources on Travis AFB and interacting with the State Historic Preservation Officer (SHPO), and Tribal Historic Preservation Officers (THPO) for tribes with an interest in activities at Travis AFB.
- *Travis Air Force Base Integrated Natural Resources Management Plan* (INRMP); July 2016. This INRMP was developed to provide interdisciplinary strategic guidance for natural resources management at Travis AFB for a period of five years (2015-2020). This INRMP complies with Air Force Instruction 32-7064 and Department of Defense (DoD) Instruction 4715.13*, Natural Resources Conservation Program*, to set forth the specific activities that would be implemented to manage natural resources at Travis AFB, while ensuring that the base's DoD primary mission requirements are met.
- *Travis Air Force Base Installation Development Plan*; March 2016. The Installation Development Plan is the result of a comprehensive planning process that describes the installation's past, present, and future physical state and guides future facility programming decisions. The

Installation Development Plan plans development for the next 15 to 20 years, but it is a living document that will be periodically updated to reflect the ongoing strategic vision of the base.

- *Travis Air Force Base Jurisdictional Determination*; July 2016. The preliminary jurisdictional determination was signed by Holly Costa, Acting Chief of the U.S. Army Corps of Engineers, San Francisco District. The determination was transmitted to Mr. Brian Sassaman, Flight Chief, at Travis Air Force Base on July 19, 2016.
- *Travis Air Force Base Wetlands and Waters of the United States Final Data*; June 2016. This wetland delineation map set was developed by URS in 2014 to depict the locations of wetlands and waters of the U.S. within the Travis AFB boundary. The wetland delineation map set was updated by Travis AFB staff in May 2016.

Documents incorporated herein by reference are available upon request during the public review period by contacting the Navy via the information provided above in the Abstract.

1.7 Relevant Laws and Regulations

The Navy has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including the following:

- National Environmental Policy Act (NEPA) (42 United States Code [USC] sections 4321–4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations parts 1500–1508)
- Navy regulations for implementing NEPA (32 Code of Federal Regulations part 775), which provides Navy policy for implementing Council on Environmental Quality regulations and NEPA
- Clean Air Act (42 U.S.C. section 7401 et seq.)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- National Historic Preservation Act (54 U.S.C. section 306108 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. section 703–712)
- Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. section 9601 et seq.)
- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)
- Toxic Substances Control Act (15 U.S.C. sections 2601–2629)
- Executive Order (EO) 11988, Floodplain Management
- EO 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- 32 CFR 989, Environmental Impact Analysis Process

A description of the Proposed Action's consistency with these laws, policies and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 5 (Table 5-1).

1.8 Public and Agency Participation and Intergovernmental Coordination

Regulations from the CEQ direct agencies to involve the public in the development of their environmental impact analyses under NEPA.

The Navy has prepared this Final EA with cooperation from the Air Force to inform the public of the Proposed Action and to provide an opportunity for public review and comment. The Draft EA was circulated for public review from October 4, 2019 through November 4, 2019, and the review period began with a public notice published in the *Vacaville Reporter*, *The Daily Republic* (Fairfield/ Suisun), and *Travis AFB Tailwind* indicating the availability of the Draft EA and the locations where public review copies are available. The Draft EA was also made available on the Navy Region Southwest website (http://www.navy.mil/local/cnrsw/) and the Travis AFB Environmental Compliance website (http://www.travis.af.mil/Environment/Compliance/).

The Navy published a Notice of Availability of the Draft EA for three consecutive days in the *Vacaville Reporter*, *The Daily Republic* (Fairfield/Suisun), and *Travis AFB Tailwind* on the dates of October 4-6, 2019. The notice described the Proposed Action, solicited public comments on the Draft EA, provided dates of the public comment period, and announced that a hard copy and CD of the Draft EA would be available for review at the following locations:

1. Fairfield Civic Center Library, 1150 Kentucky Street, Fairfield, CA 94533
2. Suisun City Library, 601 Pintail Drive, Suisun City, CA 94585
3. Vacaville Public Library Cultural Center, 1020 Ulatis Drive, Vacaville, CA 95688
4. Mitchell Memorial Library, 510 Travis Boulevard, Travis AFB, CA 94535

No public comments were received on the Draft EA.

The Navy and Air Force solicited advance public comment on the proposed project in accordance with Executive Order 11990, Protection of Wetlands, because approximately 0.05 acre of wetlands would be directly impacted by the proposed project. The public notice was published in the *Vacaville Reporter*, *The Daily Republic* (Fairfield/Suisun), and *Travis AFB Tailwind* starting June 8, 2018 through June 10, 2018, and public comments were accepted between June 18, 2018 and July 19, 2018. No comments were received during the advance public notice period.

The Intergovernmental Coordination Act and Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, require federal agencies to consider state and local views in implementing a federal proposal. Air Force Instruction 32-7062, *Comprehensive Planning*, requires federal agencies to consider state and local views in implementing a federal proposal. Accordingly, Travis AFB implements an Interagency and Intergovernmental Coordination for Environmental Planning process for the purpose of agency coordination. Through the Interagency and Intergovernmental Coordination for Environmental Planning process Travis AFB notifies relevant federal, state, and local agencies and the surrounding communities of the action proposed and provides them sufficient time to make known their environmental concerns specific to the action.

In accordance with DoD Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes,* EO 13175, *Consultation and Coordination with Indian Tribal Governments,* and Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulation at 36 CFR Part 800, federal agencies are required to consult with interested federally recognized tribes. The Air Force installation commander would initiate government-to-government (G2G) consultation with tribes when proposing an action that may have the potential to impact protected tribal resources, tribal rights, or tribal lands significantly. Government-to-government relationships must be established to identify concerns and ensure impacts to areas of sacred or spiritual significance are fully considered for those tribes for which an impact could occur. Consultation with two federally recognized tribes, the Cortina Band of Indians and the Yocha Dehe Wintun Nation, and the State Historic Preservation Office (SHPO) has been completed for the Proposed Action as part of the NEPA and Section 106 processes (see Appendix B for Tribal Government-to-Government Documentation).

If cultural or archaeological resources are inadvertently disturbed during demolition or construction, action would be taken in accordance with the following contingency plan:

- All activities are performed in compliance with the *Integrated Cultural Resources Management Plan* (Travis AFB, 2016a).
- If human remains or archaeological or cultural artifacts are discovered during construction, work would temporarily cease, and the Air Force cultural resources manager would be contacted.
- If any new information or cultural items were to be found, Travis AFB would notify local Native American tribes.

Consultation with the United States Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA) has been completed for potential impacts CTS, VPFS, VPTS, and DGGB. The USFWS issued a BO for the proposed project on April 8, 2019 and an amended BO on June 5, 2019 (see Appendix C for Section 7 consultation documentation).

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2 Proposed Action and Alternatives

2.1 Proposed Action

The Proposed Action would include the construction of a new Alert Force Complex (Complex) for the Navy's VQ-3 Det Travis outside the runway safety clear zone at Travis AFB. The new Complex would occupy approximately 8.4 acres, north of the Travis AFB runways. A real estate agreement and associated environmental baseline survey between the Navy and Air Force for the construction and operation of the proposed new facilities is also part of the Proposed Action. The Proposed Action would also include the demolition of fourteen buildings within the existing Complex (Buildings 1162, 1165, 1167, 1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894). Buildings 1164, 1177, and 1179 would not be demolished.

2.2 Screening Factors

NEPA's implementing regulations provide guidance on the consideration of alternatives to a federally proposed action and require rigorous exploration and objective evaluation of reasonable alternatives. Only those alternatives determined to be reasonable and to meet the purpose and need require detailed analysis.

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

- Corrects critical capacity, condition, and configuration issues that currently degrade mission capability and threaten continuity of communication capabilities.
- Must meet the around-the-clock (i.e., "24/7") operational requirements.
- Location of support facilities and aircraft parking must meet the security requirements.
- Siting of support facilities and aircraft parking must allow Navy personnel to meet national security "on alert" time constraints.
- Avoids the Travis AFB runway safety clear zone.

Various alternatives were evaluated against the screening factors. The alternatives considered include:

- No Action Alternative
- Alternative 1 – Complete Alert Force Complex Relocation
- Alternative 2 – Partial Alert Force Complex Relocation

2.3 Alternatives Carried Forward for Analysis

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

2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. The VQ-3 Det Travis mission at Travis AFB would be put in jeopardy, as it cannot be sustained without appropriate recapitalization of existing facilities. If new facilities are not provided, the E-6B aircrew and Navy personnel would continue to work in the current facilities located within the Travis AFB runway safety clear zone. The No Action

Alternative would not meet the purpose and need for the Proposed Action; however, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for analysis.

2.3.2 Alternative 1 – Complete Alert Force Complex Relocation

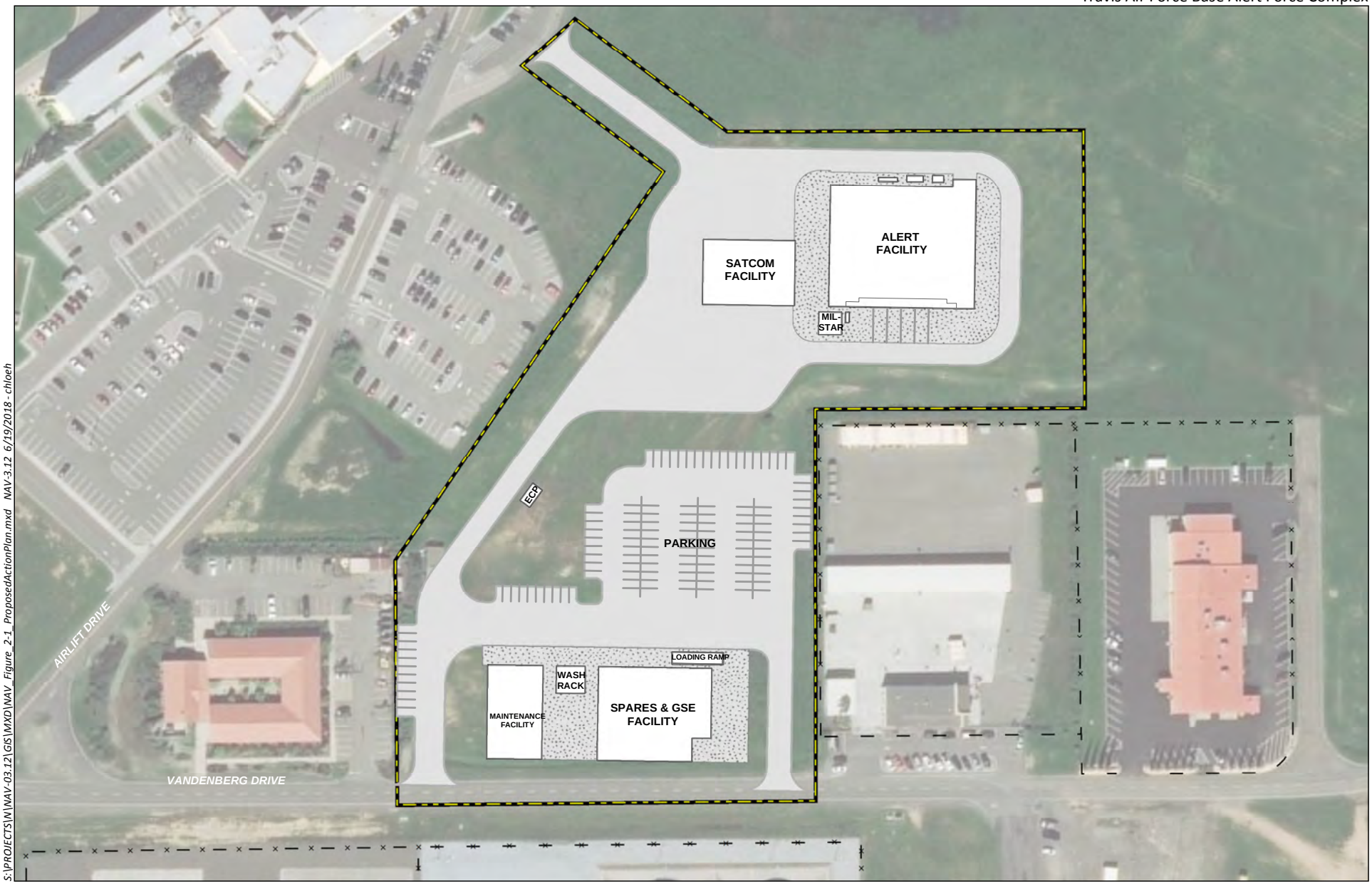
Under Alternative 1 – Complete Alert Force Complex Relocation (Alternative 1), the following existing facilities near the southern boundary of Travis AFB would be demolished: Buildings 1162, 1165, 1167, 1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894. Buildings 1164, 1177, and 1179 would remain and be returned to the Air Force. The demolition plan is to remove the buildings and structures, building pads, foundations, utilities, and fencing for buildings and structures within the current fenced in area. Existing utilities would be capped approximately five feet from the existing building slated for demolition, and the depth of existing utilities is typically three feet below ground surface. The site would be left vacant, with no future plans to redevelop as it is within the Travis AFB runway clear zone, and construction within the clear zone is prohibited.

As part of Alternative 1, a real estate agreement between the Navy and Air Force would be signed to allow a new Complex to be constructed and operated outside of the runway safety clear zone, located north of the Travis AFB runways on vacant land east of Building 350. The proposed Complex would include an Alert Force/Security Facility, an Entry Control Point/Gatehouse (ECP), Satellite Communication (SATCOM) Facility and aircraft ground equipment (AGE) maintenance repair and aircraft storage facilities. The Alert Force/Security and SATCOM facilities would be fenced within a secure inner compound supported by the ECP/Gatehouse, and all facilities within the proposed Complex would be constructed in areas where the proposed development would be compliant with Travis AFB's Installation Development Plan.

Alternative 1 includes the construction of an approximately 17,500-sf, two-story Alert Force building. The Alert Force building would be located within the proposed Complex and include a controlled access operations control center and communication center, personnel sleeping quarters, galley, recreational areas, administrative spaces and security spaces (Figure 2-1). West of the Alert Force building, a SATCOM facility would be constructed and reinforced concrete pad for the SATCOM antenna with dome. An aircraft maintenance repair complex is proposed near the southern boundary of the site and would include a maintenance facility, aircraft spare parts and GSE maintenance and repair facility, loading dock, and outdoor washrack. Construction of an ECP/Gatehouse is proposed near the western boundary of the proposed site and would include a single-story physical inspection building. A total of approximately 154 parking spaces would be provided throughout the new Complex.

The Complex would provide AT/FP features and comply with AT/FP regulations, and physical security mitigation in accordance with DoD Minimum Anti-Terrorism Standards for Buildings. AT/FP features would include security fencing, vehicle barriers, security gates, intrusion detection system, closed-circuit television and pedestrian turnstiles.

The proposed new site location would allow for two access routes to the new aircraft parking, north of the flight line, while meeting the Navy's time requirements. The proposed Complex site would utilize existing Travis AFB aircraft parking spaces for at least two E-6B Mercury aircrafts to be parked near the new facility at all times. If a third aircraft is located at Travis AFB, it may be parked in any existing airplane parking space on base. A range of potential parking spaces is analyzed in this EA; however, no new construction is required for the aircraft parking.



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Source: Travis AFB, Esri 2017

Proposed Complex Site
Fence
Proposed Buildings & Facilities
Concrete Paving
Vehicle Pavement

0 150 Feet

Alternative 1 - Complete Relocation

Figure 2-1

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Site preparation for the new Complex would include site clearing, trenching for utilities, and preparation for construction. Paving and site improvements include grading, parking, roadways, curbs, sidewalks, landscaping and pedestrian features. Improvements also include the GSE washrack. The construction laydown area designated for the proposed project is a one-acre plot of land on the southeast corner of Vandenberg Drive and Baker Drive, approximately 250 feet east of the Alternative 1 area.

Electrical utilities would include primary and secondary distribution systems, high altitude electromagnetic pulse protected emergency generators and uninterrupted power suppliers, lighting, transformers, and telecommunications infrastructure. Mechanical utilities would include water lines, gas lines, sanitary sewer lines, fire protection systems, and supply lines. Current VQ-3 Det Travis operations are supported by five existing generators that would be relocated and reused to support the new Complex north of the Travis AFB runways. The relocation of the facilities as proposed would be more cost effective by avoiding the installation of substantial utility connections under the runways.

If approved, the project would break ground in June 2020, taking approximately 30 months to complete the construction of the new Complex and demolition of the existing Complex. Because there cannot be any interruption in the VQ-3 Det Travis operation, demolition of the existing Complex would not occur until the construction of the new Complex and relocation of VQ-3 Det Travis is complete.

2.3.3 Alternative 2 – Partial Alert Force Complex Relocation

Under Alternative 2 – Partial Alert Force Complex Relocation (Alternative 2), the Navy would continue to utilize Buildings 1164, 1177 and 1179, which are outside the runway safety clear zone, and relocate all other facilities to the proposed site for the new Complex described in Alternative 1. Building 1177 would continue to be used to store spare parts and tires for the E-6B Mercury aircrafts, and Building 1179 would continue to be used for GSE repair and to store spare parts for the aircraft. Additionally, the existing wash rack would remain, as would the CONEX box (military shipping container box) between the two buildings (See Figure 2-2).

This alternative would alleviate construction of the Basic Facility Requirements of 8,750 sf of aircraft-related storage space and 3,356 sf of GSE rework shop at the new Complex site north of the runways. However, under this alternative, an additional 800 sf would need to be provided on the proposed Complex site to support “ready for use” GSE that is currently maintained at Building 1179. The additional square footage is necessary at the proposed Complex location because the “ready for use” GSE must be located close to the aircrafts which would be relocated north of the runways. Because this alternative would eliminate the need to construct the aircraft-related storage space and GSE rework shop, the proposed new Complex would be approximately 526 sf short of warehouse and GSE space under Alternative 2, as determined by Basic Facility Requirements.

Alternative 2 would require a total of six generators. Up to five existing generators that currently support the VQ-3 Det Travis operations would be relocated and reused to support the new Complex. The generator that supports Buildings 1177 and 1179 may remain in place, but an additional generator would be necessary at the proposed site to support the “ready for use” GSE that is currently maintained at Building 1179. Similar to Alternative 1, this alternative would include the demolition of fourteen existing facilities (Buildings 1162, 1165, 1167,1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894). Additionally, at least two aircraft parking spaces for the E-6B Mercury aircrafts would be provided near the new Complex, as described under Alternative 1.

Alternative 2 would also require trenching, approximately 3 feet in depth, to connect proposed utilities to existing utility connections adjacent to the proposed site. There would also be a need for redundant or backup utilities to support the proposed Complex.

Some deficiencies with Alternative 2 are that this alternative would require some of the functions of Buildings 1177 and 1179 to be duplicated at the new Complex site to adequately support the mission and E-6B Mercury aircrafts, and Buildings 1164, 1177, and 1179 would remain within an area subject to wildfire due to proximity to private land off Base. Security response times for Buildings 1164, 1177, and 1179 would drastically increase due to Navy Security Force moving to the north side of the Travis AFB runways. This would result in increased security force manning to provide requisite protection.

2.4 Alternatives Considered but not Carried Forward for Detailed Analysis

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

2.4.1 Relocation to Alternate West Coast Base

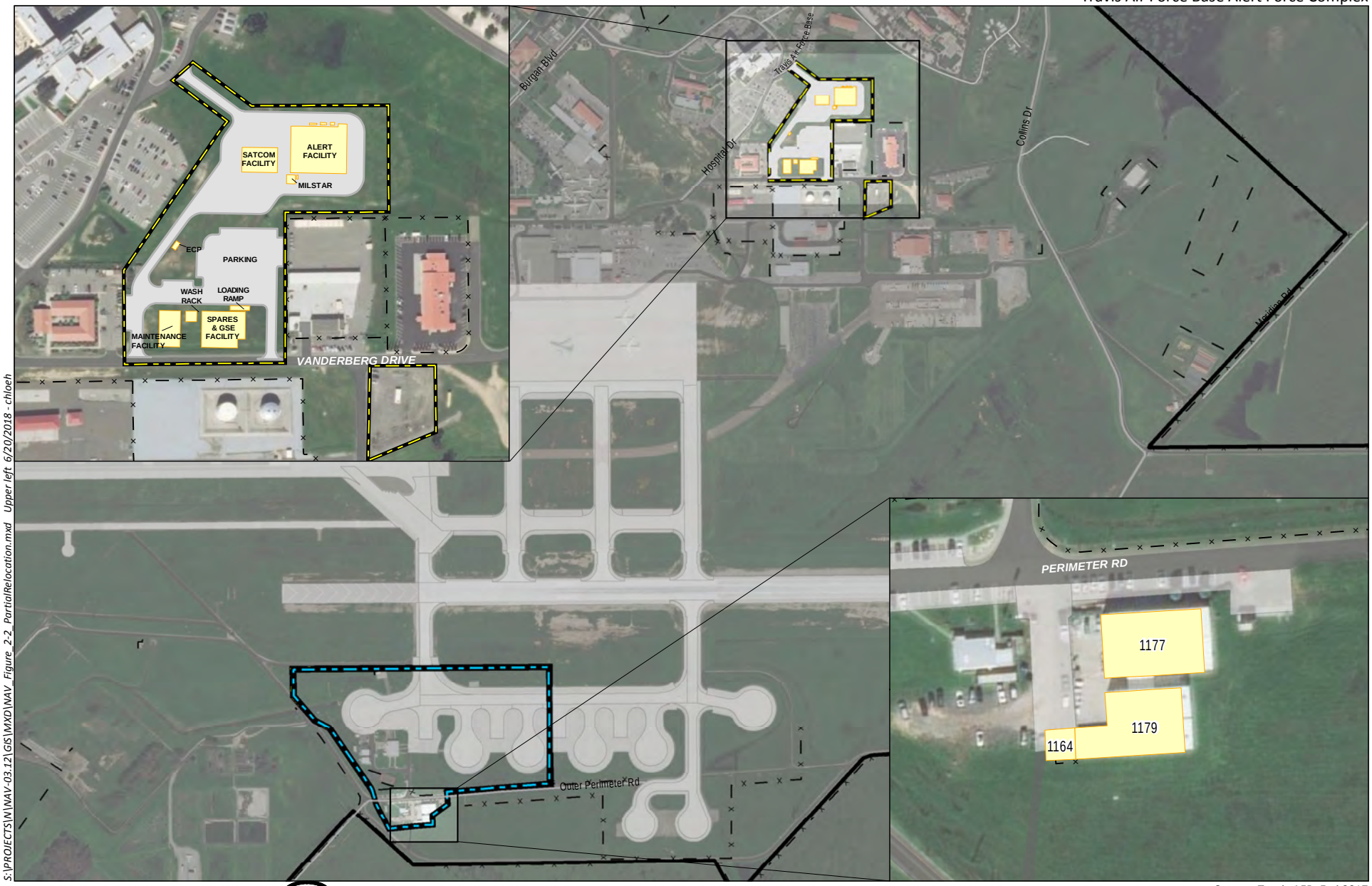
Under this alternative, the existing Complex on Travis AFB would be decommissioned, and the VQ-3 would relocate to another base on the west coast. Other bases considered did not provide adequate runways to support the three E-6B aircrafts, 24/7 operational capacity, support facilities and aircraft parking that met security requirements for the VQ-3 mission, and/or siting of support facilities and aircraft parking would not allow for Navy personnel to meet “on alert” time constraints. This alternative was considered but is not being carried forward for detailed analysis in the EA because none of the military bases on the west coast could meet all of the physical and/or operational requirements needed for the mission described above in Section 1.4.

2.4.2 Reconstruct the Alert Force Complex in Existing Location

Under this alternative, most of the existing Complex would be demolished and reconstructed in place. Demolition and reconstruction of the facilities without having other facilities to sustain the mission would not meet the purpose and need of the project. This alternative was considered but is not being carried forward for detailed analysis in the EA because there cannot be any lapse in mission operation, and the construction of new buildings within the runway safety clear zone of Travis AFB is prohibited.

2.4.3 Best Management Practices Included in Proposed Action

This section presents an overview of the best management practices (BMPs) that are incorporated into the Proposed Action in this document. BMPs are existing policies, practices, and measures that the Navy would adopt to reduce the environmental impacts of designated activities, functions, or processes. Although BMPs mitigate potential impacts by avoiding, minimizing or reducing/eliminating impacts, BMPs are distinguished from potential mitigation measures because BMPs are (1) existing requirements for the Proposed Action, (2) ongoing, regularly occurring practices, or (3) not unique to this Proposed Action. In other words, the BMPs identified in this document are inherently part of the Proposed Action and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action. Table 2-1 includes a list of BMPs. Mitigation measures are discussed separately in Chapter 3.



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Source: Travis AFB, Esri 2017

Alternative 2 - Partial Relocation

Figure 2-2

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Table 2-1 Best Management Practices

BMP	*Description*	*Impacts Reduced/Avoided*
Asbestos-containing material abatement in demolition projects	Demolition projects need to include a comprehensive assessment of asbestos-containing material. If asbestos information is lacking or incomplete, an asbestos survey will be conducted by a qualified contractor. The survey shall include: • Review of available data on asbestos-containing material for planned work area. • Review of as-builts and record drawings for the building. Review of renovation and alteration plans to identify affected areas and location and extent of demolition and alteration/modification work. • Intrusive testing of concealed materials behind permanent walls or above permanent ceilings which would be disturbed during the work. • A report inventorying asbestos-containing material that will be disturbed, abatement and safety requirements, and a cost estimate for abating the asbestos-containing material. The report will follow the guidelines included in Appendix A of the Travis Air Force Base Asbestos Management Plan (Travis AFB, 2004). All abatement associated with demolition work shall be conducted by a qualified asbestos abatement contractor.	Reduces potential hazards associated with the removal of asbestos-containing materials during demolition activities.
Lead abatement and demolition projects	Lead-based paint demolition projects at Travis AFB need to include the following as a minimum: • Identification of qualified testing and abatement contractors. • Development of an appropriate lead testing plan. • Lead coating inspection survey and sample reports. • Lead sampling laboratory results. • Development of applicable lead abatement action details (scope of work and itemization of actual materials to be abated). • Lead containing material abatement methods (type of abatement).	Reduces potential hazards associated with the removal of lead-based paint during demolition activities.

BMP	*Description*	*Impacts Reduced/Avoided*
	• Project location, start, and completion dates. • Contractor's names, addresses, and points of contact. • Contractor registrations and California Department of Public Health certifications. • Occupant protection procedures. • Worker protection procedures. • Work site containment preparation procedures. • Controlling offsite contamination procedure. • Daily cleanup procedures. • Final cleanup and clearance procedure. • Abatement worker blood lead level testing results. • Perimeter and worker exposure monitoring results. • Visual inspection and clearance wipe testing results by pre-approved third, independent consultant. • Photographs before and after lead abatement work areas. • Abatement of Lead Hazards Notification From, most current California Department of Public Health Form 8551. • Cal-OSHA Lead-Work Pre-Job Notification Form. • Lead waste disposal information including copies of manifests and identification of pre-approved waste transporter(s) and disposal facility(s). • Name of inspectors, testing laboratory, and other key individuals involved in the project. • Itemization of actual materials abated and actual methods used in abatement. • Summary of problems if any and how they were resolved.	
Management of Polychlorinated Biphenyls (PCBs)	The contractor is responsible for properly managing PCBs and waste generated from PCB-contaminated materials including light ballasts. Proper management includes but is not limited to handling, marking, labeling, packaging, transporting, and disposing of PCBs. When managing PCBs, the contractor must follow Federal, state, and local	Reduces potential PCB-related impacts.

BMP	*Description*	*Impacts Reduced/Avoided*
	procedures for handing PCBs above 50 parts per million. California regulates PCBs as hazardous waste above five parts per million. Because of the danger PCBs pose to human health, the contractor shall ensure measures are in-place to prevent injury to personnel, accidental releases, and environmental contamination. Spilled material must be cleaned-up promptly and reported to the contracting officer. If any amount of spilled material contacts, or has the potential to contact water, soil, or drain (sanitary or storm), the contractor shall call (707) 424-911 (if utilizing a telephone on base) immediately. Waste PCB material cannot remain on-site for more than 90 days. While in storage, the contractor shall comply with all applicable requirements that govern PCB hazardous waste management. A representative from 60 CES/CEIE must sign all manifests for PCBs destined for disposal. The contractor must provide laboratory analysis for all manifested PCBs.	
Erosion and sediment controls	Erosion and sediment controls would be in place during demolition and construction to reduce and control siltation or erosion impacts on areas outside the proposed construction sites. Best management practices to be implemented during demolition and construction include, but are not limited to, the following: • Keep dust and particles damp, only enough water for dust control. Do not create runoff. o Spray water on structures being demolished. o Spray water on debris piles being moved or loaded for hauling off Base. o Spray water on areas being graded or excavated as well as access roads and parking areas being traveled by equipment. o Use covered roll-off dumpsters to minimize handling and exposure to wind; cover at the end of every shift. • Covers	Reduces potential dust and stormwater runoff-related impacts.

BMP	*Description*	*Impacts Reduced/Avoided*
	o Keep debris piles covered when windy or until site removal has occurred by using a secured tarp with ropes, weighted sand bags and/or securely fasten with stakes. o Prevent rain from washing away soil. o Prevent soil from becoming saturated and sliding. • Vegetation o Preserve existing vegetation. o Maintain 50-foot vegetated buffer strip to all waterways. o Divert flow away from exposed soil. o Slow flow to reduce velocity and erosion. o Filter flow to remove sediment. o Retain flow to allow percolation and reduce runoff.	
Limit work in poor weather conditions	Avoid working in the rainy season or during high wind events.	Reduces potential stormwater runoff-related impacts.
Location of washrack	Concrete washouts and other cleaning areas would be located where they cannot reach surface waters.	Reduces potential stormwater runoff-related impacts.
Maintenance of stormwater catchments	Catch basins and grates would be cleaned of dirt and debris to prevent blocking pipes.	Reduces potential stormwater runoff-related impacts.
Maintenance of construction stockpiles	Material and stockpiles would be properly covered to prevent rain from washing away soils.	Reduces potential stormwater runoff-related impacts.
On-site drainage	Stormwater runoff generated from within the facility would be diverted away from all stockpiled materials.	Reduces potential stormwater runoff-related impacts.
Protective covering of soil	Use of protective cover, such as mulch, straw, plastic netting, or a combination of these protective coverings.	Reduces potential erosion impacts.
Limit soil exposure	Implementation of site grading procedures to limit the time soils are exposed prior to being covered by impermeable surfaces or vegetation.	Reduces potential erosion impacts.
Stormwater diversions during construction	Implementation of stormwater diversions to reduce water flow through exposed sites.	Reduces potential erosion impacts.
Vegetation buffer for water quality	Maintenance of a buffer strip of vegetation around a pond or drainage, where possible, to filter sediments.	Reduces potential erosion impacts.
Preservation of vegetation	Retention of as many trees and shrubs as possible adjacent to exposed ground areas for use as natural windbreaks.	Reduces potential erosion impacts.

3 Affected Environment and Environmental Consequences

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

All potentially relevant environmental resource areas were initially considered for analysis in this EA. In compliance with NEPA, the CEQ, and Department of Navy guidelines; the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to more than negligible impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact.

"Significantly," as used in NEPA, requires considerations of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant. Intensity refers to the severity or extent of the potential environmental impact, which can be thought of in terms of the potential amount of the likely change. In general, the more sensitive the context, the less intense a potential impact needs to be in order to be considered significant. Likewise, the less sensitive the context, the more intense a potential impact needs to be in order to be considered significant.

This section includes air quality, water resources, geological resources, cultural resources, biological resources, land use, and infrastructure.

The potential impacts to the following resource areas are considered to be negligible or non-existent so they were not analyzed in detail in this EA:

Agricultural Land: According to the California Department of Conservation's California Important Farmland Finder mapping application, the land within the Travis AFB boundary is classified as urban and built-up land or other land (CDC, 2018). Therefore, implementation of the action alternatives would have no impact on prime or unique farmland or land protected under the Farmland Protection Policy Act.

Airspace: No change in VQ-3 Det Travis personnel or mission operations would occur with implementation of the Proposed Action. Therefore, there would be no project impacts to Travis AFB airspace operations.

Noise: The existing and proposed Complex sites are located near the airfield, where noise levels currently exceed 80 dBA[1] day-night average sound level (DNL)[2]. Demolition and construction activities would be temporary and limited to regular working hours. Additionally, no sensitive noise receptors

[1] The dB is a logarithmic unit that is used to measure sound level; "A" designates a weighting scheme for frequency that approximates human perception, or an expression of the relative loudness of sounds in air as perceived by the human ear.

[2] The DNL is the average noise level over a 24-hour period. Noise between the hours of 10 p.m. and 7 a.m. is artificially increased by 10 decibels.

(e.g., housing, schools, or hospitals) are located within 0.5 mile of the existing Complex or the proposed Complex. Therefore, any potential adverse noise impacts from project demolition and construction would be short-term and considered negligible. VQ-3 Det Travis operations would remain the same, therefore having no change in noise contours or ambient noise levels at Travis AFB due to aircraft operations.

Hazardous Materials and Wastes: Hazardous materials or wastes encountered or generated during the Proposed Action would be managed in accordance with *Air Force Instruction 32-7086, Hazardous Materials Management* (Air Force, 2015); *Air Force Instruction 32-7042, Solid and Hazardous Waste Compliance* (Air Force, 2019); and the *Travis AFB Integrated Solid Waste Management Plan* (Travis AFB, 2007). The proposed Complex site is located over 1,000 feet from the nearest Environmental Restoration Program (ERP) site (LF006) and is outside its associated groundwater containment plume and does not pose any adverse impacts during project construction or operation. There are no ERP sites within the direct vicinity of the existing Complex site.

Asbestos, lead-based paints, and polychlorinated biphenyls are not evaluated in detail because these substances are not considered hazardous wastes under Resource Conservation and Recovery Act and installation management plans have been developed for handling and disposing of these materials (Travis AFB, 2004; 2013a; 2014; 2016b). Therefore, project impacts related to hazardous materials and wastes would be negligible.

Visual Resources: The proposed Complex would be constructed on a vacant piece of land within a developed portion of Travis AFB and would be situated between multiple buildings including a 193,080-sf Base Personnel Office, 15,388-sf Air Force Office, and 6,000-sf and 3,822-sf storage facilities. Both action alternatives include the demolition of the existing facilities near the southern boundary of Travis AFB. The buildings to be demolished are in poor condition and have reached the end of their serviceable life. Impacts from construction of the new Complex and demolition of the existing Complex would be negligible.

Transportation: Demolition of the existing Complex and construction of the proposed Complex would temporarily increase traffic in the project action areas, but impacts would be short-term and negligible. Operation of a new Complex north of the Travis AFB runways would have no demonstrable long-term impacts on traffic or transportation as there would be no change to the mission operations or Navy personnel. Additionally, to access the existing Complex south of the Travis AFB runways, Navy personnel must drive the perimeter of the Travis AFB airfield. Implementation of the action alternatives would significantly reduce Navy personnel's travel and response times because the new Complex would be located on the main side of Travis AFB, north of the Travis AFB runways.

Public Health and Safety: No change in VQ-3 Det Travis personnel or mission operations would occur with implementation of the Proposed Action. Therefore, there would be no project impacts to Travis AFB public health and safety.

Socioeconomics: Demolition of the existing Complex and construction and operation of a new Complex within Travis AFB would have no demonstrable long-term socioeconomic impact on the surrounding community. It would not attract a long-term worker population to the project vicinity nor affect the need for housing in the area. It is expected that the construction personnel required for proposed construction activities would be comprised of local contractors in the surrounding area. Implementation of the proposed action alternatives would have short-term beneficial effects to the economy, as

temporary construction jobs would be created. The overall effects on the local and regional economy and socioeconomic environment would be negligible.

Environmental Justice: EO 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations – directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The EO is also intended to promote nondiscrimination in federal programs that affect humans and the environment, as well as provide minority and low-income communities access to public information and public participation.

The demolition and construction activities associated with the proposed action alternatives would be contained within the Travis AFB boundaries and would not impact on- or off-base communities. Therefore, no populations (minority, low-income, or otherwise) would be disproportionately or adversely impacted, and no significant adverse impact with regard to environmental justice would occur. Implementation of the proposed action alternatives would not result in increased exposure of children to environmental health risks or safety risks such as those associated with the generation, use, or storage of hazardous materials. Standard demolition and construction site safety precautions (e.g., fencing and other security measures) would reduce potential risks to minimal levels and any potential impacts to children would be negligible and short-term.

3.1 Air Quality

This discussion of air quality includes criteria pollutants, standards, sources, permitting, and greenhouse gases. Air quality in a given location is defined by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors, including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions.

Most air pollutants originate from human-made sources, including mobile sources (e.g., cars, trucks, buses) and stationary sources (e.g., factories, refineries, power plants), as well as indoor sources (e.g., some building materials and cleaning solvents). Air pollutants are also released from natural sources such as volcanic eruptions and forest fires.

3.1.1 Regulatory Setting

3.1.1.1 Criteria Pollutants and National Ambient Air Quality Standards

The principal pollutants defining the air quality, called "criteria pollutants," include carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone, suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). CO, SO_2, Pb, and some particulates are emitted directly into the atmosphere from emissions sources. Ozone, NO_2, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes.

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for these pollutants. NAAQS are classified as primary or secondary. Primary standards protect against adverse health effects; secondary

standards protect against welfare effects, such as damage to farm crops and vegetation and damage to buildings. Some pollutants have long-term and short-term standards. Short-term standards are designed to protect against acute, or short-term, health effects, while long-term standards were established to protect against chronic health effects.

Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Areas that violate a federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment.

The CAA requires states to develop a general plan to attain and maintain the NAAQS in all areas of the country and a specific plan to attain the standards for each area designated nonattainment for a NAAQS. These plans, known as State Implementation Plans (SIP), are developed by state and local air quality management agencies and submitted to USEPA for approval.

3.1.1.2 General Conformity

The USEPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year [tpy]) vary by pollutant and also depend on the severity of the nonattainment status for the air quality management area in question.

A conformity applicability analysis is the first step of a conformity evaluation and assesses if a federal action must be supported by a conformity determination. This is typically done by quantifying applicable direct and indirect emissions that are projected to result due to implementation of the federal action. Indirect emissions are those emissions caused by the federal action and originating in the region of interest, but which can occur at a later time or in a different location from the action itself and are reasonably foreseeable. The federal agency can control and will maintain control over the indirect action due to a continuing program responsibility of the federal agency. Reasonably foreseeable emissions are projected future direct and indirect emissions that are identified at the time the conformity evaluation is performed. The location of such emissions is known and the emissions are quantifiable, as described and documented by the federal agency based on its own information and after reviewing any information presented to the federal agency. If the results of the applicability analysis indicate that the total emissions would not exceed the *de minimis* emissions thresholds, then the conformity evaluation process is completed. *De minimis* threshold emissions are presented in Table 3-1.

3.1.1.3 Permitting

3.1.1.4 Greenhouse Gases (GHG)

GHGs are gas emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative economic and social consequences across the globe.

Table 3-1 General Conformity *de minimis* levels

Pollutant	*Area Type*	*tpy*
Ozone (VOC or NOx)	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NOx)	Marginal and moderate nonattainment inside an ozone transport region	100
	Maintenance	100
Ozone (VOC)	Marginal and moderate nonattainment inside an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
Carbon monoxide, SO_2 and NO_2	All nonattainment & maintenance	100
Fine Particulate Matter (PM_{10})	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
Very Fine Particulate Matter ($PM_{2.5}$) Direct emissions, SO_2, NOx (unless determined not to be a significant precursor), Volatile Organic Compounds, or ammonia (if determined to be significant precursors)	All nonattainment & maintenance	100
Lead (Pb)	All nonattainment & maintenance	25

VOC = Volatile Organic Compound

USEPA issued the Final *Mandatory Reporting of Greenhouse Gases Rule* on September 22, 2009. GHGs covered under the Final *Mandatory Reporting of Greenhouse Gases Rule* are carbon dioxide (CO_2), methane, nitrogen oxide (NO_x), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers. Each GHG is assigned a global warming potential. The global warming potential is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential rating system is standardized to CO_2, which has a value of one. The equivalent CO_2 rate is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emissions rate representing all GHGs. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of mobile sources and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions as CO_2e are required to submit annual reports to USEPA.

In an effort to reduce energy consumption, reduce GHGs, reduce dependence on petroleum, and increase the use of renewable energy resources the Navy has implemented a number of renewable energy projects. The Navy has established Fiscal Year 2020 GHG emissions reduction targets of 34 percent from a FY 2008 baseline for direct GHG emissions and 13.5 percent for indirect emissions.

Examples of Navy-wide GHG reduction projects include energy efficient construction, thermal and photovoltaic solar systems, geothermal power plants, and the generation of electricity with wind energy. The Navy continues to promote and install new renewable energy projects.

3.1.2 Affected Environment

Travis AFB is located in central Solano County, which is at the eastern edge of the San Francisco Bay Area Air Basin (Basin). The Basin is under the jurisdiction of the Bay Area Air Quality Management District as mandated by the California Air Resources Board (CARB). Only the golf course at Travis AFB extends into a neighboring jurisdiction, the Yolo-Solano Air Pollution Control District. The Basin has been assessed for compliance with California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). Three air quality designations can be given to an area for a particular pollutant:

- **Nonattainment:** Ambient air quality monitoring data indicate that standards have not been consistently achieved.
- **Attainment:** Air quality standards are not being violated.
- **Unclassified:** There is not enough monitoring data to determine whether the area is in nonattainment or attainment.

Maintenance areas are the former nonattainment areas that are now consistently meeting the NAAQS and have been reclassified by the EPA from "nonattainment" to "attainment with a maintenance plan." For federal standards, Solano County is designated nonattainment for 8-hour ozone and $PM_{2.5}$ and is in maintenance for carbon monoxide (CO). On 16 February 2018, the U.S. Court of Appeals for the D.C. Circuit partially vacated the EPA's 2008 Ozone NAAQS implementation rule (Case No. 15-1115, South Coast Air Quality Management District v. EPA). In light of this ruling, attainment status under General Conformity may be reinstated for areas that were attainment for the more stringent 2008 Ozone NAAQS but were designated nonattainment for the 1997 Ozone NAAQS before 6 April 2015 (and are not nonattainment and/or maintenance for any other criteria pollutant). Due to wording in the Court's decision, it is not completely clear if General Conformity will be reinstated for areas that were designated in attainment for the more stringent 2008 Ozone NAAQS but were designated maintenance for the 1997 Ozone NAAQS before 6 April 2015 (and are not nonattainment and/or maintenance for any other criteria pollutant). The EPA is currently reviewing the ruling and considering options. At this time, EPA guidance has not been issued. All other criteria pollutants are designated attainment or are unclassified.

The most recent emissions inventory for Solano County is shown in Table 3-2. VOC and NO_x emissions are used to represent ozone generation because they are precursors of ozone.

Table 3-2 Solano County Air Emissions Inventory (2012)

Location	*NO_x (tpy)*	*VOC (tpy)*	*CO (tpy)*	*SO_2 (tpy)*	*PM_{10} (tpy)*	*$PM_{2.5}$ (tpy)*
Solano County	26.38	22.16	74.86	0.70	12.59	4.15

Source: CARB 2016
Key: tpy = tons per year.

Emission sources associated with the existing use of Travis AFB include civilian and military personal vehicles and commercial and military vehicles. Travis AFB operates under a Synthetic Minor Operating Permit from the Bay Area Air Quality Management District (Site #A0770).

3.1.3 Environmental Consequences

Effects on air quality are based on estimated direct and indirect emissions associated with the action alternatives. The region of influence (ROI) for assessing air quality impacts is the air basin in which the project would be located, the San Francisco Bay Area Air Basin.

Estimated emissions from a proposed federal action are typically compared with the relevant national and state standards to assess the potential for increases in pollutant concentrations.

3.1.3.1 No Action Alternative

Under the No Action Alternative, neither action alternative would occur, and there would be no change to baseline air quality. Therefore, no significant impacts to air quality or air resources would occur with implementation of the No Action Alternative.

3.1.3.2 Alternative 1 – Complete Alert Force Complex Relocation Potential Impacts

Implementation of Alternative 1 would include the construction of a new Complex for the Navy's VQ-3 Det Travis outside the runway safety clear zone at Travis AFB. The new Complex would occupy approximately 8.4 acres north of the Travis AFB runways. Alternative 1 would include the demolition of fourteen existing facilities (Buildings 1162, 1165, 1167, 1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894). Buildings 1164, 1177, and 1179, which are outside of the runway safety clear zone, would not be demolished as part of Alternative 1 but would be returned to the Air Force for their reuse. Demolition and construction activity would begin as early as June 2020 and take up to approximately 30 months to complete.

General Conformity

Demolition and construction emissions would include emissions associated with off-road and on-road construction equipment and worker vehicles. Demolition and construction is assumed to begin in 2020 and last approximately 30 months. Once completed, there would be no change in personnel or mission operations. Therefore, no long-term significant impacts on air quality are expected.

Table 3-3 shows the estimated demolition and construction emissions generated under Alternative 1. Emissions of pollutants subject to General Conformity are below their respective *de minimis* values. Detailed construction assumptions and emissions calculations are provided in Appendix A.

Table 3-3 Estimated Emissions (tons) at Travis AFB and Comparison to General Conformity Under Alternative 1

Year	*VOC*	*CO*	*NO_X*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
2020	0.23	1.40	1.46	0.00	7.04	0.07
2021	0.32	1.96	1.98	0.01	0.10	0.09
2022	0.60	1.31	1.30	0.00	0.22	0.06
General Conformity *de minimis* Threshold	100	N/A	100	N/A	N/A	100

Emissions calculations provided in Appendix A

Implementation of Alternative 1 would result in emissions of air pollutants during demolition and construction only. As shown in Table 3-3, emissions would be below *de minimis* levels. Therefore, implementation of Alternative 1 would not result in a significant adverse impact related to air quality.

Greenhouse Gases

Implementation of Alternative 1 would contribute directly to emissions of GHGs from the combustion of fossil fuels. Demolition, construction, and clearing activities would generate approximately 1,041 tons (945 metric tons) of CO_2e if the proposed activities occurred beginning 2020, as detailed in Appendix A. Once completed, there would be no change in personnel or mission operations. Therefore, no long-term significant impacts on GHGs would occur. This limited amount of emissions would not contribute to global warming to any discernible extent.

Alternative 1 would result in emissions of air pollutants during demolition and construction only. BMPs for dust and particulate control apply mostly to building demolition and grading. During construction activities, which may include demolition, grading, or excavating, disturbed soil and soil piles would be protected to prevent wind and rain erosion. Exposed soil surfaces would be stabilized as soon as possible through suitable vegetation, mulch, geotextile blankets, or other suitable material to support vegetation (Travis AFB, 2015a). The erosion and sediment control BMPs listed in Table 2-1 would be implemented to reduce potential impacts from fugitive dust emissions during project demolition and construction.

Therefore, implementation of Alternative 1 would not result in significant impacts to air quality.

3.1.3.3 Alternative 2 – Partial Alert Force Complex Relocation Potential Impacts

Alternative 2 would have similar or less impacts as those described under Alternative 1. Therefore, implementation of this action alternative would not result in significant impacts to air quality.

3.2 Water Resources

This discussion of water resources includes groundwater, surface water, wetlands, and floodplains. This section also discusses the physical characteristics of wetlands; wildlife and vegetation are addressed in Section 3.5, Biological Resources.

Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater is used for 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. Sole source aquifer designation provides limited protection of groundwater resources which serve as drinking water supplies.

Surface water resources generally consist of wetlands, vernal pools, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale.

Wetlands are jointly defined by USEPA and United States Army Corps of Engineers (USACE) as “those areas that are inundated or saturated by surface or ground water 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.”

Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse array of plants and animals. In their natural vegetated state, floodplains

slow the rate at which the incoming overland flow reaches the main water body. Floodplain boundaries are most often defined in terms of frequency of inundation, that is, the 100-year and 500-year flood. Floodplain delineation maps are produced by the Federal Emergency Management Agency and provide a basis for comparing the locale of the Proposed Action to the floodplains.

3.2.1 Regulatory Setting

The Safe Drinking Water Act is the federal law that protects public drinking water supplies throughout the nation. Under the Safe Drinking Water Act, The USEPA sets standards for drinking water quality. Groundwater quality and quantity are regulated under several statutes and regulations, including the Safe Drinking Water Act.

Through the National Pollutant Discharge System (NPDES) program, the Clean Water Act (CWA) establishes federal limits on the amounts of specific pollutants that can be discharged into surface waters in order to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and nonpoint sources (i.e., stormwater) of water pollution.

The California NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more to obtain coverage under an NPDES Construction General Permit for stormwater discharges. Construction or demolition that necessitates an individual permit also requires preparation of a Notice of Intent to discharge stormwater and a Stormwater Pollution Prevention Plan that is implemented during construction. As part of the 2010 Final Rule for the CWA, titled *Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category*, activities covered by this permit must implement non-numeric erosion and sediment controls and pollution prevention measures.

Wetlands are currently regulated by the USACE under Section 404 of the CWA as a subset of all "Waters of the United States." Waters of the United States are defined as (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) nonnavigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow perennially or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries under Section 404 of the CWA, as amended, and are regulated by USEPA and the USACE. The CWA requires that California establish a Section 303(d) list to identify impaired waters and establish TMDLs for the sources causing the impairment.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into wetlands and other Waters of the United States. Any discharge of dredge or fill into Waters of the United States requires a permit from the USACE.

Section 438 of the Energy Independence and Security Act establishes storm water design requirements for development and redevelopment projects. Under these requirements, federal facility projects larger than 5,000 ft^2 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."

Section 10 of the Rivers and Harbors Act provides for USACE permit requirements for any in-water construction. USACE and some states require a permit for any in-water construction. Permits are required for construction of piers, wharfs, bulkheads, pilings, marinas, docks, ramps, floats, moorings, and like structures; construction of wires and cables over the water, and pipes, cables, or tunnels under

the water; dredging and excavation; any obstruction or alteration of navigable waters; depositing fill and dredged material; filling of wetlands adjacent or contiguous to waters of the U.S.; construction of riprap, revetments, groins, breakwaters, and levees; and transportation of dredged material for dumping into ocean waters.

Executive Order 11990, *Protection of Wetlands,* requires that federal agencies adopt a policy to avoid, to the extent possible, long- and short-term adverse impacts associated with destruction and modification of wetlands and to avoid the direct and indirect support of new construction in wetlands whenever there is a practicable alternative.

Executive Order 11988, *Floodplain Management*, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development unless it is the only practicable alternative. Flood potential of a site is usually determined by the 100-year floodplain, which is defined as the area that has a one percent chance of inundation by a flood event in a given year.

3.2.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under water quality resources at Travis AFB.

3.2.2.1 Groundwater

On Travis AFB, the depth to unconfined groundwater aquifers varies seasonally from approximately 12 to 30 feet below ground surface. Intensive extraction of groundwater does not occur at Travis AFB because of the poor water-bearing subsurface geology. Intensive extraction occurs west of Travis AFB and Fairfield, where the alluvium is thicker and contains a greater abundance of coarse-grain sediment. Groundwater wells in the surrounding area of Travis AFB are limited to domestic, stock-watering, and irrigation wells, with typical screened depths within 100 feet of the ground surface (Travis AFB, 2002). Domestic wells, several of which are downgradient from Travis AFB, are typically used to provide water to households for domestic use (Travis AFB, 2002).

The groundwater gradient indicates the direction of groundwater flow. The general direction of the groundwater gradient beneath Travis AFB flows south of the base into the Suisun Marsh, to Suisun Bay, and ultimately into the San Francisco Bay, generally following the surface topography. Recharge to the shallow groundwater table is from the foothills of Cement Hill to the north, in channel infiltration from the draining area of nearby creeks (Union Creek, Denverton Creek, and smaller unnamed creeks northwest of the base), and through direct precipitation. The maximum horizontal hydraulic gradient in the upper portion of the aquifer at Travis AFB is approximately 0.02 vertical foot per horizontal foot. The minimum horizontal gradient in the upper portion of the aquifer is approximately 0.002 near the southern border of Travis AFB (Travis AFB, 1997).

3.2.2.2 Surface Water

Travis AFB is located in the northeastern portion of the Fairfield-Suisun Hydrologic Basin. Within this basin, water generally flows south to southeast toward Suisun Marsh, which comprises approximately 85,000 acres of tidal marsh, managed wetlands, and waterways, and is the largest remaining wetland around San Francisco Bay. Suisun Marsh drains into Grizzly Bay and Suisun Bay. Water from these bays flows through the Carquinez Strait to San Pablo Bay and San Francisco Bay, and ultimately discharges into the Pacific Ocean near the City of San Francisco.

Travis AFB is in the southern portion of the Union Creek watershed. The headwaters of Union Creek are located approximately 1 mile north of Travis AFB, near the Vaca Mountains. As shown on Figure 3-1, Union Creek splits into two branches north of the Base. On base, the main (eastern) branch is impounded to create a recreational pond designated as the Duck Pond. At the exit from the Duck Pond, the creek is routed through an underground storm drainage system to the southeastern Base boundary, where it empties into an open creek channel.

Union Creek is the primary surface water drainage for runoff at Travis AFB (see Figure 3-1). Stormwater runoff flows into the creek through a network of pipes, culverts, and open drainage ditches. Local drainage patterns have been substantially altered by rerouting Union Creek, constructing the aircraft runway and apron, installing storm sewers and ditches, and general development (e.g., construction of buildings, roads, and parking lots). The action area for Alternative 1 is approximately 0.25-mile east of an underground section of Union Creek. In the southern portion of the action area, an ephemeral drainage feature connects a watercourse line to Union Creek. Ephemeral drainages are recognized by the USACE as drainages fed primarily by stormwater. They convey flows during and immediately after storm events, but they might stop flowing or begin to dry if the interval between storms is long enough. Within the area proposed for demolition, a perennial stream connects to Union Creek, approximately 1,500 feet west from the nearest buildings.

The surface water collection system divides the Base into eight independent drainage areas (six of which discharge through a series of underground piping and open ditches to stormwater outfalls to Union Creek, Hill Slough and ultimately Suisun and SF bays - see Figure 3-1). Drainage Areas I through VI drain into Union Creek. The action area for Alternative 1 is located within Drainage Area IV which drains to Outfall D while the existing facilities to be demolished are immediately south of Drainage Area IV, outside of the surface water collection system area.

3.2.2.3 Wetlands and Jurisdictional Waters of the United States

A wetland delineation of the main Base was conducted in Spring 2014 with additional work completed in Winter 2015 (URS, 2016). The wetland delineation identified over 895 wetlands and other waters of the U.S., with over 600 sites supporting vernal pools indicator species. These were either single pools or hydrologically associated pool clusters of varying size.

A wetlands investigation was conducted in February and May 2019 to reverify the status of wetlands within the proposed Complex site (Marty, 2019). The investigation determined that wetland swale WS.CA.723 (approximately 0.05 acres) which was previously included in the Travis AFB wetland maps was not a wetland. The investigation, however, identified that the project site contains a seasonal wetland that is approximately 0.0046 acre (SW.CA.1040). In addition to the newly identified seasonal wetland, there are four other vernal pools within 250 feet of the proposed Complex site (See Figure 3-2). Numerous vernal pools and a drainage ditch are located directly within the vicinity of the existing Complex (See Figure 3-3).

3.2.2.4 Floodplains

A floodplain is a nearly flat plain along the course of a stream or river that is naturally subject to flooding. A 100-year flood has a 1 percent probability of occurring in any given year. According to the Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map, Travis AFB is located in Other Areas, Zone D (an area of possible but undetermined flood hazard) (FEMA, 2014 and 2016). The California Department of Water Resources (DWR) Best Available Map Web Viewer showing 100-year

floodplains in Solano County does not indicate that a 100-year floodplain is located within the boundaries of Travis AFB (DWR, 2014).

A constructed ephemeral drainage passes through the southern portion of the proposed Complex site; however, this area is not identified as being within a 100-year floodplain. As indicated on available FEMA and DWR maps, and according to the INRMP, no 100-year floodplains are located on Travis AFB; therefore, no 100-year floodplains are located at or near the proposed Complex site (FEMA, 2016; Travis AFB, 2016c; DWR, 2014).

Mapping of FEMA flood zones (FEMA, 2016) shows that the majority of Travis AFB, including the Alternative 1 action area, is located within Zone D (an area of undetermined but possible flood hazard) (see Figure 3-1). Two areas in the northern portion of Travis AFB are shown to be within Zone X (areas determined to be outside the 1 percent and 0.2 percent annual chance floodplains). A 100-year floodplain is shown to occur nearby in various locations outside of the Base boundary.

3.2.3 Environmental Consequences

In this EA, the analysis of water resources looks at the potential impacts on groundwater, surface water, wetlands, and floodplains. Groundwater analysis focuses on the potential for impacts to the quality, quantity, and accessibility of the water. The analysis of surface water quality considers the potential for impacts that may change the water quality, including both improvements and/or degradation of current water quality. The impact assessment of wetlands considers the potential for impacts that may change the local hydrology, soils, or vegetation that support a wetland. The analysis of floodplains considers if any new construction is proposed within a floodplain or may impede the functions of floodplains in conveying floodwaters.

3.2.3.1 No Action Alternative

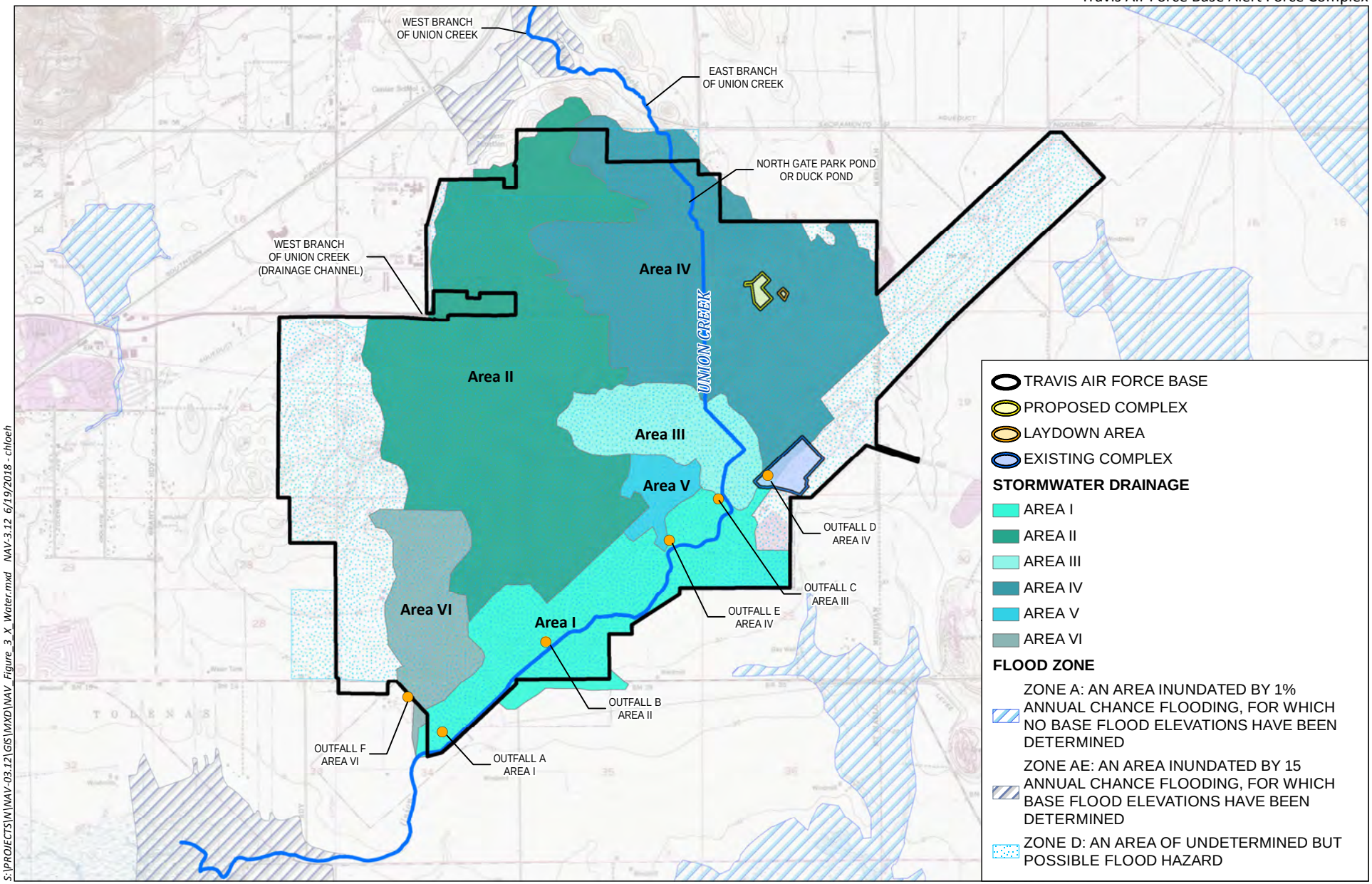
Under the No Action Alternative, no ground disturbing activities would occur, and there would be no change to baseline water resources. Therefore, no impacts to water resources would occur with implementation of the No Action Alternative.

3.2.3.2 Alternative 1 – Complete Alert Force Complex Relocation Potential Impacts

The action area for the analysis of impacts to water resources associated with Alternative 1 includes two areas: the construction of the new Complex located north of the Travis AFB runways on approximately 8.4 acres of undeveloped land, and demolition of existing facilities located near the southern boundary of the Base.

Groundwater

Alternative 1 would have no significant impact on groundwater within the existing and proposed Complex areas. Demolition of the existing Complex would remove approximately 4 acres of impervious surfaces, and the site would be restored to its condition prior to development. The removal of impervious surfaces from project demolition would have a beneficial effect on groundwater recharge. Construction of the proposed Complex would introduce approximately 5.3 acres of new impervious surfaces to the site. The creation of large, impervious surfaces at the proposed Complex site can affect groundwater recharge by limiting precipitation or surface water infiltration; however, due to the relatively small size (approximately 8.4 acres) of the proposed Complex, these impacts would be minor, resulting in no significant impacts to groundwater.



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Source: ESRI 2018, USGS, FEMA 2018

0 0.75 Miles

N

Stormwater Drainage Areas and Floodplains

Figure 3-1

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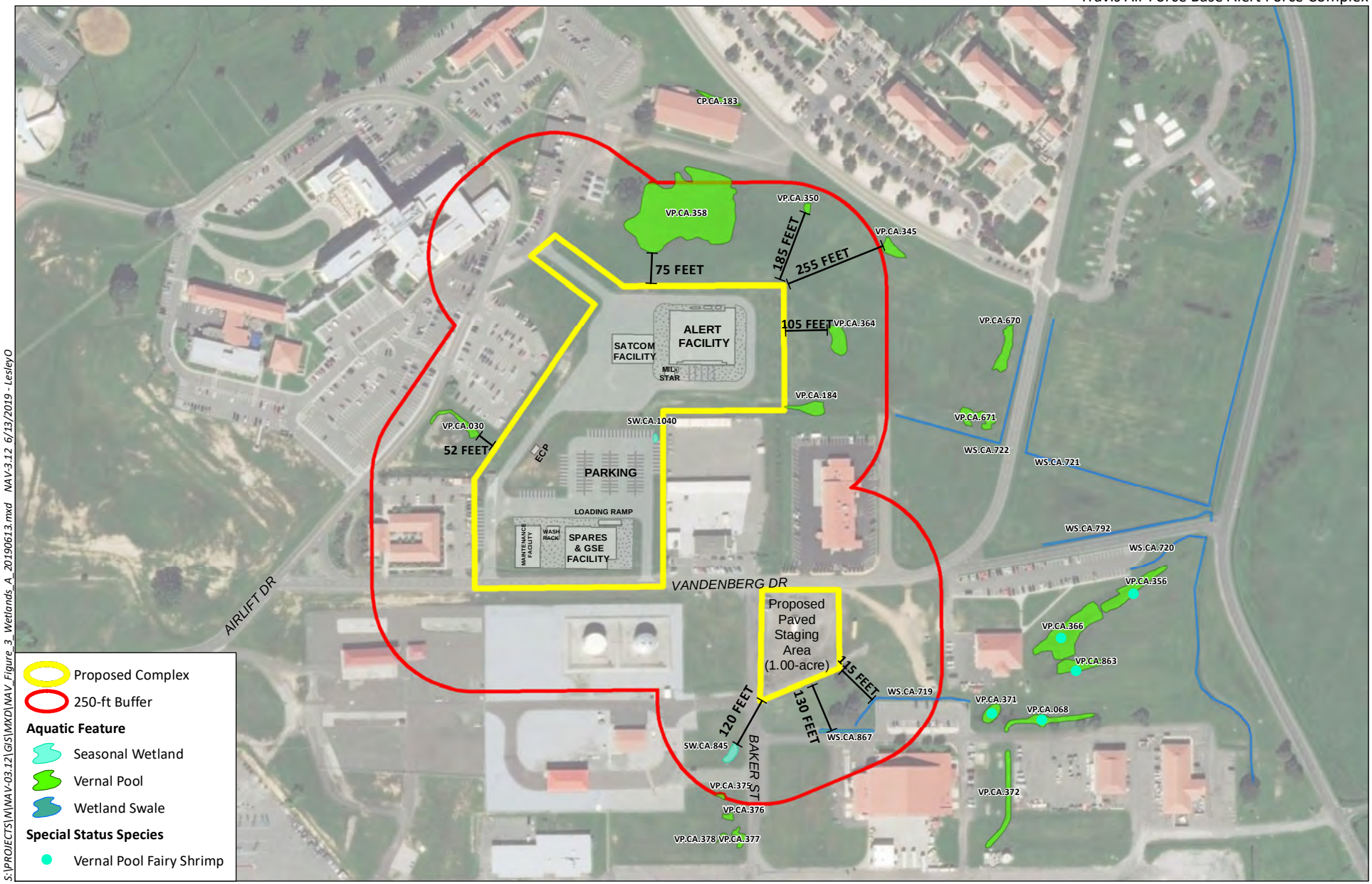

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Source: Travis AFB, Esri 2017

0 250 Feet

Aquatic Features within 250 ft of the Proposed Complex

Figure 3-2

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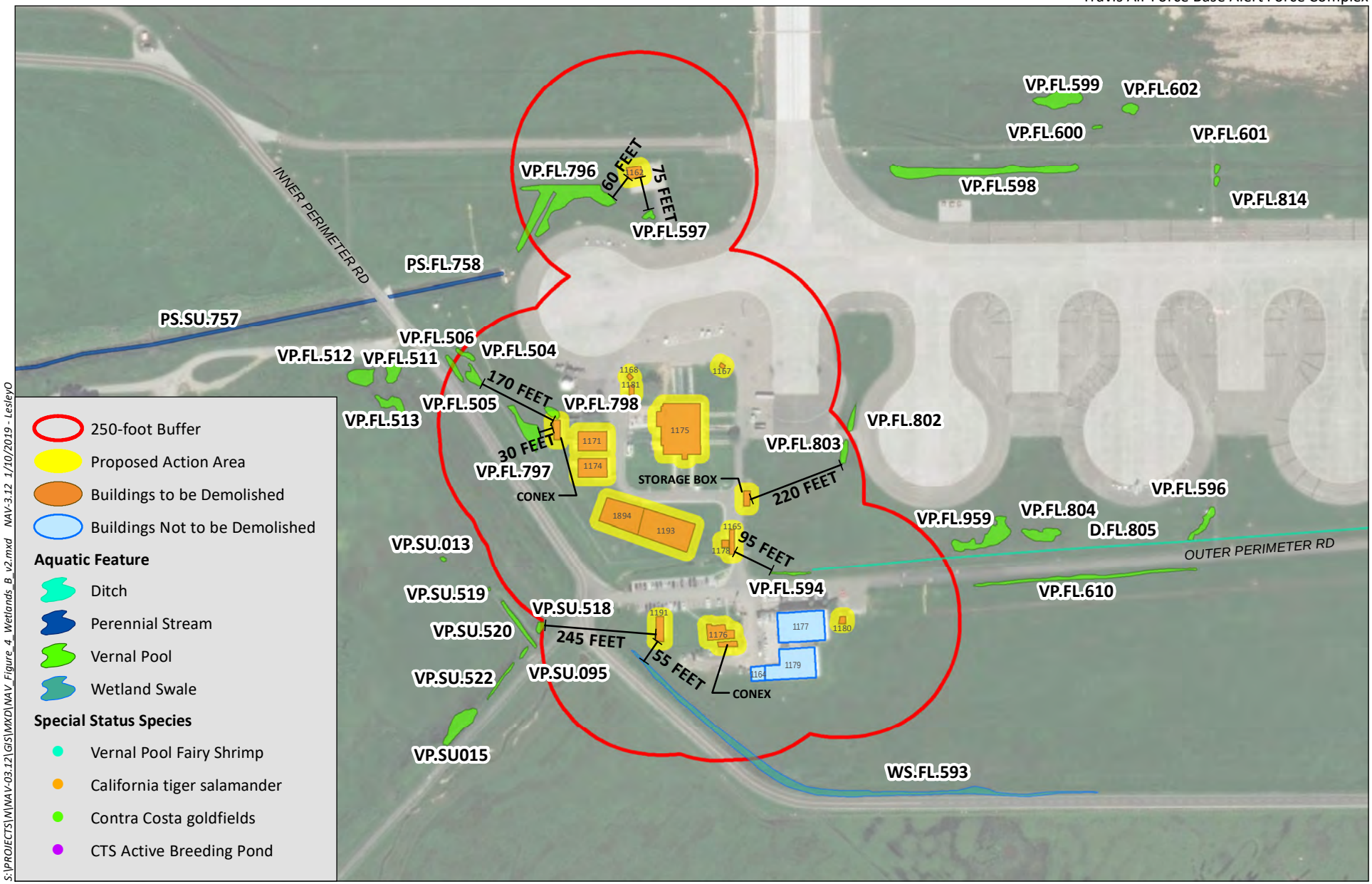

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Source: Travis AFB, Esri 2017

0 300 Feet

Aquatic Features within 250 ft of the Action Area-Existing Facilities

Figure 3-3

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Surface Waters

Alternative 1 could potentially have a localized and temporary impact on surface water hydrology. Ground disturbance during demolition and construction has the potential to increase soil erosion that could degrade water quality. Erosion control techniques would be incorporated to minimize erosion during demolition and construction.

Demolition, construction, and operations activities would comply with an existing Construction Site Storm Water NPDES permit (WDID #2-481000808) and Storm Water Pollution Prevention Plan (SWPPP) to prevent stormwater runoff (Travis AFB, 2015a and 2017). The NPDES permit and SWPPP are effective until June 30, 2020 (and would be appropriately modified to remain in effect beyond that date) and outline strict construction site management practices designed to protect the quality of the surface water, groundwater, and natural environment through which they flow. Therefore, significant impacts to surface waters would not be expected as a result of Alternative 1.

BMPs and applicable codes and ordinances would be implemented/adhered to in order to ensure potential stormwater runoff-related impacts do not rise above a level of insignificance. The following BMPs would be implemented prior to and during demolition and construction activities:

- Erosion and sediment controls would be in place during demolition and construction to reduce and control siltation or erosion impacts on areas outside the proposed demolition and construction sites.
- Avoid working in the rainy season or during high wind events.
- Concrete washouts and other cleaning areas would be located where they cannot reach surface waters.
- Catch basins and grates would be cleaned of dirt and debris to prevent blocking pipes.
- Material and stockpiles would be properly covered to prevent rain from washing away soils.
- Run-on and stormwater generated from within the facilities would be diverted away from all stockpiled materials.
- All other applicable BMPs described in the SWPPP for land disturbing and related activities (Travis AFB, 2015a).

Wetlands and Jurisdictional Waters of the United States

The existing Complex has multiple vernal pools and a wetland swale within 250 feet of the facilities slated to be demolished. However, the mapped vernal pools and wetland swale would not be affected by demolition activities because of the distance from the building proposed for demolition.

The proposed Complex site has a small jurisdictional seasonal wetland that would be graded, filled and paved over. Construction of the proposed Complex would directly impact 0.0046 acre of seasonal wetland.

Compensatory mitigation for direct impacts to 0.0046 acre of jurisdictional waters of the U.S. may be required. Section 401 and 404 permit applications would be submitted to the California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, and the USACE, San Francisco District, for their review and approval. Approval of the Section 401 and 404 permit applications would be obtained

prior to commencement of any construction activities. Once acquired, the applicant would comply with all conditions outlined in the Section 404 and 401 Clean Water Act permits.

No other jurisdictional wetlands or waters of the U.S. would be impacted from demolition or construction activities under Alternative 1.

Floodplains

The proposed and existing Complex sites are not located within a 100-year floodplain. Demolition and construction activities associated with Alternative 1 would have no impact on floodplains.

Because management practices required by the Construction Site Storm Water NPDES permit and SWPPP would be implemented, no significant impacts to water resources would occur.

3.2.3.3 Alternative 2 – Partial Alert Force Complex Relocation Potential Impacts

Under Alternative 2, the Navy would continue to use Buildings 1164, 1177, and 1179 located outside the runway safety clear zone and relocate all other facilities. The need for constructing an 8,750-sf aircraft-related storage and 3,356-sf GSE rework shop would be eliminated, however an additional 800 sf area would need to be provided at the proposed Complex site. Impacts would be similar to or less than those described under Alternative 1 and would not result in significant impacts to water resources.

3.3 Geological Resources

This discussion of geological resources includes topography, geology, and soils of a given area. Topography is typically described with respect to the elevation, slope, and surface features found within a given area. The geology of an area may include bedrock materials, mineral deposits, and fossil remains. The principal geological factors influencing the stability of structures are soil stability and seismic properties. Soil refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility determine the ability for the ground to support structures and facilities. Soils are typically described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use.

3.3.1 Regulatory Setting

Consideration of geologic resources extends to prime or unique farmlands. The Farmland Protection Policy Act (FPPA) was enacted in 1981 in order to minimize the loss of prime farmland and unique farmlands as a result of federal actions. The implementing procedures of the FPPA require federal agencies to evaluate the adverse effects of their activities on farmland, which includes prime and unique farmland and farmland of statewide and local importance, and to consider alternative actions that could avoid adverse effects.

3.3.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under geological resources at Travis AFB.

3.3.2.1 Topography

Physiographically, the area includes part of the interior lowland of California known as the Sacramento Valley and the eastern terminus of the Coast Ranges, which bound the valley to the west. The Coast

Range in the Travis AFB area is mostly composed of low hills that extend from the Vaca Mountains southeastward to connect with the Montezuma Hills southeast of the base. An isolated group of hills surrounded by a very low plain comprises the Potrero Hills. These may be considered part of the chain of low hills stretching from the Vaca Mountains to the Montezuma Hills. The geologic structure of the Vaca Mountains is entirely different from that of the Montezuma Hills.

The topography of the base slopes gently to the south. Elevations range from about 15 feet above mean sea level in the southwest corner to about 140 feet above mean sea level along the northern boundary. The main surface drainage for the base is Union Creek, a stream that flows in two branches to the southwest. Storm drains on Base generally flow south in underground pipes and concrete vaults with outfalls to Union Creek near the southern boundary of the base (Travis AFB, 2016c).

3.3.2.2 Geology

Travis AFB is situated on Quaternary bay sediments to the north of Suisun Bay. The generalized geology at the Base shows unconsolidated silty clays at the surface yielding to silts and fine sands at depths of 15 to 20 feet. The average water table at the Base is 10 feet below grade.

Part of the north portion of the Base is underlain by alluvium of recent origin, consisting of sand, gravel, silt, and clays, in irregular lenticular and inter-fingering patterns. Their thickness varies from 5 feet to 60 feet. The majority of the Base is underlain by older alluvium of Pleistocene age, consisting of inter-fingering lenses of sands, gravel, silts, and clays. The thickness of these deposits reaches depths up to 200 feet southwest of Fairfield. However, at Travis AFB, these deposits are quite shallow, overlying the basement rocks that are part of the outcropping evident at Potrero Hills to the south. The older alluvium constitutes the major water bearing units in the Base vicinity to the east and west and sustains wells averaging about 200 gallons per minute. The permeability of this unit is moderate. Underlying the alluvium, but in places cropping out at the surface through the unconsolidated sediments, are Tertiary consolidated sediments with some interbedded volca debris, the Tehama Formation, Pleistocene Pliocene non-marine sediments, the Markley Formation, and Eocene marine sediments. The total thickness of these deposits reaches 7,500 feet in the Fairfield Suisun area. In some places, the Tehama Formation yields more than 500 gallons per minute (gpm) to wells, whereas the Markley Formation generally yields little water to wells.

The San Francisco Bay Area is an area of historical and recent seismic activity, primarily due to the presence of the San Andreas, the Hayward, and the Calaveras fault zones. These faults are all more than 20 miles from the Base. A smaller, potentially active fault, the Green Valley fault, is about 10 miles west of the Base. The Vaca Fault System, consisting of a number of separate lineaments, has been inferred from photo lineaments, but no surface evidence has been identified in the field. This system is generally east and northeast of Travis AFB, although the Vaca Fault probably traverses the Base to the east (Travis AFB, 2016c).

3.3.2.3 Soils

Travis AFB lies along the western margin of the part of the Central Valley drained by the Sacramento River. The soils have weathered under a distinctive climatic cycle characteristic of the Pacific coast soil region. The lower layers of most of the soils are dense and compact. They are comparatively impervious to air and retard the penetration of roots or water. Consequently, there is little drainage through the soil. Under the prevailing climate, the natural vegetation growing on these soils consists largely of annual grasses and herbaceous annual forbs. Tules, sedges, and water-loving or alkali resistant grasses

cover drainages and areas with irrigation run off. Aside from some summer-growing forb species, most of the vegetation senesces and is dry in the summer months, and the fall rains help promote decomposition. The organic matter that accumulates is largely oxidized and decomposes during late spring and summer. Soils on base have been considerably altered by historic agricultural practices, heavy construction and by imported fill.

There are 14 soil types present at Travis AFB. Figure 3-4 is a soil map that shows the distribution of soil types on Travis AFB as mapped by the USDA NRCS in the 1977 Soil Survey of Solano County, California. Some of these soil types require special management considerations and may cause limitations to management actions. Soils throughout the base support northern claypan vernal pools that harbor rare and listed species. The soil types in the proposed and existing Complex areas are Antioch-San Ysidro complex (AoA), Dibble-Los Osos clay loams, 2 to 9 percent slopes (DlC), and San Ysidro sandy loam, 0 to 2 percent slopes (SeA).

3.3.3 Environmental Consequences

Geological resources are analyzed in terms of drainage, erosion, prime farmland, land subsidence, beach stability and erosion, and seismic activity. The analysis of topography and soils focuses on the area of soils that would be disturbed, the potential for erosion of soils from construction areas, and the potential for eroded soils to become pollutants in downstream surface water during storm events. The analysis also examines potential impacts related to seismic events. Best Management Practices (BMP) are identified to minimize soil impacts and prevent or control pollutant releases into stormwater. The potentially affected environment for geological resources is limited to lands that would be disturbed by any proposed facility development or demolition.

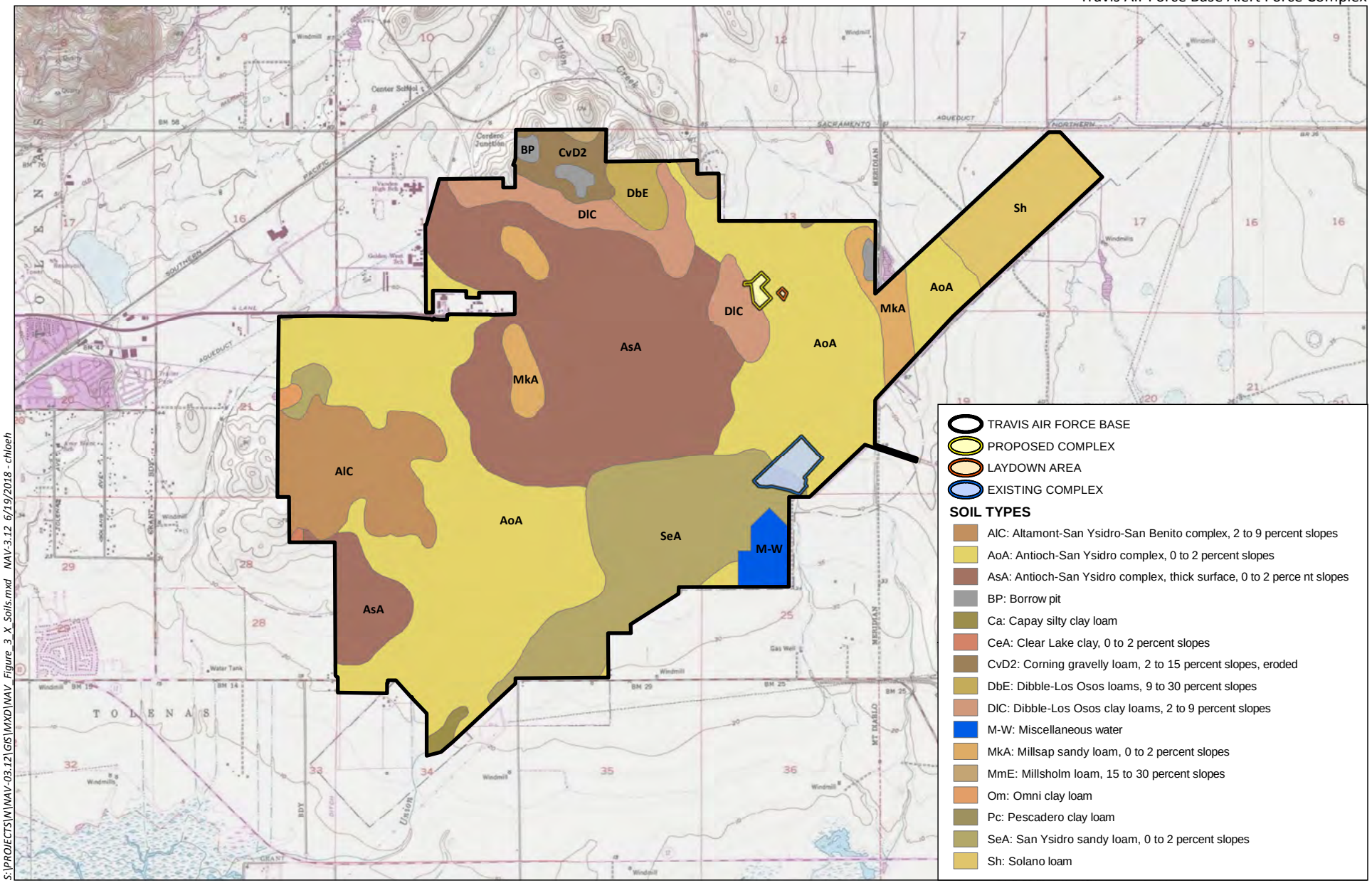
3.3.3.1 No Action Alternative

Under the No Action Alternative, neither action alternative would occur, and there would be no change to baseline geology, topography, or soils. Therefore, no impacts to geological resources would occur with implementation of the No Action Alternative.

3.3.3.2 Alternative 1 – Complete Alert Force Complex Relocation Potential Impacts

The action area encompasses the proposed construction and demolition areas related to Alternative 1. Demolition of the existing Complex and construction of a new Complex on approximately 8.4 acres of relatively flat terrain within a developed portion of the Base would not significantly alter the underlying geology or surrounding topography. Therefore, no significant impacts to geological resources would occur.

There are no important soils within the Alternative 1 action area. Minimal impacts are expected, primarily resulting from ground disturbance associated with the demolition of existing structures and construction of the new Complex. Grading would be required for both activities, potentially altering localized soil profiles. Under an existing Construction Site Storm Water NPDES permit (WDID #2-481000808), Travis AFB has prepared a SWPPP effective through June 30, 2020 (Travis AFB, 2015a; 2017).



Source: ESRI 2018, USGS

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0 0.75 Miles

Soils Map

Figure 3-4

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The Construction Site Storm Water NPDES permit, together with the required SWPPP, outlines construction site management practices designed to protect the quality of the surface water, groundwater, and natural environment through which they flow. The SWPPP identifies specific areas of existing and potential soil erosion, location of structural measures for sediment control, and management practices and controls. Use of these management practices and controls would further reduce the potential for erosion of disturbed soils.

Ground-disturbing activities, such as demolition of existing facilities, removal of vegetative cover, or grading, could result in short-term, temporary, and minor erosion impacts. Potential impacts would be further minimized through proper management practices defined within the approved SWPPP. Standard construction practices that could be implemented to minimize soil erosion include:

- Use of protective cover, such as mulch, straw, plastic netting, or a combination of these protective coverings.
- Implementation of site grading procedures to limit the time soils are exposed prior to being covered by impermeable surfaces or vegetation.
- Implementation of stormwater diversions to reduce water flow through exposed sites.
- Maintenance of a buffer strip of vegetation around a pond or drainage, where possible, to filter sediments.
- Retention of as many trees and shrubs as possible adjacent to exposed ground areas for use as natural windbreaks.

Once disturbed areas have been covered with pavement, buildings, or vegetation, their susceptibility to erosion would be significantly reduced. Upon completion of the demolition and construction phases, maintenance of a vegetative cover or covering undeveloped areas with gravel would serve as effective, long-term erosion control strategies for areas not covered with impervious surfaces. Soils underlying facilities and pavements are not subject to erosion.

Soil impacts from implementation of Alternative 1 would be short-term, temporary, and minor, and no significant impact would occur. Additionally, management practices required by the Construction Site Storm Water NPDES permit and SWPPP would be implemented during demolition and construction activities to further minimize impacts.

3.3.3.3 Alternative 2 – Partial Alert Force Complex Relocation Potential Impacts

Under Alternative 2, the Navy would continue to use Buildings 1164, 1177, and 1179 located outside the runway safety clear zone and replace all other facilities outside the runway safety clear zone. The need for constructing an 8,750-sf aircraft-related storage and 3,356-sf GSE rework shop would be eliminated, however an additional 800-sf area would need to be provided at the proposed Complex site. Impacts would be similar to or less than those described under Alternative 1 and would not result in significant impacts to geology or soils.

3.4 Cultural Resources

This discussion of cultural resources includes prehistoric and historic archaeological sites; historic buildings, structures, and districts; and physical entities and human-made or natural features important to a culture, a subculture, or a community for traditional, religious, or other reasons. Cultural resources can be divided into three major categories:

- Archaeological resources (prehistoric and historic) are locations where human activity measurably altered the earth or left deposits of physical remains.
- Architectural resources include standing buildings, structures, landscapes, and other built-environment resources of historic or aesthetic significance.
- Traditional cultural properties may include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

3.4.1 Regulatory Setting

Cultural resources are governed by specific federal laws and regulations, including the National Historic Preservation Act (NHPA), Archeological and Historic Preservation Act, American Indian Religious Freedom Act, Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA). Federal agencies' responsibility for protecting historic properties (those found potentially eligible or eligible to be listed on the National Register of Historic Places [NRHP]) is defined primarily by sections 106 and 110 of the NHPA. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties. Section 110 of the NHPA requires federal agencies to establish—in conjunction with the Secretary of the Interior—historic preservation programs for the identification, evaluation, and protection of historic properties. Cultural resources also may be covered by state, local, and territorial laws.

In accordance with DoD Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes,* Air Force Instruction 90-2002, *Air Force Interactions with Federally Recognized Tribes*, Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments,* and Section 106 of the NHPA and its implementing regulation at 36 CFR Part 800, the Air Force installation commander would establish G2G consultations with tribes whenever proposing an action that may have the potential to significantly affect the protected tribal resources, tribal right, or Indian lands.

3.4.2 Affected Environment

Cultural resources listed in the NRHP or eligible for listing in the NRHP are "historic properties" as defined by the NHPA. The list was established under the NHPA and is administered by the National Park Service on behalf of the Secretary of the Interior. The NRHP includes properties on public and private land. Properties can be determined eligible for listing in the NRHP by the Secretary of the Interior or by a federal agency official with concurrence from the applicable State Historic Preservation Office (SHPO). A NRHP-eligible property has the same protections as a property listed in the NRHP. The historical properties (buildings, structures, districts, objects, and sites) include archaeological and architectural resources (See Appendix B for NHPA Section 106 Documentation).

The area of potential effect (APE) for cultural resources is the geographic area or areas within which an undertaking (project, activity, program or practice) may cause changes in the character or use of any historic properties present. The APE is influenced by the scale and nature of the undertaking and may be different for various kinds of effects caused by the undertaking. For Alternative 1, the Navy determined that the APE includes approximately 46 acres and includes the proposed new Complex site, construction laydown area, and existing Complex as depicted on Figure 3-5.

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Source: Base Map Layers (SanGIS, 2016)

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Area of Potential Effect

Figure 3-5

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3.4.2.1 Archaeological Resources

Travis AFB has undergone a complete archaeological survey (Travis AFB, 2016a). Previous surveys identified ten archaeological resources on the main Base, consisting of two prehistoric sites and eight historic sites. One prehistoric site was mitigated by data recovery per an agreement with SHPO, while the other had been disturbed prior to its discovery. Both prehistoric sites have since been destroyed. Seven of the eight historic archaeological sites were determined not eligible for NRHP listing, in consultation with the SHPO, on July 29, 1996. The eighth site is a segment of the Leisure Town Road that has been recommended not eligible for NRHP listing.

A site sensitivity assessment was prepared for Travis AFB in 2017 that models surface and buried site sensitivity based on landform age, distance to water, and surface slope (Meyer, 2017). The model defines sensitivity levels from "lowest" to "highest" for lands on Travis AFB. Most areas of the installation, including proposed construction and demolition areas, were modeled as having low to high sensitivity for surface sites; however, this was the potential of discovering sites in a pristine environment before the modern Air Force base existed. The report notes that the likelihood of finding surface sites today is low due to extensive development at the base, and a recent geotechnical study has shown that the original ground surface within the proposed new Complex location is currently buried under up to 20 feet of fill and construction debris (AGS, 2018). As noted above, these areas have been previously surveyed, and no archaeological sites were identified. Most of the Base, including all proposed construction and demolition areas, is classified as having "lowest" sensitivity for buried archaeological sites (see Figure 3-6). The low potential primarily reflects the age of the surface landforms, which are mostly Pleistocene in age or older and therefore were deposited prior to human occupation of the region.

3.4.2.2 Architectural Resources

The Air Force has conducted inventories of cultural resources at Travis AFB to identify architectural resources that are listed or potentially eligible for listing in the NRHP (Smith et al., 2013; Sproul, 2018; Travis AFB, 2016a).

Although no historic properties (or other buildings or structures of any kind) are located within the footprint of the new Complex, the proposed ADC Alert and Readiness Area Historic District is located approximately 350 meters to the southwest. The ADC Alert and Readiness Area was recommended for NRHP eligibility as an historic district under Criterion C and Criteria Consideration G as "an excellent example of the programmatic ADC readiness area, built in a standardized configuration throughout the U.S., and at selected installations including TAFB, of high tactical role in USAF air defense during the 1950s" (Weitze, 1996:78). The ADC Alert and Readiness Area was a cluster of six buildings and structures (buildings 369, 370, 1204, 1205, 1206 and 1212) that had experienced little exterior modification and site infill at the time the evaluation was made. In accordance with a Memorandum of Agreement (MOA) implemented in 2000 and intended to mitigate future effects to the historic properties evaluated by Weitze (1996), Historic American Buildings Survey (HABS) documentation was completed for buildings 1204, 1205, 1206, and 1212. Buildings 369, 370, 1204, and 1206 have since been demolished, and one new building, 1211, has been constructed within the proposed district's boundaries.

Both project action alternatives would require the demolition of fourteen buildings within the existing Complex. The existing facilities to be demolished include Buildings 1162, 1165, 1167, 1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894 (See Figure 1-2). The most recent architectural inventory (Sproul, 2018), which focused specifically on these 14 buildings, recommended that none

appeared to be eligible for listing in the NRHP. Buildings 1180 and 1181, both built in the 1990s, were not recommended eligible for listing on the NRHP under Criteria Consideration G because they do not possess exceptional significance for structures less than 50 years of age and are not associated with any known historic themes or contexts for the period after 1991.

The remaining 12 buildings to be demolished possess integrity to their date of construction, but they do not meet the criteria for listing in the NRHP within the context of the Cold War because they have no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). Moreover, these buildings and structures do not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor are they likely to reveal important historical information about that period (NRHP Criterion D). These buildings and structures played a utilitarian role in storing, maintaining, and transiting the technologically sophisticated aircraft that were the focus of the VQ-3 Det Travis program; however, the buildings' uses were not historically significant to the research, design, testing and evaluation of such aircraft or to the VQ-3 Det Travis program – functions that might have qualified the buildings for listing on the NRHP (Sproul, 2018).

3.4.2.3 Traditional Cultural Properties

No known Traditional Cultural Properties (TCP) or sacred sites have been identified at Travis AFB (Travis AFB, 2016a).

Travis AFB consulted with two federally recognized tribes, the Cortina Band of Indians and the Yocha Dehe Wintun Nation, as part of the NEPA and Section 106 processes (See Appendix B). These tribes have not identified any sacred sites or properties of traditional religious or cultural importance on Travis AFB.

3.4.3 Environmental Consequences

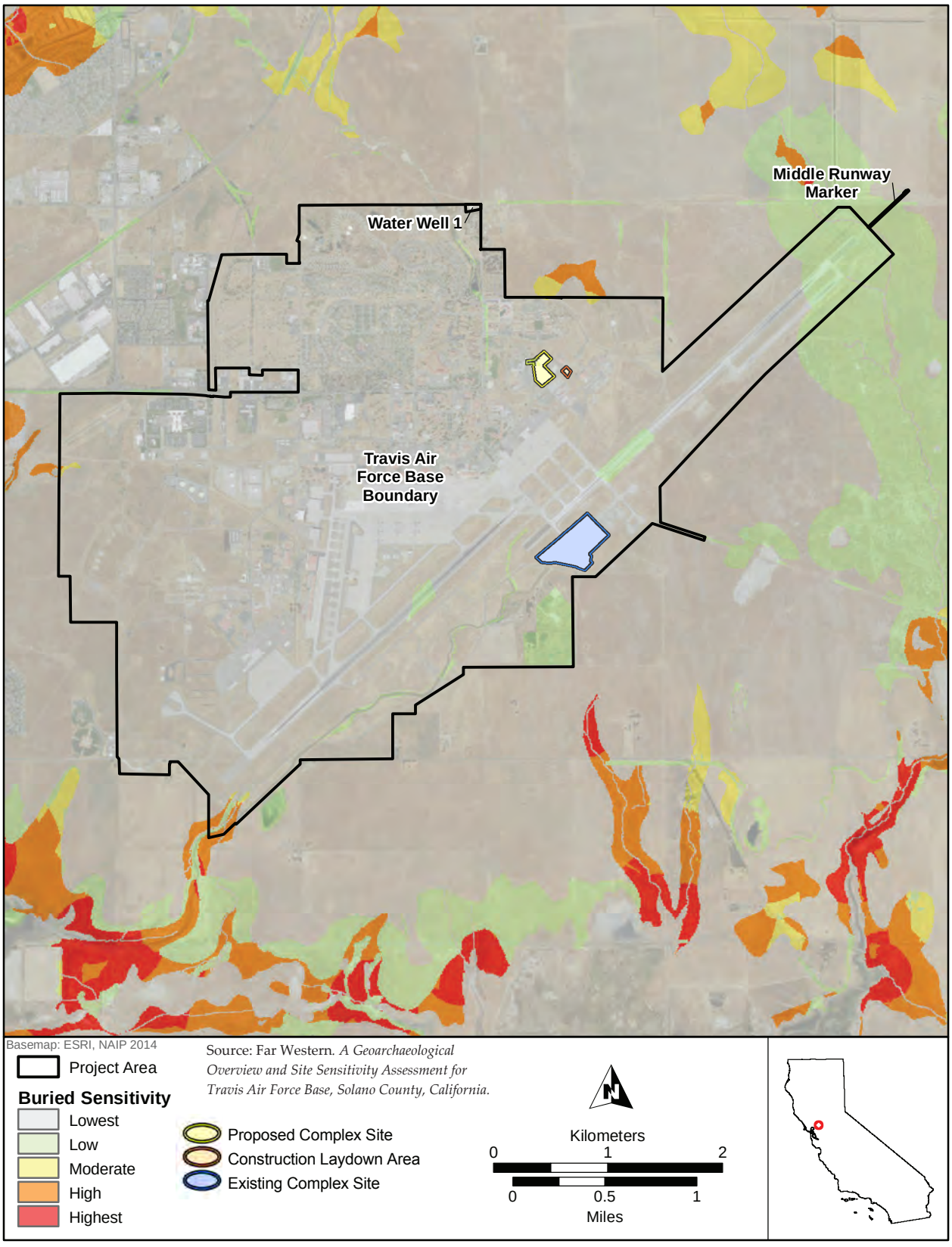
Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may be the result of physically altering, damaging, or destroying all or part of a resource, altering characteristics of the surrounding environment that contribute to the importance of the resource, introducing visual, atmospheric, or audible elements that are out of character for the period the resource represents (thereby altering the setting), or neglecting the resource to the extent that it deteriorates or is destroyed.

3.4.3.1 No Action Alternative

Under the No Action Alternative, no ground disturbing activities or new construction would occur. Therefore, no impact to cultural resources would occur with implementation of the No Action Alternative.

3.4.3.2 Alternative 1 – Complete Alert Force Complex Relocation Potential Impacts

Alternative 1 would construct a new Complex on vacant land near the Travis AFB airfield, north of the runways. It would also include the demolition of fourteen buildings/structures within the existing Complex, near the southern boundary of Travis AFB. Research and surveys have shown that this area contains no archaeological sites, buildings, or structures that would be directly affected by the proposed undertaking.



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Geoarchaeological Buried Site Potential

Figure 3-6

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However, the proposed ADC Alert and Readiness Area Historic District is located approximately 350 meters southwest of the new Complex site, and this analysis considered whether visual impacts on the district may result from the proposed action. It should be noted that the district has suffered some loss of integrity since its establishment was first recommended by Weitze in 1996. Only two buildings (1205 and 1212) remain of the six original contributing elements, and in 2004 a new building (1211) was constructed between buildings 1205 and 1212, within the district's boundaries. The district's strong qualities of historic time and place as noted by Weitze have already been affected by demolition and infill construction within the district's boundaries.

While the new Complex would be within the district's viewshed, its design would be consistent with the rest of Travis AFB's built environment. The new Complex's location and style would not result in visual intrusions that would change the physical features of the district's setting or diminish the integrity of the district's significant historic features. Visual, atmospheric, and audible intrusions would be consistent with the existing, continuing operations of Travis AFB.

No historic properties would be impacted by demolition of the existing Complex, because none of the facilities proposed for removal meet the criteria for listing on the NRHP, either individually or as contributing elements of a historic district. Because the existing Complex forms a discrete cluster of buildings and structures to the south of Travis AFB's runways, with no other buildings in the vicinity, impacts to historic properties located elsewhere on the base are not anticipated.

Surveys and geoarchaeological analysis have shown that no archaeological resources are extant at Travis AFB, and the potential for encountering surficial or buried archaeological resources during implementation of the proposed action is low. Nevertheless, prior to demolition and/or construction, a dig permit (60 Air Mobility Wing Form 55) would be acquired from 60th Civil Engineering Squadron/ Asset Management (60 CES/CEA). If cultural or archaeological resources are inadvertently disturbed during demolition or construction, action would be taken in accordance with the following contingency plan:

- All activities are performed in compliance with the *Integrated Cultural Resources Management Plan* (Travis AFB, 2016a).
- If human remains or archaeological or cultural artifacts are discovered during construction, work would temporarily cease, and the Air Force cultural resources manager would be contacted.
- If any new information or cultural items were to be found, Travis AFB would notify local Native American tribes.

Therefore, implementation of Alternative 1 would not result in significant impacts to cultural resources.

3.4.3.3 Alternative 2 – Partial Alert Force Complex Relocation Potential Impacts

The project APE and impacts would be same as those described under Alternative 1. Under Alternative 2 the Navy would continue to utilize Buildings 1164, 1177 and 1179, which are outside the runway safety clear zone, and relocate all other facilities to the proposed site for the new Complex described in Alternative 1. The existing wash rack would remain, as would the CONEX box between the two buildings. As with Alternative 1, no known historic properties would be impacted by changes to the existing Complex, and the potential for encountering surficial or buried archaeological resources during implementation of the proposed action is low.

Alternative 2 would alleviate construction of 8,750 sf of aircraft-related storage space and 3,356 sf of GSE rework shop at the proposed new Complex site north of the runways, although an additional 800 sf

would need to be provided at the new Complex site to support "ready for use" GSE that is currently maintained at Building 1179. Research and surveys have shown that the new Complex site contains no archaeological sites, buildings, or structures that would be directly affected by the proposed undertaking. As with Alternative 1, facilities proposed for the new Complex under Alternative 2 would not result in visual intrusions that would change the physical features of the proposed ADC Alert and Readiness Area Historic District's setting or diminish the integrity of the district's significant historic features.

Therefore, implementation of this Alternative 2 would not result in significant impacts to cultural resources.

3.5 Biological Resources

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are referred to generally as vegetation, and animal species are referred to generally as wildlife. Habitat can be defined as the resources and conditions present in an area that support a plant or animal.

Within this EA, biological resources are divided into two major categories: (1) terrestrial vegetation and (2) terrestrial wildlife. Threatened, endangered, and other special status species are discussed in Section 3.5.2.3.

3.5.1 Regulatory Setting

Special-status species, for the purposes of this assessment, are those species listed as threatened or endangered under the Endangered Species Act (ESA) and species afforded federal protection under the Migratory Bird Treaty Act (MBTA).

The purpose of the ESA is to conserve the ecosystems upon which threatened and endangered species depend and to conserve and recover listed species. Section 7 of the ESA requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration (NOAA) Fisheries to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat. Critical habitat cannot be designated on any areas owned, controlled, or designated for use by the DoD where an Integrated Natural Resources Management Plan has been developed that, as determined by the Department of Interior or Department of Commerce Secretary, provides a benefit to the species subject to critical habitat designation.

Birds, both migratory and most native-resident bird species, are protected under the MBTA, and their conservation by federal agencies is mandated by EO 13186 (Migratory Bird Conservation). Under the MBTA it is unlawful by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess migratory birds or their nests or eggs at any time, unless permitted by regulation. The 2003 National Defense Authorization Act gave the Secretary of the Interior authority to prescribe regulations to exempt the Armed Forces from the incidental taking of migratory birds during authorized military readiness activities. The final rule authorizing the DoD to take migratory birds in such cases includes a requirement that the Armed Forces must confer with the USFWS to develop and implement appropriate conservation measures to minimize or mitigate adverse effects of the proposed action if the action will have a significant negative effect on the sustainability of a population of a migratory bird species.

3.5.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under biological resources at Travis AFB. Information in this section is drawn primarily from the BA and BOs for the proposed action (Navy, 2019; included in Appendix C to this EA), which references the Travis AFB Integrated Natural Resources Management Plan (Travis AFB, 2016c) and the PBA for six federally threatened and endangered species (Travis AFB, 2018). Threatened and endangered species are discussed in 3.5.2.3 with a composite list applicable to Alternative 1 provided in Table 3-4.

3.5.2.1 Habitat

Vegetation includes terrestrial plant as well as freshwater aquatic communities and constituent plant species. Base-wide characterization of the terrestrial habitat types found in the undeveloped areas of Travis AFB was completed in 1994 by Weston, Inc. (Navy, 2019). Terrestrial habitats include areas on Travis AFB that support natural vegetation communities. Terrestrial habitats present in the action area for Alternative 1 include annual grassland, vernal pools, and seasonal wetlands and swales.

Annual Grassland

This community is predominantly composed of introduced annual grasses, often in association with native and non-native wildflowers and weedy forbs. The annual grasses germinate with the onset of fall rains, and they continue to grow throughout the winter. Flowering occurs throughout the spring months. By summer, the annual grasses have set seed and died (Navy, 2019). The dominant vegetation in these areas includes non-native grasses such as soft chess (*Bromus hordeaceus*), Italian ryegrass (*Festuca perennis*), rat-tail fescue (*Festuca myuros* var. *myuros*), wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), and harding grass (*Phalaris aquatica*). Weedy forbs include filaree (*Erodium* spp.), yellow starthistle (*Centurea solstitialis*), rose clover (*Trifolium hirtum*), cranesbill (*Geranium dissectum*), and vetch (*Vicia* spp.). Common native wildflower species include California poppy (*Eschscholzia californica*), white brodiaea (*Triteleia hyacinthina*), butter and eggs (*Triphysaria eriantha* ssp. *eriantha*), and blue-eyed grass (*Sisyrinchium bellum*). Shrub species occasionally found in annual grassland on the base include coyote brush (*Baccharis pilularis*), Peruvian pepper tree (*Schinus molle*), and black locust (*Robinia pseudoacacia*) (Travis AFB, 2016c). This plant community supports a variety of birds, reptiles, and mammals (Travis AFB, 2016c).

Annual grassland is the predominant land cover in the proposed Complex site, which is designated as "Semi-improved" for mowing and fire management and scheduled for mowing 1 to 3 times per year (Navy, 2019).

Annual grassland also covers portions of the existing Complex site around the existing buildings; however, the existing Complex site is adjacent to the flight line, and the Bird/Wildlife Aircraft Strike Hazard Reduction Program (BASH Plan) calls for maintaining an effective grass height of 7 to 14 inches around the flight line (Travis AFB, 2015b). Most of the existing Complex site is designated as an "Improved" area for mowing and fire management and scheduled for mowing 1 time per week; the eastern portion is designated "BASH" and scheduled for mowing 1 to 3 times per year (Navy, 2019). The result of this management approach is that annual grassland habitat in the existing Complex site is highly disturbed and functions only minimally as natural habitat.

Vernal Pools

Vernal pools are found within grassland habitat. Vernal pools are shallow depressions or small, shallow ponds that fill with water during the rainy season and then dry out during the spring, becoming

completely dry by late spring or early summer. Central to the formation of vernal pools is a climate of mild winters with moderate rainfall, and hot, dry summers; this unusual regime is found only in Mediterranean climate regions (Marty, 2005). This hydrologic regime supports the unique plant and animal communities characteristic of vernal pools (Travis AFB, 2016c). The vernal pools on Travis AFB are classified as northern claypan vernal pools which occur on soils derived from alluvium that have a layer of accumulated clay and minerals forming claypan a few feet below surface soils (Navy, 2019). The claypan forms a restrictive layer resulting in a perched water table, which often forms large complexes of associated vernal pools.

Vegetation varies among pools in both cover and species composition, but the majority of pools support several characteristic species. Characteristic vernal pool plant species on Travis AFB include goldfields (*Lasthenia* spp.), slender popcorn-flower (*Plagiobothrys stipitatus*), downingia (*Downingia* spp.), woolly marbles (*Psilocarphus brevissimus* ssp. *brevissimus*), and coyote thistle (*Eryngium vaseyi*) (Navy, 2019). Federally listed species identified in vernal pools at Travis AFB include vernal pool fairy shrimp (VPFS) (*Branchinecta lynchi*), California tiger salamander (CTS) (*Ambystoma californiense*), and Contra Costa goldfields (*Lasthenia conjugens*) (Travis AFB, 2016c). None of these species has been identified in vernal pool habitat within the Alternative 1 action area (Navy, 2019; Marty, 2017a); however, presence is assumed in vernal pool habitat on Travis AFB.

The proposed Complex site is immediately adjacent to one 0.44-acre vernal pool mapped in the final wetland delineation (USACE, 2016): VP.CA.184 that would be indirectly affected by the project. Four other vernal pools totaling 0.97 acre are within 250 feet of the action area for the proposed Complex (USACE, 2016) and would be indirectly affected by ground disturbance in the action area: VP.CA.350, VP.CA.358, VP.CA.364, and VP.CA.030 (Figure 3-2 in Section 3.2, Water Resources). There are 9 mapped vernal pools within 250 feet of the existing Complex site (USACE, 2016) that would not be affected by demolition activities because of distance from the buildings proposed for demolition: VP.FL.798, VP.FL.797, VP.FL.796, VP.FL.597, VP.FL.504, VP.FL.505, VP.FL.803, VP.FL.594, and VP.SU.518 (Figure 3-3 in Section 3.2, Water Resources).

Seasonal Wetlands and Swales

Seasonal wetlands are typically inundated or saturated during the wet season and dry during the summer. Rainfall, high groundwater tables, and runoff contribute to wetland hydrology during the winter and the spring periods. Seasonal wetlands share a similar hydrologic regime with vernal pool wetlands, but they lack some of the distinctive floristic components that are characteristic of a vernal pool system. Seasonal wetlands on Travis AFB are associated with low gradient swales, shallow depressions, and drainage features that capture surface runoff and remain saturated or inundated for several months of the year. Plant species typical of seasonal wetlands on Travis AFB include curly dock (*Rumex crispus*), Italian ryegrass, meadow barley (*Hordeum brachyantherum*), broadleaf peppergrass (*Lepidium latifolium*), and narrow-leaved plantain (*Plantago lanceolata*) (Navy, 2019).

The proposed Complex site includes a 0.0046 acre seasonal wetland (SW.CA.1040) that will be permanently removed (filled) (Figure 3-2 in Section 3.2, Water Resources). There is one wetland swale (WS.FL.593) within 250 ft of the existing Complex site that would not be affected by demolition activities, and two wetland swales and one seasonal wetland within 250 ft of the proposed designated staging area (SW.CA.845, WS.CA.867, and WS.CA.719) that would not be affected by the construction staging or activities.

3.5.2.2 Wildlife Species

A diversity of wildlife species occur on Travis AFB, including mammals, birds, reptiles, fish, amphibians, and aquatic invertebrates. A base-wide survey conducted by Weston in 1995 found 28 mammal species, 61 bird species including 16 species confirmed as nesting on the base, 7 species of reptiles, 1 amphibian species, and 9 fish species (Travis AFB, 2016c). All fish species identified on the base are confined to the North Gate Park Pond and Union Creek, which are outside the existing and proposed Complex sites.

3.5.2.3 Special Status Species

Threatened and Endangered Plants

Three federally listed as threatened or endangered plant species occur or have potential to occur on Travis AFB: Contra Costa goldfields, Crampton's tuctoria (*Tuctoria mucronata*), and Colusa grass (*Neostapfia colusana*) (Travis AFB, 2016c). All of these species require vernal pool, freshwater wetland, seasonally wet grassland, or other wet or seasonally wet habitat and the most suitable habitat for these species exists in the northwestern and western parts of the base. Of the three threatened or endangered species, only Contra Costa goldfields has been identified on Travis AFB (Travis AFB, 2016c). Populations of Contra Costa goldfields occur primarily in the Aero Club Preserve, west and south of David Grant Medical Center, with small populations in the southwest corner of the base near the western end of the flight line and in Castle Terrace near the northern boundary (Marty, 2017a; Figure 3-7). As of early 2017, a total of 22 studies have been conducted on Travis AFB that included surveys for Contra Costa goldfields (Marty, 2017a); none have recorded occurrences of Contra Costa goldfields in the existing or proposed Complex areas.

Threatened and Endangered Wildlife

Two federally listed as threatened wildlife species are known to occur on the main base of Travis AFB: vernal pool fairy shrimp (VPFS; *Branchinecta lynchi*), and California tiger salamander (CTS; *Ambystoma californiense*). The VPFS and CTS are not known to occur in the existing or proposed Complex areas; however, both areas include potentially suitable habitat for these species. Vernal pool tadpole shrimp (VPTS; *Lepidurus packardi*), federally listed as endangered, has similar habitat affinities to those of VPFS but is not known to occur on the main base of Travis AFB. Suitable habitat for VPFS and VPTS on Travis AFB is assumed to be occupied.

The proposed Complex site includes seasonal wetland and vernal pool habitat suitable for VPFS and VPTS, and grassland habitat suitable for CTS. There is an active CTS breeding pond off-base within 1 kilometer (km) of the proposed Complex site (risk assessment for CTS in the 2018 PBA is based in part on distance to CTS breeding ponds expressed in kilometers). The existing Complex site includes grassland habitat suitable for CTS and is within 1 km of an off-base active CTS breeding pond. Grassland habitat in both the existing and proposed Complex sites supports abundant small mammal burrows which provide refugia and aestivation sites for CTS. The existing and proposed Complex sites are considered high risk areas for CTS as described in Appendix A of the PBA for six federally threatened and endangered species (Navy, 2019).

The existing Complex site is within 1 mile of an off-base location for Delta green ground beetle (DGGB; *Elaphrus viridis*), which is federally listed as threatened. Travis AFB is believed to lack suitable habitat for DGGB; however, Section 7 consultation was initiated and completed for CTS, VPFS, VPTS, and DGGB. The USFWS issued a BO on April 8, 2019 and an amended BO on June 5, 2019 (see Appendix C).

Vernal Pool Fairy Shrimp

Table 3-4 Threatened and Endangered Species Known to Occur or Potentially Occurring in the Proposed Complex or Existing Complex

Common Name	*Scientific Name*	*Federal Listing Status*	*State Listing Status*	*Critical Habitat Present?*
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	NL	No
California tiger salamander	*Ambystoma californiense*	FT	ST	No
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	NL	No
Delta green ground beetle	*Elaphrus viridis*	FT	--	No

Selections for Listing Status Column include: FE = federal endangered, FT = federal threatened, NL = not listed, ST = State threatened

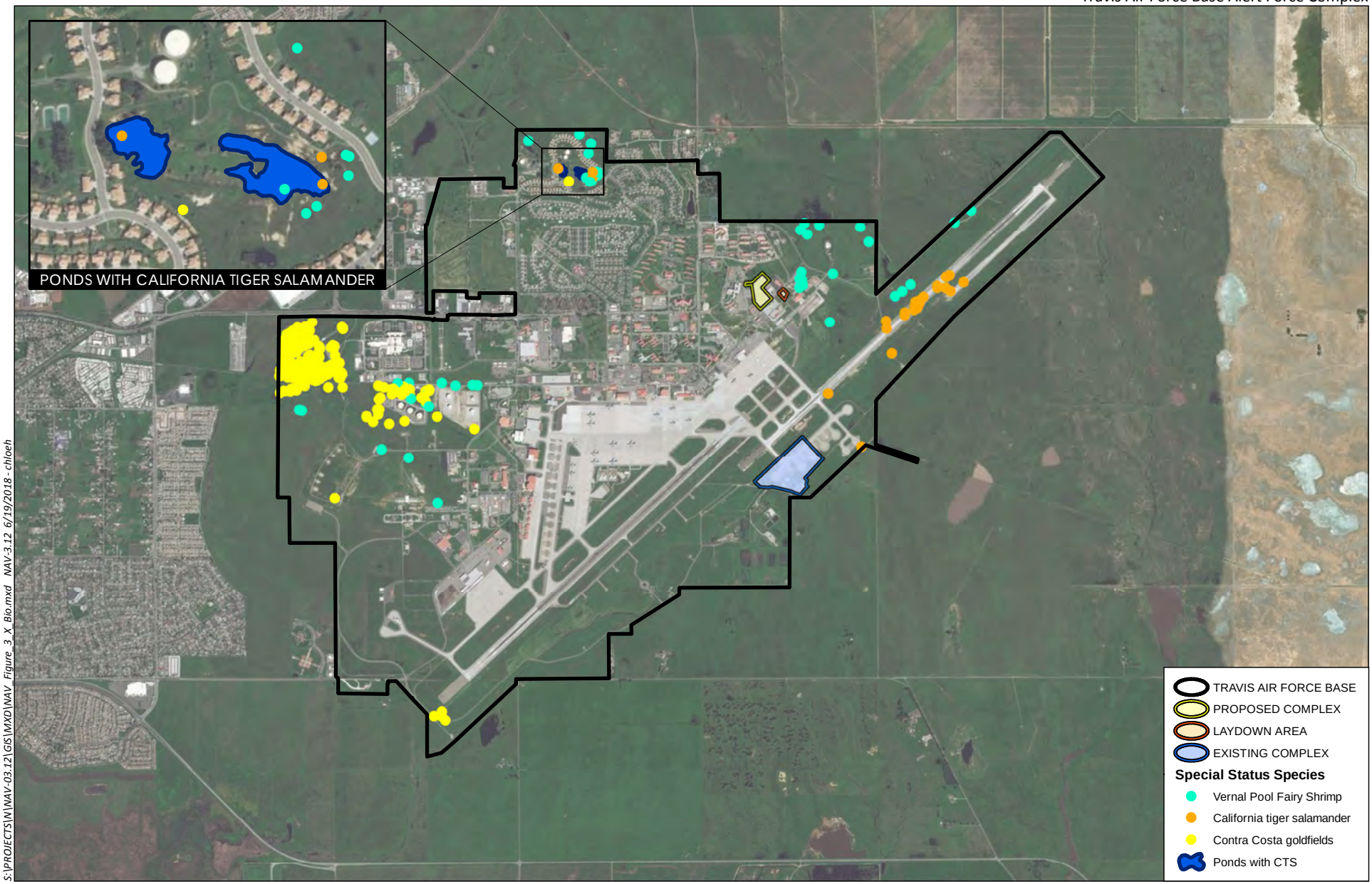
Vernal pool fairy shrimp was listed as threatened under the ESA on September 19, 1994 (59 CFR 48136). A final designation of critical habitat for VPFS was published by USFWS on August 11, 2005 (70 FR 46924), with revisions on February 10, 2006 (71 FR 7118).

Vernal pool fairy shrimp are restricted to vernal pools and vernal pool-like habitats; the species has never been found in riverine, marine, or other permanent water bodies (USFWS, 2007). VPFS occurs in a variety of vernal pool types ranging from small rock pools to large, turbid grassland pools. Characteristics of typical VPFS habitat include water temperatures between 40 and 73 degrees Fahrenheit, low to moderate salinity, elevations between 33 and 4,000 feet (rarely up to 5,600 feet), and area less than 2,200 square feet (±2,100 square feet; rarely up to several acres). Vernal pools are usually nutrient-poor and experience dramatic daily fluctuations in pH, dissolved oxygen, and carbon dioxide (Keeley and Zedler, 1998). VPFS feed primarily on detritus and microscopic algae (USFWS, 2007).

Vernal pool fairy shrimp are widely distributed on Travis AFB north of the flight line and occur in natural vernal pools and artificial seasonal wetland features (Navy, 2019). Designated Critical Habitat for VPFS occurs in 13 acres near the south gate, as well as on the Potrero Hills Annex GSU. As of 2017, there are 45 documented occurrences of VPFS on Travis AFB, including a cluster of occurrences between E Street and Collins Drive, approximately 0.25-mile east of the proposed Complex site (Navy, 2019; Figure 3-7). There are no documented occurrences of VPFS in the vernal pool or seasonal wetland habitats in the proposed Complex site, or within 1 mile of the existing Complex site; however, Travis AFB assumes presence in all suitable vernal pool habitat.

California Tiger Salamander

The Central Valley Population of the Central California Distinct Population Segment of CTS, which includes CTS populations in Solano County, was listed as threatened under the ESA on August 4, 2004 (69 CFR 47212). A final designation of critical habitat for CTS was published by USFWS on August 23, 2005 (70 CFR 49380). The California Fish and Game Commission listed CTS as threatened under the California Endangered Species Act on August 19, 2010.



Source: ESRI 2018, USGS

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0 0.75 Miles

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Special Status Species Map

Figure 3-7

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The larvae develop in vernal pools and ponds; however, the species is otherwise terrestrial and spends most of its post-metamorphic life in widely dispersed underground retreats.

Metamorphosis occurs in May through July. Individuals can accelerate development in early drying ponds, or delay metamorphosis in ponds that hold water longer; however, the USFWS minimum requirement for critical habitat is 12 weeks in a typical rainfall year (USFWS, 2005a). Subadult and adult CTS typically spend the dry summer and fall months in the burrows of small mammals, such as California ground squirrel (*Otospermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*) (Loredo and Van Vuren, 1996). Adults emerge from underground retreats to breed during the November – February rainy season (Loredo and Van Vuren, 1996). Adults may travel more than 2 km between upland aestivation sites and aquatic breeding sites (Orloff, 2011); however, the typical distance traveled is less than 1 km (Searcy and Shaffer, 2008).

The CTS is known to breed in ponds on the north side of the Travis AFB runways, and much of the grassland habitat on the Base provides suitable upland aestivation habitat. Active breeding ponds for CTS north of the Base runways are located in the Castle Terrace Preserve. Most of the northern, southern, and eastern portions of Travis AFB are within 1.5 km of on- or off-base active CTS breeding ponds, and the undeveloped lands in those areas are considered high-risk areas for CTS based on proximity to breeding ponds, habitat suitability, and accessibility of the landscape to CTS (landscape resistance; Navy, 2019). The easternmost 4 km of the Northern Railroad Right-of-Way GSU is designated critical habitat for CTS (Navy, 2019). During runway surveys and relocation efforts that began in May 2017, a total of 154 juvenile CTS were relocated off the runway and placed in suitable burrow sites along the eastern boundary of the Base. During pitfall trapping in June 2017, an additional 666 juvenile CTS were trapped and relocated. Total CTS numbers detected in the 2017 season included 820 live individuals (Marty, 2017b).

The proposed Complex site is within 1 km of an active CTS breeding pond immediately east of the Travis AFB perimeter fence and Fire Station #3, has low landscape resistance, and includes grassland habitat suitable for CTS aestivation. Consequently, the entire proposed Complex site is considered a high-risk area for CTS (Navy, 2019; Figure 3-7). The vernal pool and wetland swale habitat in the proposed Complex site are not suitable for CTS breeding, as they do not hold water long enough to allow CTS larvae to mature.

The existing Complex site is within 1 km of an active CTS breeding pond off-base near the Meridian Gate and is considered a high-risk area for CTS due to proximity, habitat suitability, and low landscape resistance (Navy, 2019). The vernal pools and wetland swale in the existing Complex site are not suitable for CTS breeding, as they do not hold water long enough to allow CTS larvae to mature.

Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp was listed as endangered by the USFWS in 1994 (FR 59 No. 180). Critical habitat was designated in 2003 (FR 68 No. 151) and revised in 2006 (FR 71 No. 28). The USFWS published a recovery plan that included this species entitled Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS, 2005b).

The species occurs in a wide variety of vernal pool habitats but is relatively long-lived compared to other vernal pool crustaceans (USFWS, 2005b). VPTS generally take between 3 and 4 weeks to mature (Ahl, 1991; Helm, 1998) and reproduce repeatedly during the season, as long as pools remain inundated (Ahl, 1991). VPTS can be found in pools that are likely too small to remain inundated for the entire life cycle of the species and may be able to tolerate temporary drying (Helm, 1998).

Despite numerous protocol-level and non-protocol-level sampling efforts over the past two decades, the VPTS has not been found to occur on the main base of Travis AFB. It has been found on one of the GSU, the Northern Railroad Right-of-Way, and just off-base in a pool 40 feet from the perimeter fence near the Meridian Gate on the eastern base boundary (Travis AFB, 2018). This location is approximately 0.75-mile northeast of the existing Complex. Critical Habitat is designated for VPTS on the Travis AFB main base at the South Gate, a triangular parcel south of Runway 03R/21L (not within the fenced boundary of the Base), the western railroad right-of-way, and the Potrero Hills Annex GSU (Travis AFB, 2018).

Delta Green Ground Beetle

The DGGB was listed as threatened and a final designation of critical habitat made under the ESA on August 8, 1980 (45 CFR 62807). A recovery plan was published in 1985; however, DGGB was included in a recovery plan for vernal pool ecosystems in California and southern Oregon in 2005.

The DGGB is a beetle in the Carabidae (ground beetles) family and is associated with large playa lakes in the Jepson Prairie region east of Travis AFB. Adults are active February through April in areas of sparse cover of low-growing vernal pool plant species (Navy, 2019). In a study of habitat features associated with DGGB presence, the species was least likely to be found in areas of annual grass cover (Navy, 2019).

Habitat assessments of Travis AFB in 2012 and 2016 found no suitable habitat for DGGB on the main base (Navy, 2019). Because the ecology and dispersal of DGGB is poorly understood, Travis AFB has established a 1-mile buffer around known and potential locations off-base within which DGGB would be considered in project consultation (Navy, 2019). The project action areas do not include suitable habitat for DGGB; however, the existing Complex site is inside a 1-mile buffer around an off-site location for DGGB.

Wildlife Protected by the MBTA

Annual grassland habitats on Travis AFB support a wide variety of bird species, the most dominant including western meadowlark (*Sturnella neglecta*), red-winged blackbird (*Agelaius phoeniceus*), killdeer (*Charadrius vociferous*), and song sparrow (*Melospiza melodia*) (Navy, 2019). Adult birds foraging in grassland habitat or inhabiting grasslands outside of the breeding season are not likely to be taken by project-related activities, as they can freely escape harm. Eggs, chicks, and adults of species that nest in grassland habitats are susceptible to take by vegetation clearing, ground disturbance noise, human presence, and other project-related activities because they are not able to move to avoid disturbance. Non-native species common in grassland habitats and urbanized areas such as ring-necked pheasant (*Phasianus colchicus*), rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*) are not protected by the MBTA.

Several bird species not listed under the federal ESA but protected by the California ESA or special protocols occur in grassland habitats on Travis AFB. These include Swainson's hawk (*Buteo swainsoni*), western burrowing owl (*Athene cunicularia*), and tricolored blackbird (*Agelaius tricolor*). There are no documented occurrences of these species in the existing or proposed Complex sites (Marty, 2017c). However, tricolored blackbird nesting habitat is located on Base south of the existing Complex site approximately 2,500 feet away. The MBTA prohibits unpermitted direct take of these species; however, there is no federal protection afforded to habitat for these species.

3.5.3 Environmental Consequences

This section presents analysis of potential impacts to vegetation and wildlife, with a focus on special status species.

3.5.3.1 No Action Alternative

Under the No Action Alternative, no demolition or new development would occur, and there would be no change to biological resources. Therefore, no impacts to biological resources would occur with implementation of the No Action Alternative.

3.5.3.2 Alternative 1 – Complete Alert Force Complex Relocation Potential Impacts

The action area for the analysis of impacts to biological resources associated with Alternative 1 includes three areas: (1) the construction of the proposed Complex located north of the Travis AFB runways on approximately 8.4 acres of developed and undeveloped land, (2) a 1.0-acre staging area for that construction, and (3) demolition of existing facilities in the existing Complex located along the southern boundary of the Base as shown on Figure 1-1, Regional Location Map.

Habitat

Construction of the proposed Complex would result in direct impacts to approximately 8.4 acres of currently undeveloped land consisting of 8.37 acres of annual grassland and 0.0046 acre of seasonal wetland. Additional indirect effects would occur to 1.01 acres of vernal pool habitat adjacent to the proposed Complex through hydrologic modification caused by grading and excavation. The approximately 1.0-acre proposed staging area is currently hardscaped and supports no vegetation; no impacts to vegetation would result from use of the proposed staging area.

Additional impacts to vegetation could occur outside of the proposed Complex as a result of trenching for underground utilities. If utilities were situated in existing streets or other developed areas, no additional impacts to vegetation would occur.

Demolition of the existing Complex would result in minor impacts to heavily disturbed annual grassland vegetation immediately surrounding existing buildings. Proposed building demolition in the existing Complex would use existing paved surfaces for the majority of all equipment access and staging. There are 9 mapped vernal pools within 250 feet of the existing Complex (USACE, 2016) that would not be affected by demolition activities because of distance from the buildings proposed for demolition: VP.FL.798, VP.FL.797, VP.FL.796, VP.FL.597, VP.FL.504, VP.FL.505, VP.FL.803, VP.FL.594, and VP.SU.518.

The vegetation communities that would be affected by Alternative 1 are not considered sensitive biological resources. No compensatory mitigation would be required for impacts to vegetation. Seasonal wetlands, wetland swales, and vernal pools are considered waters of the U.S. protected by the CWA. Impacts to waters of the U.S. are regulated by the USACE pursuant to Section 404 of the CWA. Impacts to waters of the U.S. resulting from Alternative 1, including avoidance and mitigation measures, are discussed in Section 3.2, Water Resources.

Threatened and Endangered Plant Species

No threatened or endangered plant species occur in the existing or proposed Complex sites; Alternative 1 would not result in impacts to threatened or endangered plant species. Extensive botanical surveys of Travis AFB conducted over several decades have identified only one threatened or endangered plant species north of the Base runways: Contra Costa goldfields (Navy, 2019). Populations of Contra Costa goldfields are known from four general locations north of the Base runways: Castle Terrace Preserve, Aero Club Preserve, Hangar Goldfield Preserve, and Perimeter Goldfield Preserve. Section 4.2.5 of the BA (Navy, 2019) includes general vernal pool avoidance and mitigation measures as species-specific conservation measures for VPFS. These measures would also provide protection for known or potential

habitat for Contra Costa goldfields. The vernal pool and wetland swale habitats in the existing and proposed Complex areas are not likely to support Contra Costa goldfields due to their low quality and distance from all known occurrences of the species; however, the vernal pool mitigation measures listed in Section 4.2.5 of the BA would be implemented by Alternative 1 because of potential for impacts to VPFS, as discussed in the next section, and would thus also serve as conservation measures for Contra Costa goldfields. No consultation under Section 7 of the ESA would be required for Contra Costa goldfields. Alternative 1 would not result in impacts to Contra Costa goldfields.

Terrestrial Wildlife

Alternative 1 would result in potential impacts to terrestrial wildlife species, including potential impacts to species protected under the ESA and the MBTA. Alternative 1 would result in direct, permanent impacts to approximately 8.37 acres of upland habitat suitable for the threatened CTS in the proposed Complex, and temporary impact up to 1.48 acre of upland habitat suitable for the threatened CTS in the existing Complex. Alternative 1 would also result in direct impacts to 0.0046 acre of seasonal wetland and indirect impacts to 1.01 acres of vernal pool habitat suitable for the threatened VPFS and the endangered VPTS. Alternative 1 is partially within a 1-mile buffer for off-base habitat for the threatened DGGB and no primary biological factors of critical habitat for DGGB in the form of vernal pools adjacent to the existing Complex would be impacted. Section 4.2 of the BA includes general avoidance and minimization measures designed to protect natural resources. These measures apply to Alternative 1 and would be implemented according to Mitigation Measure (MM) BIO-01.

BIO-01: General Avoidance and Minimization. Alternative 1 would implement avoidance and minimization measures MM-01 – MM-03, MM-05 – MM-14, and MM-17, as presented in Sections 4.2.1 through 4.2.3 of the BA (Navy 2019).

California Tiger Salamander

The existing and proposed Complex sites are designated as high-risk areas for CTS, and Alternative 1 is therefore considered *may affect, and is likely to adversely affect*, CTS (Navy, 2019). Development of the proposed Complex would result in loss of upland habitat used for dispersal, refugia, and foraging. Alternative 1 would result in the permanent loss of 8.37 acres of suitable CTS habitat and temporary disturbance of 1.48 acres of CTS upland habitat.

CTS that may be using small mammal burrows or cracks in the soil within the construction footprint of Alternative 1 are likely to be destroyed during grading and ground compaction activities as burrows are crushed or as inhabitants of burrows are entombed. CTS may be killed or injured from inadvertent trampling by workers from foot traffic and operation of construction equipment during construction activities. Construction activities may result in harassment from noise, vibration, and night-lighting and may disturb CTS causing them to leave their upland refugia and increase their exposure to desiccation and predation. CTS may also become trapped in open excavations or construction trenches, making them vulnerable to desiccation, starvation, and predation.

CTS could be exposed to contaminants though inhalation, dermal contact and absorption, direct ingestion of contaminated soil or plants, or consumption of contaminated prey. Exposure to contaminants may cause short- or long-term morbidity. Contaminants may also have a negative impact on CTS prey diversity and abundance and diminish the local carrying capacity for the species.

Section 7 consultation was initiated on February 25, 2019. The USFWS issued a BO on April 8, 2019 and an amended BO on June 5, 2019 (see Appendix C). The implementation of measures in the BA (Navy,

2019) and BOs (USFWS 2019a; USFWS 2019b) would minimize these effects to CTS. In addition to the conservation measures, 17.11 CTS upland credits would be purchased at a USFWS-approved conservation bank, and 0.74 acre of suitable CTS upland habitat would be reestablished on-base to offset both permanent and temporary impacts to CTS upland habitat.

Conservation Measures include:

BIO-02: Conservation Measures for CTS. Alternative 1 would implement species-specific conservation measures CTS-01 – CTS-03, CTS-05 – CTS-13, and CTS-15 – CTS-19, as presented in Section 4.2.4 of the BA (Navy 2019).

BIO-03: CTS Habitat Compensation. Alternative 1 would compensate for permanent impacts to 8.37 acres of upland CTS habitats in the proposed Complex through preservation of upland CTS habitat at a 2:1 ratio for a total of 16.74 acres of upland preservation. Alternative 1 would compensate for temporary effects to up to 1.48 acre of upland CTS habitats in the existing Complex through the reestablishment of 0.74 acre of suitable habitat on-base and preservation of upland CTS habitat for the remaining 0.74 acre at a 0.5:1 ratio, for a total of up to 0.37-acre of upland preservation. Compensation for permanent and temporary impacts to CTS habitat would be provided through a combination of on-base reestablishment of 0.74 acre and purchase and permanent preservation of habitat off-base, including purchase of 17.11 credits at a USFWS-approved mitigation bank.

Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

The Proposed Action is expected to adversely affect suitable habitat directly through grading and indirectly through hydrological modification. Construction of the proposed Complex would result in fill of 0.0046 acre of seasonal wetland habitat (SW.CA.1040), and ground disturbance by construction in the proposed Complex may alter local surface and/or subsurface hydrology in 1.01 acres of vernal pool habitat (VP.CA.184, VP.CA.030, VP.CA.358, VP.CA.364, and VP.CA.350) either through topographic modification or disruption of water tables. Direct impact to vernal pool habitat SW.CA.1040 would occur, however, all disturbed areas would be protected against sediment transport to surrounding habitat. Travis AFB assumes suitable habitat is occupied by VPFS and VPTS; therefore, the Proposed Action is likely to result in take of individual VPFS and VPTS. Furthermore, projects that directly or indirectly affect wetlands are Level 3 category projects as defined in Table 1 of the Final PBA (Travis AFB, 2018). As a Level 3 project, the Proposed Action is considered *may affect, and is likely to adversely affect*, VPFS and VPTS.

Alternative 1 would directly impact 0.0046 acre of vernal pool habitat and indirectly impact 1.01 acres of vernal pool habitat. Section 7 consultation was initiated on February 25, 2019. The USFWS issued a BO on April 8, 2019 and an amended BO on June 5, 2019 (see Appendix C). The implementation of measures in the BA (Navy, 2019) and BOs (USFWS 2019a; USFWS 2019b) would minimize these effects to VPFS and VPTS. In addition to the conservation measures, 1.01 acres of vernal pool conservation credits would be purchased at a USFWS-approved conservation bank.

Conservation Measures include:

BIO-04: Conservation Measures for VPFS. Alternative 1 would implement species-specific conservation measures VP-01, VP-03, and VP-04, as presented in Section 4.2.5 of the BA (Navy, 2019).

BIO-05: VPFS and VPTS Habitat Compensation. Alternative 1 would compensate for direct effects to 0.0046 acre of potential VPFS and VPTS habitat at a 3:1 ratio and indirect effects to 1.01 acres of

potential VPFS and VPTS habitat at a 1:1 ratio through preservation of existing VPFS and VPTS habitat, for a total of 1.0238 acres of vernal pool preservation. Compensation would be provided through purchase of vernal pool conservation credits at a USFWS-approved mitigation bank.

Delta Green Ground Beetle

Alternative 1 would not affect suitable habitat for DGGB, and the species is considered absent from most of the main base; however, per the Programmatic BA (Travis AFB, 2018), projects within the 1-mile buffer for off-base habitat may have potential to affect the species. The existing Complex site is within a 1-mile buffer for off-base habitat; therefore, it was included in the BA for Alternative 1 with a determination that the proposed project may affect, but is not likely to adversely affect, the DGGB. The USFWS concurred with the determination. Furthermore, DGGB has not been identified in Travis AFB to date, and the Service concurs that adverse effects to the DGGB are unlikely to occur (USFWS, 2019a; USFWS, 2019b). With implementation of Mitigation Measure BIO-06, Alternative 1 *may affect but is not likely to adversely affect* DGGB. Compensatory mitigation for impacts to habitat potentially suitable for DGGB would be provided according to Mitigation Measure BIO-06.

BIO-06: Conservation Measures for DGGB. During project activities in the existing Complex, Alternative 1 would implement species-specific conservation measures DGGB-6 and DGGB-7, as presented in Section 4.2.5 of the BA (Navy, 2019).

Native Birds

Native birds may nest in the natural habitats and built environments in the action area of Alternative 1. If project activities begin during the avian breeding season (February 1 – August 31), direct and indirect disturbance from project demolition and construction could lead to physical destruction of eggs, nests, or chicks, or displacement of adults leading to nest failure. Implementation of Mitigation Measures BIO-07, BIO-08, and BIO-09 would reduce the potential for Alternative 1 to adversely impact wildlife species protected by the MBTA.

Wildlife on Travis AFB is currently exposed to high levels of ambient noise from ongoing air operations, and Alternative 1 would not result in any temporal or spatial change to noise levels from existing conditions except during demolition and construction activities. Noise effects from demolition and construction of Alternative 1 would be localized and potential for adverse impacts to nesting birds would be reduced by implementation of Mitigation Measures BIO-07, BIO-08, and BIO-09. Operation of the Alternative 1 would result in no change to existing noise impacts on nesting birds on Travis AFB.

Alternative 1 has potential to affect nesting birds that use grassland and urban habitats for nest substrates. Many native bird species nest on the ground or in tall grass vegetation, and many nest on buildings and human-built structures. Ground disturbance in the existing and proposed Complex areas and building demolition in the existing Complex during the avian nesting season would have the potential to result in the destruction of active nests, eggs, and chicks, or cause nest abandonment through localized noise and other disturbance. Project activities that lead directly or indirectly to the take of adults, nests, eggs, or chicks of native birds would be a violation of the MBTA and considered an adverse impact on special-status species as defined in Section 3.5.1 – *Regulatory Setting*. Adverse impacts to native nesting birds would be minimized through implementation of Mitigation Measures BIO-07, BIO-08, and BIO-09.

BIO-07: To protect birds under the MBTA, a pre-construction survey must be performed by a qualified biologist no more than 14 calendar days before construction to determine whether any

protected species are present on or near the site. If protected birds are present or nesting on or near the site, construction may be temporarily postponed until the nesting season is over. Contact 60 CES/CEIE at least 30 calendar days in advance to arrange the pre-construction site survey.

BIO-08: Other measures which may be necessary if protected species are found on or near the site during the pre-construction survey include: (1) the construction crew may be prohibited from disturbing areas within a specified distance of owl burrows or bird nests according to guidelines for burrowing owl (CDFW, 2012) or consultation with CDFW; (2) the construction crew may be required to shut down or restrict activities during breeding and nesting seasons; (3) construction may be temporarily delayed while birds are encouraged to relocate away from the construction area. The construction crew should be advised of these possibilities in contract documents.

BIO-09: If the project includes removal of any trees, the construction crew is advised to remove the trees or tree limbs between September and January, outside of the bird nesting season. Trees may not be removed or limbed during nesting season unless a qualified biologist determines there are no active bird nests present.

Air operations under Alternative 1 would not change from existing conditions; the types of aircraft operated, and the number of sorties flown would remain unchanged. Threatened and endangered terrestrial species in or near the existing Complex are already exposed to the ongoing air operations on Travis AFB. Therefore, no impact would occur.

3.5.3.3 Alternative 2 – Partial Alert Force Complex Relocation Potential Impacts

The action area for the analysis of effects to biological resources associated with Alternative 2 is identical to the action area for Alternative 1.

Vegetation

Impacts to terrestrial vegetation resulting from the Alternative 2 would be the same as Alternative 1. No additional analysis is necessary.

Terrestrial Wildlife

Impacts to terrestrial wildlife resulting from Alternative 2 would be the same as Alternative 1. No additional analysis is necessary.

Threatened and Endangered Species

Impacts to threatened and endangered species resulting from Alternative 2 would be the same as Alternative 1, as would the required mitigation. No additional analysis is necessary.

3.6 Land Use

This discussion of land use includes current and planned uses and the regulations, policies, or zoning that may control the proposed land use. The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions. Natural conditions of property can be

described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

3.6.1 Regulatory Setting

In many cases, land use descriptions are codified in installation master planning and local zoning laws. Office of the Chief of Naval Operations Instruction (OPNAVINST) 11010.40 establishes an encroachment management program to ensure operational sustainment that has direct bearing on land use planning on installations. Additionally, the joint instruction OPNAVINST 11010.36C and Marine Corps Order 11010.16 provides guidance administering the Air Installation Compatible Use Zone (AICUZ) program, which recommends land uses that are compatible with noise levels, accident potential, and obstruction clearance criteria for military airfield operations. OPNAVINST 3550.1A and Marine Corps Order 3550.11 provide guidance for a similar program, Range AICUZ. This program includes range safety and noise analyses and provides land use recommendations which will be compatible with Range Compatibility Zones and noise levels associated with military range operations. Travis AFB has an installation-specific AICUZ study that was updated in December 2009 to document changes in the aircraft operations, noise contours, and compatible land uses for neighboring land areas since the previous study from 1995 (Travis AFB, 2009). This study also provides a detailed discussion on the origination and location of the accident potential zones and clear zones at Travis AFB which are intended to increase runway safety.

In October 2003, the Department of Defense (DoD) issued Instruction number 2000.16, "DoD Antiterrorism Standards," requiring all DoD Components to adopt and adhere to common criteria and minimum construction standards to mitigate antiterrorism vulnerabilities and terrorist threats. The intent of these building standards is to integrate greater resistance to a terrorist attack into all inhabited buildings. That philosophy affects the general practice of designing inhabited buildings. Because a part of the redevelopment project would be occupied by Navy personnel, the applicability of Anti-Terrorist/ Force Protection (AT/FP) requirements is evaluated in Section 3.1, Land Use and Applicable Plans, of this EA. AT/FP standards consist of restrictions for onsite planning, including standoff distances, building separation, unobstructed space, drive-up and drop-off areas, access roads, and parking; structural design; structural isolation; and electrical and mechanical design. AT/FP standards will be incorporated into the design of the new Navy administrative space, where applicable.

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

3.6.2 Affected Environment

Travis AFB is located in central Solano County, in northern California. The installation occupies 5,137 acres and is approximately 40 miles southwest of the City of Sacramento and 50 miles northeast of the City of San Francisco. The installation lies within the corporate boundary of the City of Fairfield but has common boundaries with the Suisun City and unincorporated areas of Solano County.

Land uses and activities are represented by 10 different functional categories at Travis AFB. The land use categories for Travis AFB include:

- Administration

- Aircraft operations and maintenance
- Airfield
- Community service
- Housing accompanied
- Housing unaccompanied
- Industrial
- Medical
- Open space
- Outdoor recreation

The airfield is the predominant land use at Travis AFB, with aircraft operations and maintenance and industrial areas adjacent to the airfield on the northwest side and open space on the southwest side. North of the industrial areas and south and west of the open space areas are a mix of residential, community, and administrative areas. Open space surrounds much of the developed portions of the installation on the southeast, north, and east side of the runways (Travis AFB, 2016d).

Unincorporated Solano County land bordering Travis AFB, largely on its eastern side, is primarily agricultural or open space and undeveloped. From a land use perspective, Solano County developed a *Travis Air Force Base Land Use Compatibility Plan* in 2015 which provides policies to ensure that future land uses in the areas surrounding Travis AFB would remain compatible with the realistically foreseeable, ultimate potential aircraft activity at the installation (Solano County, 2015). The Solano County General Plan also focuses on preserving agricultural and rural areas and open space and growing existing communities (Solano County, 2008). Lands adjacent to the south and southwest of the installation are within Suisun City's sphere of influence. Most of the unincorporated land immediately adjacent to the installation is used for agriculture or is vacant.

The existing Complex is along the southern boundary of Travis AFB and is designated as airfield/aircraft operations and maintenance land (Travis AFB, 2016d). Private land used for agriculture and grazing is immediately south of the existing Complex and is subject to recurrent wildfires that have breached the existing Complex in recent history. The proposed site for the new Complex is vacant land designated as open space, which is defined as undeveloped land in the Travis Installation Development Plan (Travis AFB, 2016d). Adjacent lands to the north and east are designated as administration; a small lot of land adjacent to the west is designated as industrial; and land immediately south of the proposed site is designated for aircraft operations and maintenance.

3.6.2.1 Land Use Compatibility

The majority of the existing facilities are currently within the Travis AFB runway clear zone, and new building construction within the clear zone is prohibited. The Travis AFB runway clear zone is defined as an obstruction-free surface (except for features essential for aircraft operations) on the ground symmetrically centered on the extended runway centerline beginning at the end of the runway and extending outward 3,000 feet. Travis AFB has requested relocation and may eliminate the existing clear zone waiver that the VQ-3 Det Travis is currently operating under. The operations at the existing Complex are an incompatible land use.

The proposed Complex site would be outside the runway safety clear zone. Because the new Complex would be occupied by Navy personnel, the applicability of AT/FP requirements is evaluated in this EA. AT/FP standards consist of restrictions on site planning, including standoff distances, building

separation, unobstructed space, drive-up and drop-off areas, access roads, and parking; structural design; structural isolation; and electrical and mechanical design.

3.6.3 Environmental Consequences

The location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. Factors affecting a proposed action in terms of land use include its compatibility with on-site and adjacent land uses, restrictions on public access to land, or change in an existing land use that is valued by the community. Other considerations are given to proximity to a proposed action, the duration of a proposed activity, and its permanence.

3.6.3.1 No Action Alternative

Under the No Action Alternative, no demolition, new development, or change in land use would occur, and VQ-3 Det Travis operations would continue at the existing Complex within the Travis AFB runway clear zone. However, the operations are an incompatible land use, and Travis AFB has requested relocation and may eliminate the existing clear zone waiver that the VQ-3 Det Travis is currently operating under. Therefore, the No Action Alternative would result in an adverse impact to land use.

3.6.3.2 Alternative 1 – Complete Alert Force Complex Relocation Potential Impacts

The existing and proposed Complex sites, and adjacent lands, define the action area for the land use analysis.

The majority of the existing Complex is located at the airfield within the Travis AFB runway clear zone. The runway clear zones were established after the existing Complex was developed; however, with the establishment of the clear zone, the current land use is incompatible. Implementation of Alternative 1 would result in the demolition of fourteen facilities within the existing Complex and runway clear zone. After project demolition, the site would be revegetated with an Air Force seed mix, and no future development would be permitted on the site. Project demolition would revert the land use of the site from an aircraft operations and maintenance land use to open space.

Construction of Alternative 1 would relocate the Complex north of the Base runways, outside of the clear zone. The proposed Complex site would be constructed on a vacant piece of land designated as open space near the airfield and within a developed area of Travis AFB. The land use of Alternative 1 would be compatible with the surrounding land uses. Relocation of the existing facilities north of the Travis AFB runways would also alleviate the risk of wildfire breaching the Complex from adjacent private agricultural land. The AT/FP standards would be incorporated into the design of the new Complex, where applicable.

Therefore, implementation of Alternative 1 would remedy the incompatible land use of the existing operations and would not result in significant impacts to land use.

3.6.3.3 Alternative 2 – Partial Alert Force Complex Relocation Potential Impacts

Under Alternative 2, most project impacts would have similar impacts as those described under Alternative 1. However, risk of wildfire from continued use of Buildings 1164, 1177, and 1179 near private agricultural land would continue to be a concern for Navy personnel. Implementation of this action alternative would largely relocate the existing facilities outside of the runway clear zone and would not result in significant impacts to land use.

3.7 Infrastructure

This section discusses infrastructure such as utilities (including drinking water production, storage, and distribution; wastewater collection treatment and disposal; storm water management, solid waste management, energy production, transmission, and distribution; and communications), and facilities (including airfields, buildings, ranges, training and testing areas, wharves, piers, housing, etc.) Transportation systems and traffic are addressed separately in Section 3.11.

3.7.1 Regulatory Setting

EO 13693, Planning for Federal Sustainability in the Next Decade, requires federal departments and agencies to enact specific actions and operations outlined within the EO to reduce agency direct greenhouse gas emissions by at least 40 percent over the next decade. Improved environmental performance and federal sustainability will be achieved by reducing energy use and cost. Pursuing clean sources of energy will improve energy and water security.

Chief of Naval Operation Instruction 4100.5E outlines the Secretary of the Navy's vision for shore energy management. The focus of this instruction is establishing the energy goals and implementing strategy to achieve energy efficiency.

Antiterrorism Force Protection Standards have been adopted by the Department of Defense (DoD) through Instruction number 2000.16 of October 2006. The standards require all DoD Components to adopt and adhere to common criteria and minimum construction standards to mitigate antiterrorism vulnerabilities and terrorist threats.

3.7.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under infrastructure at Travis AFB.

3.7.2.1 Utilities

Potable Water

The water supply system at Travis AFB is currently undergoing a major conversion. Historically, Travis AFB has received water from the City of Vallejo water system. However, because of recent water quality problems in the area, the installation plans to fully convert to a privatized well water system. The installation has enough water capacity to meet existing and future water demands. The current estimated water supply capacity at Travis AFB is 7.5 millions of gallons per day (mgd) with a normal day headroom of 4.5 mgd in the summer and 6.3 mgd in the winter (Travis AFB, 2016d). The water distribution system at Travis AFB has been privatized under California Water Service.

Travis AFB has three permitted, active groundwater wells designated 2029, 2037, and 2038, and two unpermitted, inactive wells designated 2040 and 2041. The three active wells deliver approximately 2,800 gallons per minute and the inactive wells could deliver approximately 1,000 gallons per minute if they are permitted and operating (Travis AFB, 2016d).

Water utilities for the proposed Complex would connect to the water main along Vandenberg Drive, immediately south of the project site.

Wastewater

The sanitary sewer system serves approximately 2,006 acres within Travis AFB. Wastewater is discharged to the Fairfield-Suisun Wastewater Treatment Plant, located off base and operated by the Fairfield-Suisun Sewer District. Travis AFB also utilizes a sewage overflow facility at the former wastewater treatment plant in the southwestern corner of the installation. Travis AFB has a discharge capacity of 584 million gallons of wastewater and discharged approximately 407 million gallon in 2016 (Travis AFB, 2007; 2016d)

The sewer lines for the proposed Complex would connect to the sewer line at the corner of Vandenberg Drive and Baker Drive, approximately 260 feet east of the project site.

Stormwater

Stormwater runoff flows south across Travis AFB from approximately 2,900 acres of up-gradient land to the north. Some of this runoff is from agricultural sources, which can be problematic in terms of stormwater quality. Within the installation, runoff is collected in a series of open ditches and underground pipelines. Runoff from these channels joins with up-gradient runoff and discharges into the main branch of Union Creek and ultimately flows into Suisun Marsh.

The stormwater system capacity is adequate during minor storm events, but often becomes overwhelmed during major storms. Flooding that occurs during storms can occasionally impede the use of the south end of the runway. Site conditions at the existing Complex direct drainage toward Building 1175, causing recurrent flooding and persistent moisture issues in the Navy personnel's existing sleeping quarters. Therefore, mold remediation due to flooding is a constant concern at the existing facility.

Solid Waste Management

Solid waste on Travis AFB is managed through the installation's Integrated Solid Waste Management Plan which establishes policies and procedures governing the collection and disposal of refuse at Travis AFB. The installation's goal is to divert approximately 60 percent of the non-hazardous solid waste generated away from landfills. Solid waste is collected by Solano Garbage and taken to the Potrero Hills Landfill (Facility Number 48-AA-0075), located approximately 8 miles south of Travis AFB. The Potrero Hills Landfill is permitted to receive 4,330 tons of solid waste per day and has a remaining capacity of 13,872,000 cubic yards with an estimated closure date of 2048 (CAL Recycle, 2018).

Energy

Electric

The Western Area Power Administration provides 93 percent of electricity at Travis AFB, with the remaining seven percent coming from Pacific Gas & Electric. Within the installation, the distribution system is managed by a private contractor, City Light and Power. City Light and Power owns and maintains the three substations and all of the electrical lines, of which approximately 80 percent are underground. The installation is in year two of its 50-year contract with the provider. One concern is the lack of redundancy in the system, as the single source of power to the Base represents a vulnerability (The existing Complex has five on-site generators in case Base-wide power is lost).

Travis AFB has enough capacity to meet the existing demand for electricity. With some upgrades, the installation could accommodate additional demand. Substation C has capacity for expansion, and Substations A and B will have excess capacity following their upgrade to 12 kilovolt (kV) power. The electrical capacity at Travis AFB is 22.5 million watts with a total demand of 12.1 million watts.

Overall, the electrical distribution system at Travis AFB is in very good condition. However, systems vary across the installation and need standardization and more efficient equipment. Some systems, such as those at the existing Complex, including the older dormitories, are in poor condition and require upgrades (Travis AFB, 2016d).

Electrical utilities for the proposed Complex would connect to MH141-2 along Vandenberg Drive, east of the project site.

Natural Gas

Travis AFB receives approximately 90 percent of its gas supply from Shell Energy and 10 percent from Pacific Gas & Electric. Natural gas is supplied to the installation via a 6-inch gas line at the South Gate and 4- and 12-inch gas lines at the Main Gate. There is an extensive distribution system on the installation. In 2014, Travis AFB had a total natural gas capacity of 103 million cubic feet and only used approximately 0.2 million cubic feet. (Travis AFB 2007, Travis AFB 2016d).

Communications

Communication infrastructure is critical to Travis AFB's mission. Because the installation is one of the secure alert sites for first response units in the event of a natural disaster, communication systems must be functional at all times. The Air Force owns all the outside plant copper and fiber optic cables designated for official use on the installation. Cable maintenance is provided through an operations and maintenance Base Telecommunications System contract and is managed by the base contracting office. Commercial cables are leased from AT&T. The copper and fiber optic cable plant supports the following requirements: administrative telephones, C2 telephones, fire and crash systems, security alarm systems, radio systems, Energy Monitoring and Control Systems, and low-speed point-to-point data systems. In addition, the primary base area network backbone consists of 36 strands single mode fiber and interconnects the base information transfer nodes (ITN) located in several facilities. Each ITN is interconnected with a minimum of three other ITNs. The base operates and maintains approximately 83.5 miles of copper and 242 miles of fiber cable.

Communication systems can accommodate current demand. These systems could support another 3,000 to 5,000 users with additional fiber backbone and bandwidth. Additional users of secure internet protocol router networks and non-secure internet protocol router networks could be accommodated with some limitations. Upcoming military construction (MILCON) projects may require additional outside plant cable and manhole duct system capacity (Travis AFB, 2016d).

Although communications are generally in adequate condition at Travis AFB, the existing communications buildings are old, with deficiencies and fragmented functionality. Most communication infrastructure is adequate, but upgrades are needed to ensure continued operability.

3.7.2.2 Facilities

The facilities at the existing Complex include Buildings 1162, 1164, 1165, 1167, 1168, 1171, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1191, 1193, and 1894 (See Figure 1-2).

There are no existing facilities on the proposed Complex site.

3.7.3 Environmental Consequences

This section analyzes the magnitude of anticipated increases or decreases in public works infrastructure demands considering historic levels, existing management practices, and storage capacity, and evaluates

potential impacts to public works infrastructure associated with implementation of the alternatives. Impacts are evaluated by whether they would result in the use of a substantial proportion of the remaining system capacity, reach or exceed the current capacity of the system, or require development of facilities and sources beyond those existing or currently planned.

3.7.3.1 No Action Alternative

Under the No Action Alternative, no demolition or new development would occur, and there would be no change to the infrastructure at the existing Complex.

The electrical and communication systems at the existing Complex are in poor condition and would require maintenance and repairs until they can be upgraded or repaired. Temporary, short-term disruption of the electrical and communication system would be expected from system upgrades at the existing Complex. Therefore, the No Action Alternative would have minor impacts to infrastructure, but no significant impacts to infrastructure are anticipated.

3.7.3.2 Alternative 1 – Complete Alert Force Complex Relocation Potential Impacts

The utility and communications infrastructure in the immediate area of the construction site would support the proposed Complex. The proposed Complex site is undeveloped and would require trenching to a depth of approximately three feet for the installation of new utilities. Utilities at the existing Complex would be capped five feet from the existing buildings slated for demolition, and depth of existing utilities is typically three feet below ground surface. The following provides an impact analysis for each of the categories under infrastructure at Travis AFB.

Potable Water

Temporary impacts on the potable water supply would be expected from demolition and construction activities as existing water lines are connected to the proposed Complex or capped as appropriate. However, there is no change in personnel or mission operations. Therefore, no long-term significant impacts on potable water would occur.

Wastewater

Short-term impacts on the wastewater and sanitary sewer system would be expected during demolition and construction from short disruptions in service as the new facilities are connected to the existing system. However, because there would be no change in personnel or mission operations, a significant increase in wastewater generation is not anticipated. No long-term or significant impacts on the wastewater system would occur.

Stormwater

All contractors would be required to comply with applicable statutes, standards, regulations, and procedures regarding stormwater management during the demolition and construction period. During the design phase, a variety of stormwater controls or BMPs would be incorporated into demolition and construction plans, including the construction of a stormwater retention basin within the proposed Complex site. The additional impervious surfaces could increase runoff and sedimentation but would be minimized by implementing BMPs and following the Travis AFB SWPPP.

The requirements of the Energy Independence Security Act and the California Municipal Separate Storm Sewer Systems Phase II permit would be followed to maintain or restore, to the maximum extent

practical, the predevelopment hydrology of the project areas with respect to rate, volume and duration of flow. In addition to use of BMPs, guidance for maintaining and restoring areas of development provided in the Travis AFB SWPPP would be followed to avoid or minimize impacts. Therefore, no significant impacts on the stormwater system would occur.

Solid Waste Management

All solid waste would be collected and transported off site for disposal. Contractors completing any demolition or construction projects at Travis AFB would be responsible for disposing of waste generated by these activities. The demolition of the existing Complex and construction of the proposed Complex at Travis AFB would result in approximately 85 tons of demolition and construction debris.

Disposal of the debris would be through an integrated demolition and construction debris diversion approach, which includes reuse, recycling, volume reduction/energy recovery, and similar diversion actions. Contractors would be required to comply with applicable federal, state and local regulations for the collection and disposal of municipal solid waste from the installation. Much of the debris would be recycled, reused, or otherwise diverted from landfills to the extent practicable. The Travis AFB Integrated Solid Waste Management Plan requires that up to 60 percent of construction and demolition debris be diverted (Travis AFB, 2007). Applying the Travis AFB diversion goal rate to the potential amount of demolition and construction debris would result in approximately 51 tons of demolition and construction debris being diverted for reuse or recycling and approximately 34 tons being placed in the Potrero Hills Landfill. The solid waste disposed would represent less than 1 percent of the total remaining capacity for the Potrero Hills Landfill; therefore, no significant impacts on solid waste would occur.

Energy

Electrical

Short-term electrical disruptions would be anticipated while buildings are taken off-line and put on-line during demolition and construction activities. However, there is no change in personnel or mission operations and a significant increase in electricity demand is not anticipated. Therefore, no long-term significant impacts on the electrical system would occur.

Natural Gas

Short-term impacts on the natural gas distribution system would be expected during construction and demolition from short disruptions in service as the new facilities are connected to the existing system. No long-term or significant impacts on the natural gas system would occur.

Facilities

The new proposed Complex would provide AT/FP features which include security fencing, vehicle barriers, security gates, intrusion detection system, closed-circuit television and pedestrian turnstiles. West of the Alert Force building, a SATCOM facility would be constructed and include a reinforced concrete pad for the SATCOM antenna with dome. Project design and construction would comply with AT/FP regulations, and physical security mitigation in accordance with DoD Minimum Anti-Terrorism Standards for Buildings.

Demolition of the existing facilities/utilities and construction of the proposed facilities/utilities would require grading, excavation, and trenching. Prior to demolition or construction activities, a dig permit (60 Air Mobility Wing Form 55) would be acquired from 60 CES/CEA.

Compliance with the dig permit issued by 60 CES/CEA would ensure the project would have no significant impacts to infrastructure. Therefore, implementation of Alternative 1 would not result in a significant impact.

3.7.3.3 Alternative 2 – Partial Alert Force Complex Relocation Potential Impacts

Alternative 2 would have similar or less impacts as those described under Alternative 1. Therefore, implementation of this action alternative would not result in significant impacts to infrastructure.

4 Cumulative Impacts

This section (1) defines cumulative impacts, (2) describes past, present, and reasonably foreseeable future actions relevant to cumulative impacts, (3) analyzes the incremental interaction the proposed action may have with other actions, and (4) evaluates cumulative impacts potentially resulting from these interactions.

4.1 Definition of Cumulative Impacts

The approach taken in the analysis of cumulative impacts follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative impacts are defined in 40 CFR section 1508.7 as "the impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

To determine the scope of environmental impact analyses, agencies shall consider cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact analysis document.

In addition, CEQ and USEPA have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ 2005) and Consideration of Cumulative Impacts in EPA Review of NEPA Documents (USEPA 1999). CEQ guidance entitled *Considering Cumulative Impacts Under NEPA* (1997) states that cumulative impact analyses should

"…determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts…[and]…focus on truly meaningful impacts."

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

- Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

4.2 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the study area delimits the geographic extent of the cumulative impacts analysis. In general, the study area will include those areas previously identified in Chapter 3 for the respective resource areas. The time frame for cumulative impacts centers on the timing of the proposed action.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and time frame for the actions interrelate to the proposed action, the analysis employs the measure of "reasonably foreseeable" to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for EISs and EAs, management plans, land use plans, and other planning related studies.

4.3 Past, Present, and Reasonably Foreseeable Actions

This section will focus on past, present, and reasonably foreseeable future projects at and near the Proposed Action locale. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 4.1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. Projects included in this cumulative impacts analysis are listed and briefly described in the following subsections.

4.3.1 Past Actions

The following list describes past actions within Travis AFB (Travis AFB, 2016d).

FY 2010:

- Repair of Airfield Pavements, Runway 03R-21L: Replacement of pavements at Runway 03R-21L.

FY 2011:

- Taxiway M Bypass: Construction of a bypass road around Taxiway M.

FY 2015:

- Repair Taxiway Lights and Shoulders: Reconstruct concrete panels and asphalt shoulders on all taxiways on the northern side of Runway 03L-21R and Taxiway M, replacing the lighting system within the reconstructed taxiway shoulders, and grading unpaved shoulders.

FY 2016:

- Repair 400 Ramp: Repairs at the 400 Ramp located at the Travis AFB airfield. Construct new drainage.

- Repair Gas Mains and Laterals and Installation of Lighting in the Alert Force Complex Area: Repairs and lighting installation would occur at the Travis AFB airfield and within the Alert Force Complex area.
- Wheel and Tire Shop: Construct new addition for storage.
- Building 971: Construct covered addition and repair paddock.

FY 2017:

- Repair and Upgrade the Alert Force Complex Culvert and Drainage: Reconstruct a culvert, headwall, and security grate at the existing culvert at Perimeter Road and construct a drainage system at the vehicle inspection security entrance to the Alert Force Complex area.
- Repair 24-inch Water Main: Replace an existing degraded 24-inch 2015 water main in the Valley View area in the northern portion of Travis AFB.
- Repair 200 Ramp: Repairs at the 200 Ramp at the Travis AFB airfield and install new lighting.
- Repair Runway 21R/03L: Repairs include threshold lights and edge lighting and installation of an Approach Lighting System with Sequenced Flashing Lights System.
- Repair or replace asphalt between COMBS yard and 200 Ramp.
- Airfield Painting at 500 and 800 Ramps: Repaint all airfield markings along 500 and 800 ramps.
- Repair 600 Ramp Shoulder: Repair deteriorating asphalt shoulder pavement at the 600 Ramp from 604 to 607.
- Repair Natural Gas Lines for Multiple Facilities: Replace the existing steel pipe with HDPE.
- Repair Roofs of B Bunkers 956, 958, 966, 968, 976, and 978: Remove the existing grass/turf covering and re-establish the turf/grass to stabilize the earth over the entire bunker.
- Repair Soccer Field: Remove existing grass and irrigation systems and install a synthetic play surface.

4.3.2 Present and Reasonably Foreseeable Actions

The following list describes present and reasonably foreseeable future actions within Travis AFB.

FY 2018 and beyond:

- Base Comprehensive Asset Management Plan: Implement various projects to repair and upgrade existing facilities, roadways, utilities, the airfield, and security features.
- Transportation Working Capital Fund: Repair parking ramp PH-2-PH-11; construct new weigh-in motion scale system; renovate room 107 for hydraulic text equipment in Hanger 16; construct catwalks for fuel tanks in Building 564; replace 7.5-ton overhead crane in Building 818; renovate first floor restroom in Building 977; repair heating, ventilation, and air conditioning units and exhaust system in Building 803; repair hangar doors in Buildings 837 and 810; repair broken windows in Building 810; repair insufficient interior lighting in Building 812; and design fire suppression systems in Building 800 area.
- Miscellaneous projects: Construct youth center base civil engineering complex, twin peaks soccer field, and permanent batch plant. Replace hydrant fuel area G and hot cargo pad. Construct C-5 memorial display Contingency Response Wing campus, war reserve material

patient and staff parking, and Veterans Affairs dental clinic. Expand taxiway A and B and add update taxiway lights and shoulders. Remediate lead contamination in skeet range vernal pool.

FY 2019:

- Construct Batch Plant Location: Construct a batch plant location in the western portion of Travis AFB, north of Ellis Street.
- Demolish Building 927: Demolish dilapidated building and abandon all utilities in place. Retain landscaping and parking lot.

4.4 Cumulative Impact Analysis

Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental impacts for future actions has not been completed, assumptions were made regarding cumulative impacts related to this EA where possible. The analytical methodology presented in Chapter 3, which was used to determine potential impacts to the various resources analyzed in this document, was also used to determine cumulative impacts.

4.4.1 Air Quality

4.4.1.1 Description of Geographic Study Area

The geographic extent for cumulative effects on air quality is defined as the San Francisco Bay Area Air Basin. For purposes of air quality, the cumulative impact analysis looks beyond cumulative projects per se and instead focuses on the average cumulative air quality conditions within the San Francisco Bay Area Air Basin from day to day. The potential impacts of proposed GHG emissions are by nature global and cumulative impacts, as individual sources of GHG emissions are typically not large enough to have an appreciable impact on climate change. Therefore, an appreciable impact to global climate change would only occur when proposed GHG emissions combine with other human-generated GHG emissions in such a way to appreciably and discernably affect climate change on a global scale.

4.4.1.2 Relevant Past, Present, and Future Actions

Emissions from the action alternatives and the cumulative projects identified above in Section 4.3, Past, Present, and Reasonably Foreseeable Actions, would comply with Bay Area Air Quality Management District rules and regulations, which would minimize the impact of project cumulative air quality impacts.

4.4.1.3 Cumulative Impact Analysis

As described in Section 3.1, Air Quality, construction, demolition and operational activities associated with the action alternatives would produce emissions that would remain below all emission significance thresholds. Implementation of either action alternative would not exceed designated *de minimis* levels for criteria pollutants (40 CFR Part 51.853[b]). Therefore, this Federal Action is exempt from conformity determinations. Because emissions would not exceed *de minimis* levels, neither action alternative would

have the potential to contribute meaningfully to the degradation of regional air quality or otherwise contribute to a significant cumulative impact on air quality.

The potential impacts of proposed GHG emissions are by nature global and cumulative impacts, as individual sources of GHG emissions are typically not large enough to have an appreciable effect on climate change. The GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. Climate change impacts may include an increase in extreme heat days, higher concentrations of air pollutants, sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts. No single project could generate enough GHG emissions to noticeably change the global average temperature. The combination of GHG emissions from past, present, and future human activities contribute substantially to the phenomenon of global climate change and its associated environmental impacts. Demolition, construction, and clearing activities would generate approximately 1,041 tons (945 metric tons) of CO_2e if the proposed activities occurred beginning 2020, as detailed in Appendix A. Once completed, there would be no change in personnel or mission operations. Therefore, no long-term significant impacts on GHGs are expected, and based on the analysis in Section 3.1, neither action alternative would have the potential to contribute to any appreciable extent to any cumulatively considerable impact.

4.4.2 Water Resources

4.4.2.1 Description of Geographic Study Area

The action area includes the construction of the new Complex located north of the Travis AFB runways on approximately 8.4 acres of undeveloped land, and demolition of existing facilities located near the southern boundary of the base. Surface waters throughout Travis AFB, including Union Creek, have previously been modified to control water supply, flooding, and to accommodate base operations. Neither action alternative would significantly alter or contribute to the modification of surface waters.

4.4.2.2 Relevant Past, Present, and Future Actions

Previous Base activities including development and landscape modifications have resulted in Base-wide hydromodification, stream channelization, and the elimination or alteration to other aquatic resources including seasonal wetlands and vernal pools. The action alternatives could result in impacts to water resources during construction. Earth-moving activities associated with multiple construction projects occurring simultaneously could affect water resources by decreasing the quality of surface water runoff during storm events. Future actions with related activities could result in additional impacts; however, the action alternatives and future projects are subject to regulations including the CWA that limit and reduce impacts to aquatic resources.

4.4.2.3 Cumulative Impact Analysis

The action alternatives and all of the cumulative projects listed in Section 4.3.2 would cause minor impacts on surface water quality during project construction or demolition. Minor cumulative impacts on groundwater from the addition of impervious surfaces would be possible, and potential cumulative impacts would include contaminated runoff from equipment and sedimentation from cleared land, which could slightly increase sediment load of groundwater. However, Travis AFB currently has a Base-wide stormwater permit for industrial activity and a Base-wide SWPPP. Adhering to the Base-wide

permits and programs that are currently in place or would be implemented under the action alternatives would minimize impacts from multiple concurrent projects. The project would fill 0.0046 acre of seasonal wetland from the construction of the proposed Complex. Future projects with similar project activities could result in additional impacts; however, compensatory mitigation would be required for impacts to jurisdictional waters of the U.S.

Therefore, neither action alternative, when combined with other future proposed projects on the Base, would have to potential to contribute to any appreciable extent to any cumulatively significant impact to water resources.

4.4.3 Geological Resources

4.4.3.1 Description of Geographic Study Area

The action area includes the construction of a new Complex located north of the Travis AFB runways on approximately 8.4 acres of undeveloped land, and demolition of the majority of the existing facilities located near the southern boundary of the base. The underlying geology and soils within the study area have been subjected to previous disturbance and development, specifically at the existing Complex site where buildings and a runway have permanently altered the surrounding soils and topography. To a lesser extent, the proposed Complex site has also been subject to land modifications and disturbance and is generally surrounded by development.

4.4.3.2 Relevant Past, Present, and Future Actions

Past Travis AFB development activity has resulted in soil disturbance and conversion of soils into areas of permanent development. The action alternatives would result in grading, excavating, and recontouring of the soil and would result in short-term, minor to moderate, adverse effects; however, implementation of BMPs and a SWPPP would minimize long-term effects. Future activities at Travis AFB including new development, construction, renovations and demolition would require grading, excavating, and recontouring of the soil and would result in further soil disturbance.

4.4.3.3 Cumulative Impact Analysis

No impacts on geology or soils are anticipated from either action alternative because no important soil resources are present in the demolition and construction action areas, and it would not alter the geology of the area. The various projects planned within the Travis AFB Base Comprehensive Asset Management Plan and Transportation Working Capital Fund are small-scale construction, repair, renovation, and upgrade projects to be implemented throughout the Base, and impacts to geology and soils would be localized and limited within the footprint of the project. The action alternatives and future projects implemented on Travis AFB would comply with the overall objectives of the Pollution Prevention Program at Travis AFB and would meet the pollution prevention goals in the *Travis AFB Integrated Solid Waste Management Plan* (Travis AFB, 2007). Because the action alternatives would have little to no impacts to geology or soils, implementation of the project would not have the potential to contribute to a cumulatively significant impact to geological resources.

4.4.4 Cultural Resources

4.4.4.1 Description of Geographic Study Area

The action area includes the construction of a new Complex located north of the Travis AFB runways on approximately 8.4 acres of undeveloped land, and demolition of the majority of the existing facilities located near the southern boundary of the base. The existing Complex is developed and has been subjected to previous heavy ground disturbance. The new Complex site would be developed on a vacant lot that is capped with a layer of imported fill and construction debris up to 20 feet thick, but otherwise is undeveloped.

4.4.4.2 Relevant Past, Present, and Future Actions

Past Travis AFB development activity has resulted in ground disturbance and permanent development. The action alternatives would result in the grading and excavation of non-native soil; however, prior to construction, a dig permit (60 Air Mobility Wing Form 55) would be acquired from 60 CES/CEA, and the dig permit includes measures to address inadvertent impacts to cultural resources. Future activities at Travis AFB including new development, construction, renovations and demolition would also require a dig permit from 60 CES/CEA.

4.4.4.3 Cumulative Impact Analysis

There are no known historic or cultural resources within the project APE; therefore, neither action alternative is anticipated to affect known historic or cultural resources. Most of the projects planned within the Travis AFB Base Comprehensive Asset Management Plan and Transportation Working Capital Fund are small-scale construction, repair, renovation, and upgrade projects that would not impact the existing or proposed Complex sites. Both action alternatives, and other reasonably foreseeable future projects on Travis AFB, would comply with the requirements of the dig permit from 60 CES/CEA, the cultural resources contingency plan, and federal laws protecting cultural resources. Therefore, neither action alternative, when combined with other future projects on Travis AFB, would have the potential to contribute to a cumulatively significant cultural resources impact.

4.4.5 Biological Resources

4.4.5.1 Description of Geographic Study Area

The action area includes the construction of a new Complex located north of the Travis AFB runways on approximately 8.4 acres of undeveloped land, and demolition of existing facilities located near the southern boundary of the base. Biological resources in the action area have been modified by past ground disturbing activities, including construction of the existing buildings and flight line infrastructure in the existing Complex area, and placement of fill for a graded pad in the northern half of the proposed Complex site. These activities have altered the topography by grading and filling and have changed the land cover in the action area by introducing impermeable surfaces and structures. Ongoing mowing for fire management in the action area alters the vegetation structure and suitability as habitat for terrestrial plants and wildlife. Future actions in the existing Complex would be limited to mowing and activities prescribed in the BASH Plan, as the existing Complex is inside the primary surface surrounding runway 3R, where development is prohibited.

4.4.5.2 Relevant Past, Present, and Future Actions

The 2018 PBA of effects on six federally threatened and endangered species at Travis AFB (PBA; Travis AFB, 2018) describes four categories of projects expected to occur on Travis AFB: mission operations, infrastructure support, infrastructure development, and environmental management programs. Activities in each of these categories that are likely to be relevant to the action alternatives are discussed in the following sections.

Mission Operations

Mission operations include airfield and flight operations and security and antiterrorism operations. Both of these types of activities have occurred in the existing Complex and are expected to occur in and around the proposed Complex and the existing facilities during operation of either action alternative and following demolition of the existing facilities. According to Table 6 in the PBA, airfield and flight operations are considered likely to adversely affect CTS and have no effect on other biological resources, while security and antiterrorism activities are likely to adversely impact VPFS and not likely to adversely impact CTS (Travis AFB, 2018).

Infrastructure Support

Infrastructure support activities that have occurred within the existing Complex site and are likely to occur in and around the proposed Complex site include runway/taxiway/ramp repair, facility maintenance and upgrade, mowing, and fencing installation and maintenance. Facility maintenance and fencing maintenance are considered likely to adversely affect CTS and VPFS; runway/taxiway/ramp repair is considered likely to adversely affect CTS. Mowing is expected to have a beneficial effect on both VPFS and CTS (Travis AFB, 2018).

Infrastructure Development

Infrastructure development activities include minor construction projects and facility maintenance and upgrade. Both of these activities have occurred in the existing Complex and are likely to occur in and around the proposed Complex during operation of either action alternative. Both of these activities are considered likely to adversely affect CTS and VPFS (Travis AFB, 2018).

Environmental Management Programs

Environmental management activities have not occurred within the demolition and construction areas for the action alternatives in the past. The demolition and construction areas do not include any Environmental Restoration Program sites, nor are they in an existing or proposed grazing area. Environmental Management activities that may occur in the existing facilities following demolition include grassland restoration, wetland restoration, fire suppression, invasive and pest species removal, and CTS burrow inspection and relocation. Fire suppression, invasive and pest species removal, and CTS burrow inspection and relocation activities may occur in the proposed Complex during operation. Grassland and wetland restoration are considered not likely to adversely affect CTS; the remaining activities are considered likely to adversely affect CTS (Travis AFB, 2018). Fire suppression and wetland restoration activities are considered likely to adversely affect VPFS; invasive and pest species removal and grassland restoration are considered not likely to adversely affect VPFS. CTS burrow inspection and relocation is not expected to affect VPFS (Travis AFB, 2018).

4.4.5.3 Cumulative Impact Analysis

Each project activity described in the PBA would be analyzed for the level of effect it may have to listed species according to the Effects Analysis Framework described in Section 1.4.2 of the PBA (Travis AFB, 2018). Projects evaluated at any level higher than Level 1 (No Effect) or Level 1b (No Effect with Conservation Measures) would implement appropriate general avoidance and minimization measures and species-specific conservation measures laid out in Section 1.5 and Tabs A through F of the PBA (Travis AFB, 2018). Implementation of these measures, along with the compensation measures in Table 3 of the PBA, would reduce the likelihood of project-level and cumulative adverse impacts to VPFS, VPTS, CTS, and other biological resources.

Implementation of either action alternative would be considered a Level 3 activity and would implement general avoidance and minimization measures, compensation measures, and species-specific conservation measures, as required by mitigation measures BIO-01 through BIO-08 in Section 3.5, Biological Resources. With implementation of mitigation measures BIO-01 through BIO-08, Alternative 1 would not have the potential to contribute to any appreciable extent to any cumulative significant impact to VPFS, VPTS, CTS, or other biological resources.

4.4.6 Land Use

4.4.6.1 Description of Geographic Study Area

The action area includes the construction of a new Complex located north of the Travis AFB runways on approximately 8.4 acres of undeveloped land, and demolition of existing facilities located near the southern boundary of the base.

4.4.6.2 Relevant Past, Present, and Future Actions

Past Travis AFB development activity has resulted in previous ground disturbance and repair projects at the existing Complex. There are no future projects planned for the existing Complex site as it is located within the Travis AFB safety clear zone, and this project proposes to demolish fourteen facilities within existing Complex. There are no recent past or future projects that have impacted or would impact the proposed Complex site.

4.4.6.3 Cumulative Impact Analysis

The demolition and construction areas for the action alternatives would be in areas that are designated for future open space as identified in the Travis AFB Installation Development Plan that was approved in 2016. The site proposed for the new Complex would be available for the development of either action alternative. Most of the projects planned within the Travis AFB Base Comprehensive Asset Management Plan and Transportation Working Capital Fund are small-scale construction, repair, renovation, and upgrade projects that would not impact the existing or proposed Complex sites. Land use impacts from implementation of either action alternative would be limited to the project footprint and would not have the potential to contribute to a cumulatively significant impact to land use.

4.4.7 Infrastructure

4.4.7.1 Description of Geographic Study Area

The action area includes the proposed site for the new Complex located north of the Travis AFB runways, and the existing Complex located near the southern boundary of the Base. The proposed utilities at the new Complex site would connect to existing utilities located along Vandenberg Drive. The existing utilities at the existing Complex would be removed in the immediately affected area or capped in place.

4.4.7.2 Relevant Past, Present, and Future Actions

Recent past infrastructure and utilities projects at the existing Complex include repairs of gas mains and laterals, installation of lighting, and repair and upgrade of the culvert and drainage system. Other projects within Travis AFB include replacing a degraded 24-inch water main in the northern portion of Travis AFB and replacing existing steel pipe natural gas lines with High-Density Polyethylene pipes. Future projects within Travis AFB (2018 and beyond) primarily include repairing existing infrastructure, with the exception of the proposed construction of a parking lot near Building 924.

4.4.7.3 Cumulative Impact Analysis

Implementation of either action alternative would require the installation of new utilities at the proposed Complex site; however, the project would have no change in personnel or mission operations. Because the project would not increase the demand of utilities or generate capacity issues, implementation of either action alternative, combined with the various project identified in Section 4.3.2, would not have the potential to contribute to a cumulatively significant impact.

5 Other Considerations Required by NEPA

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

In accordance with 40 Code of Federal Regulations (CFR) section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state and local land use plans, policies, and controls. Table 5-1 identifies the principal federal and state laws and regulations that are applicable to the Proposed Action and describes briefly how compliance with these laws and regulations would be accomplished.

Table 5-1 Principal Federal and State Laws Applicable to the Proposed Action

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*	*EA Section*
National Environmental Policy Act (NEPA); CEQ NEPA implementing regulations; Navy procedures for Implementing NEPA	Navy and Air Force	This EA has been prepared in accordance with NEPA, CEQ regulations implementing NEPA, and Navy NEPA procedures.	Entire EA
Clean Air Act (CAA)	USEPA and CARB	The air quality analysis in this EA concludes that proposed emissions under the action alternatives would not exceed *de minimis* levels and would comply with all applicable state and regional air agency rules and regulations.	3.1
Clean Water Act (CWA)	USEPA, USACE, California SWRCB	The Proposed Action would be implemented in compliance with the Travis AFB Construction Site Storm Water NPDES and SWPPP to limit potential erosion and runoff. Implementation of the Proposed Action would require the Navy and Air Force to obtain a USACE 404 Nationwide Permit and RWCQB 401 Water Quality Certification.	3.2, 3.3
National Historic Preservation Act (NHPA)	SHPO	No known historic properties would be adversely affected by the Proposed Action. Concurrence from SHPO with Air Force finding of No Adverse Effect is pending.	3.4, 4.4.4
Endangered Species Act (ESA)	USFWS	No threatened or endangered plant species occur in the proposed Complex or the existing Complex; the Proposed Action would not result in impacts to threatened or endangered plant species. The Proposed Action would result in potential impacts to terrestrial wildlife species, including potential impacts to species protected under the ESA. Section 1.5 of the 2018 PBA includes general avoidance and minimization measures designed to	3.5

Table 5-1 Principal Federal and State Laws Applicable to the Proposed Action

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*	*EA Section*
		protect natural and biological resources. These mitigation measures (or others developed during ESA Section 7 consultation) apply to the Proposed Action and would be implemented accordingly.	
Migratory Bird Treaty Act (MBTA)	USFWS	The Proposed Action would result in potential impacts to terrestrial wildlife species, including potential impacts to species protected under the MBTA. Section 1.5 of the 2018 PBA includes general avoidance and minimization measures designed to protect natural and biological resources. These mitigation measures apply to the Proposed Action and would be implemented accordingly.	3.5
Comprehensive Environmental Response, Compensation, and Liability Act	USEPA	The Proposed Action is located over 1,000 feet from the nearest DERP site (LF006) and is outside its associated groundwater containment plume and does not pose any adverse effects to workers or during operation of the facility.	3.11
Resource Conservation and Recovery Act (RCRA)	USEPA	Hazardous materials or wastes encountered or generated during the Proposed Action would be managed in accordance with *Air Force Instruction 32-7086, Hazardous Materials Management* (Air Force, 2004); *Air Force Instruction 32-7042, Solid and Hazardous Waste Compliance* (Air Force, 2010); and the *Travis AFB Integrated Solid Waste Management Plan* (Travis AFB, 2007).	3.11
Toxic Substances Control Act (TSCA)	USEPA	Hazardous materials or wastes encountered or generated during the Proposed Action would be managed in accordance with *Air Force Instruction 32-7086, Hazardous Materials Management* (Air Force, 2004); *Air Force Instruction 32-7042, Solid and Hazardous Waste Compliance* (Air Force, 2010); and the *Travis AFB Integrated Solid Waste Management Plan* (Travis AFB, 2007).	3.11

Table 5-1 Principal Federal and State Laws Applicable to the Proposed Action

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	*Responsible Agency*	*Status of Compliance*	*EA Section*
Executive Order 11988, Floodplain Management	FEMA	The proposed Complex and demolition area is not located within a 100-year floodplain. None of the activities associated with the Proposed Action would impact floodplains.	3.2
Executive Order 11990, Protection of Wetlands	Navy and Air Force	The Navy and Air Force solicited advance public comment on the proposed project in accordance with Executive Order 11990, Protection of Wetlands, because approximately 0.05 acre of wetlands would be directly impacted by the proposed project. The public notice was published in local newspapers starting June 8, 2018 through June 10, 2018, and public comments were accepted between June 18, 2018 and July 19, 2018. No comments were received during the advance public notice period. Impacts to wetlands have since been further reduced to 0.0046 acre.	ES.6, 1.8
Executive Order 12088, Federal Compliance with Pollution Control Standards	USEPA	The air quality analysis in this EA concludes that proposed emissions under the action alternatives would not exceed *de minimis* levels and would comply with all applicable state and regional air agency rules and regulations.	3.1
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations	Navy and Air Force	The Proposed Action would take place within Travis AFB property boundaries, and there would be no disproportionately high environmental or health impacts on low-income or minority populations.	Ch. 3 Introduction
Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks	Navy and Air Force	There are no environmental health and safety risks associated with the Proposed Action that would disproportionately affect children.	3.10
Executive Order 13175, Consultation and Coordination with Indian Tribal Governments	Navy and Air Force	Travis AFB regularly consults with two federally recognized tribes, the Cortina Band of Indians and the Yocha Dehe Wintun Nation, as part of the NEPA and Section 106 processes. These tribes have not identified any sacred sites or properties of traditional religious or cultural importance on Travis AFB.	3.4

5.2 Irreversible or Irretrievable Commitments of Resources

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

Implementation of the action alternatives would require the irreversible or irretrievable commitments of human labor; the consumption of fuel, oil, and lubricants for construction vehicles; and permanent loss of 0.0046 acre of seasonal wetland. Implementing the Proposed Action would not result in significant irreversible or irretrievable commitment of resources.

5.3 Unavoidable Adverse Impacts

This EA has determined that the action alternatives considered would not result in any unavoidable adverse impacts. Table ES-1 presents the identified resource area avoidance/minimization measures for the alternatives considered.

Under the No Action Alternative, relocation of the existing Complex would not occur, and the VQ-3 Det Travis mission and personnel would continue to operate within the clear zone of the Travis AFB runways. However, Travis AFB has requested relocation and may eliminate the existing clear zone waiver that the VQ-3 Det Travis is currently operating under. Therefore, the No Action Alternative would result in unavoidable adverse impacts to land use.

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

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development site reduces future flexibility in pursuing other options, or that using a parcel of land or other resources often eliminates the possibility of other uses at that site.

In the short-term, impacts to the human environment with implementation of the Proposed Action would primarily relate to construction activity. Project-related construction activities would temporarily increase air pollution emissions and ambient noise levels in the immediate vicinity of the affected areas. Short-term service disruptions of the existing utilities near the proposed Complex site and existing Complex would be anticipated while buildings are taken off-line and put on-line during demolition and construction activities.

Implementation of the Proposed Action would require grading and filling of a seasonal wetland located at the proposed Complex site. Therefore, the Proposed Action would fill 0.0046 acre of jurisdictional waters of the U.S. The filling or rerouting of wetland swales requires USACE mandated restoration of similar wetlands for compensation on a 1:1 ratio. The Air Force would need to acquire Section 401 and 404 permits from the USACE, San Francisco District, and the California RWQCB, San Francisco Bay Region, for approval to fill 0.0046 acre of jurisdictional waters of the U.S. Approval of the Section 401 and 404 permit applications would be obtained prior to commencement of construction activities. However, the demolition of the existing Complex and construction and operation of the new Complex

would not significantly impact the long-term natural resource productivity of the area. The Proposed Action would not result in any impacts that would significantly reduce environmental productivity or permanently narrow the range of beneficial uses of the environment.

6 References

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Appendix A

Air Quality Methodology and Calculations

RECORD OF NON-APPLICABILITY (RONA)
FOR CLEAN AIR ACT CONFORMITY
DEVELOPMENT OF THE P205 ALERT FORCE COMPLEX AT TRAVIS AIR FORCE BASE

The Proposed Action falls under the Record of Non-Applicability (RONA) category pursuant to 40 Code of Federal Regulations (CFR) Parts 52 and 93, and the basis for exemption from conformity requirements is documented with this RONA.

The United States (US) Environmental Protection Agency (USEPA) published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule*, in the Federal Register (40 CFR Parts 6, 51, and 93) on November 30, 1993. The U.S. Navy published *Clean Air Act General Conformity Guidance in Chief of Naval Operations Instruction* (OPNAVINST) 5090.1C CH-1 (18 July 2011). These publications provide guidance to document Clean Air Act Conformity requirements.

Federal regulations state that no department, agency, or instrumentality of the federal government shall engage in, support in any way, or provide financial assistance for, license or permit, or approve any activity that does not conform to an applicable implementation plan. The federal agency that is the action proponent is responsible for determining whether a federal action conforms to the applicable implementation plan before the Proposed Action is taken (40 CFR Part 1, Section 51.850[a]).

Federal actions may be exempt from conformity determinations if they do not exceed designated *de minimis* levels for criteria pollutants as set forth in 40 CFR § 93.153(c) (Table 1). These standards are reflected in Appendix F of OPNAVINST 5090.1C CH-1.

The Proposed Action would be implemented in Solano County, California, under the jurisdiction of the California Air Resources Board (ARB), the Bay Area Air Quality Management District, and EPA Region 9. Solano County is designated nonattainment for state ozone (O_3) standards, particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}) and particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$) (CARB, 2018). For federal standards, Solano County is designated nonattainment for 8-hour O_3 and $PM_{2.5}$ and is in maintenance for carbon monoxide (CO). All other criteria pollutants are designated attainment or are unclassified.

The EPA Final Conformity Rule requires that total direct and indirect emissions of nonattainment and maintenance criteria pollutants, including O_3 precursors (volatile organic compounds [VOC] and nitrogen oxides [NO_x]), be considered in determining conformity. The rule does not apply to actions where total direct and indirect emissions of nonattainment and maintenance criteria pollutants do not exceed the thresholds established in 40 CFR 93.153(b). *De minimis* levels (in tons/year) for the air basin potentially affected by the Proposed Action are listed in **Table 1**.

Table 1. *De minimis* Levels for Criteria Pollutants for the Proposed Action

Criteria Pollutant	*De minimis* Level (tons/year)	Exceedance (Yes or No)
VOC	100	No
NO_x	100	No
CO	N/A	N/A
PM_{10}	N/A	N/A
$PM_{2.5}$	100	No

Note: If a federal action meets *de minimis* requirements, detailed conformity analyses are not required, pursuant to 40 CFR 93.153(c).

PROPOSED ACTION

Action Proponent: U.S. Navy
Location: Travis Air Force Base, Fairfield, California
Proposed Action Name: P205 Alert Force Complex
Proposed Action and Emissions Summary: The Proposed Action would involve the construction of a new Alert Force Complex on an approximately 8.4-acre parcel, north of the Travis AFB runways. The new Complex would include the construction of utility infrastructure to support the Complex, and site preparation would include site clearing, excavation, and preparation for construction. Additional site preparation features include excavation of undocumented fill. Paving and site improvements include grading, parking, roadways, curbs, sidewalks, landscaping and pedestrian features.

With the exception of the spares storage and maintenance facilities outside the compound (buildings 1164, 1177, and 1179), fourteen existing facilities near the southern boundary of Travis AFB would be demolished, and the remaining three buildings would be returned to the Air Force for their reuse. Existing utility infrastructure would either be abandoned in place or remain in place where appropriate.

The proposed site location would allow for two access routes to the new aircraft parking, north of the flight line, while meeting the Navy's time requirements. The proposed Complex site would utilize existing Travis AFB aircraft parking spaces for at least two E-6B Mercury aircrafts to be parked near the new facility at all times. If a third aircraft is located at Travis AFB, it may be parked anywhere on base. However, no new construction is required for the aircraft parking.

Air Emissions Summary: The Proposed Action would result in air emissions from construction and demolition activities. Implementation of the Proposed Action would require the demolition of fourteen facilities within the existing Alert Force Complex, construction of the proposed Alert Force Complex north of the Travis AFB runways, site preparation activities, and paving. Emissions associated with these activities are calculated based on assumptions regarding the amount of demolition required, estimated timeframe for construction, and estimated equipment and workforce requirements. Because mission operations would be unchanged, operational emissions from project implementation would be zero.

Based on the air quality analysis for the Proposed Action, the maximum estimated emissions would be below conformity *de minimis* levels (**Table 2**).

Table 2. Estimated Emissions (Tons) at Travis AFB and Comparison to General Conformity under Proposed Action

Year	Pollutant				
	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$
2020	0.204	1.333	1.270	7.185	0.060
2021	0.316	1.981	1.959	0.096	0.094
2022	0.633	1.457	1.443	0.072	0.071
General Conformity *De minimis* Thresholds (Tons per year)	100	100	N/A	N/A	100
Exceed Threshold?	No	No	No	No	No

EMISSIONS EVALUATION AND CONCLUSION

Total combined direct and indirect emissions associated with the action were estimated through the Air Force's Air Conformity Applicability Model on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. Operational emissions from the Proposed Action would be zero as there is no change in mission or personnel. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are:

_____ applicable

__X__ not applicable

The Navy concludes that *de minimis* thresholds for applicable criteria pollutants would not be exceeded nor would the projected emissions be regionally significant (i.e., greater than 10 percent of the air basin's emission budgets) as a result of implementation of the Proposed Action. The emissions data supporting that conclusion is shown in Table 2 above, which is a summary of the calculations, methodology, data, and references included in the attachment to the RONA. The Navy concludes that further formal Conformity Determination procedures are not required, resulting in this Record of Non-Applicability.

RONA APPROVAL

Date: 9-26-2019

Signature: _____

Victor Ortiz, Senior Air Quality Specialist

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Instruction 32-7040, Air Quality Compliance And Resource Management; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: TRAVIS AFB
County(s): Solano
Regulatory Area(s): San Francisco Bay Area, CA; San Francisco-Oakland-San Jose, CA

b. Action Title: ALERT FORCE COMPLEX PROJECT

c. Project Number/s (if applicable): P205

d. Projected Action Start Date: 6 / 2020

e. Action Description:

The Proposed Action would include the construction of a new Alert Force Complex (Complex) for the Navy's Fleet Air Reconnaissance Squadron Three Detachment Travis (VQ-3 Det Travis) outside the runway safety clear zone at Travis AFB. The new Complex would occupy approximately 8.4 acres north of the Travis AFB runways. The Proposed Action includes the demolition of most facilities within the existing Complex along the southern boundary of Travis AFB. Buildings 1164, 1177, and 1179 would not be demolished as part of the Proposed Action and would be returned to the Air Force for their reuse.

f. Point of Contact:

Name: Victor Ortiz
Title: Senior Air Quality Specialist
Organization: HELIX Environmental Planning Inc.
Email: VictorO@helixepi.com
Phone Number: 619.462.1515

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
__X__ not applicable

Conformity Analysis Summary:

2020

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
San Francisco Bay Area, CA			
VOC	0.230	100	No
NOx	1.461	100	No
CO	1.404		
SOx	0.003	100	No
PM 10	7.036		
PM 2.5	0.066	100	No

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

Pb	0.000		
NH3	0.001	100	No
CO2e	327.4		
San Francisco-Oakland-San Jose, CA			
VOC	0.230		
NOx	1.461		
CO	1.404	100	No
SOx	0.003		
PM 10	7.036		
PM 2.5	0.066		
Pb	0.000		
NH3	0.001		
CO2e	327.4		

2021

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
San Francisco Bay Area, CA			
VOC	0.316	100	No
NOx	1.981	100	No
CO	1.959		
SOx	0.005	100	No
PM 10	0.096		
PM 2.5	0.094	100	No
Pb	0.000		
NH3	0.002	100	No
CO2e	428.0		
San Francisco-Oakland-San Jose, CA			
VOC	0.316		
NOx	1.981		
CO	1.959	100	No
SOx	0.005		
PM 10	0.096		
PM 2.5	0.094		
Pb	0.000		
NH3	0.002		
CO2e	428.0		

2022

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
San Francisco Bay Area, CA			
VOC	0.604	100	No
NOx	1.304	100	No
CO	1.307		
SOx	0.003	100	No
PM 10	0.220		
PM 2.5	0.062	100	No
Pb	0.000		
NH3	0.001	100	No
CO2e	285.8		
San Francisco-Oakland-San Jose, CA			
VOC	0.604		

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

NOx	1.304		
CO	1.307	100	No
SOx	0.003		
PM 10	0.220		
PM 2.5	0.062		
Pb	0.000		
NH3	0.001		
CO2e	285.8		

2023 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
San Francisco Bay Area, CA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000	100	No
PM 10	0.000		
PM 2.5	0.000	100	No
Pb	0.000		
NH3	0.000	100	No
CO2e	0.0		
San Francisco-Oakland-San Jose, CA			
VOC	0.000		
NOx	0.000		
CO	0.000	100	No
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

Victor Ortiz, Senior Air Quality Specialist

9-26-2019
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: TRAVIS AFB
County(s): Solano
Regulatory Area(s): San Francisco Bay Area, CA; San Francisco-Oakland-San Jose, CA

- Action Title: ALERT FORCE COMPLEX PROJECT

- Project Number/s (if applicable): P205

- Projected Action Start Date: 6 / 2020

- Action Purpose and Need:

The Purpose of the Proposed Action is to provide adequate and efficiently configured facilities to provide a secure Alert Force Complex (Complex) for the Fleet Air Reconnaissance Squadron Three Detachment Travis (VQ-3 Det Travis). The project is needed because the facilities within the existing Complex have reached the end of their serviceable life and the current facilities have physical security concerns. Constructing a new Complex north of the flight line and outside of the runway clear zone corrects critical capacity, condition, and configuration issues that degrade mission capability and threaten the ability to maintain continuity of communication capabilities.

- Action Description:

The Proposed Action would include the construction of a new Complex for the Navy's VQ-3 Det Travis outside the runway safety clear zone at Travis AFB. The new Complex would occupy approximately 8.4 acres north of the Travis AFB runways. The Proposed Action includes the demolition of most existing facilities along the southern boundary of Travis AFB. Buildings 1164, 1177, and 1179 would not be demolished as part of the Proposed Action and would be returned to the Air Force for their reuse.

- Point of Contact

Name: Victor Ortiz
Title: Senior Air Quality Specialist
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Phone Number: 619.462.1515

- Activity List:

	Activity Type	Activity Title
2.	Construction / Demolition	Construction

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: Solano
Regulatory Area(s): San Francisco Bay Area, CA; San Francisco-Oakland-San Jose, CA

- Activity Title: Construction

- Activity Description:

Construction of a new Complex. Demolition of facilities within existing Complex.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Start Date
Start Month: 6
Start Month: 2020

- Activity End Date
Indefinite: False
End Month: 11
End Month: 2022

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.149866
SO_x	0.010955
NO_x	4.746257
CO	4.669174
PM 10	7.351976

Pollutant	Total Emissions (TONs)
PM 2.5	0.222614
Pb	0.000000
NH_3	0.003541
CO_2e	1041.3

2.1 Demolition Phase

2.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 2
Number of Days: 0

2.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 37138
Height of Building to be demolished (ft): 20

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0410	0.0006	0.2961	0.3743	0.0148	0.0148	0.0037	58.556
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.2 Site Grading Phase

2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 6
Start Quarter: 1
Start Year: 2020

- Phase Duration
Number of Month: 2
Number of Days: 0

2.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 348480
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Site Grading Default Settings

Default Settings Used: Yes

Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	1	8
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0732	0.0013	0.4042	0.5124	0.0183	0.0183	0.0066	119.74
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0919	0.0014	0.5823	0.5765	0.0280	0.0280	0.0082	132.95
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0562	0.0012	0.3519	0.3508	0.0138	0.0138	0.0050	122.62
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.2117	0.0024	1.5772	0.8005	0.0630	0.0630	0.0191	239.56
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0436	0.0007	0.2744	0.3616	0.0134	0.0134	0.0039	66.897

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857

HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.3 Trenching/Excavating Phase

2.3.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 8
Start Quarter: 1
Start Year: 2020

- Phase Duration
Number of Month: 1
Number of Days: 0

2.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 3485
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.3.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0732	0.0013	0.4042	0.5124	0.0183	0.0183	0.0066	119.74
Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0919	0.0014	0.5823	0.5765	0.0280	0.0280	0.0082	132.95
Other Construction Equipment Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0562	0.0012	0.3519	0.3508	0.0138	0.0138	0.0050	122.62
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.2117	0.0024	1.5772	0.8005	0.0630	0.0630	0.0191	239.56
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0436	0.0007	0.2744	0.3616	0.0134	0.0134	0.0039	66.897

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.3.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.4 Building Construction Phase

2.4.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 9
Start Quarter: 1
Start Year: 2020

- Phase Duration
Number of Month: 22
Number of Days: 0

2.4.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 34040
Height of Building (ft): 20
Number of Units: N/A

- Building Construction Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	2	6
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8
Welders Composite	3	8

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips

Average Vendor Round Trip Commute (mile): 40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

2.4.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0898	0.0013	0.6610	0.3917	0.0256	0.0256	0.0081	128.83
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0320	0.0006	0.1690	0.2160	0.0070	0.0070	0.0028	54.467
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0395	0.0006	0.3232	0.2731	0.0149	0.0149	0.0035	61.081
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0436	0.0007	0.2744	0.3616	0.0134	0.0134	0.0039	66.897
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0310	0.0003	0.1734	0.1816	0.0102	0.0102	0.0027	25.672

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718

LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.4.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft^3 to trips (0.42 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase
$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft^3 to trips (0.38 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.5 Architectural Coatings Phase

2.5.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 7
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 2
Number of Days: 0

2.5.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category:
Total Square Footage (ft^2): 34040
Number of Units: N/A

- Architectural Coatings Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.5.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857

HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.5.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase
$VMT_{WT} = (1 * WT * PA) / 800$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
1: Conversion Factor man days to trips (1 trip / 1 man * day)
WT: Average Worker Round Trip Commute (mile)
PA: Paint Area (ft^2)
800: Conversion Factor square feet to man days (1 ft^2 / 1 man * day)

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$

VOC_{AC}: Architectural Coating VOC Emissions (TONs)
BA: Area of Building (ft^2)
2.0: Conversion Factor total area to coated area (2.0 ft^2 coated area / total area)
0.0116: Emission Factor (lb/ft^2)
2000: Conversion Factor pounds to tons

2.6 Paving Phase

2.6.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 9
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 1
Number of Days: 0

2.6.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 160000

- Paving Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Equipment Name	Number Of Equipment	Hours Per Day
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Paving Equipment Composite	2	6
Rollers Composite	1	7

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.6.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0732	0.0013	0.4042	0.5124	0.0183	0.0183	0.0066	119.74
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0919	0.0014	0.5823	0.5765	0.0280	0.0280	0.0082	132.95
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0562	0.0012	0.3519	0.3508	0.0138	0.0138	0.0050	122.62
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.2117	0.0024	1.5772	0.8005	0.0630	0.0630	0.0191	239.56
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0436	0.0007	0.2744	0.3616	0.0134	0.0134	0.0039	66.897

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.6.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

Appendix B

National Historic Preservation Act Section 106 and Tribal Correspondence

State of California • Natural Resources Agency Edmund G. Brown Jr., *Governor*

DEPARTMENT OF PARKS AND RECREATION Lisa Ann L. Mangat, *Director*
OFFICE OF HISTORIC PRESERVATION

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

September 7, 2018

Reply in Reference To: USAF_2018_0726_001

Brian L. Sassaman
Flight Chief, Installation Management
411 Airmen Drive
Travis Air Force Base, CA 94535

Re: Section 106 Consultation for P205 Alert Force Complex Development, Travis Air Force Base, Solano County

Dear Mr. Sassaman:

The United States Air Force (USAF) is initiating consultation with the State Historic Preservation Officer (SHPO) regarding their effort to comply with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR Part 800. Pursuant to 36 CFR Part 800.3(g), the SHPO accepts the USAF's expedited consultation request.

The USAF are proposing to develop and construct the P205 Alert Force Complex at Travis Air Force Base. The undertaking includes the demolition of fourteen facilities associated with the current Alert Force Complex and the following components within the construction and demolition project areas:

- Installation of security features including fencing, barriers, gates and other Anti-Terrorism and Force Protection implements;
- Construction of sidewalks, roads, parking facilities and introduction of landscaping features;
- Water, sewer, gas and fire protection systems installation inclusive of trenching less than three feet in depth; and
- Backfilling of basements and subfloors and utility capping in demolition area.

Constructed between 1957 and 1995, the 14 elements slated for demolition identified as Facilities 1162, 1165,1167, 1168, 1171, 1174,1175,1176,1178,1180,1181,1191,1193 and 1894 are comprised of guard shacks, athletic courts and a gymnasium, hazardous material storage and general operational support structures. Archeological sensitivity studies of the project area suggest a low possibility of encountering subsurface historic properties during project implementation. USAF documentation notes that National Register of Historic Places (NRHP)

eligible properties within the Air Defense Command Alert and Readiness Area and U.S. Army Nike Missile assembly shops are visible from the project area.

The USAF is requesting the SHPO's concurrence with its area of potential effects (APE) definition, their determination that the 14 facilities subject to demolition do not meet NRHP eligibility requirements and with their finding of no adverse effect to historic properties. After reviewing the information provided in support of these conclusions, the SHPO has the following comments:

1) Pursuant to 36 CFR Part 800.4(a)(1), the SHPO has no objection to the USAF's definition of the APE.

2) The SHPO concurs that the 14 facilities associated with the undertaking are not eligible for NRHP inclusion.

3) The SHPO concurs that a finding of no adverse effect to historic properties pursuant to 36 CFR Part 800.5(d)(1) is appropriate. Be advised that under certain circumstances, such as an unanticipated discovery or a change in project description, the USAF may have future responsibilities for this undertaking under 36 CFR Part 800.

If you have any questions or concerns, contact Historian Ed Carroll at (916) 445-7006 or Ed.Carroll@parks.ca.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

DEPARTMENT OF THE AIR FORCE
60TH CIVIL ENGINEER SQUADRON (AMC)

Mr. Brian L. Sassaman
Flight Chief, Installation Management
60th Civil Engineer Squadron
411 Airmen Drive, Building 570
Travis AFB, CA 94535-2001

17 July 2018

Ms. Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816-7100

Dear Ms. Polanco

In accordance with Section 106 of the National Historic Preservation Act (NHPA) and 36 CFR Part 800, the Department of the Air Force, Travis Air Force Base (TAFB), is advising you of a proposed undertaking that has the potential to affect historic properties. The undertaking, "Development of the P205 Alert Force Complex" involves the construction of new facilities north of the Travis AFB runways and demolition of a number of existing facilities south of the Travis AFB runways. Studies by the Air Force and the US Navy found that none of the affected facilities are architecturally significant or historically important.

This letter initiates consultation on the subject undertaking, consistent with 36 CFR 800.3(a) and regulations for implementing Section 106 of the National Historic Preservation Act of 1966 (16 USC 470f). In conformance with 800.3(g), TAFB respectfully requests expedited consultation by combining 36 CFR 800.3 through 800.5, including comments and concurrence on definition of the undertaking, Area of Potential Effects (APE), and the proposed determination of No Adverse Effect consistent with 36 CFR 800.5(d)(1).

Background Information

Travis AFB occupies 6,383 acres in Solano County, within the city limits of Fairfield. The base is about 50 miles northeast of San Francisco and 40 miles southwest of Sacramento (Figure 1 in Attachment A). TAFB is situated just north of Suisun Bay and marsh, northeast of San Pablo Bay on the northeastern boundary of the San Francisco Bay region. In the late prehistoric and early contact periods, this area was occupied by the Southern Patwin, native speakers of the Wintu language.

Known as the Gateway to the Pacific, Travis AFB is among the largest and busiest military air terminals in the country. More than 14,000 military and civilian personnel work on the base,

which is under the operational control of the Air Mobility Command. The 60th Air Mobility Wing (AMW) is the host unit and is responsible for providing strategic airlift and air refueling missions around the world. The 60th AMW also supports air logistics needs for other services and agencies, moving cargo, patients, and passengers all around the globe.

800.4(a)(1) - Description of the Area of Potential Effects

This undertaking will relocate the Navy's Take Charge and Move Out (TACAMO) squadron, which results in two related APES. The new construction APE for the TACAMO Alert Force Complex (Complex) is outside the safety clear zone north of the runways, and will occupy about 8 acres. The demolition APE, at the existing TACAMO facility, is south of the TAFB runways and very near the southern boundary of Travis AFB. Within the demo APE, buildings 1164, 1177, and 1179 will not be demolished as part of this undertaking.

The two APEs are depicted in Figure 2, Attachment A. The facility numbers and locations of the buildings that will be demolished are shown in Figure 3. Figure 4, Attachment A, is a plan view diagram of the facilities needed at the New Construction APE. Together, the New Construction APE (and Laydown Area) and Demolition APE constitute the project APE. The APE is the entire project area as outlined in Figure 2, but separate Areas of Direct Impact (ADI) are limited to the demolition or construction footprint of any work areas that are physically affected.

800.11(d)(1) - Description of the Undertaking

As noted above, this undertaking has a construction component and a demolition component. Fourteen numbered facilities will be demolished, and a new Alert Force Complex will be built north of the runways and outside of the runway safety clear zone. The new Complex includes an Alert Force/Security Facility, an Entry Control Facility (ECF), AGE Maintenance Repair and Aircraft Storage Facilities, and SATCOM Facilities. The "SATCOM" facilities are ground-based equipment that utilize a constellation of satellites to provide secure and jam-resistant worldwide communications capabilities for the U.S. armed forces. The Alert Force/Security Facility and SATCOM Facilities will have a fenced and secure inner compound supported by the ECF. All of the new Alert Force Complex Facilities will be constructed in compliance with Travis AFB's Installation Development Plan.

The Complex will incorporate Anti-Terrorism and Force Protection (AT/FP) features and comply with all pertinent physical protection and Anti-Terrorism standards for buildings. Common AT/FP features include security fencing, vehicle barriers, security gates, intrusion detection systems (IDS), closed-circuit television (CCTV) and pedestrian turnstiles.

Electrical hardware for the new Complex will include primary and secondary distribution systems, High Altitude Electromagnetic Pulse protected emergency generators, Uninterrupted Power Suppliers (UPS), lighting, transformers and telecommunications infrastructure. Five electrical generators currently in use at the existing TACAMO complex will be relocated to the new Complex, which saves time and money, and avoids the need for boring under the runways to install power connections from the existing generators to the new Complex.

Additional necessary utility connections include potable water, gas lines, sanitary sewer, and fire protection systems with dedicated water supply lines. Short sections of trenching will be needed to connect the new construction to existing utility service lines in the area. These trenches will average less than 100 feet in length, less than three feet in depth, and have minimum widths as determined by the conduits or pipes being emplaced.

No new construction is required for hardstands to park the Navy E-6B Mercury aircraft. Existing parking areas adjacent to the new Complex on the north side of the flight line will be used for two aircraft, which will be stationed there at all times. If a third E-6B aircraft is needed on site, it will be parked in available space farther away from the Complex.
At the New Construction APE, preparation will include site clearing, excavations for building foundations, and soil leveling and compaction in preparation for construction. Additional site preparation may require excavation of unsuitable soils or undocumented fill. Paving and site improvements include grading, parking, roadways, curbs, sidewalks, landscaping and pedestrian features. Improvements also include the installation of a vehicle washrack.

At the Demolition APE, the buildings and facilities noted in Figure 3 and listed in Table 1, below, will be removed. Rubber-tired heavy equipment and trucks will be used to accomplish the demolitions. Basements or sub-floors will be removed and the voids filled with rubble or clean imported fill. Utilities will be cut and capped, and concrete and asphalt hardstands will be left in place. The multiple ADIs are limited to the footprint of each building, plus a work zone buffer of 100 feet around each work location.

800.11(d)(2) - Identification of Historic Properties

Three previous architectural surveys and evaluations have been completed at Travis AFB that included all 14 facilities proposed for demolition.

The first architectural evaluation was conducted by Karen J. Weitze for Travis Air Force Base in 1996 ("Inventory of Cold War Properties", Plano, TX: Geo-Marine, Inc., 1996). The Weitze report identified a proposed historic district in visual proximity to (although not directly affected by) the current undertaking. The ADC Readiness Area Historic District, located across the flight line from the TACAMO area, is composed of six buildings. The report did not identify any character defining features for the proposed eligible historic district associated with visual features or viewshed. Currently, the Air Force is reevaluating the boundary of the proposed ADC Historic District and is updating the DPR forms. Travis AFB resource managers will submit the new documentation to the SHPO once it is complete.

The Weitze report also evaluated one of the facilities affected by the current undertaking, Building 1175. Weitze determined that 1175 lacked integrity and could not convey a clear sense of historic significance or context. Subsequent evaluations in 2013 and 2017 confirmed this assessment of integrity and affirmed the recommendation that Building 1175 is not eligible for listing in the NRHP. See Attachment B for the DPR 523 form for Building 1175.

Architectural historians Adam Smith, Susan Enscore, and Sunny Adams from the Construction and Engineering Research Laboratory (CERL) of the US Army Corps of Engineers conducted

the second architectural evaluation ("Travis Air Force Base Architectural Inventory", CERL, 2013). The report included four of the 14 facilities to be demolished, and all four were recommended not eligible for the NRHP. Overall, Smith, et al. considered 314 facilities and produced management recommendations, summary lists, and 114 new sets of DPR forms. Sections of the CERL report have been shared with the SHPO, but Travis AFB has not yet presented the entire document to the SHPO in a Section 110 consultation.

The remaining facilities proposed for demolition were surveyed and evaluated in 2017 by Naval Facilities Engineering Command SW historian Dr. David Sproul. Findings from that survey are included in a Letter Report, Attachment C. Based on field survey results and evaluation of relevant historic themes and contexts, Dr. Sproul recommends that all of the unevaluated facilities are not eligible for the NRHP. Table 1 lists the existing TACAMO facilities to be demolished and provides the current NRHP status for each.

Table 1. Demo APE -- Affected Facilities and NRHP Status

Facility Number	Description	Build Date	Eligibility Recommendation	Source
1162	LOX Storage	1957	Not Eligible	Sproul, 2017
1165	ECP Overhead Cover	1957	Not Eligible	Sproul, 2017
1167	Guard Shack	1997	Not Eligible	Sproul, 2017
1168	Guard Shack	1997	Not Eligible	Sproul, 2017
1171	Avionics Shop	1989	Not Eligible	Smith et al. 2013
1174	Gym	1989	Not Eligible	Smith et al. 2013
1175	Crew Readiness	1957	Not Eligible	Weitze 1996
1176	Training/Records Storage	1974	Not Eligible	Smith et al. 2013
1178	Security ECP	1990	Not Eligible	Smith et al. 2013
1180	Hazardous Materials Storage	1993	Not Eligible	Sproul, 2017
1181	Electric Power Station	1995	Not Eligible	Sproul, 2017
1191	Recreation Pavilion	1957	Not Eligible	Sproul, 2017
1193	Tennis Court	1957	Not Eligible	Sproul, 2017
1894	Basketball Court	1957	Not Eligible	Sproul, 2017

Large-area surveys for prehistoric properties have been completed at Travis AFB, but evidence of archaeological sites is scant and only two possible prehistoric sites were recorded on base. Evaluation determined that one site was ineligible and archaeological data was recovered from the other before it was destroyed by new construction. However, a recent re-analysis of the recovered lithics from the second site found that most of them were unaltered, natural stone and the few items that may have been modified appeared to be historic in origin. Another recent study examined geological setting, soils, and landform history of the entire base. This sensitivity study found extremely low probabilities for any unknown prehistoric archaeological deposits on Travis AFB. In addition, related to the current undertaking, the massive physical impacts related to runway and taxiway construction, in addition to the probability analysis, indicate that the presence of prehistoric archaeological sites within the APEs would be rare, and the existence of intact archaeological deposits would be extremely rare.

800.4(b) - Other Historic Property Identification Efforts

An Environmental Assessment (EA) is being prepared for the proposed TACAMO Alert Force Complex. Currently in draft status, the EA covers the effects of the new construction and the demolitions related to this undertaking. When completed, public versions of the EA will be circulated within the Travis AFB area, and copies will be sent to local and regional regulators. The EA, together with notifications to on-base personnel and residents, is sufficient to elicit concerns from the public, if any. If concerns are raised by the public regarding the treatment of historic properties that may be affected by the undertaking, Cultural Resource Management (CRM) personnel at Travis AFB will share the comments with the SHPO and reopen this consultation.

All public views and comments shall be considered, especially views expressed by Native Americans and other interested parties. Interested local tribes meet with Travis CRM staff on a regular basis, to be briefed about project development plans. Even though there is no evidence for prehistoric archaeological deposits on base, the Air Force will continue to host these periodic consultation meetings with the tribal representatives. If Native Americans or any other interested parties identify CRM issues related to this undertaking, all relevant comments will be shared with the SHPO and this consultation will be reopened.

800.5(d)(1) - Determination of No Adverse Effect

Architectural surveys completed in the late 1990s identified two potential NRHP-eligible Cold War-era Historic Districts at Travis AFB. One district, the Q Area, is located in the southwestern quadrant of the base, far removed from the undertaking APEs. The other potential district is the ADC Readiness Area Historic District, which is several hundred feet of the New Construction APE (Attachment A, Figure 5). The ADC Readiness Area Historic District is within sight of the new Complex, but the new buildings will use design characteristics, colors, and surface treatments to match existing construction in the area.

The existing documentation forms for both potential districts, from Weitze's work in 1996, do not specify any viewshed-related character defining features at either district. Assuming the districts are eligible based on the period of significance identified in previous reports and the character defining features associated with the individual contributors, the current undertaking will have no adverse effect on the potential ADC Historic District. The current undertaking is sited in an area heavily developed for aircraft use missions and maintenance, and is sufficiently far away from the ADC area to have no visual or physical effect on it.

This undertaking will not adversely affect any historic properties, including visual resources, prehistoric and historic archaeological sites, and architectural resources. This undertaking should not concern Native Americans because no prehistoric, ethnographic, or traditional cultural properties will be affected. Further, since Travis AFB lacks prehistoric resources, past consultations with federally-recognized tribal groups have been sporadic. However, as noted above, if Native Americans express any concerns or critical interest in the undertaking, TAFB shall contact the SHPO, relay the concerns, and reopen this consultation as appropriate.

We have concluded from our inspections and evaluation that none of the affected facilities are associated with any significant event (NRHP-Criteria A), none were associated with any historically significant person (Criteria B), none possess any unique architectural features (Criteria C), and the facilities are unlikely to provide any information important in history or prehistory (Criteria D).

Summary

Travis AFB is proposing demolition of 14 facilities at the current Navy Alert Force Complex, and construction of a new Alert Force Complex on the north side of the runways. The existing Complex is located near the southern boundary of the Base and is within the runway clear zone. None of the affected facilities have been identified as architecturally significant or historically important. In addition, all project staging and stockpiling will be limited to existing hard surface areas adjacent to the construction zone, and all demolition activities will occur within previously disturbed areas. However, if unanticipated archaeological discoveries are made, Travis AFB will reopen consultation with the SHPO and other interested parties, per the requirements of 36 CFR Part 800.

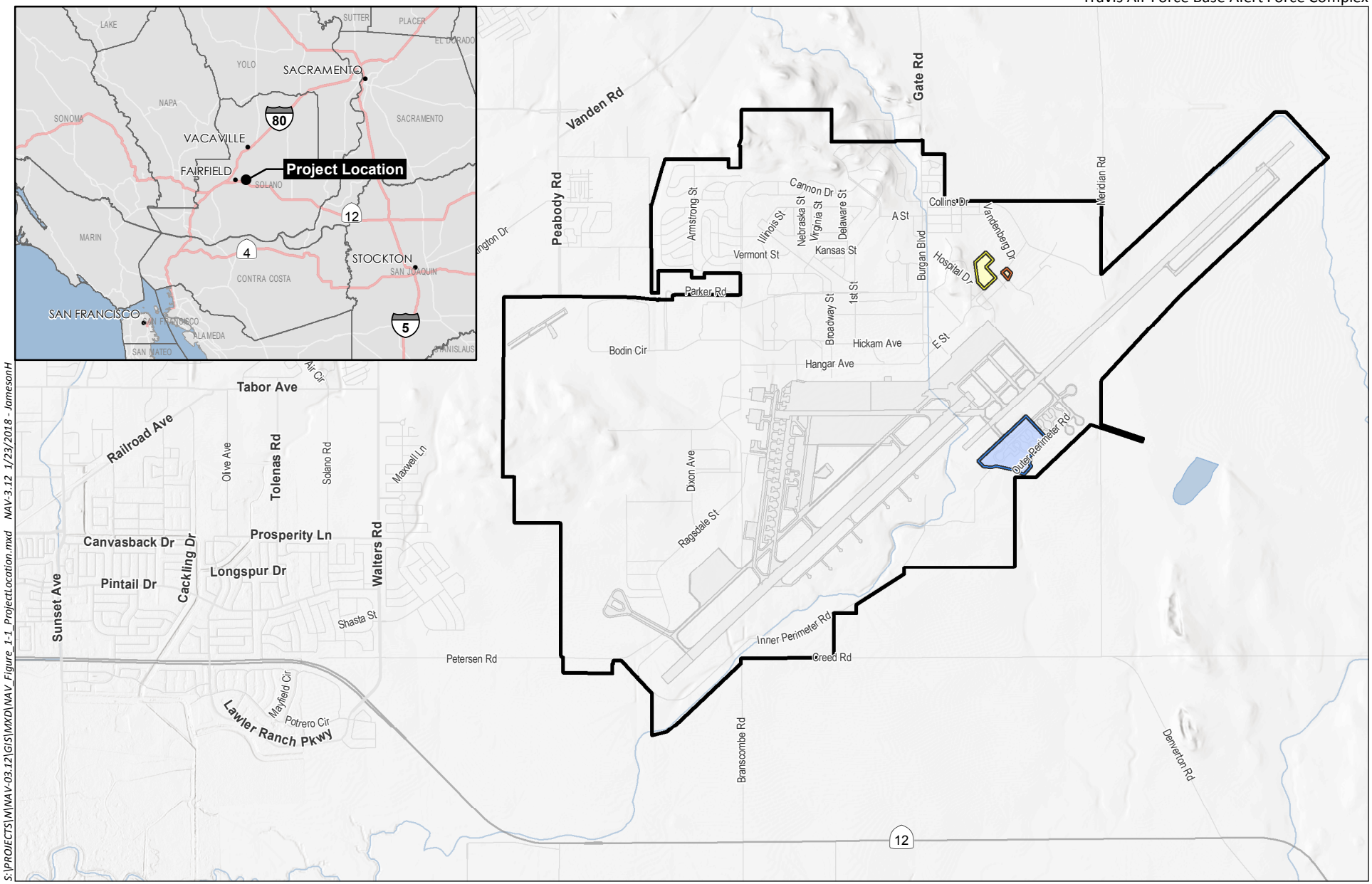
Based on the preceding, Travis AFB requests SHPO concur with our delineation of the APEs for the "Development of the P205 Alert Force Complex" undertaking. Further, we have determined that all facilities in Table 1 (#1162, 1165, 1167, 1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894) are not eligible for listing on the NRHP, and we request that you concur. If you do not concur with our findings, we understand that further consultation will be necessary. If you have any questions about the undertaking discussed in this letter, please contact Matthew Blazek by phone or email at (707) 424-5127 or matthew.blazek@us.af.mil.

Sincerely

Brian L. Sassaman

BRIAN L. SASSAMAN, GS-13, DAFC
Flight Chief, Installation Management

3 Attachments:
1. Figures 1 through 5
2. DPR forms for Building 1175
3. Architectural Historian Letter Report



Source: ESRI 2017, USGS

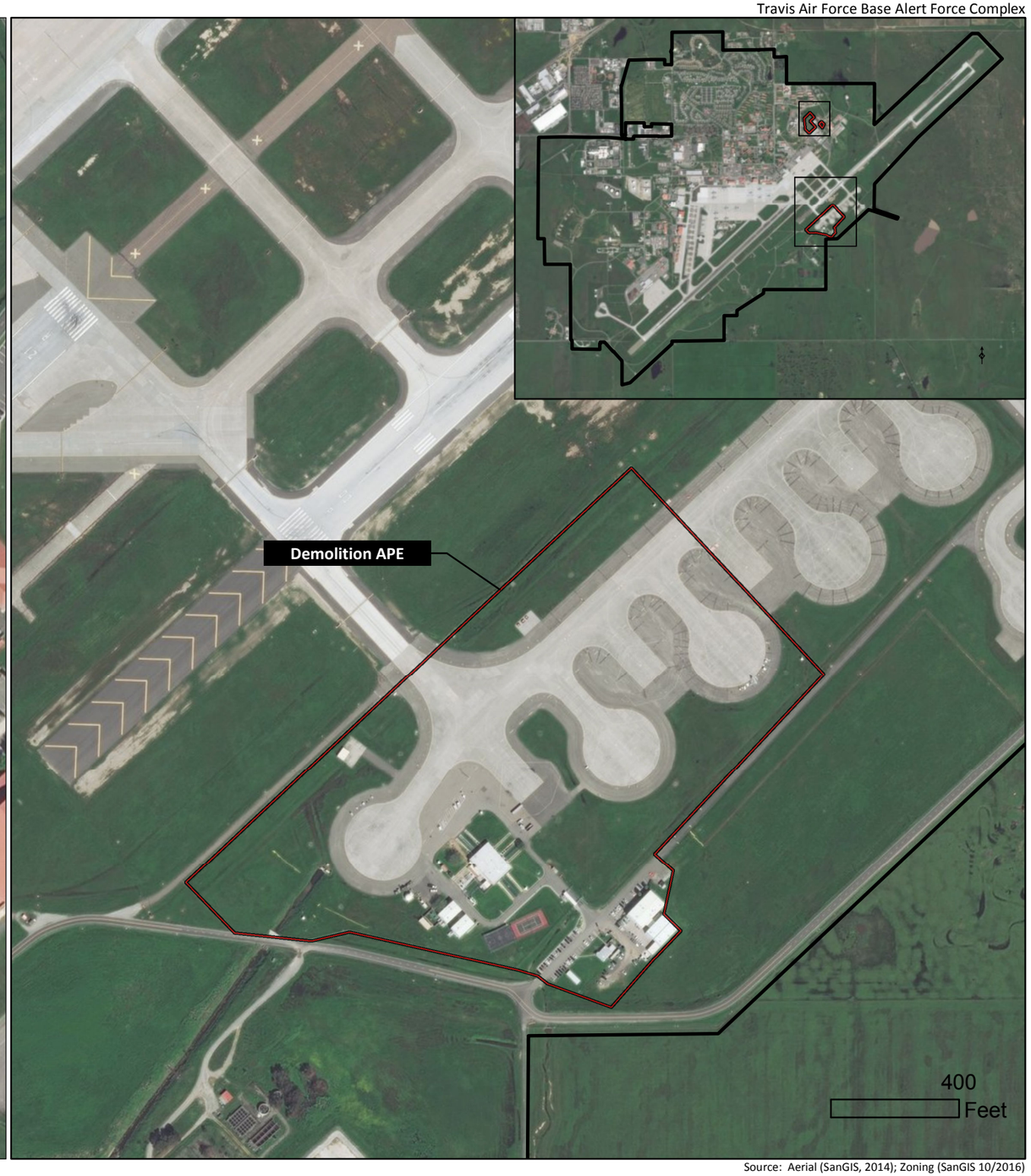
0 0.75 Miles

TRAVIS AIR FORCE BASE
PROPOSED ACTION AREA
LAYDOWN AREA
EXISTING TACAMO COMPLEX

Regional Location Map

Figure 1

Travis Air Force Base Alert Force Complex



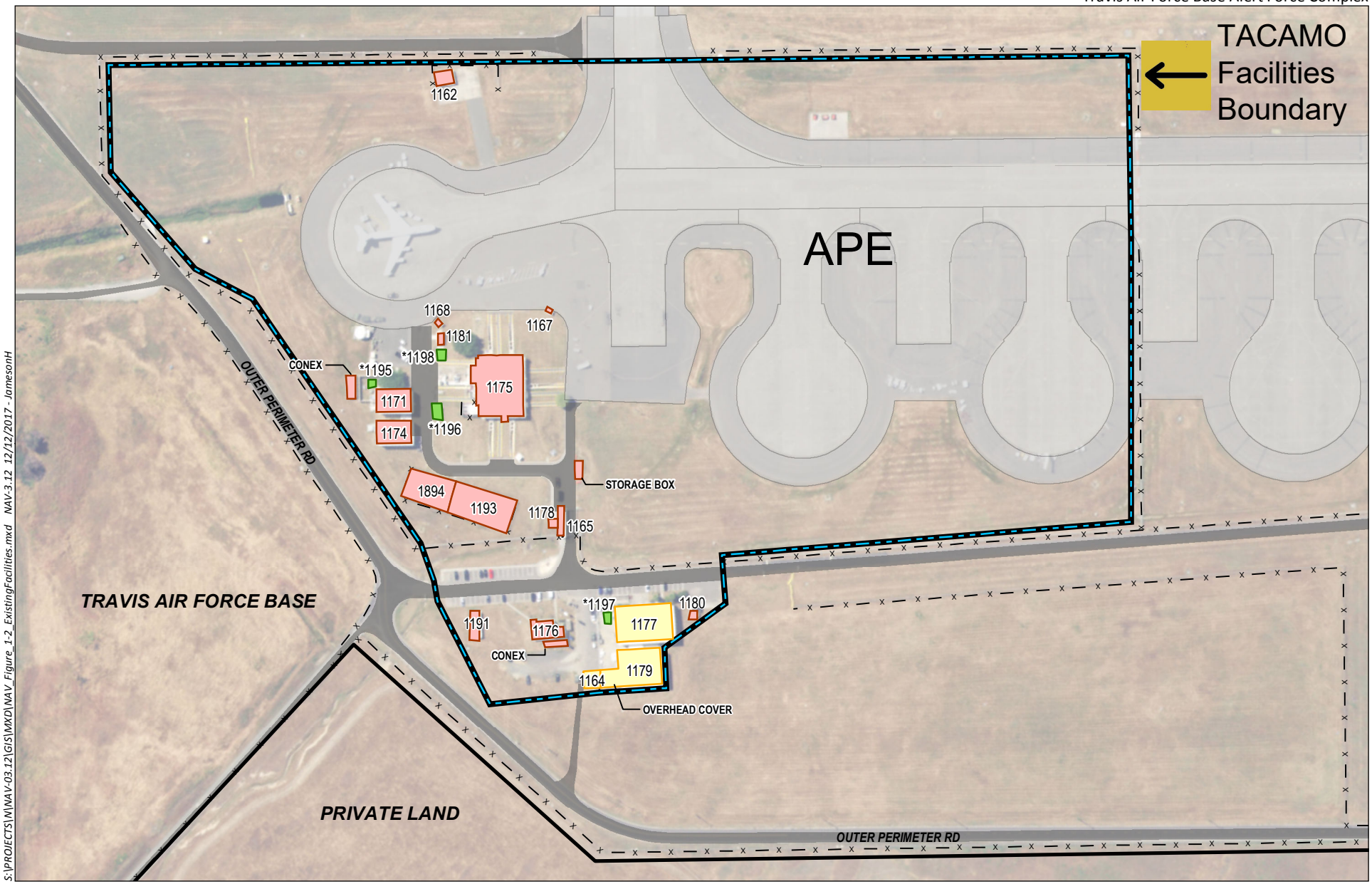
S:\PROJECTS\N\WAV-03.12\GIS\MXD\WAV_Figure_3_X_APE.mxd Inset 1/24/2018 - JamesonH

Source: Aerial (SanGIS, 2014); Zoning (SanGIS 10/2016)

HELIX Environmental Planning

Areas of Potential Effect

Figure 2



S:\PROJECTS\N\NAV-03.12\GIS\MXD\NAV_Figure_1-2_ExistingFacilities.mxd NAV-3.12 12/12/2017 - JamesonH

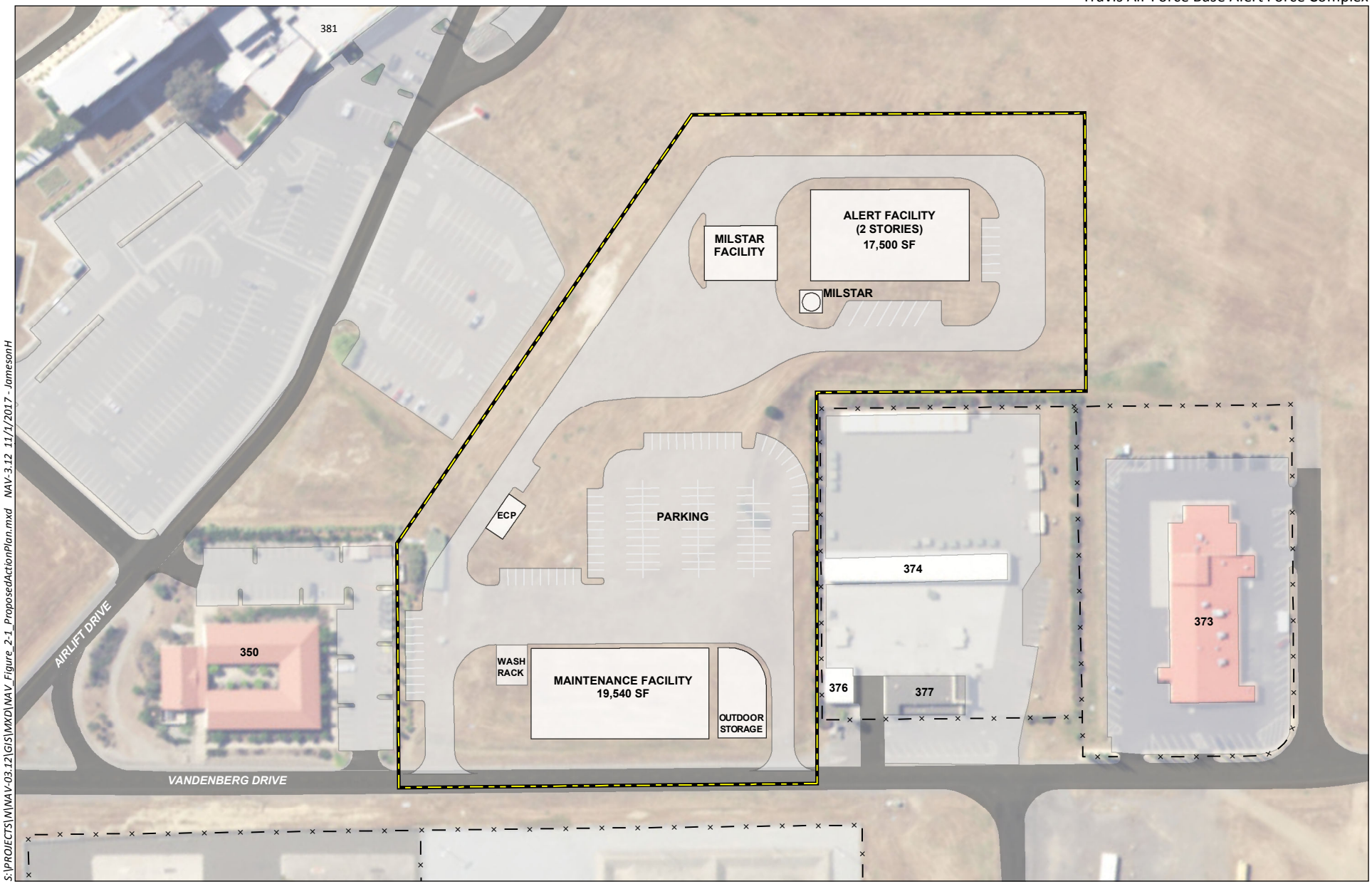
Source: Travis AFB, Esri 2017

Travis Air Force Base
Existing TACAMO Complex
Airfield
Buildings to remain
Buildings to be demolished
Structures to be relocated (*Generators)
Fence

0 250 Feet

Demolition APE

Figure 3



S:\PROJECTS\N\NAV-03.12\GIS\MXD\NAV_Figure_2-1_ProposedActionPlan.mxd NAV-3.12 11/1/2017 - JamesonH

Source: Travis AFB, Esri 2017

Plan View - New Construction APE

0 150 Feet

Proposed Action Area
Proposed Buildings & Facilities
Vehicle Parking
Fence

Figure 4

Proximity of TACAMO New Construction APE
in Relation to Potential ADC Historic District

AMC GeoBase

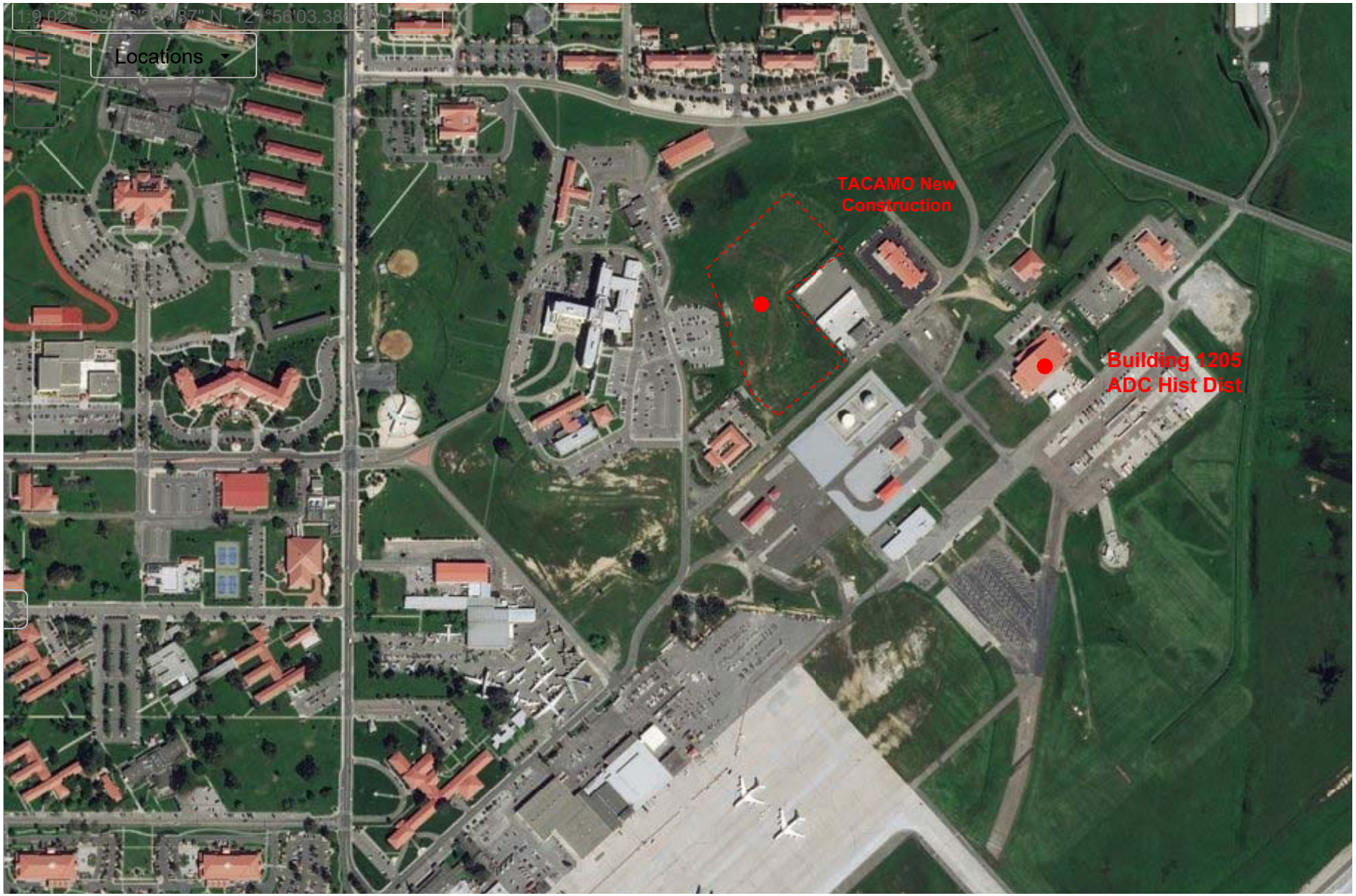


Figure 5

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 1 of 5 *Resource Name or #: (Assigned by recorder) Building 1175, Travis AFB

P1. Other Identifier: Readiness crew facility; Molehole; SAC Tanker Alert

*P2. Location: ☐ Not for Publication ☒ Unrestricted *a. County Solano

and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad _____ Date _____ T __; R __; __ ¼ of __ ¼ of Sec __; _____B.M.

c. Address Travis Air Force Base City Fairfield, CA Zip _____

d. UTM: (Give more than one for large and/or linear resources) Zone __, _____ mE/ _____ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Building 1175 is located towards the eastern side of Travis AFB, directly south of the SAC Alert Apron.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) Building 1175 is a Strategic Air Command (SAC) readiness crew facility for a maximum of 70 men. The structure was designed in 1958 and 1959 and was completed by 1960. The building is two-stories, one of which is below ground and composed of reinforced concrete blocks, resting on a reinforced (see cont. sheet)

*P4.Resources Present: ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) Building 1175, readiness crew facility, facing N (Roll 1, Frame 9)

*P6. Date Constructed/Age and Source: ☒ Historic ☐ Prehistoric ☐ Both---1958-1960; Real Property Cards; architecture/engineering plans

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

*P7. Owner and Address: U.S. Air Force

*P8. Recorded by: (Name, affiliation, and address) K. Weitze, J. Buysse Geo-Marine, Inc., 550 East 15th St., Plano, TX 75074

*P9.Date Recorded: 8/27/96

*P10. Survey Type: (Describe) Reconnaissance survey, Section 110 of NHPA

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") "Travis AFB, Fairfield, California, Inventory of Cold War Properties," by Karen J. Weitze for Geo-Marine, Inc., Aug. 1996

*Attachments: ☐NONE ☒Location Map ☒Continuation Sheet ☒Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List): _____

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # _____
HRI# _____

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 6Z

Page 2 of 5 *Resource Name or # (Assigned by recorder) Building 1175, Travis AF

B1. Historic Name: Readiness crew facility; Molehole; SAC Tanker Alert

B2. Common Name: _____

B3. Original Use: Readiness crew facility B4. Present Use: same

*B5. Architectural Style: Military

*B6. Construction History: (Construction date, alterations, and date of alterations) The original design of Building 1175 was dated April 1958; this design was revised for Travis AFB in Jan 1959. The building was accepted as completed in 1960. More recently, Building 1175 has undergone addition to the southwest facade, the addition of parking pads at the southeastern corner, modernization of the interior, and, in 1988, a contractor logistic support facility was added to the site.

*B7. Moved? ☒No ☐Yes ☐Unknown Date: _____ Original Location: _____

*B8. Related Features:

B9a. Architect: Leo A. Daly Company, Omaha, and Earl & Wright, Inc., San Francisco

b. Builder: _____

*B10. Significance: Theme Cold War Buildings; USAF Area Travis AFB

Period of Significance 1958-1960 Property Type Crew facility Applicable Criteria _____

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.) Building 1175 is a readiness crew facility for a maximum of 70 men; it was designed by the Leo A. Daly Company of Omaha, Nebraska. There was a design evolution from the right-angled alert apron to the 45-degree angle (also called herringbone or Christmas tree) alert apron. While 67 were planned for construction, fewer than that were actually built out. Right-angled apron configurations were either redesigned or were assigned to tanker alert. Christmas trees were uniformly assigned to bomber alert. At Travis AFB, the first of the two configurations, the right-angled, was kept and assigned to a tanker alert function. (see continuation sheet)

B11. Additional Resource Attributes: (List attributes and codes) HP34-readiness crew facility

*B12. References: Real Property Cards, architecture/ engineering plans, Travis AFB; see "Travis AFB, Fairfield, California, Inventory of Cold War Properties," by Karen J. Weitze

B13. Remarks: _____

*B14. Evaluator: K.J. Weitze for Geo-Marine, Inc., 550 East 15th St., Plano, TX 75074

*Date of Evaluation: 8/27/96

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

*Required information

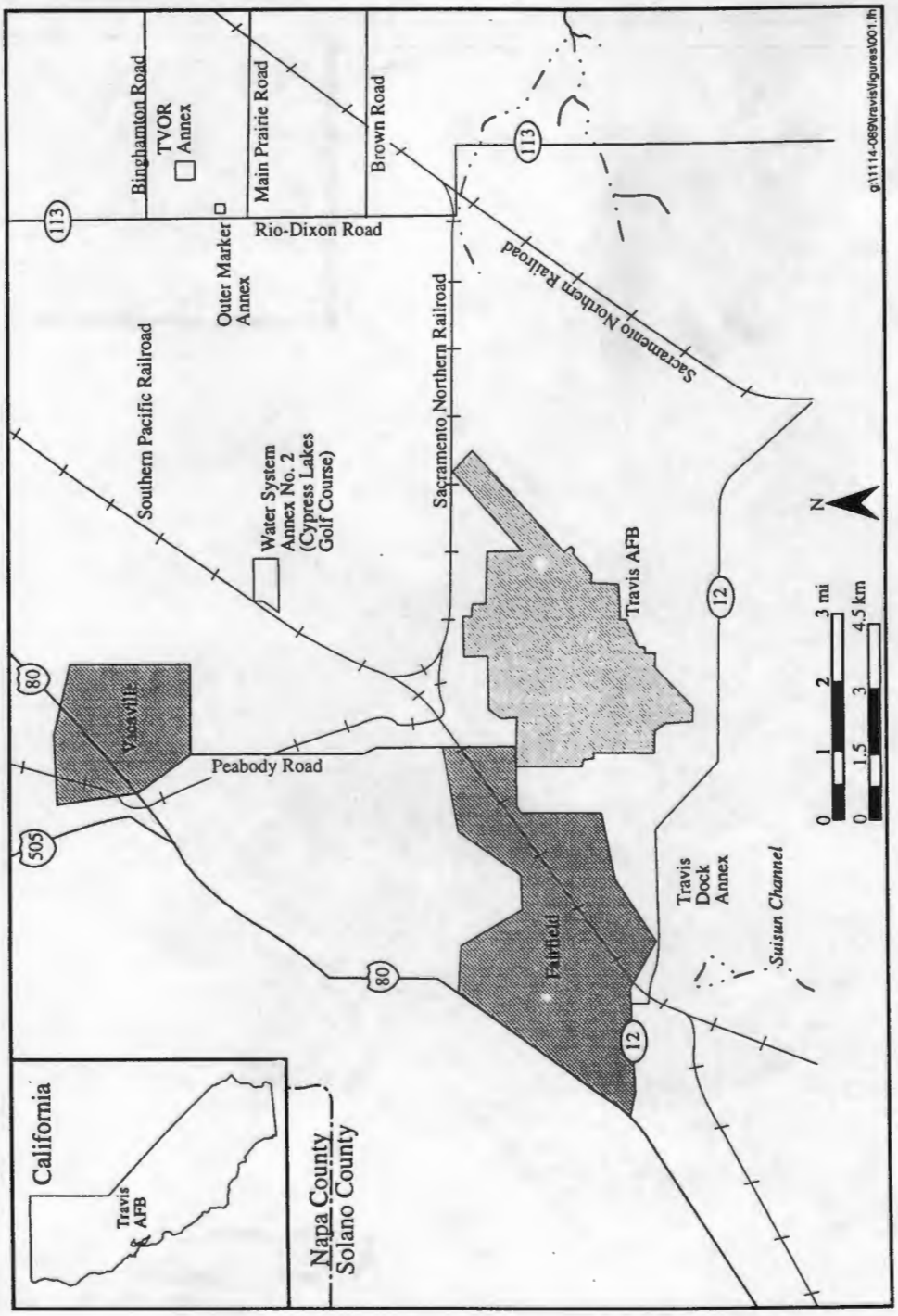
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # _____
HRI# _____
Trinomial _____

 *Resource Name or # (Assigned by recorder) Building 1175, Travis AFB

Project location map (Weitze 1996)



*Required information

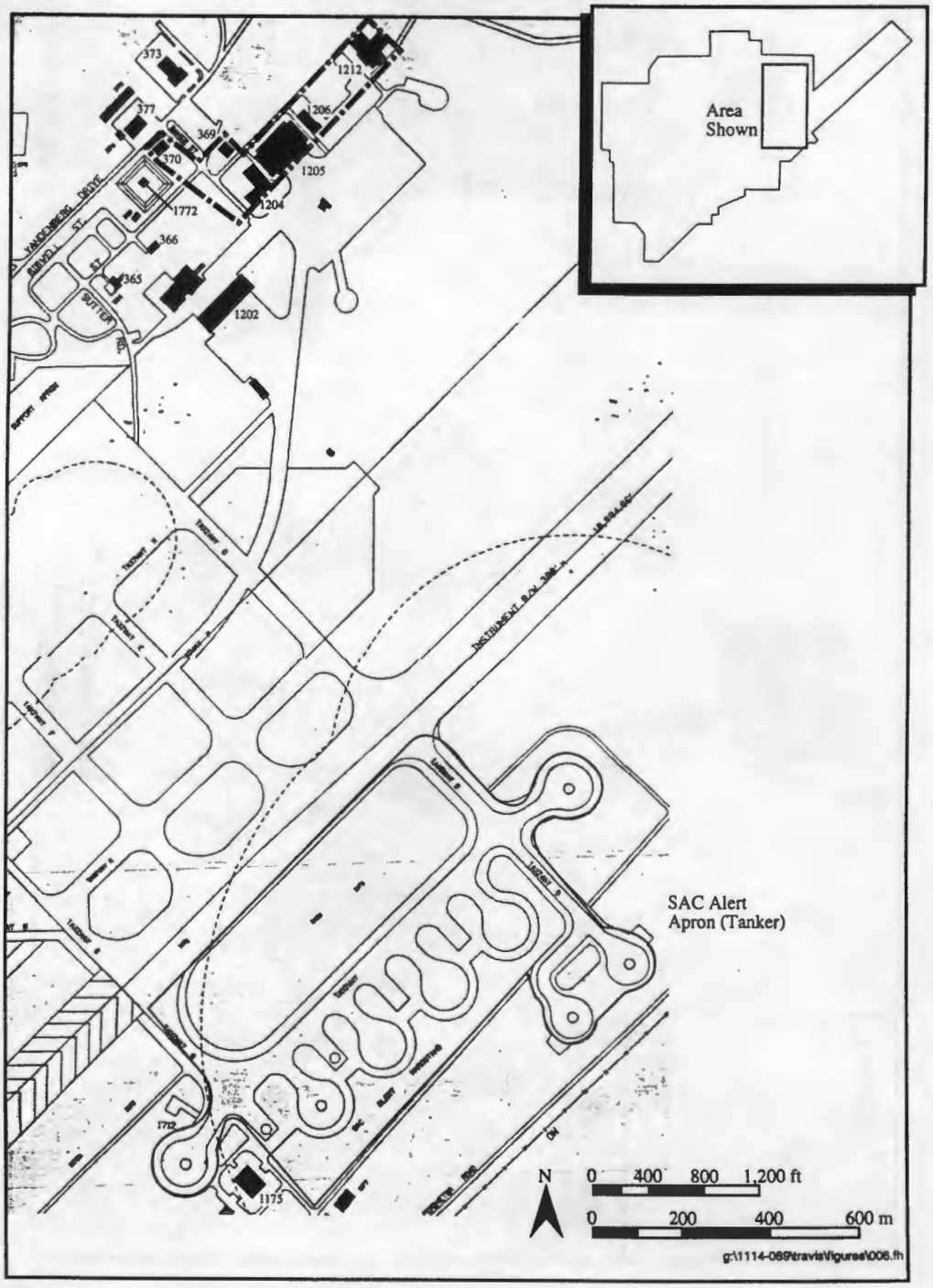
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # _____
HRI# _____
Trinomial _____

Page 4 of 5 *Resource Name or # (Assigned by recorder) Building 1175, Travis AFB

Cold War properties at Travis AFB, Fairfield, California (Weitze 1996); Building 1175 is located in lower left, below the SAC Alert Apron.



DPR 523J (1/95)

*Required information

P3a. (continued from Primary Record)
concrete slab foundation. The structure is supporting a steel roof and is insulated in two inches of gypsum with five-ply build-up sheathing. Measuring 108' by 78', with two off-sets of 10'11" and 85'5" by 5', the readiness crew facility features six unsheltered tunnel entrances to the underground story and seven entrances to the aboveground story, articulating all facades in groups of 3/3/3/4. The underground story is configured entirely as two- and three-men bedrooms, with officers' and airmens' latrines and a mechanical room. The above story includes control and security rooms, offices, and officers' and airmens' lounges and dining quarters. Building 1175 has been substantially modified.

B10. (continued from Building, Structure, Object Record)
The building has since undergone extensive alterations since its completion in 1960, including additions to the southwest facade, addition of parking pads at the southeast corner, modernization of the interior, and the addition of a logistic support facility. The use of Building 1175 has since been taken over by the U.S. Navy as a readiness crew facility; it has been extensively modified and thus the integrity of the structure has been greatly reduced. The structure is interpreted as not eligible for listing on the NRHP.

Cultural Resources Survey Report:

Cultural Resources Inventory and Evaluation for Various Buildings and Structures at Travis Air Force Base, TACAMO Facility, Fairfield, California

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Cultural Resources ENV CORE (Code EV23)
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619-532-2819
David.sproul@navy.mil

SUMMMARY: Based on field survey results and evaluation of relevant historic themes and contexts, none of the buildings or structures associated with the proposed undertaking are recommended eligible for listing in the National Register of Historic Places.

I. Description of Undertaking

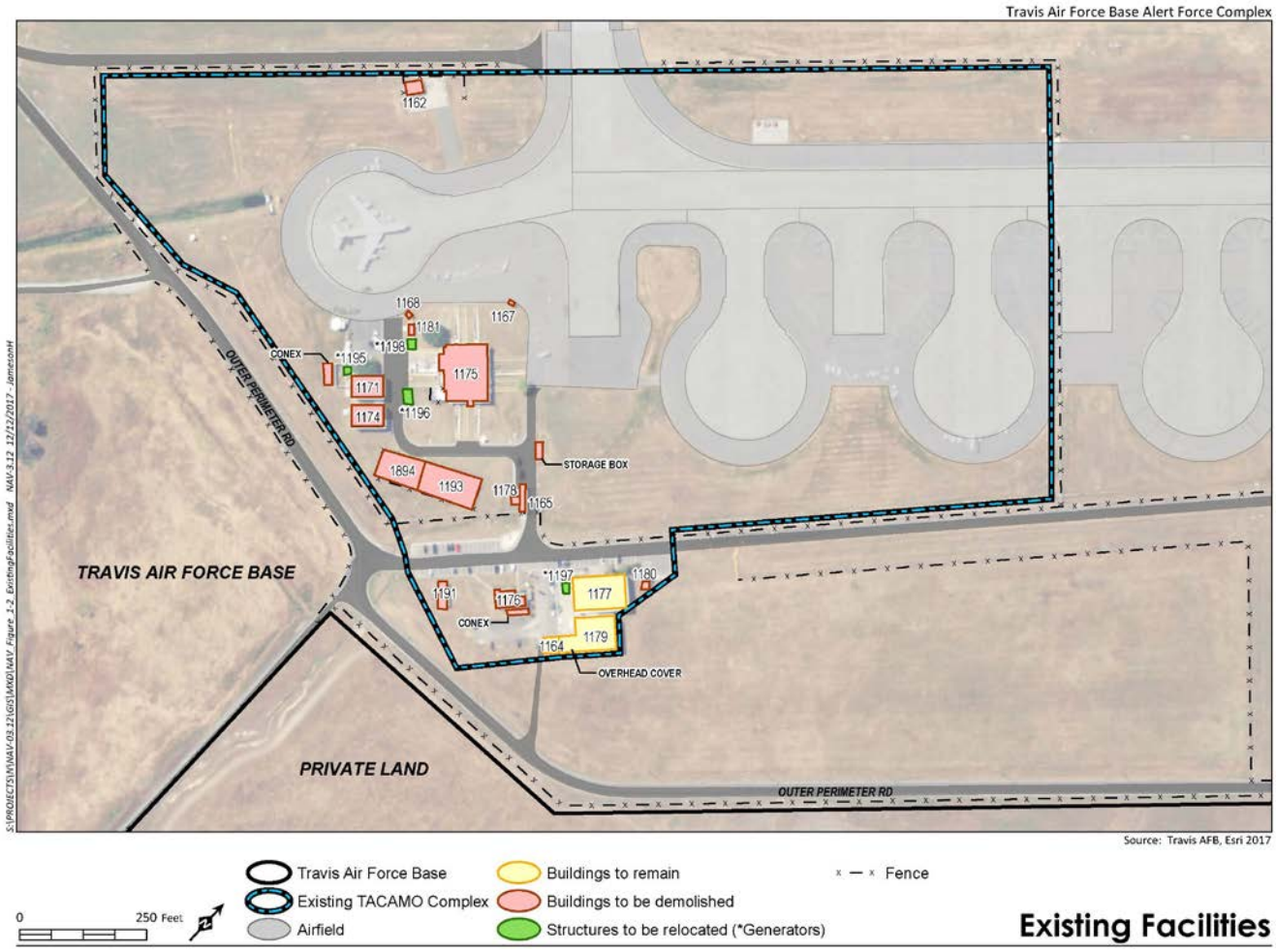
The United States Department of the Navy (Navy) proposes to replace and relocate the existing Take Charge and Move Out (TACAMO) facilities located at Travis Air Force Base (Travis AFB) in Fairfield, California. The Proposed Action includes the demolition of the following existing TACAMO facilities (except buildings 1164, 1177, and 1179):

Facility Number	Description	Build Date
1162	LOX Storage	1957
1165	ECP Overhead Cover	1957
1167	Guard Shack	1997
1168	Guard Shack	1997
1171	Avionics Shop	1989
1174	Gymnasium	1989
1175	Operations	1957
1176	Training/Records Storage	1974
1178	Security ECP	1990
1180	Hazardous Materials Storage	1993
1181	Electric Power Station	1995
1191	Recreation Pavilion	1957
1193	Tennis Court	1957
1894	Basketball Court	1957

II. Project APE

Travis AFB is located 7 miles north of the city of Fairfield, in Solano County, California. The Base occupies approximately 5,128 acres near Interstate 80, between Sacramento and San Francisco. The

existing TACAMO facilities are located in the southeast portion of the Base, north of Perimeter Road (Figure 1). The site of the Proposed Action is in the northeast portion of the Base at the airfield. Vandenberg Drive is located south and east of the site, Napa Street is located to the north, and Airlift Drive is located to the west. The Proposed Action would occur within the portion of the property bounded by the road network described above.



1 Project Area and APE

III. Historic Context

TACAMO (Take Charge and Move Out) is a United States military system of survivable communications links designed to be used in nuclear warfare to maintain communications between the decision-makers (the National Command Authority) and the triad of strategic nuclear weapon nuclear weapons delivery systems. Its primary mission is to receive, verify and retransmit Emergency Action Messages (EAMs) to US strategic forces. It does this by maintaining the ability to communicate on virtually every radio frequency band from very low frequency (VLF) up through super high frequency (SHF) using a variety of modulations, encryptions and networks. This airborne communications capability largely replaced the land-based extremely low frequency (ELF) broadcast sites that became vulnerable to nuclear strike. Originally conceived in 1961, the TACAMO system has evolved into a multi-based arm of U.S. nuclear strategy. There are several components to the current

TACAMO system. The main part is the airborne portion, the U.S. Navy's Strategic Communications Wing One (STRATCOMWING ONE), a U.S. Strategic Command (USSTRATCOM) organization based at Naval Air Facility Tinker at Tinker Air Force Base, Oklahoma. STRATCOMWING ONE consists of three Fleet Air Reconnaissance Squadrons (VQ-3, VQ-4 and VQ-7) equipped with Boeing IDS E-6B Mercury TACAMO aircraft. VQ-3 has a complement of 78 officers and 454 enlisted personnel. Since 1992, it has operated under Navy Strategic Communications Wing 1 at Tinker Air Force Base. It forward deploys aircraft to fly operational patrols out of Travis Air Force Base, California. The heart and soul of TACAMO is the technologies applied to airborne communications in the event of nuclear war. TACAMO components have moved to and from various U.S. military locations during the last 50 years.

The TACAMO alert force complex located at Travis AFB is comprised of a fenced inner compound that houses the main alert facility, fitness room, maintenance facility, security entry control point, MILSTAR antenna, as well as the aircraft parking ramp. The outer compound includes privately owned vehicle parking, security facility, ground support equipment (GSE) rework shop, and aircraft spares storage. Building 1175, the main alert facility, was built in 1957 as a strategic bomber and tanker alert crew readiness facility. The TACAMO squadron has been operating from this facility since 1988.

The TACAMO operation provides around-the-clock base operating support and includes an airfield, back shop maintenance, and refueling, deicing, and liquid oxygen (LOX) utilization capabilities. The TACAMO operation supports up to three E-6B Mercury aircrafts which are on alert 24/7 to ensure survivable, endurable, and reliable communications from the President of the United States and the Secretary of Defense to the Nation’s Nuclear TRIAD. The TACAMO facilities provide 24 hour/365 day support to alert aircraft and aircrew and include: a Command Center and Communications Center to provide hardened aircrew alerting; berthing and shower facilities for alert aircrew and maintenance crew; food preparation and dining area; physical security for alert aircrafts and aircrew; maintenance support, including servicing, spare parts and support equipment; lounge, fitness, briefing and mission planning space; alert vehicles; and spare parts storage, aircraft and Individual Material Readiness List (IMRL) maintenance spaces, training spaces, and offices for detachment personnel.
The TACAMO squadron’s mission is to provide survivable, reliable, and endurable communications between the President of the United States and the nation’s nuclear force. The mission serves two primary roles: (1) to provide a U.S. Strategic Command Airborne Command Post (ABNCP) and, (2) to relay Emergency Action Messages (EAM) to the nuclear powered, ballistic missile carrying submarines, bombers and ICBMs (TRIAD). The ABNCP ensures that there is an aircraft “on alert” and ready to communicate EAMs to the TRIAD from the air should ground-based command centers become inoperable. As of 1991, “on alert” means ready in the air or on the ground.

IV. Evaluation Criteria

The inventory and evaluation of TACAMO buildings, structures, objects, and districts at Travis AFB presented in this report was conducted through application of the significance criteria of the National Register of Historic Places (NRHP) program.

As established in NPS Bulletin 15, “How to Apply the National Register Criteria for Evaluation,” eligibility for listing in the NRHP rests on the twin factors of significance and integrity. A property must have both significance and integrity to be considered eligible. Loss of integrity, if sufficiently

great, will overwhelm historical significance a property may possess and render it ineligible. Likewise, a property may retain integrity, but if it lacks significance, it is ineligible for listing.

Historic significance is judged by applying the NRHP criteria. The NRHP guidelines direct that a historic resource's "quality of significance in American history, architecture, archeology, engineering and culture" be determined by meeting at least one of the four main criteria. Properties may be significant at the local, state, or national level under the following NRHP criteria:

Criterion A:	association with events or trends significant in the broad patterns of our history;
Criterion B:	association with the lives of significant individuals;
Criterion C:	a property that embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or that possesses high artistic values;
Criterion D:	has yielded, or is likely to yield information important to history or prehistory

In general, Criterion D is used to evaluate prehistoric sites and archaeological resources. Although buildings and structures can occasionally be recognized for the important information they might yield regarding historic construction or technologies, the buildings within the study area for this project are of building types that are generally very well documented in primary and secondary sources, and are not themselves the primary source of this information.

The evaluation process requires application of the significance criteria followed by analysis regarding historic integrity. Integrity is the ability of a property to convey its significance. Assessment of integrity includes review of extant physical features of resources that are historically significant and of resources that are not historically significant. The assessment of the latter group illustrates that the physical features of those resources have been considered in the conclusions regarding NRHP eligibility. As noted above, a resource must have both significance and integrity to be considered eligible. A resource may retain integrity, but if it lacks significance, it is ineligible for listing.

There are seven factors of integrity: location, design, setting, workmanship, materials, feeling, and association, and these seven can be roughly grouped into three types. Location and setting relate to the relationship between the property and its environment. Design, materials, and workmanship of historic properties relate to their construction methods and architectural / engineering details. Feeling and association are the least objective of the seven aspects and pertain to the overall ability of the property to convey a sense of historical time and place. As noted by the National Park Service guidelines, assessment of integrity can sometimes be a subjective judgment, but it is always grounded in an understanding of a property's physical features and how they relate to its significance in terms of where, why and when a property is significant. Only those properties that retain most of these aspects of integrity – and also have historic significance – are eligible for listing in the NRHP.

V. Summary of Findings

Dr. David Sproul, Historian with Naval Facilities Engineering Command, Southwest surveyed the structures proposed for demolition on November 16, 2017 for the purposes of evaluating their potential eligibility for inclusion in the NRHP. None of the fourteen buildings and structures

inventoried for this report met the standards for NRHP eligibility as established in NPS Bulletin 15, "How to Apply the National Register Criteria for Evaluation." The detailed evaluation of each building or structure is presented below.

In summary, the buildings and structures evaluated in this letter report are not recommended eligible for listing in the NRHP. The history of the TACAMO facility support buildings during the Cold War illustrates that none of the components of the TACAMO facility had direct or important associations with historically significant Cold War-era themes. While the technology associated with the TACAMO program could be considered significant under Cold War themes, the technology is not the subject of evaluation for this undertaking. The TACAMO program did not originate at TAFB and will continue to exist after the proposed undertaking just as it existed before its relocation to Travis AFB.

In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, the buildings and structures currently used to support the TACAMO program did not play a significant role in the themes of the Cold War. None of these facilities played an important role in the technological advancements associated with TACAMO or that that were historically significant during the Cold War, nor did they play a historically significant role in Naval operations overseas. The facilities at Travis AFB performed utilitarian functions in support of TACAMO operations: crew readiness staging, storage, recreation, and security. While the facilities at Travis AFB were associated with the TACAMO program during its time at Travis AFB, Bulletin 15 indicates that "mere association with historic event or trends is not enough, in and of itself, to qualify under Criterion A: the property's specific association must be considered important as well."

While most of the buildings at TACAMO possess integrity to their date of construction, they do not meet the criteria for listing in the NRHP within the context of the Cold War because they have no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). The buildings and structures at Travis AFB that supported TACAMO operations, moreover, do not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor are they likely to reveal important historical information about that period (NRHP Criterion D). These buildings and structures played a utilitarian role in the TACAMO program, storing, maintaining, and transiting technologically sophisticated aircraft that were the focus of the TACAMO program; however, the buildings' uses were not historically significant to the research, design, testing and evaluation of such aircraft or to the TACAMO program – functions that might have qualified the buildings for listing on the NRHP.

VI. Results of Field Investigation

Building 1162

Description

Built in 1957, Building 1162 is the liquid oxygen (LOX) storage structure. It is a three sided, CMU structure with a mild slope metal shed roof.

Significance

The history of the TACAMO facility during the Cold War illustrates that none of the components of the facility had direct or important associations with historically significant Cold War-era themes. In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, Building 1162 did not play a significant role in the themes of the Cold War. Building 1162 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did it play a historically significant role in Naval operations overseas; rather, Building 1162 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. While Building 1162 possesses integrity to its date of construction, it does not meet the criteria for listing in the NRHP within the context of the Cold War because it has no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). This building, moreover, does not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor is it likely to reveal important historical information about that period (NRHP Criterion D). Building 1162 played a utilitarian role in the operation of TACAMO; however, the building's uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the building for listing on the NRHP.

Buildings 1165 and 1178

Description

Built in 1990, Buildings 1165 and 1178 are the TACAMO facility Security Entry Control Point and Overhead Walkway Cover. Building 1165 is a metal frame and shed-roof cover for pedestrian entrance into the TACAMO facility. Building 1178 is a metal frame and siding structure with flat metal shed roof. It houses security personnel and equipment for monitoring pedestrian and vehicular entrance into the TACAMO facility.

Significance

The history of the TACAMO facility during the Cold War illustrates that none of the components of the facility had direct or important associations with historically significant Cold War-era themes. In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, Buildings 1165 and 1178 did not play a significant role in the themes of the Cold War. Buildings 1165 and 1178 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did they play a historically significant role in Naval operations overseas; rather, Buildings 1165 and 1178 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. While Buildings 1165 and 1178 possess integrity to their date of construction, they do not meet the criteria for listing in the NRHP within the context of the Cold War because they have no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). These buildings, moreover, do not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor are they likely to reveal important historical information about that period (NRHP Criterion D). Buildings 1165 and 1178 played a utilitarian role in the operation of TACAMO; however, the buildings' uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the buildings for listing on the NRHP.

Buildings 1167 and 1168

Description

Built in 1990, Buildings 1167 and 1168 are the TACAMO facility Security Entry Control Point and Overhead Walkway Cover. Buildings 1167 and 1168 are wood frame, flat roof temporary/mobile guard shacks for housing airplane apron access control personnel.

Significance

The history of the TACAMO facility during the Cold War illustrates that none of the components of the facility had direct or important associations with historically significant Cold War-era themes. In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, Buildings 1167 and 1168 did not play a significant role in the themes of the Cold War. Buildings 1167 and 1168 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did they play a historically significant role in Naval operations overseas; rather, Buildings 1167 and 1168 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. While Buildings 1167 and 1168 possess integrity to their date of construction, they do not meet the criteria for listing in the NRHP within the context of the Cold War because they have no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). These buildings, moreover, do not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor are they likely to reveal important historical information about that period (NRHP Criterion D). Buildings 1167 and 1168 played a utilitarian role in the operation of TACAMO; however, the buildings' uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the buildings for listing on the NRHP.

Building 1171

Description

Built in 1989, Building 1171 is SHP Avionics building. It is a prefabricated metal shed structure with a mild slope metal shed roof and metal roll-up door for equipment access.

Significance

The history of the TACAMO facility during the Cold War illustrates that none of the components of the facility had direct or important associations with historically significant Cold War-era themes. In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, Building 1171 did not play a significant role in the themes of the Cold War. Building 1171 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did it play a historically significant role in Naval operations overseas; rather, Building 1171 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. While Building 1171 possesses integrity to its date of construction, it does not meet the criteria for listing in the NRHP within the context of the Cold War because it has no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). This building, moreover, does not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor is it likely to reveal important historical information about that period (NRHP Criterion D). Building 1171 played a utilitarian role in the operation of TACAMO; however, the building's uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the building for listing on the NRHP.

Building 1174

Description

Built in 1989, Building 1174 is the gymnasium. It is a prefabricated metal shed structure with a mild slope metal shed roof and metal roll-up door for equipment access.

Significance

The history of the TACAMO facility during the Cold War illustrates that none of the components of the facility had direct or important associations with historically significant Cold War-era themes. In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, Building 1174 did not play a significant role in the themes of the Cold War. Building 1174 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did it play a historically significant role in Naval operations overseas; rather, Building 1174 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. While Building 1174 possesses integrity to its date of construction, it does not meet the criteria for listing in the NRHP within the context of the Cold War because it has no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). This building, moreover, does not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor is it likely to reveal important historical information about that period (NRHP Criterion D). Building 1174 played a utilitarian role in the operation of TACAMO; however, the building's uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the building for listing on the NRHP.

Building 1175

Description

Built in 1957, Building 1175 is the TACAMO facility Operations and Crew Readiness building. It is a single story CMU structure that includes a storage basement and a mild slope metal shed roof.

Significance

Building 1175 was previously evaluated and determined not eligible for the NRHP. (Karen J. Weitze, "Travis Air Force Base, Fairfield, California: Inventory of Cold War Properties." Plano, TX: Geo-Marine, Inc., 1996)

No new information has been revealed that would alter the 1996 determination of non-eligibility for Building 1175. Building 1175 did not play a significant role in the themes of the Cold War. Building 1175 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did it play a historically significant role in Naval operations overseas; rather, Building 1175 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. While Building 1175 possesses integrity to its date of construction, it does not meet the criteria for listing in the NRHP within the context of the Cold War because it has no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). This building, moreover, does not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor is it likely to reveal important historical information about that period (NRHP Criterion D). Building 1175 played a utilitarian role in the operation of TACAMO; however, the building's uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the building for listing on the NRHP.

Building 1176

Description

Built in 1974, Building 1176 was originally designated Building 1174 and served as the family visitation center for the readiness crew. It was designated Building number 1176 when the Navy acquired real estate control of the building in 2008. It is currently the training and records storage building. It is a prefabricated metal shed structure with a mild slope metal shed roof, double metal entry door, and metal roll-up door for equipment access.

Significance

The history of the TACAMO facility during the Cold War illustrates that none of the components of the facility had direct or important associations with historically significant Cold War-era themes. In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, Building 1176 did not play a significant role in the themes of the Cold War. Building 1176 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did it play a historically significant role in Naval operations overseas; rather, Building 1176 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. While Building 1176 possesses integrity to its date of construction, it does not meet the criteria for listing in the NRHP within the context of the Cold War because it has no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). This building, moreover, does not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor is it likely to reveal important historical information about that period (NRHP Criterion D). Building 1176 played a utilitarian role in the operation of TACAMO; however, the building's uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the building for listing on the NRHP.

Building 1180

Description

Built in 1993, Building 1180 is the hazardous materials storage building. It is a steel reinforced metal shed with a flat metal roof and locked dual doors.

Significance

Built outside the Cold War-era period of significance, Building 1180 is not eligible for listing on the NRHP under Criteria Consideration G because it does not possess exceptional significance for a structure less than 50 years of age and is not associated with any known historic themes or contexts for the period after 1991.

Building 1181

Description

Built in 1995, Building 1181 is the Electric Power Station building. It is metal-framed stucco shed with a moderately pitched metal roof and locked dual doors.

Significance

Built outside the Cold War-era period of significance, Building 1181 is not eligible for listing on the NRHP under Criteria Consideration G because it does not possess exceptional significance for a structure less than 50 years of age and is not associated with any known historic themes or contexts for the period after 1991.

Building 1191

Description

Built in 1957, Building 1191 is the TACAMO facility Operations and Crew Readiness building's break and outdoor lunch area shade structure. It is a four-post metal sun/weather shade partially attached to Building 1175.

Significance

The history of the TACAMO facility during the Cold War illustrates that none of the components of the facility had direct or important associations with historically significant Cold War-era themes. In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, Building 1191 did not play a significant role in the themes of the Cold War. Building 1191 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did it play a historically significant role in Naval operations overseas; rather, Building 1191 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. While Building 1191 possesses integrity to its date of construction, it does not meet the criteria for listing in the NRHP within the context of the Cold War because it has no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). This building, moreover, does not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor is it likely to reveal important historical information about that period (NRHP Criterion D). Building 1191 played a utilitarian role in the operation of TACAMO; however, the building's uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the building for listing on the NRHP.

Building 1193

Description

Built in 1957, Building 1193 is the TACAMO facility tennis court. It is a standard hard court concrete surface bounded by a chain link fence.

Significance

The history of the TACAMO facility during the Cold War illustrates that none of the components of the facility had direct or important associations with historically significant Cold War-era themes. In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, Building 1193 did not play a significant role in the themes of the Cold War. Building 1193 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did it play a historically significant role in Naval operations overseas; rather, Building 1193 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. Building 1193 does not possess integrity to its date of construction as it has been resurfaced numerous times during the 50 years since its original construction. It does not meet the criteria for listing in the NRHP within the context of the Cold War because it has no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). This building, moreover, does not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor is it likely to reveal important historical information about that period (NRHP Criterion D). Building 1193 played a utilitarian role in the operation of TACAMO; however, the building's uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the building for listing on the NRHP.

Building 1894

Description

Built in 1957, Building 1894 is the TACAMO facility basketball court. It is a standard hard court concrete surface bounded by a chain link fence.

Significance

The history of the TACAMO facility during the Cold War illustrates that none of the components of the facility had direct or important associations with historically significant Cold War-era themes. In the context of the Cold War era, which focused on weapons research and development, weapons and aircraft testing and evaluation, early warning systems and electronic warfare, strategic nuclear capabilities, intercontinental and anti-ballistic missile installations, or man in space sites, Building 1894 did not play a significant role in the themes of the Cold War. Building 1894 did not play an important role in the technological advancements that were historically significant during the Cold War, nor did it play a historically significant role in Naval operations overseas; rather, Building 1894 performed functions in support of operations similar to those undertaken at other air stations and Naval facilities around the nation. Building 1894 does not possess integrity to its date of construction as it has been resurfaced numerous times during the 50 years since its original construction. It does not meet the criteria for listing in the NRHP within the context of the Cold War because it has no direct or important associations with significant events or trends of that era (NRHP Criterion A) or an historically significant individual of that era (NRHP Criterion B). This building, moreover, does not exemplify an important type, period, or method of construction of the Cold War era (NRHP Criterion C) nor is it likely to reveal important historical information about that period (NRHP Criterion D). Building 1894 played a utilitarian role in the operation of TACAMO; however, the building's uses are not historically significant to the research, design, testing and evaluation of the TACAMO program – functions that might have qualified the building for listing on the NRHP.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 60TH AIR MOBILITY WING (AMC)

JUL 27 2018

Colonel Ethan C. Griffin
Commander
60th Air Mobility Wing
400 Brennan Circle
Travis AFB CA 94535-5000

Honorable Anthony Roberts
Chairman
Yocha Dehe Wintun Nation
P.O. Box 18
Brooks CA 95606-0018

Dear Chairman Roberts

The purpose of this letter is twofold: to give you an opportunity to review and comment on a proposed action in which the Yocha Dehe Wintun Nation may have an interest; and to invite the Yocha Dehe Wintun Nation to participate in Government-to-Government consultation with Travis AFB pursuant to Section 106 of the National Historic Preservation Act.[1]

The United States Navy and Air Force are preparing an Environmental Assessment (EA) analyzing the development of a new Alert Force Complex at Travis Air Force Base (AFB). The EA is being prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code (USC) §4321 et seq.); the Council on Environmental Quality Regulations (40 Code of Federal Regulations (CFR) Parts 1500-1508); and the Air Force NEPA policy and procedures (32 CFR Part 989).

The Proposed Action includes the construction of the new Alert Force Complex (Complex) for the Navy's Fleet Air Reconnaissance Squadron Three Detachment Travis (VQ-3 Det Travis) north of the Travis AFB runways, and the demolition of most of the existing Complex located within the runway clear zone along the southern boundary of the base. The EA evaluates potential environmental and cultural resource impacts from both the new construction and the demolition. The Draft EA, which includes detailed information about the proposed project, is provided as Attachment 1.

The Area of Potential Effect (APE) for the proposed action has been divided into separate construction and demolition areas. Together, the New Construction APE and Demolition APE constitute the project APE as shown in Attachment 2. The New Construction APE includes a small, vacant area located across Vandenberg Drive to the southwest that would be temporarily utilized as a staging area during construction. The proposed action's Area of Direct Impact

[1] 54 U.S.C § 306108, as implemented by 36 CFR Part 800.

(ADI) is limited to the demolition or construction footprint of any work areas that are physically affected.

Travis AFB is located in Solano County, and is found on the United States Geological Survey Elmira and Denverton, California 7.5-minute topographic quadrangles (See Attachment 2). It encompasses the following Sections (Sections are completely in the Elmira quadrangle unless otherwise noted):

- Township 5 North, Range 1 East: Sections 17, 18, and 19
- Township 5 North, Range 1 West: Sections 13, 14, 15, 21, 22, 23, 24, 25, 26 (Denverton), 27 (Denverton), 28, 34 (Denverton), and 35

Previous archaeological field surveys conducted on Travis AFB have shown that only two prehistoric archaeological sites are known to occur within the installation boundaries. Both sites, located near vernal pools in the northwest portion of the base, were recorded and artifacts were recovered from them in 1989 prior to the construction of the new medical center. In addition, a field survey of undisturbed areas in 1995 located evidence of seven historic archaeological sites on Travis AFB, but subsequent consultations with the State Historic Preservation Officer determined that none of these sites were eligible for the National Register of Historic Places (NRHP).

Travis AFB has developed site sensitivity models to estimate the potential for discovering both surface and subsurface archaeological deposits throughout the base. Decades of ground-disturbing activity associated with the base's construction and operation have drastically altered the surface of both APEs, making the likelihood of encountering surficial archaeological deposits in these areas extremely low. This is particularly the case in the New Construction APE, which is capped with up to 20 feet of fill and construction debris. The buried site sensitivity model estimated the potential for buried sites to be low to lowest throughout the vast majority (99.7%) of the base, including areas within the New Construction and Demolition APEs. The low potential primarily reflects the age of the surface landforms, which are mostly Pleistocene in age or older and therefore were deposited prior to human occupation of the region.

Please let me know whether Yocha Dehe Wintun Nation desires to participate in the development of this NEPA analysis, or to engage in government-to-government consultation. As discussed above, Travis AFB does not know of any properties of religious or cultural significance within the APE. Nevertheless, we ask for your assistance in identifying such properties of which we may be unaware, particularly those that maybe be affected by this proposal.

Please take this opportunity to complete the Attachment 3, which can be filled out to identify the Tribe's interest in consulting about the proposal and to facilitate further communication on the matter. Upon completion, please return Attachment 3 to us in the stamped and self-addressed envelope.

For staff questions, to schedule a site visit, or to request information on the NEPA process, please contact Mr. Matthew Blazek, Travis AFB NEPA Program Manager, at (707) 424-5127 or matthew.blazek@us.af.mil. Please let us know when you would like to meet and do

not hesitate to call me at (707) 424-2454 to arrange dates and times for consultation. I look forward to receiving any input you may have regarding this endeavor.

Sincerely

ETHAN C. GRIFFIN, Colonel, USAF
Commander

4 Attachments:
1. Draft EA for the Development of the P205 Alert Force Complex Project
2. Regional Location Map of Travis AFB
3. Response Endorsement and Preferences Form for Travis AFB
4. Stamped, self-addressed return envelope

YOCHA DEHE
CULTURAL RESOURCES

August 14, 2018

60th Air Mobility Wing
Attn: Ethan C. Griffin, Colonel
400 Brennan Circle
Travis AFB, CA 94535

RE: Alert Force Complex Project

Dear Colonel Griffin:

Thank you for your project notification letter dated, July 27, 2018, regarding cultural information on or near the proposed Alert Force Complex Project, Travis AFB, Solano County. We appreciate your effort to contact us and wish to respond.

The Cultural Resources Department has reviewed the project and concluded that it is within the aboriginal territories of the Yocha Dehe Wintun Nation. Therefore, we have a cultural interest and authority in the proposed project area and would like to initiate a formal consultation with the lead agency. At the time of consultation, please provide our Cultural Resources Department with a project timeline, detailed project information and the latest cultural study for the proposed project.

Please contact the following individual to coordinate a date and time for the consultation meeting:

Kathleen Solorio, CRD Administrative Assistant
Yocha Dehe Wintun Nation
Office: (530) 796-2803
Email: ksolorio@yochadehe-nsn.gov

Please refer to identification number YD – 08142018-01 in any correspondence concerning this project.

Thank you for providing us the opportunity to comment.

Sincerely,

Leland Kinter
Tribal Historic Preservation Officer

YOCHA DEHE
CULTURAL RESOURCES

December 6, 2018

60th Air Mobility Wing
Attn: Matthew Blazek, Tribal Liaison Officer
411 Airmen Drive, Bldg. 570
Travis AFB, CA 94535-2001

RE: Alert Force Complex Project

Dear Mr. Blazek:

Thank you for the consultation meeting on, November 29, 2018, regarding the proposed Alert Force Complex Project, Travis AFB, Solano County. We appreciate you taking the time to discuss the project.

Based on the information provided during our consultation meeting, the Tribe has concerns that the project could impact known cultural resources and would like to continue consultation. Yocha Dehe Wintun Nation highly recommends including cultural monitors during development and ground disturbance, including backhoe trenching and excavations. In addition, we would like the Tribe's Burial Treatment Protocol to be incorporated into the mitigation measures for this project. Please see the attached Burial Treatment Protocol for Handling Human Remains, specifically sections II and VI.

To setup a monitoring agreement, please contact the following individual:

Kathleen Solorio, CRD Administrative Assistant
Yocha Dehe Wintun Nation
Office: (530) 796-2803
Email: ksolorio@yochadehe-nsn.gov

Please refer to identification number YD – 08142018-01 in any correspondence concerning this project.

Thank you for providing us the opportunity to comment.

Sincerely,

Leland Kinter
Tribal Historic Preservation Officer

Colonel Jeffrey W. Nelson
Commander
60th Air Mobility Wing
400 Brennan Circle
Travis AFB CA 94535-5000

Mr. Leland Kinter
Tribal Historic Preservation Officer
Yocha Dehe Wintun Nation
P.O. Box 18
Brooks CA 95606-0018

Dear Mr. Kinter,

Thank you for your December 06, 2018 letter (Attachment 1) outlining the concerns and requests from Yocha Dehe Wintun Nation (Tribe) for Travis Air Force Base (AFB) and the Navy's Alert Force Complex Project, YD-08142018-01. Travis is committed to develop our relationship with the Yocha Dehe Wintun Nation and to the stewardship of potential cultural resources that may be present on base.

Your letter expresses the Yocha Dehe Wintun Nation's continued desire to consult on the Alert Force Complex concerning possible cultural resources on site and requests cultural monitors be present on site during development, ground disturbing activities and Treatment Protocol for Handling Human Remains and Cultural Items (Treatment Protocol)(Attachment 2) be included as part of mitigation measures.

Air Force and Navy representatives met with your members of the Yocha Dehe Wintun Nation at the consultation meeting on November 29, 2018. During this meeting the Tribe requested that the Government pay for the cultural monitors. An additional meeting on 29 October, 2019 was held between the Yocha Dehe Wintun Nation members and the Travis AFB Mission Support Group Commander where the same topics were presented to the Group Commander.

The Air Force and Navy continue to believe, based on past studies and operations, that there is a very low likelihood of discovering archaeological sites on the previously disturbed locations chosen for the Alert Force Complex. We recognize and respect the Yocha Dehe Wintun Nation's cultural interest and authority over potential, unknown cultural resources that may be present in project areas. Travis AFB has decided not to allow cultural monitors during ground disturbing activities related to the Alert Force Complex Project and will be moving forward with this construction effort.

Continuing forward, Travis AFB invites the Yocha Dehe Wintun Nation to consult in future base activities and provide opportunities to discuss cultural topics. We would like to

establish a Comprehensive Agreement as specified in the 1991 Native American Graves Protection and Repatriation Act, 25 U.S.C. § 3001.

Finally, in an effort to continue the effective protection of cultural resources and strengthen engagement proceedings between Travis AFB and the Yocha Dehe Wintun Nation, we propose creating a Memorandum of Understanding between the Tribe and Travis AFB for future Air Force projects and operations. Please let me know if this is something that interests the Yocha Dehe Wintun Nation.

We greatly appreciate you taking the time to discuss the Alert Force Complex effort with us. For any questions, further concerns, and/or if you wish to discuss any of these topics more, please do not hesitate to call me at (707) 424-2454 to arrange a date and time to meet. I look forward to receiving any input you may have.

Respectfully,

Jeffrey W. Nelson

JEFFREY W. NELSON, Colonel, USAF
Commander

2 Attachments:
1. YDWN Consultation Letter – 06 Dec 18
2. Treatment Protocol

Appendix C

Biological Resources Supporting Documentation for the P205 Alert Force Complex Project

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
08ESMF00-
2019-F-1159-R001

JUN 05 2019

Merlin J. Miller
Deputy Commander, 60th Civil Engineer Squadron
411 Airman Drive, Bldg 570
Travis Air Force Base, California 94535-2001

Subject: Reinitiation of Formal Consultation on P205 Alert Force Complex Project at Travis Air Force Base, Solano County, California

Dear Mr. Miller:

This letter is in response to the Travis Air Force Base (Travis AFB) May 29, 2019, electronic mail (email) request for reinitiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the P205 Alert Force Complex Project (proposed project), Travis AFB in Solano County, California. Your May 29, 2019, email and attachment include the required and complete Covered Project Analysis Template (consultation template) as outlined in the Programmatic Formal and Informal Consultation on the Proposed Effects of Activities Conducted at Travis Air Force Base on Six Federally Threatened and Endangered Species, Solano County, California (Service file 08ESMF00-2017-F-2294-3; Programmatic Biological Opinion). At issue are effects of the proposed project on the federally listed as threatened Central California Distinct Population Segment of the California tiger salamander (*Ambystoma californiense*; tiger salamander or CTS) and vernal pool fairy shrimp (*Branchinecta lynchi*; fairy shrimp); as well as the federally listed as endangered vernal pool tadpole shrimp (*Lepidurus packardi*; tadpole shrimp). Collectively, the fairy shrimp and the tadpole shrimp are referred to herein as the 'vernal pool shrimp species.' Travis AFB has also determined that the proposed project may affect, but is not likely to adversely affect, the delta green ground beetle (*Elaphrus viridis*; ground beetle). Our response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

In electronic mail (email) correspondence received May 29, 2019, you described modifications to the to proposed project as analyzed. As stated in the Reinitiation – Closing Statement section of the Febuary 25, 2019 opinion, a reinitiation is required and shall be requested, among other conditions, when "the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion." According to the attachment included with the May 29, 2019 email, the proposed project described in the opinion will be modified in the following manners, with ~~strikethrough text~~ indicating text that will be omitted and **bold** text indicating text that will be added to the February 29, 2019, opinion:

Alterations to the Opinion
Under the heading "Effects of the Action", within the "*Vernal Pool Shrimp Species*" section (Page 8), the following sentence:

- "The proposed project will result in permanent, indirect effects to hydrology within 250 feet of the New Complex site."
- "The proposed project will result in permanent, **direct and** indirect effects to hydrology within 250 feet of the New Complex site."

Under the heading "Effects of the Action", within the "*Vernal Pool Shrimp Species*" section (Page 8), the following sentence:

- "Travis AFB has proposed to compensate for the indirect effects to the vernal pool habitat through the purchase of 1.01 acres of vernal pool conservation credits at a Service-approved conservation bank."
- "Travis AFB has proposed to compensate for the indirect effects to the vernal pool habitat through the purchase of 1.01 acres **and direct effects to the vernal pool habitat through 0.0138 acres** of vernal pool conservation credits at a Service-approved conservation bank."

Under the heading "Effects of the Action", within the "*Vernal Pool Shrimp Species* "section (Page 8), added the following sentence:

- **"The proposed project will directly impact through the permanent removal of 0.0046 acres of vernal pool species habitat."**

The federal action on which we are consulting is the development of the P205 Alert Force Complex for the Fleet Air Reconnaissance Squadron Three Detachment Travis Operations Command. The proposed project involves the construction of a new compound north of the flight line, and the demolition or removal of most facilities at the existing complex site. Our response is based on the following information: (1) the consultation request letter dated February 25, 2019; (2) a Revised Draft Biological Assessment, dated January 2019; and (3) a Revised Draft Biological Assessment, dated May 2019; and (4) other information available to the Service.

Conclusion

After reviewing the current status of the tiger salamander, vernal pool fairy shrimp, and vernal pool tadpole shrimp; the environmental baseline for the action area, the effects of the proposed project and the cumulative effects on each listed species; it is the Service's biological opinion that the P205 Alert Force Complex Project, as proposed, is not likely to jeopardize the continued existence of the California tiger salamander, vernal pool fairy shrimp, or the vernal pool tadpole shrimp. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following: (1) the potential of lethal take of individual California tiger salamanders, vernal pool fairy shrimp, and vernal pool tadpole shrimp, will be minimized by the implementation of the proposed conservation measures; (2) vernal pool branchiopod habitat will be preserved at a 3:1 ration within a conservation bank with credits purchased by Travis AFB in return for directly impacting suitable vernal pool species habitat; (3) the project fits within the scope of the actions described in the Programmatic Biological Opinion; (4) the effects analyzed are similar to those that were analyzed in the Programmatic Biological Opinion; (5) sensitive time periods for listed species will be avoided to the extent practicable; and (6) all minimization measures will be implemented.

In instances in which the total number of individuals anticipated to be taken cannot be determined, the Service may use the amount of habitat impacted as a surrogate; since the take of individuals

anticipated will result from the loss of vernal pool habitat, the quantification of suitable habitat serves as a direct surrogate for the individuals that will be lost. Therefore, the Service is authorizing take incidental to the proposed project as the **1.0146** acres of potentially suitable vernal pool habitat for the fairy shrimp and the tadpole shrimp that could be affected by hydrological changes **and permanent removal of suitable habitat** resulting from proposed project activities.

If you have any questions regarding this biological opinion, please contact Harry Kahler, Fish and Wildlife Biologist, (harry_kahler@fws.gov) or at (916) 414-6577 or Doug Weinrich, Assistant Field Supervisor, at (916) 414-6563 or the letterhead address.

Sincerely,

Doug Weinrich

Jennifer M. Norris, Ph.D.
Field Supervisor

RE: 08ESMF00-2019-F-1159-1 Formal Consultation on P205 Alert Force Complex Project at Travis Air Force Base, Solano County California

This Amendment to the Biological Assessment (BA) submitted to USFWS Sacramento Office on 25 February 2019 for the P205 Alert Force Complex Project (Proposed Action) at Travis Air Force Base, located in Solano County, California is being submitted due to recent new information obtained at the proposed New Complex Site. Below is a summary of changes to Section 4 Description of the Action Area, Section 6 Effects of the Action, and Section 7 Conclusion. Changes to the original Biological Assessment are shown in red font.

4 Description of the Action Area

Seasonal Wetlands and Swales

New Complex Site

There is one ~~wetland swale (WS.CA.723)~~ seasonal wetland (SW.CA.1040) within 250 feet of the Action Area. See Table 1 for a description of this wetland.

Table 1. Wetlands Within 250 Feet of the Action Area

Feature ID	Area (ac.)	Distance (ft.)	Impact	Vernal Pool Species Habitat
New Complex				
~~WS.CA.723~~	~~0.05~~	~~Within Action Area~~	~~Direct (permanent removal)~~	~~No~~
VP.CA.184	0.04	0	Indirect	Potential
VP.CA.030	0.04	52	Indirect	Potential
VP.CA.358	0.86	75	Indirect	Potential
VP.CA.364	0.06	105	Indirect	Potential
VP.CA.350	0.01	185	Indirect	Potential
VP.CA.345	0.03	255	Indirect	Potential
SW.CA.1040	0.0046	Within Action Area	Direct	Potential
Staging Area				
WS.CA.719	0.02	115	None	Potential
SW.CA.845	0.02	120	None	Potential
WS.CA.867	0.02	130	None	Potential
Existing Complex				
VP.FL.798	0.01	15	None	Potential
VP.FL.797	0.05	30	None	Potential
VP.FL.796	0.21	60	None	Potential
VP.FL.597	0.01	75	None	Potential
VP.FL.504	0.01	200	None	Potential
VP.FL.505	0.02	170	None	Potential
VP.FL.803	0.01	220	None	Potential
VP.FL.594	0.01	95	None	Potential
VP.SU.518	0.01	245	None	Potential
WS.FL.593	0.26	55	None	Potential

6 Effects of the Action

The Proposed Action would result in permanent removal of approximately 8.37 acres of high risk upland habitat suitable for the threatened CTS, 1.48 acres of temporary upland habitat disturbance, 0.0046 acres

of direct impacts to vernal pool species habitat suitable for VPFS and VPTS, and indirect impacts to 1.01 acres of vernal pool species habitat suitable for the VPFS and VPTS. ~~A wetland swale will be permanently removed as part of the project, however, it is not habitat for VPFS/VPTS.~~

Table 2. Project Habitat Impact Summary

Resource	Area (ac.)	Impact
High Risk CTS Upland Habitat	8.37	Permanent
High Risk CTS Upland Habitat	1.48	Temporary
Vernal pool fairy shrimp/Vernal pool tadpole shrimp habitat	1.01	Indirect
~~Wetland swale~~	~~0.05~~	~~Permanent (not threatened and endangered species habitat)~~
Vernal pool fairy shrimp/Vernal pool tadpole shrimp habitat	0.0046	Direct

Total acreage Hardscape (staging area) 1.00
Total acreage Building and Pavement demolition 0.74
Total acreage removal of wetlands (requires CWA permit); ~~not~~ vernal pool species habitat: 0.0046 ~~0.05~~

6.2 Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

The Proposed Action would indirectly affect 1.01 acre of vernal pool species habitat and directly impact 0.0046 acres of vernal pool species habitat. The vernal pool habitat affected by the project is located within a low quality (Existing Complex Site) and medium quality (New Complex Site) Vernal Pool Conservation Area (Travis AFB).

Impacts to Species and Habitat

New Complex Site

The site for the proposed New Complex is immediately adjacent to one 0.04 acre vernal pool VP.CA.184 (USACE 2016) and four additional vernal pools are within 185 feet of the Action Area. These vernal pools would be avoided during construction, however grading of the site to remove the existing berm for the New Complex is expected to result in hydrological changes to the surrounding area. These changes, such as altered surface water runoff patterns, can result in more or less input to nearby vernal pools which is considered an indirect impact to these vernal pools. A newly delineated wetland feature SW.CA.1040 is within the footprint of the New Complex Site and cannot be avoided. Vernal pools and wetlands within the New Complex Site project area are classified as medium value according to the Vernal Pool Conservation Area map in the Travis AFB Programmatic Biological Assessment. SW.CA.1040 is 0.0046 acres and will be directly impacted as part of the project (Figure 1). Refer to Figure 2 for the Action Area of the New Complex Site.

7 Conclusion

The Proposed Action would result in permanent and temporary loss of suitable habitat for CTS and indirect and direct effects to suitable habitat for VPFS/VPTS.

Construction of the proposed New Complex will result in indirect effects to 1.01 acres of VPFS/VPTS species habitat from the hydrological modification of the surrounding grasslands. To compensate for the indirect effects to 1.01 acres of vernal pool branchiopod habitat, Travis AFB shall preserve vernal pool branchiopod habitat within a USFWS-approved conservation area/mitigation bank at a ratio of 1:1. A newly discovered wetland feature, SW.CA.1040, will be

permanently removed at the New Complex site. SW.CA.1040 is 0.0046 acres and is assumed to support habitat for VPFS/VPTS. Travis AFB shall preserve vernal pool branchiopod habitat within a USFWS-approved conservation area/mitigation bank at a ratio of 3:1. (Figure 1)

0.05 acre of wetlands that are not suitable habitat for vernal pool species would be removed within the proposed New Complex site, however, a Clean Water Act permit would be obtained prior to the start of the project. A recent wetland delineation has determined that WS.CA.723 is in fact not a wetland. The location of this feature as originally mapped is a convex ridge top that does not pond water (Figure 1).

Table 3. **Summary of Impacts and Compensatory Mitigation**

Location	Habitat	Type	Impact (ac)	Ratio	Mitigation (ac)
Proposed Complex	CTS Upland	Permanent	8.37	2:1	16.74
Existing Complex	CTS Upland	Temporary	0.74	0.5:1	0.37
Proposed Complex	VPFS/VPTS	Indirect	1.01	1:1	1.01
Proposed Complex	VPFS/VPTS	Direct	0.0046	3:1	0.0138

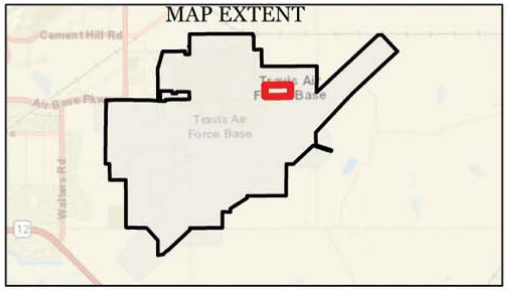


Figure 1

NEW TACAMO SITE
WETLAND DELINEATION
Travis AFB, CA

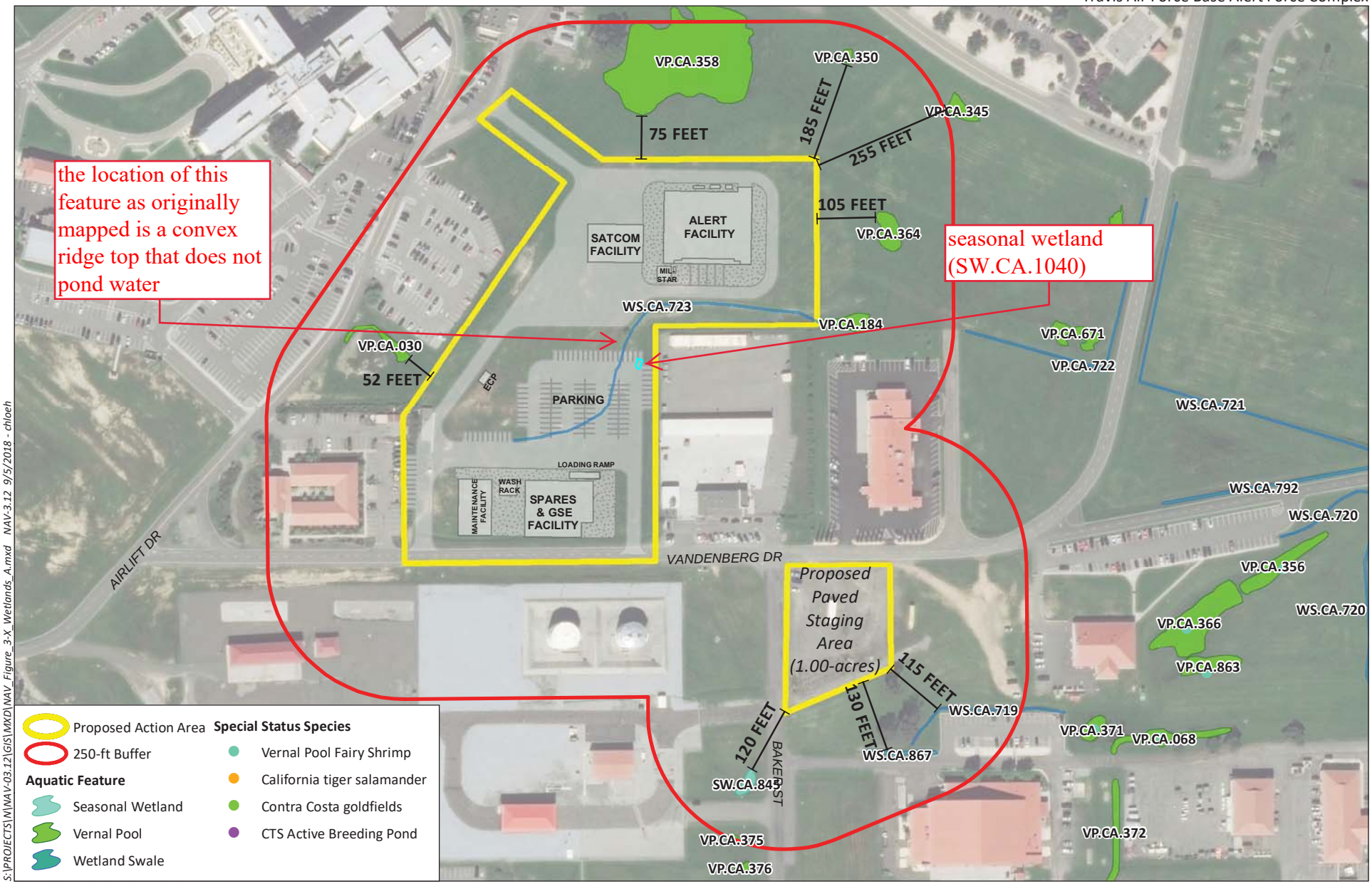
Existing Wetlands
New wetlands 5/20/2019
Wetlands removed

N

0 40 80 160 240 320
Feet

Credits: ESRI 2019; TAFB 2019

Document Path: \\vmware-host\Shared Folders\Desktop\GIS\TAFB\2019 Wetland mapping.mxd



S:\PROJECTS\N\WAV-03.12\GIS\MXD\WAV_Figure_3-X_Wetlands_A.mxd NAV-3.12 9/5/2018 - chloeh

Source: Travis AFB, Esri 2017

0 250 Feet

Aquatic Features within 250-ft of the Proposed Action Area

Figure 2

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
08ESMF00-
2019-F-1159-1

APR 0 8 2019

Merlin J. Miller
Deputy Commander, 60th Civil Engineer Squadron
411 Airman Drive, Bldg 570
Travis Air Force Base, California 94535-2001

Subject: Formal Consultation on P205 Alert Force Complex Project at Travis Air Force Base, Solano County, California

Dear Mr. Miller:

This letter is in response to the Travis Air Force Base (Travis AFB) February 25, 2019, electronic mail (email) request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the P205 Alert Force Complex Project (proposed project), Travis AFB in Solano County, California. Your February 25, 2019, email and attachment include the required and complete Covered Project Analysis Template (consultation template) as outlined in the Programmatic Formal and Informal Consultation on the Proposed Effects of Activities Conducted at Travis Air Force Base on Six Federally Threatened and Endangered Species, Solano County, California (Service file 08ESMF00-2017-F-2294-3; Programmatic Biological Opinion). At issue are effects of the proposed project on the federally listed as threatened Central California Distinct Population Segment of the California tiger salamander (*Ambystoma californiense*; tiger salamander or CTS) and vernal pool fairy shrimp (*Branchinecta lynchi*; fairy shrimp); as well as the federally listed as endangered vernal pool tadpole shrimp (*Lepidurus packardi*; tadpole shrimp). Collectively, the fairy shrimp and the tadpole shrimp are referred to herein as the 'vernal pool shrimp species.' Travis AFB has also determined that the proposed project may affect, but is not likely to adversely affect, the delta green ground beetle (*Elaphrus viridis*; ground beetle). Our response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal action on which we are consulting is the development of the P205 Alert Force Complex for the Fleet Air Reconnaissance Squadron Three Detachment Travis Operations Command. The proposed project involves the construction of a new compound north of the flight line, and the demolition or removal of most facilities at the existing complex site. Our response is based on the following information: (1) the consultation request letter dated February 25, 2019; (2) a Revised Draft Biological Assessment, dated January 2019; and (3) other information available to the Service.

Delta Green Ground Beetle

The delta green ground beetle occurs in grassland areas interspersed with surrounding vernal pools, although microhabitat conditions are not well understood (Service 2005). Nevertheless, moist soil conditions with low-growing vegetation and within 1.5 meters of water may indicate suitable microhabitat for the ground beetle (Arnold 1989). Surveys in 2012 and 2016 on Travis AFB did not

find any ground beetles, and determined that suitable microhabitat on the main Base property is unlikely.

The closest known population of the delta green ground beetle to Travis AFB is located about 458 meters (1,500 feet) off-Base in playa pools on the Wilcox Ranch, owned by the City of Fairfield and Solano County (CNDDB 2019). The delta green ground beetle has been recorded 18 playas on the eastern portion of the Wilcox Ranch, yet not all playas on the western Wilcox parcel have been surveyed for the ground beetle. In addition, additional suitable habitat exists closer to Travis AFB. Suitable ground beetle habitat may exist around other playa pools on private lands adjacent to Travis AFB, but surveys have not been conducted or publicly reported.

Although little is known about ground beetle dispersal patterns, in the California Natural Diversity Data Base a buffer of 1 mile is established around designated ground beetle critical habitat at Olcott Lake (CNDDB 2019). Due to the uncertainty associated with dispersal, as well as the lack of complete survey information throughout potentially suitable lands within 1 mile of the proposed project action area, the possibility exists for ground beetles to be affected by the proposed project. Furthermore, primary biological factors considered essential to the conservation and survival of this species; (1) vernal pools with their surrounding vegetation, and (2) land areas that surround and drain into these pools; occur within the action area on Travis AFB (Service 2005).

After reviewing all the available information, we concur with your determination that the proposed project may affect, but is not likely to adversely affect the delta green ground beetle. The proposed project reached the 'may affect' level, and the subsequent requirement for a biological assessment, due to the fact that the proposed project occurs where potentially suitable lands for the ground beetle exist. However, due to the fact that the ground beetle to date has not been identified on Travis AFB, the Service believes that adverse effects to the ground beetle are unlikely to occur, and are therefore discountable for the purposes of this consultation.

The remainder of this document provides our biological opinion on the effects of the proposed project on the salamander, fairy shrimp, and tadpole shrimp.

Consultation History

February 25, 2019:	Travis AFB sent a letter to the Service via email attachment requesting initiation of formal consultation regarding the P205 Alert Force Complex demolition and reconstruction.

BIOLOGICAL OPINION

Description of the Action

The purpose of the proposed project is to construct adequate and efficiently configured facilities to provide a secure Alert Force Complex (Complex) for the Fleet Air Reconnaissance Squadron Three Detachment Travis (VQ-3 Det Travis) Operations Command. The existing Complex has not been improved to accommodate the operational requirements for VQ-3 Det Travis and larger personnel requirements. In addition, the existing Complex site poses multiple constraints including violation of the runway safety clear zone, flooding, and danger of wildfire. Constructing a new Complex north of the flight line and outside of the runway clear zone corrects critical capacity, condition, and configuration issues that degrade mission capability and threaten the ability to maintain continuity of communication capabilities. Under the proposed project, a new Alert Force Complex will be

constructed on an 8-acre site outside of the runway safety clear zone, and the facilities within the existing Complex will be demolished.

Existing Complex Site

Most of the buildings at the existing Complex site will be demolished, with the exception of a few storage and maintenance facilities. Demolition includes removal of the buildings and structures, along with their associated concrete pads, foundations, and below-ground utilities. Buildings to be demolished include: Buildings 1165, 1171, 1174, 1175, 1176, 1178, booths (1167 and 1168), a carport (1162), a hazardous waste storage locker (1180), a table and pavilion (1191), and tennis courts (1193 and 1893). Five steel shipping containers (1181 and unnumbered) will be moved to other locations, and associated concrete pads will be demolished.

New Complex Site

The new Complex includes the construction of a 17,500-square foot, two-story Alert Force facility that will include a controlled access operations control center and communication center, crew sleeping quarters, galley, recreational areas, administrative spaces and security spaces. Site preparation would include site clearing, excavation, and preparation for construction. Paving and site improvements include grading, parking, roadways, curbs, sidewalks, landscaping and pedestrian features. Also, an aircraft maintenance repair facility will be completed to accommodate ground support and repairs, aircraft spare parts warehouse, open storage, a ground storage equipment washrack, and hazardous material (HAZMAT) storage. An entry control facility will be built along the western boundary of the new Complex site and would include a single-story physical inspection building. Other features of the new Complex include security fencing, vehicle barriers, security gates, intrusion detection system, closed-circuit television, and pedestrian turnstiles

Necessary electrical system upgrades will involve primary and secondary distribution systems, emergency generators and uninterrupted power suppliers, lighting, and transformers. Other utilities to be installed include telecommunications infrastructure, water lines, gas lines, sanitary sewer lines, and fire protection systems and supply lines. In all, digging to a depth of about 3 feet will be necessary for installing new utilities and for capping disused lines.

Other Logistical Information

A 1-acre construction staging area would be located on an existing hardscaped pad south of Vandenberg Drive. Access to the existing complex will be along Perimeter Road and existing tarmac, while the new complex will be accessed via Vandenberg Drive. Demolition and construction will need to be occurring simultaneously, and all work is scheduled between June 2020 and June 2022. Equipment likely to be used includes: an excavator; tractor, loader, or backhoe; trucks; concrete breaking equipment; cement and mortar mixer; paving equipment; boring equipment; a roller; a grader; a rubber-tired dozer; and a water truck. The total ground disturbance for the proposed project is about 9.85 acres, which will include a buffer of 20 feet around buildings and other structures proposed for demolition and removal at the existing Complex site.

Conservation Measures

To avoid or minimize effects on the tiger salamander, fairy shrimp, tadpole shrimp, and ground beetle, Travis AFB will fully implement the following conservation measures listed in Table 1, including all of the relevant conservation measures outlined in the *Programmatic Formal and Informal Consultation on the Proposed Effects of Activities Conducted at Travis Air Force Base on Six Federally Threatened and Endangered Species, Solano County, California* (Service 2018).

Additionally, to offset the permanent loss of tiger salamander upland habitat, Travis AFB has proposed to purchase 16.74 tiger salamander credits from a Service-approved conservation bank. To offset temporary losses of tiger salamander upland habitat, Travis AFB has proposed to reestablish 0.74 acre of suitable tiger salamander upland habitat and purchase an additional 0.37 tiger salamander credits at a Service-approved conservation bank. In all, Travis AFB proposes to purchase 17.11 tiger salamander credits at a Service-approved conservation bank.

Table 1. Conservation measures described in the programmatic biological assessment (Travis 2017) that will be included as part of the proposed project.

General Minimization Measures	MM-1, MM-2, MM-3, MM-5, MM-6, MM-7, MM-8, MM-9, MM-10, MM-11, MM-12, MM-13, MM-14, MM-17
California Tiger Salamander Measures	CTS-1, CTS-2, CTS-3, CTS-5, CTS-6, CTS-7, CTS-8, CTS-9, CTS-10, CTS-11, CTS-12, CTS-13, CTS-15, CTS-16, CTS-17, CTS-18, CTS-19
Vernal Pool Measures	VP-1, VP-3, VP-4
Delta Green Ground Beetle Measures	DGGB-6, DGGB-7
Migratory Bird Measures	GM-01, GM-02, GM-03

Because proposed project activities are expected to result in hydrological modifications to vernal pools within 250 feet of all parts of the proposed project action area, Travis AFB has proposed to offset the loss due to the hydrological effects by purchasing 1.01 vernal pool conservation credits at a Service-approved conservation bank.

Of the conservation measures listed in Table 1, five measures will be modified from the text of the programmatic biological assessment (Travis 2017) when applied to the proposed project. In the following descriptions of these four measures, ~~strikethrough~~ text indicates language that will be omitted upon implementation from the text as written in the programmatic biological assessment, and **bold** text indicates language that will be added upon project implementation to the text as written in the programmatic biological assessment:

- From MM -2, remove the ~~strikethrough~~ text: A Service-approved Biologist will monitor construction activities in or adjacent to sensitive habitats as required. The Biologist will ensure compliance with all applicable avoidance and ~~minimization~~ measures required to protect federally-listed species and their habitats. If federally-listed species are found that are likely to be affected by work activities, the Service-approved Biologist will have the authority to stop any aspect of the project that could result in unauthorized take of a federally-listed species. If the Biologist exercises this authority, he/she must coordinate this with 60 CES/CEIE who will notify the Service ~~and the California Department of Fish and Wildlife (CDFW)~~ by telephone within 1 working day and in writing within 5 working days.

- To CTS-01, remove the following ~~strikethrough~~ text and add the **bold** text: Within 14 days of the start of construction activities, a Service-approved biologist will perform a pre-construction survey and identify potential refuge habitats (burrows) suitable for CTS. In the unlikely event that a CTS is encountered, the biologist will ~~contact the SERVICE for instructions.~~ **will relocate the individual outside of the project area following the procedure in Section 4.4.5 of the Final PBA, and the Sacramento Fish and Wildlife Office will be contacted.**

- From CTS-07, remove the following ~~strikethrough~~ text: Seasonal Avoidance/Wet Season Procedures (Oct 16 – Apr 30): Work will not be conducted in the rain. ~~The USFWS-approved biologist will monitor the weather forecast and authorize work when the forecast indicates a period of dry days (5 – 10 days of no rain) before starting the project. The Travis Environmental Office will document through email notification to the USFWS when work will commence.~~ The weather forecast and hourly weather data for Travis AFB will be monitored and can be found by entering the zip code 94535 (Travis AFB) at http://www.weather.gov/srh/. A Service-approved biologist will be on-site for morning inspections before the start of work. Morning inspections consist of examination of all trenches, pits, excavations, equipment, CTS exclusionary barriers (if present), all suitable upland habitat including refugia habitat such as small woody debris, refuse, burrow entries, etc. will be properly inspected and all other areas within the project site. In addition, the project work crew will be notified to maintain vigilance regarding CTS activity. If feasible, the work crew will participate in the morning inspection(s). Modifications to this timing may be approved on a case-by-case basis by the Service.

- From CTS-09, remove the following strikethrough text: If ~~dry season (May 1 – October 15)~~ night time work is necessary, the following additional conservation measures shall be implemented:
    - Work would only occur within paved areas (greater than 20 feet from uplands)
    - A 6-inch-high CTS exclusionary barrier will surround the work area during work, with ingress/egress access being the only break in the barrier.
    - A Service-approved biologist will be onsite during all night time work and will routinely monitor the CTS exclusionary barrier and the project site.
    - Work will not be conducted at night time if there is a 50 percent or more chance of rain predicted overnight.

- To CTS-10, add the following **bold** text: Water shall not be pumped, sprayed, or allowed to flow over undisturbed uplands that can support CTS as part of planned project activities outside of pre-approved requirements (i.e. dust control). Water applied for pre-approved requirements shall be applied in the minimum quantities necessary only to disturbed soils. If excess water accumulates as the result of construction activity, water may be pumped through a screened pump and removed from the construction area as deemed necessary by the onsite biologist in coordination with Travis AFB Natural Resources Management (NRM) staff. If water inadvertently or purposefully enters construction trenches, pits, or excavations, a Service-approved biologist will remain on site until water is pumped from the trench, pit, or excavation. Following pumping, the biologist shall inspect the trench, pit, or excavation area and the surrounding uplands to determine if disturbance to CTS has occurred and implement any other measures necessary (e.g. placement of cover boards, exclusionary fencing or barriers) to protect CTS that may emerge due to the wet soil. **If rain water or ground water accumulates in trenches or excavated areas and is not pumped out, the Service-approved biologist will conduct a thorough inspection of these trenches or excavated areas prior to the start of work each day.**

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." For the proposed project, the action area encompasses the footprints required for construction and demolition; including all

work areas, staging areas, and access routes, as well as a buffer of 20 feet around buildings and other structures proposed for demolition and removal. The action area is estimated to be about 11.64 acres.

Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Endangered Species Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the rangewide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed federal action and the effects of any interrelated or interdependent activities on the species; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-federal activities in the action area on the species.

Status of the Species

California Tiger Salamander
For the most recent comprehensive assessment of the range-wide status of the tiger salamander, please refer to *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander* (*Ambystoma californiense*) (Service 2017). Threats evaluated during that review and discussed in the final document have continued to act on the species since the 2017 Recovery Plan review was finalized, with loss of habitat being the most significant effect. While there continue to be losses of tiger salamander habitat throughout its range, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species. The Service is in the process of finalizing its most current 5-year review for the species.

Vernal Pool Shrimp Species
The status of the tadpole shrimp and the fairy shrimp has been assessed in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005; Recovery Plan) and 5-year reviews. For the most recent comprehensive assessment of the range-wide status of the tadpole shrimp, please refer to the *Vernal Pool Tadpole Shrimp (Lepidurus packardi) 5-Year Review: Summary and Evaluation* (Service 2007a). For the most recent comprehensive assessment of the range-wide status of the fairy shrimp, please refer to the *Vernal Pool Fairy Shrimp (Branchinecta lynchi) 5-Year Review: Summary and Evaluation* (Service 2007b).

No change in either species' listing status was recommended in the 5-year reviews. Threats such as the loss of vernal pool habitat primarily due to widespread urbanization were evaluated during the reviews and discussed in the final documents and have continued to act on the tadpole shrimp and the fairy shrimp since the 2007 5-year reviews were finalized. The construction of infrastructure associated with urbanization also has contributed greatly to the loss and fragmentation of vernal

pool species including the construction of roads. Habitat loss exacerbates the highly fragmented distribution of these species. Direct losses of habitat generally represent an irreversible damage to vernal pools. The alteration and destruction of habitat disrupts the physical processes conductive to functional vernal pool ecosystems. Vernal pool hydrology may be altered by further changes to the patterns of surface and subsurface flow due to the increase in the runoff associated with infrastructure.

Environmental Baseline

Travis AFB is located in the Solano-Colusa Vernal Pool Region (Service 2005), which covers the majority of Solano County. Agricultural practices, water diversion and impounding for waterfowl enhancement, development, and road building have affected vernal pools in the region. The Solano Land Trust and the California Department of Fish and Wildlife manage adjacent reserves to protect portions of the northern claypan type (totaling about 2,300 acres). In addition, the Wilcox Ranch, adjacent to the base on the east, is a preservation area under restricted land use. Many vernal pool areas in the region have been converted to agriculture or developed for residential, commercial, or industrial uses. Restored agricultural lands are targets for land acquisitions through direct purchases, conservation easements, or other cooperative agreements.

Most of the proposed project demolition will occur in areas that are currently paved. However, the natural vegetation community found in the project area is a disturbed annual grassland/vernal pool complex. Some construction will occur in an area that is currently grassland, and is intensively managed by regular mowing. Throughout Travis AFB, the grassland/vernal pool complex is highly disturbed due to alterations of surface and subsurface hydrology for the construction of road and runway features, the dominance of introduced grasses in upland areas, and the effects from current land management activities. Past land use practices and grading activities within the project area included construction of the original airfield that leveled much of the wetland habitat.

California Tiger Salamander
A breeding habitat assessment for the tiger salamander was conducted on Travis AFB during the wet season of 2005 (CH2M Hill 2006). The assessment concluded that tiger salamanders are not likely to breed within wetlands within 250 of the proposed project action area because they do not provide the hydrology necessary to support breeding habitat. Although the proposed project action area does not contain suitable breeding ponds for the tiger salamander, the species has been observed in breeding ponds to the east, north, south, and west of the proposed project action area, within the dispersal range of tiger salamanders (TNC 2002, LSA 2004, CH2M Hill 2006, CNDDB 2019).

The proposed project primarily involves work on landscaped and hardscape areas in High Risk areas for tiger salamanders, but also involves some digging in habitat with small mammal burrows that can support tiger salamander populations during the non-breeding season (Johnson and Shaffer 2010). Dispersing tiger salamanders have been known to occur on roadways, runways, and surrounding grassland areas of the base (Marty 2017). For examples, on January 29, 2014, Travis AFB informed the Service of a live adult tiger salamander on a runway about 1.2 miles north of the proposed project action area. On July 5 and 8, 2015, two dead individuals were found on and near Runway 03R/21L about 0.68 mile from the proposed project action area (Service file #08ESMF00-2014-F-0633-R001). These two individuals were likely responding to ponded water from a break in a water main, which probably triggered dispersal behavior. More recently, runway surveys and relocation efforts between May 31 and July 20, 2017, relocated 154 juvenile tiger salamanders to suitable burrow sites, while 39 dead tiger salamanders also were found (Marty 2017). In addition, pitfall

trapping efforts between June 22, 2017, and July 14, 2017, captured and relocated 658 juvenile tiger salamanders and found 7 dead tiger salamanders (Marty 2017). More recently from November 21, 2018 through March 4, 2019, Travis AFB has reported a total of 68 tiger salamanders found during road surveys and trap checks throughout Travis AFB.

Vernal Pool Shrimp Species
The proposed project existing complex site is located in a low value vernal pool conservation area, while the proposed new complex site is located in a medium value vernal pool conservation area (Travis 2017). There are no known vernal pool shrimp species occurrences within 250 feet of the proposed project boundary; the closest proximity to the proposed project site for vernal pool fairy shrimp is 400 feet to the southeast of the proposed staging area for the new complex construction site (vp.ca.371). Several other vernal pools within 750 feet of the construction site are also known to contain fairy shrimp (vp.ca.366, vp.ca.863, vp.ca.068 and vp.ca.356). No vernal pool tadpole shrimp have been found in the vernal pools. However, presence of tadpole shrimp in all suitable habitat in the proposed project areas is assumed for this project.

Like the vernal pool fairy shrimp, vernal pool tadpole shrimp also occur throughout the Solano-Colusa Vernal Pool Region, including the greater Jepson Prairie area. There are 26 listed known extant occurrences of tadpole shrimp in Solano County (CNDDB 2019), yet the general distribution of tadpole shrimp is sparser than fairy shrimp. Previous surveys on Travis AFB, identified fairy shrimp in 16 vernal pools, but no tadpole shrimp were observed (CH2M Hill 2006; Marty 2016). However, tadpole shrimp have been detected along the eastern boundary of Travis AFB near Runway 3R/21L, and to the south of the Base. The closest known occurrence of tadpole shrimp is about 0.43-mile east of the proposed New Complex site.

Effects of the Action

California Tiger Salamander
The proposed project will result in the permanent loss of 8.37 acres of suitable tiger salamander upland habitat. Also, temporary disturbance to tiger salamander upland habitat is estimated to be 1.48 acres. Both the New Complex site and the Existing Complex site are located in areas of High Risk for tiger salamander effects (Travis 2017). The implementation of the listed conservation measures will minimize proposed project affects to tiger salamanders. In addition to the listed conservation measures, Travis AFB has proposed to purchase 17.11 tiger salamander credits at a Service-approved conservation bank, as well as to reestablish onsite 0.74 acre of suitable tiger salamander upland habitat, to offset both permanent and temporary proposed project effects to tiger salamander upland habitat.

Juvenile and adult tiger salamanders have been known to use the hardscape of runways, roadways, and parking areas as dispersal habitat. Proposed project actions will reduce the amount of upland dispersal habitat, both temporarily and permanently for the tiger salamander during the proposed construction period at Travis AFB. Any tiger salamanders attempting to move into or through the proposed project area will be restricted in their movements. Mortality, injury, or harassment of tiger salamanders could occur due to crushing, entombment, relocating, or disruption of their movements as a result of demolition and construction activities related to the proposed project.

Vernal Pool Shrimp Species
The New Complex will be completed in a medium value conservation area for vernal pool species, while the Existing Complex site is in a low value conservation area for vernal pool species (Travis 2017). The proposed project will result in permanent, indirect effects to hydrology within 250 feet of

the New Complex site. Although neither the fairy shrimp nor the tadpole shrimp have been found in vernal pools within 250 feet of the New Complex site, fairy shrimp have been found in vernal pools within 500 feet to the east of the proposed New Complex action area. It is conceivable for vernal pools within 250 feet of the New Complex to provide suitable habitat for the fairy shrimp, as well as the tadpole shrimp. Travis AFB has proposed to compensate for the indirect effects to the vernal pool habitat through the purchase of 1.01 acres of vernal pool conservation credits at a Service-approved conservation bank.

The existence of suitable habitat for the fairy shrimp within 250 feet of the New Complex site, along with the fact the fairy shrimp occur throughout northern areas of Travis AFB, suggests that fairy shrimp can persist within the suitable vernal pools. Also, although the vernal pools within 250 of the proposed New Complex site action area may not remain inundated for a period long enough to sustain the tadpole shrimp throughout a complete life cycle, the species can tolerate dry periods while completing the cycle (Helm 1998).

Cumulative Effects

Cumulative effects include the effects of future state, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.

Conclusion

After reviewing the current status of the tiger salamander, vernal pool fairy shrimp, and vernal pool tadpole shrimp; the environmental baseline for the action area, the effects of the proposed project and the cumulative effects on each listed species; it is the Service's biological opinion that the P205 Alert Force Complex Project, as proposed, is not likely to jeopardize the continued existence of the California tiger salamander, vernal pool fairy shrimp, or the vernal pool tadpole shrimp. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following: (1) the potential of lethal take of individual California tiger salamanders, vernal pool fairy shrimp, and vernal pool tadpole shrimp, will be minimized by the implementation of the proposed conservation measures; (2) the project fits within the scope of the actions described in the Programmatic Biological Opinion; (3) the effects analyzed are similar to those that were analyzed in the Programmatic Biological Opinion; (4) sensitive time periods for listed species will be avoided to the extent practicable; and (5) all minimization measures will be implemented.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or

injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by Travis AFB so that they become binding conditions of any grant or permit issued as part of the proposed project, as appropriate, for the exemption in section 7(o)(2) to apply. Travis AFB has a continuing duty to regulate the activity covered by this incidental take statement. If Travis AFB (1) fails to assume and implement the terms and conditions or (2) fails to adhere to the terms and conditions of the incidental take statement, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Travis AFB must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Amount or Extent of Take

California Tiger Salamander
The Service anticipates that incidental take of California tiger salamander will be difficult to detect due to its life history and ecology. Specifically, California tiger salamander can be difficult to locate due to their cryptic appearance, their use of underground burrows as habitat, their multiplicity of life forms, and the fact that finding a dead or injured individual is unlikely due to their relatively small size. Losses of salamanders may also be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, or the likelihood that the remains will be removed by a scavenger or indistinguishable amongst the disturbed soil and debris. There is a risk of harm, harassment, injury and mortality as a result of the proposed demolition and removal activities; therefore, the Service is authorizing take incidental to the proposed action as: (1) the harassment and capture of all salamanders within the 11.64-acre action area; and (2) the injury or mortality of one juvenile or adult salamander as observed by biological monitors.

Vernal Pool Shrimp Species
It is impossible to predict weather for the proposed project construction period, resultant hydrological patterns, and the presence of fairy shrimp and tadpole shrimp in the action area with absolute certainty. No fairy shrimp or tadpole shrimp are known to occur within 250 feet of the proposed project action areas, yet the vernal pools within 250 feet of the action areas are assumed to provide suitable habitat for the vernal pool shrimp species.

In instances in which the total number of individuals anticipated to be taken cannot be determined, the Service may use the amount of habitat impacted as a surrogate; since the take of individuals anticipated will result from the loss of vernal pool habitat, the quantification of suitable habitat serves as a direct surrogate for the individuals that will be lost. Therefore, the Service is authorizing take incidental to the proposed project as the 1.01 acres of potentially suitable vernal pool habitat for the fairy shrimp and the tadpole shrimp that could be affected by hydrological changes resulting from proposed project activities.

Upon implementation of the following Reasonable and Prudent Measures, incidental take of the tiger salamander, fairy shrimp, and tadpole shrimp associated with the proposed project will become

exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the tiger salamander, fairy shrimp, or tadpole shrimp.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects on the tiger salamander, fairy shrimp, and tadpole shrimp resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the tiger salamander, fairy shrimp, and tadpole shrimp:

1. All conservation measures, as described in the biological assessment and restated here in the Project Description section of this biological opinion, shall be fully implemented and adhered to. Further, this reasonable and prudent measure shall be supplemented by the terms and conditions below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Travis AFB must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. Travis AFB shall include full implementation and adherence to the conservation measures as a condition of any permit or contract issued for the project.

2. To monitor whether the amount or extent of incidental take anticipated from implementation of the proposed project is approached or exceeded, Travis AFB will adhere to the following reporting requirement. Should the anticipated amount or extent of incidental take be exceeded, Travis AFB must immediately reinitiate formal consultation, as per 50 CFR §402.16.

    a. For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Travis AFB will provide quarterly updates to the Service with a precise accounting of the total acreage of habitat impacted. Updates shall also include any information about changes in project implementation that result in habitat disturbance not described in the Project Description and not analyzed in this Biological Opinion.

    b. For those components of the action that result in direct encounters between listed species and project workers and their equipment whereby incidental take in the form of harassment, harm, injury, or death is anticipated, Travis AFB shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6563 to report the encounter. If the encounter occurs after normal working hours, Travis AFB shall contact the SFWO at the earliest possible opportunity the next working day.

c. For those components of the action that will require the capture and relocation of any listed species, Travis AFB shall immediately contact the Service's SFWO at (916) 414-6563 to report the action. If capture and relocation need to occur after normal working hours, Travis AFB shall contact the SFWO at the earliest possible opportunity the next working day.

Salvage and Disposition of Individuals:

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact person can be reached at (916) 414-6563.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Travis AFB should continue to work with the Service to implement recovery actions for species associated with vernal pool habitats.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the P205 Alert Force Complex Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and shall be requested by the federal agency or by the Service where discretionary federal agency involvement or control over the action has been retained or is authorized by law and:

(a) If the amount or extent of taking specified in the incidental take statement is exceeded;
(b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
(c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
(d) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Harry Kahler, Fish and Wildlife Biologist, (harry_kahler@fws.gov) or at (916) 414-6577 or Doug Weinrich, Assistant Field Supervisor, at (916) 414-6563 or the letterhead address.

Sincerely,

Doug Weinrich

Jennifer M. Norris, Ph.D.
Field Supervisor

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REVISED DRAFT

BIOLOGICAL ASSESSMENT

For

DEVELOPMENT OF THE P205 ALERT FORCE COMPLEX PROJECT

At

TRAVIS AIR FORCE BASE, CALIFORNIA

JANUARY 2019

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Table of Contents

List of Tables and Photos

1 Introduction

This Biological Assessment (BA) is prepared pursuant to Section 7 of the Endangered Species Act (ESA) of 1973 (16 United States Code [U.S.C.] 1536). Section 7 of the ESA requires consultation with the United States Fish and Wildlife Service (USFWS) to determine if Federal actions will affect threatened or endangered species, and to ensure that any action will not jeopardize the continued existence of any threatened or endangered species.

This BA evaluates the effects of the proposed P205 Alert Force Complex Project (Proposed Action) at Travis Air Force Base (AFB or Base), located in Solano County, California (Figure 1). It summarizes current data regarding federally listed threatened and endangered (T&E) species, or species that are proposed for federal listing as threatened or endangered on Travis AFB. Information in this BA is drawn primarily from the Travis AFB Integrated Natural Resources Management Plan (60 CE/CEIE 2016) and the Final Programmatic Biological Assessment for six federally threatened and endangered species (Final PBA; Travis AFB 2018), which include extensive literature reviews, and incorporate data from 28 previous studies of biological resources on Travis AFB conducted between 1994 and 2016.

This BA identifies proposed avoidance, minimization, or compensation measures intended to avoid or reduce potential effects of the Proposed Action which could adversely affect federally listed species. These measures are taken from the Final PBA, in order to ensure consistency of the Proposed Action with base-wide conservation requirements.

1.1 Threatened and Endangered Species

This BA addresses the following federally listed as threatened or endangered species:

- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- California tiger salamander (*Ambystoma californiense*)
- Vernal pool tadpole shrimp (*Lepidurus packardi*)
- Delta green ground beetle (*Elaphrus viridis*)

1.2 Special Status Species removed from further discussion

The following regionally occurring federally listed species are considered to have no potential to occur in the Proposed Action Area and are not analyzed further in this BA:

- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Contra Costa goldfields (*Lasthenia conjugens*)
- Crampton's Tuctoria (*Tuctoria mucronata*)
- Colusa grass (*Neostapfia colusana*)

1.3 Critical Habitat

The Proposed Action Area includes no designated critical habitat.

2 Consultation to Date

There has been no consultation to date between Travis AFB and the USFWS regarding the Proposed Action.

3 Purpose and Description of the Proposed Project

3.1 Purpose and Need

The purpose of the Proposed Action is to construct adequate and efficiently configured facilities to provide a secure Alert Force Complex (Complex) for the Fleet Air Reconnaissance Squadron Three Detachment Travis (VQ-3 Det Travis) Operations Command. The action is needed because the facilities at the existing Complex have reached the end of their serviceable life and the current facilities have inadequate security. Constructing a new compound north of the flight line and outside of the runway clear zone corrects critical capacity, condition, and configuration issues that degrade mission capability and threaten the ability to maintain continuity of communication capabilities.

Recent studies, including a Balanced Survivability Assessment (BSA), Critical Infrastructure Protection (CIP) assessment, and Integrated Nuclear Survivability and Endurability Report (INSER) analysis indicate significant Anti-Terrorism/Force Protection (AT/FP) concerns resulting from the existing Complex's proximity to Travis AFB's installation boundary fence line. The area outside of the installation boundary fence line is an open field, which allows unimpeded access to the existing Complex. The INSER analysis documents the lack of appropriate High Altitude Electromagnetic Pulse (HEMP) hardened power for critical command, control, and alerting circuits. The existing facilities are not sized or configured adequately to accommodate requirements as documented in the Basic Facility Requirements (BFR). The square footage needed to adequately support VQ-3 Det Travis operations is approximately 61,000 square feet (sf), but the operations command is operating with only 37,000 sf at the Existing Complex.

The existing Complex has not been improved to accommodate the operational requirements for VQ-3 Det Travis and larger personnel requirements. The existing Complex is undersized and does not provide appropriate configuration. Crew support areas most impacted include the inadequate male and female head/shower areas and insufficient space for alert crew sleeping quarters. Meals and other activities must be conducted in shifts due to the limited dining space and general use areas, which impacts crew rest and mission efficiency. Operations Control and Communication Center space is constrained and limits watch crews and equipment.

The other existing facilities present significant space shortfalls as the lack of space for security functions impact training operations and proper storage of security force equipment. Weapons are stored at the Travis AFB armory, which causes a 45-minute transition between shifts. Construction of the proposed new Complex at the Proposed Action Area would reduce the travel time to the armory by approximately 38 minutes round-trip. Under existing conditions, response times are significantly impeded by the substantial travel distance. Limited maintenance space

provides insufficient space for tools, equipment, offices, and storage for maintainers to support alert aircraft.

The existing Complex site poses multiple constraints including violation of the runway safety clear zone, flooding, and danger of wildfire. The majority of the existing facilities are currently within Travis AFB's runway safety clear zone, and new building construction within the clear zone is prohibited. The Travis AFB runway safety clear zone is defined as an obstruction-free surface (except for features essential for aircraft operations) on the ground symmetrically centered on the extended runway centerline beginning at the end of the runway and extending outward 3,000 feet. The runway safety clear zone width is 3,000 feet (1,500 feet to either side of runway centerline) (Travis AFB 2009). Travis AFB has requested relocation and may eliminate the existing clear zone waiver under which the VQ-3 Det Travis operations are currently operating. Site conditions at the existing Complex direct drainage toward the building, leading to flooding and persistent moisture issues in the crew's sleeping quarters. Therefore, mold remediation due to flooding is a constant concern at the existing facility. The risk of wildfire is increased by the proximity to Travis AFB's exterior fence line. The aircraft, aircrew, and detachment personnel have had to evacuate due to wildfires that breached the outer perimeter of the base and entered the existing Complex.

3.2 Description of the Proposed Project

Under the Proposed Action, a new Alert Force Complex (New Complex Site) would be constructed on an approximately 8-acre site outside of the runway safety clear zone and the facilities within the Existing Complex would be demolished.

Existing Complex Site

With the exception of the spares storage and AGE maintenance facilities outside the complex (Buildings 1164, 1177, and 1179) that would be returned to the Air Force for their reuse, the facilities that would be demolished include Buildings 1165, 1171, 1174, 1175, 1176, 1178, booths (1167 and 1168), a carport (1162), a hazardous waste storage locker (1180), a table and pavilion (1191), tennis courts (1193 and 1893). Five steel shipping containers (1181 and unnumbered) would be removed and stored/reused in another location, and any associated concrete pads removed. Existing facilities to be demolished/removed are depicted on Figure 4. Demolition includes removal of the buildings and structures listed above, along with their associated concrete pads, foundations, and below-ground utilities.

New Complex Site

The Complex includes an Alert Force/Security Facility, an Entry Control Facility (ECF), SATCOM Facilities and AGE Maintenance Repair and Aircraft Storage Facilities. ("SATCOM" refers to a constellation of satellites and associated ground-based equipment that provide secure and jam-resistant worldwide communications capabilities for the U.S. armed forces.) The Alert Force/Security Facility and SATCOM Facilities would be fenced within a secure inner compound supported by the ECF, and all Alert Force Complex facilities would be constructed in areas that are compliant with Travis AFB's Installation Development Plan.

The New Complex includes the construction of an approximately 17,500-sf, two-story Alert Force facility and would include a controlled access operations control center and communication center, crew sleeping quarters, galley, recreational areas, administrative spaces and security spaces. West of the Alert Force facility, a SATCOM facility would be constructed and include a building and a reinforced concrete pad for the SATCOM antenna with dome. An aircraft maintenance repair complex is proposed along the southern boundary of the proposed site and would include a maintenance facility, Ground Support Equipment (GSE) maintenance and repair facility, aircraft spare parts warehouse, open storage, GSE washrack, and hazardous material (HAZMAT) storage. Construction of an ECF is proposed along the western boundary of the proposed site and would include a single-story physical inspection building.

The New Complex would provide AT/FP features and comply with AT/FP regulations, and physical security mitigation in accordance with DoD Minimum Anti-Terrorism Standards for Buildings. AT/FP features would include security fencing, vehicle barriers, security gates, intrusion detection system (IDS), closed-circuit television (CCTV) and pedestrian turnstiles.

This site location would allow for two access routes to the new aircraft parking, north of the flight line, while meeting the Navy's time requirements. The proposed Complex site would utilize existing Travis AFB aircraft parking spaces for at least two E-6B Mercury aircraft to be parked near the new facility at all times. If a third aircraft is located at Travis AFB, it may be parked anywhere on base. A range of existing aircraft parking spaces could be used; however, no new construction is required for the aircraft parking.

A 1-acre construction staging area would be located on an existing hardscaped pad south of Vandenberg Drive.

Site preparation would include site clearing, excavation, and preparation for construction. Additional site preparation features include excavation of undocumented fill (the site is a hill that will need to be graded prior to construction). Paving and site improvements include grading, parking, roadways, curbs, sidewalks, landscaping and pedestrian features. Improvements also include the GSE wash rack.

Electrical utilities would include primary and secondary distribution systems, HEMP protected emergency generators and Uninterrupted Power Suppliers (UPS), lighting, transformers and telecommunications infrastructure, and mechanical utilities would include water lines, gas lines, sanitary sewer lines, fire protection systems and supply lines. Current VQ-3 Det Travis operations are supported by five existing generators that would be relocated to the main side of the base and reused to support the New Complex. Relocation of the facilities to the main side of base as proposed would be more cost effective by avoiding the installation of substantial utility connections under the runways. There is a need for redundant and backup utilities to support the New Complex. Ground disturbance (trenching) to connect utilities is included as part of the project.

3.3 Summary of Project Characteristics

This section provides a brief summary of the project in list and table format for ease of review.

3.3.1 Project Summary

- Date:
  - Proposed Complex Construction Start: June 2020
  - Proposed Complex Construction End: June 2022
  - Existing Complex Demolition Start: June 2020
  - Existing Complex Demolition End: June 2022
- Construction Ingress/Egress Routes:
  - Proposed Complex: existing pavement on Vandenberg Drive
  - Existing Complex: Perimeter Road and tarmac near the flight line
- Depth of Digging:
  - Proposed New Complex: 3 feet to install utility lines.
  - Existing Complex: 3 feet to cap existing utility lines.

3.3.2 Construction Equipment Used for Completing Work

- Excavator
- Tractor, loader, or backhoe
- Trucks
- Concrete breaking equipment
- Cement and mortar mixer
- Paving equipment
- Boring Equipment
- Roller
- Grader
- Rubber-tired dozer
- Water truck

3.3.3 Ground Disturbance

The total ground disturbance for the Proposed Action is 9.85 acres, which includes a buffer of 20 feet around buildings and other structures proposed for demolition/removal at the existing Complex site.

4 Description of the Action Area

4.1 Existing Conditions

The following discussions provide a description of the existing conditions in the Proposed Action Area. The proposed Action Area consists of three separate areas on the base:

Existing Complex site: A 2.22-acre complex containing 0.74-acre of buildings and infrastructure currently being used by U.S. Navy's VQ-3 Det Travis.

New Complex site: An 8.42-acre undeveloped site proposed for relocation of the U.S. Navy's VQ-3 Det Travis buildings and infrastructure.

Project staging and storage area: a 1.0-acre hardscaped area proposed for temporary use as a staging area during construction.

Threatened and endangered species are discussed in Sections 4.1.3 and 4.1.4.

4.1.1 Current Uses

Existing Complex Site

The existing Complex is currently used by the U.S. Navy's VQ-3 Det Travis. The action area for the existing Complex includes the 14 buildings and other structures listed above as proposed for demolition or removal, as well as their associated concrete foundations and pads. The total building footprint proposed for demolition is 32,143 square feet, which includes an Alert Force facility as well as maintenance and storage buildings. Footprints of existing structures range from 93 square feet to 9,900 square feet. Activities in the existing Complex include dormitory and recreation for crews, maintenance, security, communications, and vehicle parking. The existing Complex is situated near the southwest end of Runway 3R/21L and is a high-use area.

Proposed New Complex Site

The proposed Complex site is currently not associated with any active land use. The site is vacant except for a few temporary storage structures and paved pads that would be removed during construction. The proposed staging and storage area is hardscaped but not currently used.

4.1.2 Terrestrial Vegetation

Vegetation includes upland plants, vernal pool plant species, as well as freshwater aquatic communities (Union Creek) and constituent plant species. Base-wide characterization of the terrestrial habitat types found in the undeveloped areas of Travis AFB was completed in 1994 by Weston, Inc. (Travis AFB 2018). Terrestrial habitats include undeveloped areas on Travis AFB that support natural vegetation communities. Natural terrestrial habitats present in the Proposed Action Area include annual grassland, vernal pools, and seasonal wetlands and swales.

Annual Grassland

This community is predominantly composed of introduced annual grasses, often in association with native and non-native wildflowers and weedy forbs. The annual grasses germinate with the onset of fall rains, and they continue to grow throughout the winter. Flowering occurs throughout the spring months. By summer, the annual grasses have set seed and died (Travis AFB 2018). The dominant vegetation in these areas includes non-native grasses such as soft chess (*Bromus hordeaceus*), Italian ryegrass (*Festuca perennis*), rattail fescue (*Festuca myuros* var. *myuros*),

wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), and harding grass (*Phalaris aquatica*). Weedy forbs include filaree (*Erodium* spp.), yellow starthistle (*Centurea solstitialis*), rose clover (*Trifolium hirtum*), cranesbill (*Geranium dissectum*), and vetch (*Vicia* spp.). Common native wildflower species include California poppy (*Eschscholzia californica*), white brodiaea (*Triteleia hyacinthina*), butter and eggs (*Triphysaria eriantha* ssp. *eriantha*), and blue-eyed grass (*Sisyrinchium bellum*). Shrub species occasionally found in annual grassland on the base include coyote brush (*Baccharis pilularis*), Peruvian pepper tree (*Schinus molle*), and black locust (*Robinia pseudoacacia*) (60 CES/CEIE 2016). This plant community supports a variety of birds, reptiles, and mammals (60 CES/CEIE 2016).

Existing Complex Site

Annual grassland also covers portions of the existing Complex site around the existing buildings; however, the existing Complex is adjacent to the flight line, and the Bird/Wildlife Aircraft Strike Hazard Reduction Program (BASH Plan) calls for maintaining an effective grass height of 7-14 inches around the flight line (Travis AFB 2015). The existing Complex site is designated as an "Improved" area for mowing and fire management and scheduled for mowing once per week (Travis AFB 2018). Small mammal burrows are abundant within this area of the project.

New Complex Site

Annual grassland is the predominant land cover at the New Complex site, which is designated as "Semi-improved" for mowing and fire management and scheduled for mowing one to three times per year (Travis AFB 2018). The area is composed of an undocumented fill mound in the center of the site. During a site visit conducted 15 January 2019 by Deanne Weber, CEMML, burrows of California ground squirrel (*Otospermophilus beecheyi*) and pocket gopher were observed throughout the proposed New Complex site, mostly on the slopes of the undocumented fill.

Vernal Pools

Vernal pools and swales are found within grassland habitat. Vernal pools are shallow depressions or small, shallow ponds that fill with water during the rainy season and then dry out during the spring, becoming completely dry by late spring or early summer. Central to the formation of vernal pools is a climate of mild winters with moderate rainfall, and hot, dry summers; this unusual regime is found only in Mediterranean climate regions (Marty 2005). This hydrologic regime supports the unique plant and animal communities characteristic of vernal pools (60 CES/CEIE 2016). The vernal pools on Travis AFB are classified as northern claypan vernal pools which occur on soils derived from alluvium that have a layer of accumulated clay and minerals forming claypan a few feet below surface soils (Travis AFB 2018). The claypan forms a restrictive layer resulting in a perched water table, which often forms large complexes of associated vernal pools.

Vegetation varies among pools in both cover and species composition, but the majority of pools support several characteristic species. Characteristic vernal pool plant species on Travis AFB include goldfields (*Lasthenia* spp.), slender popcorn-flower (*Plagiobothrys stipitatus*),

downingia (*Downingia* spp.), woolly marbles (*Psilocarphus brevissimus* ssp. *brevissimus*), and coyote thistle (*Eryngium vaseyi*) (Travis AFB 2018). Federally listed species identified in vernal pools at Travis AFB include vernal pool fairy shrimp (*Branchinecta lynchi*), California tiger salamander (*Ambystoma californiense*), and Contra Costa goldfields (*Lasthenia conjugens*) (60 CES/CEIE 2016); however, none of these species has been identified in vernal pool habitat within the Proposed Action Area (Travis AFB 2018; Marty 2017a).

Existing Complex Site

There are nine (9) vernal pools within 250 feet of the Action Area: VP.FL.798, VP.FL.797, VP.FL.796, VP.FL.597, VP.FL.504, VP.FL.505, VP.FL.803, VP.FL.594, VP.SU.518, (Figure 4). A description of the vernal pools within 250 feet of the Action Area is provided in Table 1.

New Complex Site

There are Five (5) vernal pools within 250 feet of the Action Area: VP.CA.184, VP.GA.350, VP.CA.358, VP.CA.364, and VP.CA.030 (Figure 3). A description of the vernal pools within 250 feet of the Action Area is provided in Table 1.

Seasonal Wetlands and Swales

Seasonal wetlands are typically inundated or saturated during the wet season and dry during the summer. Rainfall, high groundwater tables, and runoff contribute to wetland hydrology during the winter and the spring periods. Seasonal wetlands share a similar hydrologic regime with vernal pool wetlands, but they lack some of the distinctive floristic components that are characteristic of a vernal pool system. Seasonal wetlands on Travis AFB are associated with low gradient swales, shallow depressions, and drainage features that capture surface runoff and remain saturated or inundated for several months of the year. Plant species typical of seasonal wetlands on Travis AFB include curly dock (*Rumex crispus*), Italian ryegrass, meadow barley (*Hordeum brachyantherum*), broadleaf peppergrass (*Lepidium latifolium*), and narrow-leaved plantain (*Plantago lanceolata*) (Travis AFB 2018).

Existing Complex Site

There is one wetland swale (WS.FL.593) within 250 feet of the Action Area. See Table 1 for a description of this wetland.

New Complex Site

There is one wetland swale (WS.CA.723) within 250 feet of the Action Area. See Table 1 for a description of this wetland.

Project staging and storage area

Three (3) wetland swales (USACE 2016) are within 250 feet of the designated staging area: SW.CA.845, WS.CA.867, and WS.CA.719. See Table 1 for a description of these wetlands.

Table 1. Wetlands Within 250 Feet of the Action Area

Feature ID	Area (ac.)	Distance (ft.)	Impact	Vernal Pool Species Habitat
New Complex				
WS.CA.723	0.05	Within Action Area	Direct (permanent removal)	No
VP.CA.184	0.04	0	Indirect	Potential
VP.CA.030	0.04	52	Indirect	Potential
VP.CA.358	0.86	75	Indirect	Potential
VP.CA.364	0.06	105	Indirect	Potential
VP.CA.350	0.01	185	Indirect	Potential
VP.CA.345	0.03	255	None	Potential
Staging Area				
WS.CA.719	0.02	115	None	Potential
SW.CA.845	0.02	120	None	Potential
WS.CA.867	0.02	130	None	Potential
Existing Complex				
VP.FL.798	0.01	15	None	Potential
VP.FL.797	0.05	30	None	Potential
VP.FL.796	0.21	60	None	Potential
VP.FL.597	0.01	75	None	Potential
VP.FL.504	0.01	200	None	Potential
VP.FL.505	0.02	170	None	Potential
VP.FL.803	0.01	220	None	Potential
VP.FL.594	0.01	95	None	Potential
VP.SU.518	0.01	245	None	Potential
WS.FL.593	0.26	55	None	Potential

4.1.3 Terrestrial Wildlife

Wildlife includes all animal species (i.e. insects and other invertebrates, freshwater fish, amphibians, reptiles, birds, and mammals), focusing on the species and habitat features of greatest importance or interest. A diversity of wildlife species occur on Travis AFB, including mammals, birds, reptiles, fish, amphibians, and aquatic invertebrates. A base-wide survey conducted by Weston in 1995 found 28 mammal species, 61 bird species including 16 species confirmed as nesting on the base, 7 species of reptiles, 1 amphibian species, and 9 fish species (60 CE/CEIE 2016). All fish species identified on the base are confined to the North Gate Pond and Union Creek, which are outside the Action Area. Subsequent surveys have increased the numbers of birds and amphibians found on the base.

Threatened and Endangered Wildlife

Existing Complex Site

To date, Vernal pool fairy shrimp (VPFS), Vernal pool tadpole shrimp (VPTS), and California tiger salamander (CTS) have not been found within this Action Area, however, potentially suitable habitat for these species is present. Vernal pool species habitat within this area is listed in Table 1.

Grassland habitat including small mammal burrows, which provide refugia and aestivation sites for CTS, are present within this site. This area of the base is considered high risk for CTS as described in Appendix A of the Final PBA for six federally threatened and endangered species (Travis AFB 2018). The nearest CTS record is a sighting of an adult CTS approximately 0.35 miles east and an off base CTS breeding pond is 0.5 miles east of the project site.

Vernal pools in this area of the base are consider to be of low value as described in the Final PBA for six federally threatened and endangered species (Travis AFB 2018). Vernal pools in this area of the base meet the criteria:

Low Value Conservation Areas:

- Small, infill parcels surrounded by existing development;
- Little or no connectivity to medium or high value conservation areas;
- Areas with extensive soil disturbance that has impacted underlying claypan; and
- Areas that have been surveyed using appropriate protocols with no known records of listed species.

This area is within 1 mile of an off-base location for Delta green ground beetle (DGGB). Travis AFB is believed to lack suitable habitat for DGGB; however, the Final PBA specifies that informal consultation will be conducted for projects within a 1-mile buffer around known locations of DGGB (Travis AFB 2018).

New Complex Site

To date, Vernal pool fairy shrimp (VPFS), Vernal pool tadpole shrimp (VPTS), and California tiger salamander (CTS) have not been found within this Action Area, however, potentially suitable habitat for these species is present.

An off-base active CTS breeding pond is located approximately 0.5 miles away (Wilcox West Pond). The nearest CTS record to the proposed Complex is a sighting of a juvenile CTS approximately 0.18-miles northeast on Collins Drive.

Vernal pools in this area of the base are consider to be of medium value as described in the Final PBA for six federally threatened and endangered species (Travis AFB 2018). Vernal pools in this area of the base meet the criteria:

Medium Value Conservation Areas:

- Watershed and buffer lands to High Value Conservation Areas;
- Areas that support (or may support) populations of more common and widespread listed species (e.g. VPFS);
- Sites of limited size that are isolated and/or subject to significant anthropogenic pressures, and the potential for restoration is limited.

4.2 Conservation Measures

The Proposed Action includes implementation of the following conservation measures as prescribed in Section 1.5 and Tabs A-F of the Final PBA (Travis AFB 2018). The following format will be used for Conservation Measures that are modified to fit this project: added text is in **bold**; omitted text is ~~crossed out~~.

4.2.1 Monitoring

MM-01. A USFWS-approved biologist will conduct preconstruction surveys of all ground disturbance areas within sensitive habitats to determine if any federally listed species may be present prior to the start of construction. These surveys will be conducted prior to the start of construction activities in and around any sensitive habitat. If any federally listed species are found during the preconstruction surveys, the USFWS-approved biologist will contact the USFWS to determine how to proceed. At least 10 business days prior to the onset of activities, Travis AFB will submit the name(s) and credentials of biologists who will conduct these preconstruction surveys if they have not previously received USFWS approval for similar surveys. No project activities will begin until proponents have received written approval from the USFWS that the biologist(s) is qualified to conduct the work.

MM-02. A USFWS-approved biologist will monitor construction activities in or adjacent to sensitive habitats as required. The biologist will ensure compliance with all applicable avoidance and minimization measures required to protect federally listed species and their habitats. If federally listed species are found that are likely to be affected by work activities, the USFWS-approved biologist will have the authority to stop any aspect of the project that could result in unauthorized take of a federally listed species. If the biologist exercises this authority, he/she must coordinate this with 60 CES/CEIE who will notify the USFWS ~~and the California Department of Fish and Wildlife (CDFW)~~ by telephone within one working day and in writing within five working days.

MM-03. A USFWS-approved biologist will conduct environmental awareness training for all construction personnel working within and near sensitive habitat on Travis AFB. Training will be provided at the start of work and within 15 days of any new worker arrival. The program will consist of a briefing on environmental issues relative to the proposed project. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each federally listed species that may occur in the project area. The presentation will also include a discussion of the legal protection for endangered species under the Endangered Species Act, including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand

all avoidance and minimization measures. These forms will be maintained at Travis AFB and will be accessible to the appropriate resource agencies.

4.2.2 Buffers and Site Restoration

MM-05. Wetlands/drainages/vernal pools, if present, will have erosion control measures (straw wattles, silt fencing) installed where hydrological continuity exists between the construction activities and the wetland. A USFWS-approved biologist will determine whether erosion control measures should be utilized, weighing the potential for impacts to other species including CTS. Construction boundaries within the buffer will be designated with fencing or other suitable means to ensure no equipment and/or construction workers access protected wetland resources.

MM-06. All areas of upland ground disturbance or exposed soil will be reseeded with a native "weed-free" seed mix approved by the 60 CES/CEIE. Note: direct impacts to wetlands require a Clean Water Act Section 404 permit issued by the US Army Corps of Engineers and Section 401 permit from the State Regional Water Quality Control Board.

4.2.3 Additional Measures

MM-07. Off-road travel outside of the demarcated construction boundaries will be prohibited.

MM-08. Prior to initiation of construction activities, sensitive areas, such as vernal pools, wetlands, riparian areas, and potential habitat for federally listed species (i.e., VPFS/VPTS, CCG, CTS), will be staked and flagged as exclusion zones where construction activities cannot take place. Orange construction barrier fencing (or an appropriate alternative method) will designate exclusion zones where construction activities cannot occur. The flagging and fencing will be clearly marked as an *environmentally sensitive area* (ESA). The contractor will remove all fencing, stakes and flagging within 60 days of construction completion.

MM-09. Any worker that inadvertently kills or injures a federally listed species, or finds one injured or trapped, will immediately report the incident to the on-site biologist. The biologist will inform the Travis AFB Natural Resource Manager (NRM) immediately (60 CES/CEIE). The Travis AFB NRM will verbally notify the Sacramento Office of the USFWS within one day and will provide written notification of the incident within five days.

MM-10. Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment and staging areas will occur in a designated area with appropriate spill containment. Any newly established, project specific fueling and maintenance areas will be located at least 250 feet from any wetland/drainage habitat or water body. Prior to the onset of work, Travis AFB will ensure a plan to allow a prompt and effective response to any accidental spills is in place. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

MM-11. During construction activities, all trash ~~that may attract predators~~ will be properly contained, removed from the work site daily, and disposed of properly. Following construction, all refuse and construction debris will be removed from work areas. All garbage and

construction-related materials in construction areas will be removed immediately following project completion.

MM-12. Unless otherwise designated as part of a habitat restoration plan, all excess soil excavated during construction occurring near vernal pools and other wetlands will be removed and disposed of outside the project area. Coordination with the Travis AFB Environmental Office and appropriate regulatory agencies is required prior to disposal of the excavated soil.

MM-13. The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will avoid wetlands/drainage areas whenever feasible.

MM-14. All vehicle operators will follow the posted speed limit on paved roads and a 10-mile per hour speed limit on unpaved roads.

MM-17. No trenches will be left open at the end of the day; trenched areas will be compacted and restored to normal grade once the project is completed.

4.2.4 California Tiger Salamander

CTS-01. Within 14 days of the start of construction activities, a USFWS-approved biologist will perform a pre-construction survey and identify potential refuge habitats (burrows) suitable for CTS. In the unlikely event that a CTS is encountered, the biologist ~~will contact the USFWS for instructions.~~ **will relocate the individual outside of the project area following the procedure provided in Section 4.4.5 of the Final PBA, and the Sacramento Fish and Wildlife Office will be contacted.**

CTS-02. A USFWS-approved biologist will be on-site during all activities that could result in the take of listed species. As outlined in Final PBA Section 1.4.3, the qualifications of the biologist(s) will be presented to the USFWS for review and approval at least 10 working days prior to any groundbreaking activity at the project site. If any of the requirements associated with these measures are not being fulfilled, the biologist will have the authority to stop project activities, through communication with the project manager.

CTS-03. Construction personnel will be instructed to exercise caution when commuting within the area to be disturbed.

CTS-05. At the end of every work day, trenches, pits, and excavations shall be provided with escape ramps constructed of earth fill or wooden planks at a 3:1 slope. Before such trenches, pits, and excavations are filled, they will be thoroughly inspected for trapped wildlife.

CTS-6. If CTS exclusion barriers or fencing are used, a USFWS-approved biologist will be on-site to conduct morning inspections of the barrier fencing before construction activities begin each day of work activity on work days and within 30 minutes of dawn on non-work days (includes weekends and holidays). If a CTS is observed within or near the barrier fencing, the

individual will be relocated outside of the project area following the procedure provided in Section 4.4.5 of the Final PBA, and the Sacramento Fish and Wildlife Office will be contacted.

CTS-07. Seasonal Avoidance/Wet Season Procedures (Oct 16 – Apr 30): Work will not be conducted in the rain. ~~The USFWS-approved biologist will monitor the weather forecast and authorize work when the forecast indicates a period of dry days (5 – 10 days of no rain) before starting the project. The Travis Environmental Office will document through email notification to the USFWS when work will commence.~~ The weather forecast and hourly weather data for Travis AFB will be monitored and can be found by entering the zip code 94535 (Travis AFB) at http://www.weather.gov/srh/. A USFWS-approved biologist will be on-site for morning inspections before the start of work. Morning inspections consist of examination of all trenches, pits, excavations, equipment, CTS exclusionary barriers (if present), all suitable upland habitat including refugia habitat such as small woody debris, refuse, burrow entries, etc. will be properly inspected and all other areas within the project site. In addition, the project work crew will be notified to maintain vigilance regarding CTS activity. If feasible, the work crew will participate in the morning inspection(s). Modifications to this timing may be approved on a case-by-case basis by the USFWS.

CTS-08. Seasonal Avoidance Dry Season Rain/High Humidity Procedures (May 1 to October 15): Work will not be conducted if raining. The USFWS-approved biologist will check the National Weather Service by 6:00 AM on the day prior to a scheduled work day to see if there is a 50 percent or greater probability of rain forecast overnight. If there is, then before work begins the next morning, the USFWS-approved biologist will conduct an even more extensive morning inspection. The inspection will include searching the work area and a wider perimeter of the area for presence of CTS. In addition, the work crew will be notified to maintain vigilance regarding CTS activity. If feasible, the work crew will participate in the morning inspection(s). Modifications to this timing may be approved on a case-by-case basis by the USFWS. The weather forecast and hourly weather data for Travis AFB should be monitored and can be found by entering the zip code 94535 (Travis AFB) at http://www.weather.gov/srh/

CTS-09. If ~~dry season (May 1 – October 15)~~ night time work is necessary, the following additional conservation measures shall be implemented:

- Work would only occur within paved areas (greater than 20 feet from uplands)
- A 6-inch-high CTS exclusionary barrier will surround the work area during work, with ingress/egress access being the only break in the barrier.
- A USFWS-approved biologist will be onsite during all night time work and will routinely monitor the CTS exclusionary barrier and the project site.
- Work will not be conducted at night time if there is a 50 percent or more chance of rain predicted overnight.

CTS-10. Water shall not be pumped, sprayed, or allowed to flow over undisturbed uplands that can support CTS as part of planned project activities outside of pre-approved requirements (i.e. dust control). Water applied for pre-approved requirements shall be applied in the minimum quantities necessary only to disturbed soils. If excess water accumulates as the result of construction activity, water may be pumped through a screened pump and removed from the

construction area as deemed necessary by the onsite biologist in coordination with Travis AFB Natural Resources Management (NRM) staff. If water inadvertently or purposefully enters construction trenches, pits, or excavations, a USFWS-approved biologist will remain on site until water is pumped from the trench, pit, or excavation. Following pumping, the biologist shall inspect the trench, pit, or excavation area and the surrounding uplands to determine if disturbance to CTS has occurred and implement any other measures necessary (e.g. placement of cover boards, exclusionary fencing or barriers) to protect CTS that may emerge due to the wet soil. **If rain water or ground water accumulates in trenches or excavated areas and is not pumped out, the Service approved biologist will conduct a thorough inspection of these trenches or excavated areas prior to the start of work each day.**

CTS-11. Pipes laid underground or stored on the ground shall be capped, covered, or taped in a manner that exclude CTS from entering the pipe prior to the completion of the construction project. Long-term storage of pipes and other construction material should be placed on asphalt and raised above the ground by no less than 1.5 inches (on top of 2 by 4 inch supports).

CTS-12. Trenches, pits, and excavations shall be covered in a manner that excludes CTS from entering during weekends, holidays, humid days, rain events, etc. Specifically, gaps no greater than one inch shall be allowed within cover materials if biologists will not be present the following day or if rain events or high humidity days are expected to occur. Before such trenches, pits, and excavations are filled, they will be thoroughly inspected for trapped wildlife.

CTS-13. Salamander exclusionary barriers or fencing may be erected in uplands between aquatic breeding sites and excavation areas if deemed necessary by USFWS personnel, NRM staff biologists or USFWS-approved biologist to protect CTS. Fencing will follow the upland CTS sampling methodology approved by the USFWS (USFWS 2003) with the following modifications: fencing will be erected perpendicular to the straight pathway that CTS would be expected to travel from the aquatic breeding area, toward the construction site, and will extend 100 feet in either direction, beyond the scope of the work area. Pit fall traps will be installed at the ends of the fencing sections and checked daily before sunrise or covered securely when work is not scheduled. Even if traps are covered, the Service-approved Biologist will check exclusionary barriers on the worksite on work days and non-work days (including weekends and holidays). Alternately, the fence may be constructed to direct CTS away from the project site. In all cases, fencing will be constructed to protect migrating CTS from project impacts. Note that the location of the fencing may change during the construction season since CTS will largely be moving away from breeding ponds in the late spring/early summer but toward breeding ponds in the late fall/early winter.

CTS-15. If CTS are expected to be moving at the ground surface during construction activity, thermally stable cover boards may be placed at a frequency and in a configuration that will allow CTS to encounter them prior to reaching construction area. If cover boards are placed, they will be checked daily by a USFWS-approved biologist and CTS collected will be moved to the designated CTS relocation area. Refer to the CTS Relocation Plan (Section 4.4.5) in the Final PBA for the designated upland habitat nearest the project site.

CTS-16. Erosion control Best Management Practices (BMP) implemented in accordance with the Travis AFB Storm Water Pollution Prevention Plan will be placed so as not to create a hazard to CTS.

CTS-17. A USFWS-approved biologist or natural resource monitor (depending on effect level of project) shall perform construction site inspections to ensure the contractor completes the Proposed Action as described and complies with all proposed minimization measures.

CTS-18. Concrete waste and water from curing operations will be collected in washouts and will be disposed of properly and not allowed into watercourses or CTS upland habitat.

CTS-19. In the event that CTS are encountered on the project site, the USFWS-approved biologist or natural resource monitor will contact the Travis AFB Natural Resource Manager who will then contact the USFWS. If CTS are captured, they should be released as near as possible to the point of capture, in a manner that maximizes their survival, per guidance provided by the Sacramento Office of the USFWS. Refer to the CTS Relocation Plan described in Section 4.4.5 of the Final PBA.

4.2.5 Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp and Delta Green Ground Beetle

VP-01. No work will be conducted in the vicinity of vernal pool species' habitat between 16 Oct and 30 Apr, unless specifically approved by the Travis AFB NRM, who will field verify soil saturation, visual ponding, and expected surface disturbance. The USFWS will be notified of any off-pavement work within 250 feet approved between 16 Oct and 30 Apr.

VP-03. Projects that occur on road surfaces and along road shoulders will avoid direct impacts to wetland habitats.

VP-04. A USFWS-approved biologist will mark vernal pool species' habitat and a reasonable buffer to be avoided with flagging material. The area will be protected by placing construction fencing or other appropriate protective fencing around the pools including a buffer. Fencing will be used in locations where project equipment and/or personnel will be situated adjacent to or in the near vicinity of suitable vernal pool species habitat. If in a High or Medium Risk CTS area, small mammal burrows will be avoided when placing stakes or posts.

DGGB-6. If feasible, equipment used in projects requiring access to sites within vernal pool species' habitat will be situated outside of the habitat. To further minimize adverse effects, the following measures will be implemented at these sites:

- No work shall occur within vernal pool habitat when water is present.
- Ground disturbances such as trenching, and permanent disturbances such as pole installation will avoid hydrologically connected areas where feasible.
- As necessary, a Service-approved Biologist will be present during access and project work within vernal pool habitat.

- For projects adjacent to vernal pool species' habitat or hydrologically connected to the habitat, silt fencing, or other appropriate Best Management Practices (BMPs) to prevent siltation shall be implemented prior to work within that area. A Service-approved Biologist will flag areas where silt fencing or BMPs shall be implemented. BMPs may include sand bags and weed-free straw bales or straw wattles. The biologist will consider potential impacts to CTS in Medium and High Risk areas when recommending erosion control measures.

- Spill containment kits will be present at all sites where petroleum-fueled equipment is used.

DGGB-7. If project activities encroach within the perimeter of a pool, the following measures will be implemented:

- Construction equipment with pneumatic tires rather than tracked equipment will be used.

- Non-sensitive vegetation present within adjacent habitat will be used as an equipment-parking platform. Alternately, boards or plates will be used to distribute the weight of construction equipment for access.

4.2.6 Birds

Travis AFB is not consulting with USFWS on threatened or endangered bird species, however, the below Conservation Measures will be implemented for the project for the protection of birds.

GM-01. To protect birds under the Migratory Bird Treaty Act, a pre-construction survey must be performed by a qualified biologist at least 14 calendar days before construction to determine whether any protected species are present on or near the site. If protected birds are present or nesting on or near the site, construction may be temporarily postponed until the nesting season is over. Contact 60 CES/CEIE at least 30 calendar days in advance to arrange the pre-construction site survey.

GM-02. Other measures which may be necessary if protected species are found on or near the site during the pre-construction survey include: (1) the work crew may be prohibited from disturbing areas within a specified distance of owl burrows or bird nests; (2) the work crew may be required to shut down or restrict activities during breeding and nesting seasons; (3) construction may be temporarily delayed while birds are encouraged to relocate away from the construction area. The work crew should be advised of these possibilities in contract documents.

GM-03. If the project includes removal of any trees, the work crew is advised to remove the trees or tree limbs between the months of September and January, outside of the bird nesting season. Trees may not be removed or limbed during nesting season unless a qualified biologist determines there are no active bird nests present.

5 Status of the Species and Critical Habitat in the Action Area

5.1 Vernal pool fairy shrimp

5.1.1 Listing Status and Description

The vernal pool fairy shrimp was listed as threatened by the USFWS in 1994 (FR 59:80 and updated in FR 68:151). Critical habitat was designated on August 6, 2003 (68 CFR 46683) and was subsequently revised with critical habitat unit designations on February 10, 2006 (71 CFR 7117). The USFWS published a recovery plan that included this species entitled Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005).

VPFS co-occurs with a large number of other vernal pool branchiopod species throughout its range, including conservancy fairy shrimp (*Branchinecta conservatio*), mid-valley fairy shrimp (*B. mesovallensis*), versatile fairy shrimp (*B. lindahli*), California fairy shrimp (*Linderiella occidentalis*), Santa Rosa Plateau fairy shrimp (*L. santarosae*), Riverside fairy shrimp (*Streptocephalus woottoni),* and vernal pool tadpole shrimp (*Lepidurus packardi*). Male VPFS are readily distinguishable from co-occurring fairy shrimps by antennae; female VPFS are distinguishable by the shape of the brood pouch (Eriksen and Belk 1999).

5.1.2 Life History and Ecology

This species is widely distributed throughout the grasslands of California, from Shasta County south to Riverside County, but is rarely abundant. Vernal pool fairy shrimp are restricted to vernal pools and vernal pool-like habitats; the species has never been found in riverine, marine, or other permanent water bodies (USFWS 2007). VPFS occurs in a variety of vernal pool types ranging from small rock pools to large, turbid grassland pools. Other kinds of depressions that hold sufficient water volume, depth and area for sufficient duration and seasonality may also constitute potential habitat. These other depressions are often artificial habitats such as roadside ditches, ruts left by heavy construction vehicles and depressions in fire breaks (Eng et al. 1990, Rogers and Fugate 2001). Characteristics of typical VPFS habitat include water temperatures between 40 and 73 degrees Fahrenheit, low to moderate salinity, elevations between 33 and 4,000 feet (rarely up to 5,600 feet), and area less than 2,200 square feet (±2,100 square feet; rarely up to several acres). Vernal pools are usually nutrient-poor and experience dramatic daily fluctuations in pH, dissolved oxygen, and carbon dioxide (Keeley and Zedler 1998). VPFS feed primarily on detritus and microscopic algae (USFWS 2007).

VPFS occupy a variety of different vernal pool habitats or vernal pool-like habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, it tends to occur in small swales, or vernal pools in unplowed grasslands (Eriksen and Belk 1999).

VPFS require cold winter water temperatures to hatch and grow and typically appear after the first frosts. Hatching begins shortly after temporary pools have been inundated by runoff from

fall and winter rains. Helm (1998) determined that VPFS reach sexual maturity in an average of 41 days but mature in as few as 18 days in optimal conditions. After males and females mate, the eggs mature into cysts in the female's brood pouch. Cysts are released to settle in the soil at the bottom of the pool, where they remain as the pool dries. Pools must dry completely during the summer months to prevent fungus from destroying cysts.

5.1.3 Status in the Action Area

The VPFS is known to occur on Travis AFB, and much of the seasonal wetland habitat on the Base and Geographically Separated Unit (GSU) provides suitable habitat for the species (Figure 2). The presence of suitable habitat for the species and documented occurrences suggests that the species is likely to persist on Travis AFB given current conditions. On Travis AFB there are 45 documented occurrences of VPFS, and these are concentrated within the northern portion of the Base though a number of other occurrences are scattered throughout the center of the Base in natural vernal pools as well as manmade seasonal wetland features (Marty 2016). VPFS are widely distributed on Travis AFB north of the flight line, occurring in natural vernal pools and artificial seasonal wetland features (Travis AFB 2018).

Critical Habitat is designated for VPFS on the Travis AFB main base at the South Gate, a triangular parcel south of Runway 03R/21L (not within the fenced boundary of the Base), the western railroad right-of-way, and the Potrero Hills Landfill GSU (Travis AFB 2018). There is no Designated Critical Habitat for VPFS within the Action Area. The closest Designated Critical Habitat for VPFS occurs on 13 acres near the South Gate.

Existing Complex Site

There are no historically documented occurrences of VPFS in the vernal pools or seasonal wetland habitats within the site, however, they are assumed to be present. Vernal pools located within this area are classified within the Low Value Conservation Area (Travis AFB).

New Complex Site

During a 2017 survey a cluster of vernal pools between E Street and Vandenberg Dr., approximately 0.10-mile east of the site, contained VPFS (Figure 3). There are no historically documented occurrences of VPFS in the vernal pools or seasonal wetland habitats within the site, however, VPFS are assumed to be present. The vernal pool habitat affected by the project is located with the Medium Value Conservation Area (Travis AFB).

5.2 Vernal pool tadpole shrimp

5.2.1 Listing Status and Description

The vernal pool tadpole shrimp was listed as endangered by the USFWS in 1994 (FR 59 No. 180). Critical habitat was designated in 2003 (FR 68 No. 151) and revised in 2006 (FR 71 No. 28). The USFWS published a recovery plan that included this species entitled Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005).

VPTS are distinguished from other listed vernal pool branchiopods by a large shield-like carapace that covers the anterior side of the body. Adults are 0.6 to 3.3 inches long.

5.2.2 Life History and Ecology

The species occurs in a wide variety of vernal pool habitats but is relatively long-lived compared to other vernal pool crustaceans (USFWS 2005). VPTS generally take between 3 and 4 weeks to mature (Ahl 1991, Helm 1998) and reproduce repeatedly during the season, as long as pools remain inundated (Ahl 1991, Simovich *et al.* 1992). VPTS can be found in pools that are likely too small to remain inundated for the entire life cycle of the species and may be able to tolerate temporary drying (Helm 1998).

5.2.3 Status in the Action Area

Despite numerous protocol-level and non-protocol-level sampling efforts over the past two decades, the VPTS has not been found to occur on the main base of Travis AFB. It has been found on the Northern Railroad Right-of-Way GSU, and just off-base in a pool 40 feet from the perimeter fence near the Meridian Gate on the eastern base boundary (Travis AFB 2018). This location is approximately 0.43-miles east of the Existing Complex.

Critical Habitat is designated for VPTS on the Travis AFB main base at the South Gate, a triangular parcel south of Runway 03R/21L (not within the fenced boundary of the Base), the western railroad right-of-way, and the Potrero Hills Landfill GSU (Travis AFB 2018). There is no Designated Critical Habitat for VPTS within the Action Area. The closest Designated Critical Habitat for VPFS occurs on 13 acres near the South Gate.

5.3 California Tiger Salamander

5.3.1 Listing Status and Description

The Central Valley Population of the Central California Distinct Population Segment of CTS, which includes CTS populations in Solano County, was listed as threatened under the Endangered Species Act on August 4, 2004 (69 CFR 47212). A final designation of critical habitat for CTS was published by USFWS on August 23, 2005 (70 CFR 49380). The California Fish and Game Commission listed CTS as threatened under the California Endangered Species Act on August 19, 2010.

The CTS is an amphibian in the family Ambystomatidae, endemic to California and native to Solano County. It is a large terrestrial salamander with a broad, rounded snout. Coloration consists of white or pale-yellow spots or bars on a black background on the back and sides. The belly varies from almost uniform white or pale yellow to a variegated pattern of white or pale yellow and black. The salamander's small eyes protrude from their heads, and the eyes have black irises (Jennings and Hayes 1994). Males can be distinguished from females, especially during the breeding season, by their swollen cloacae, a common chamber into which the intestinal, urinary, and reproductive canals discharge. They also have more developed tail fins and larger overall size. Adult males are slightly larger than females (8 inches and less than 7

inches, respectively) (Stebbins 2003). Juvenile salamanders are 1.7 to 2.8 inches from the tip of the snout to the rear of the vent and have the same coloration patterns as adults (as cited in Jennings 2005). Larval salamanders range in size from 0.4 to 6.6 inches in total length with a pale-yellow, tan, or dark colored belly (Andersen 1968). After 2 weeks from emergence, a larval salamander will have prominent external gills and legs (Storer 1925). Egg sizes are reported by Storer (1925) to measure 0.13 to 0.21 inches.

The CTS is endemic to California and historically inhabited the low-elevation grassland and oak savanna plant communities of the Central Valley, adjacent foothills, and Inner Coast Ranges (Jennings and Hayes 1994, Shaffer et al. 1993). Along the Coast Ranges, the species occurred from the Santa Rosa area of Sonoma County, south to the vicinity of Buellton in Santa Barbara County. The historic distribution in the Central Valley and surrounding foothills included northern Yolo County southward to northwestern Kern County and northern Tulare County.

5.3.2 Life History and Ecology

California tiger salamander larvae develop in vernal pools and ponds in which they hatch; however, the species is otherwise terrestrial and spends most of its post-metamorphic life in widely dispersed underground retreats. Metamorphosis occurs in May through July. Individuals can accelerate development in early-drying ponds, or delay metamorphosis in ponds that hold water longer; however, the USFWS minimum requirement for critical habitat is 12 weeks in a typical rainfall year (USFWS 2005). Subadult and adult CTS typically spend the dry summer and fall months in the burrows of small mammals, such as California ground squirrel and Botta's pocket gopher (*Thomomys bottae*) (Loredo and Van Vuren 1996). Adults emerge from underground retreats to breed during the November – February rainy season (Loredo and Van Vuren 1996). Adults may travel more than 2 km between upland aestivation sites and aquatic breeding sites (Orloff 2011); however, the typical distance traveled is less than 1 km (Searcy and Shaffer 2008).

CTS are also known to use several successive burrows at increasing distances from an associated breeding pond. Although previously cited studies provide information regarding linear movement from breeding ponds, upland habitat features appear to have some influence on movement. Trenham (2001) found that radio-tracked adults were more abundant in grasslands with scattered large oaks (*Quercus* spp.), than in more densely wooded areas. In addition, captures of arriving adults and dispersing new metamorphs were evenly distributed around two ponds completely encircled by drift fences and pitfall traps. Thus, it appears that dispersal into the terrestrial habitat occurs randomly with respect to direction and habitat types.

Population declines for this species have been attributed to agricultural and urban development, grazing practices, and predation by introduced nonnative fish and bullfrogs. Several introduced predators of CTS pose a threat to their populations and survival. These include bullfrogs, African clawed frogs, red swamp crayfish, bass, catfish, sunfish, and mosquito fish (Federal Register, 50 CFR Part 17, Volume 69, No. 149, August 4, 2004).

5.3.3 Status in the Action Area

California tiger salamander is known to breed in ponds on the main base of Travis AFB, and much of the grassland habitat on the base provides suitable upland aestivation habitat. Active breeding ponds for CTS on the main base are located in the Castle Terrace Preserve. Most of the northern, southern, and eastern portions of Travis AFB are within 1.5 km of on- or off-base active CTS breeding ponds, and the undeveloped lands in those areas are considered high-risk areas for CTS based on proximity to breeding ponds, habitat suitability, and accessibility of the landscape to CTS (landscape resistance; Travis AFB 2018). The easternmost 4 km of the Northern Railroad Right-of-Way GSU is designated critical habitat for CTS (Travis AFB 2018). During runway surveys and relocation efforts begun on 31 May 2017 at Travis AFB, a total of 154 juvenile CTS were relocated off the runway and placed in suitable burrow sites along the eastern boundary of the base. During pitfall trapping begun on 22 June 2017, an additional 656 juvenile CTS were trapped and relocated. The runway survey and pitfall trapping area was approximately 0.75-mile northeast of the Existing Complex and approximately 0.67-mile southeast of the proposed New Complex. Total CTS numbers detected in the 2017 season included 820 live individuals and 52 dead (Marty 2017b).

Existing Complex Site

This site is within 0.5 miles of an active CTS breeding pond off-base near the Meridian Gate and is considered a high-risk area for CTS due to proximity, habitat suitability, and low landscape resistance (Travis AFB 2018). The vernal pools and wetland swale in the existing Complex are not suitable for CTS breeding, as they do not hold water long enough to allow CTS larvae to mature. The existing Complex site is within close proximity (0.5 miles) to the location where 2 dead CTS were found in 2015; the individuals likely became desiccated after moving during the early morning hours. They were most likely responding to either ponded water as a result of a break in a water main near their upland habitat, humid weather conditions, or both (Travis AFB 2018).

New Complex Site

The proposed Complex is within 0.5 miles of an active CTS breeding pond (Wilcox West Pond) immediately east of the Travis AFB perimeter fence, has low landscape resistance, and includes grassland habitat suitable for CTS aestivation. Consequently, the entire proposed Complex is considered a high-risk area for CTS (Travis AFB 2018). The vernal pool and wetland swale habitat in the proposed Complex are not suitable for CTS breeding, as they do not hold water long enough to allow CTS larvae to mature.

5.4 Delta Green Ground Beetle

5.4.1 Listing Status and Description

The Delta green ground beetle was listed as threatened and a final designation of critical habitat made under the Endangered Species Act on August 8, 1980 (45 CFR 62807). A recovery plan

was published in 1985; however, DGGB was included in a recovery plan for vernal pool ecosystems in California and southern Oregon in 2005.

5.4.2 Life History and Ecology

The DGGB is a beetle in the Carabidae (ground beetles) and is associated with large playa lakes in the Jepson Prairie region east of Travis AFB. Adults are active February through April in areas of sparse cover of low-growing vernal pool plant species (Travis AFB 2018). In a study of habitat features associated with DGGB presence, the species was least likely to be found in areas of annual grass cover (Arnold 1989).

5.4.3 Status in the Action Area

Habitat assessments of Travis AFB in 2012 and 2016 found no suitable habitat for DGGB on the main base (Travis AFB 2018). Because the ecology and dispersal of DGGB is poorly understood, Travis AFB has established a 1-mile buffer around known and potential locations off-base within which DGGB will be considered in project consultation (Travis AFB 2018). The Action Area does not include suitable habitat for DGGB; however, the existing Complex is inside a 1-mile buffer around off-base habitat for DGGB.

6 Effects of the Action

The Proposed Action would result in permanent removal of approximately 8.37 acres of high risk upland habitat suitable for the threatened CTS, 1.48 acres of temporary upland habitat disturbance, and indirect impacts to 1.01 acres of vernal pool species habitat suitable for the VPFS and VPTS. A wetland swale will be permanently removed as part of the project, however, it is not habitat for VPFS/VPTS.

Table 2. Project Habitat Impact Summary

Resource	Area (ac.)	Impact
High Risk CTS Upland Habitat	8.37	Permanent
High Risk CTS Upland Habitat	1.48	Temporary
Vernal pool fairy shrimp/Vernal pool tadpole shrimp habitat	1.01	Indirect
Wetland swale	0.05	Permanent (not threatened and endangered species habitat)

Total acreage Hardscape (staging area) 1.00
Total acreage Building and Pavement demolition 0.74
Total acreage removal of wetlands (requires CWA permit); not vernal pool species habitat: 0.05

6.1 California Tiger Salamander

The Proposed Action would permanently remove 8.37 acres and temporarily disturb 1.48 acres of High Risk CTS upland habitat.

The proposed Complex and existing Complex are designated as high-risk areas for CTS, and the Proposed Action is a CTS Level 3 category project as defined in Table 2 of the Final PBA (Travis AFB 2018). Level 3 projects are considered *may affect, and likely to adversely affect,* CTS. Development of the proposed Complex will result in loss and disturbance of upland habitat used for dispersal, refugia, and foraging.

CTS that may be using small mammal burrows or cracks in the soil within the construction footprint of the Proposed Action are likely to be destroyed during grading and ground compaction activities as burrows are crushed or as inhabitants of burrows are entombed. CTS may be killed or injured from inadvertent trampling by workers from foot traffic and operation of construction equipment during construction activities. Construction activities may result in harassment from noise, vibration, and night-lighting and may disturb CTS causing them to leave their upland refugia and increase their exposure to desiccation and predation. CTS may also become trapped in open excavations or construction trenches, making them vulnerable to desiccation, starvation, and predation. However, with full implementation of conservation measures described in Section 4.2, these incidences would be avoided.

Impacts to Species and Habitat

Existing Complex Site

Equipment utilized to conduct the work could crush burrows entombing any CTS that could be present on the site. Demolition of structures and return of the site to grassland in the existing Complex site would create approximately 0.74 acre of grassland habitat suitable for CTS. Any CTS found on the project site would be relocated by a Service approved biologist as per the Travis Relocation Plan found in the Travis PBA (Travis AFB).

New Complex Site

CTS individuals could potentially be negatively impacted by equipment and project activities during CTS migration periods and by earthmoving activities of the project because burrow entrances will be collapsed and entomb any individual that could be present. The proposed project would result in the permanent loss of 8.37 acres of grassland habitat suitable for CTS dispersal, foraging, and refugia in the proposed Complex site. Any CTS found on the project site would be relocated by a Service approved biologist as per the Travis Relocation Plan found in the Travis PBA (Travis AFB).

Project staging and storage area

With implementation of Conservation Measures, no impacts to CTS are expected from the use of the hardscape designated for the staging/storage area for the project as no ground disturbance will occur at this location.

Cumulative Impacts

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area. Future Federal actions unrelated to the Proposed Action would require separate consultation under Section 7 of the ESA.

Following demolition of structures at the existing Complex site, that area would revert to Air Force management, and activities in that portion of the action area would be consistent with the routine operational activities described in the Final PBA (Travis AFB 2018). Activities in the proposed new Complex site would consist of routine VQ-3 Det Travis operations consistent with the overall mission of Travis AFB and would also be consistent with the routine operational activities described in the Final PBA (Travis AFB 2018). Each activity described in the Final PBA would be analyzed for the level of effect it may have to listed species according to the Effects Analysis Framework described in Section 1.4.2 of the Final PBA (Travis AFB 2018).

6.2 Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

The Proposed Action would indirectly affect 1.01 acre of vernal pool species habitat. The vernal pool habitat affected by the project is located within a low quality Vernal Pool Conservation Area (Travis AFB).

Impacts to Species and Habitat

Existing Complex Site

The majority of the demolition work at this site is not within close proximity of vernal pool species habitat, with the exception of VP.FL.797 (30 feet) and VP.FL.798 (10 feet). The infrastructure located near these vernal pools consists of 2 large steel cargo containers and the work to remove them from the site is not expected to involve ground disturbing work. The access route to remove the containers would be coordinated with the Service approved biologist to ensure the pools are avoided. Avoidance and minimization measures such as a Service Approved Biologist marking vernal pool habitat as an area to avoid prior to the start of work as well as environmental awareness training is expected to prevent any adverse effects to these features.

The demolition work at the site is expected to be conducted from paved surfaces when possible. Removal of pavement, buildings, and utility infrastructure does not occur within close proximity of vernal pool species habitat (closest is VP.FL.796 at 60 feet), however the work at this site is the removal of a carport and driveway which is not expected to involve deep ground disturbing work, therefore this vernal pool should not be affected by the work. The project will include measures to avoid vernal pool species habitat within this Action Area.

New Complex Site

The site for the proposed New Complex is immediately adjacent to one 0.04 acre vernal pool VP.CA.184 (USACE 2016) and four additional vernal pools are within 185 feet of the Action Area. These vernal pools would be avoided during construction, however grading of the site to remove the existing berm for the New Complex is expected to result in hydrological changes to the surrounding area. These changes, such as altered surface water runoff patterns, can result in more or less input to nearby vernal pools which is considered an indirect impact to these vernal pools.

Project staging and storage area

The area proposed for the project staging/storage is a paved area and no vernal pool species habitat is within 115 feet, therefore, with implementation of Conservation Measures no impacts area expected at this site.

Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action Area. Future Federal actions unrelated to the Proposed Action would require separate consultation under section 7 of the Endangered Species Act.

Following demolition of the existing Complex, that area would revert to Air Force management, and activities in that portion of the action area would be consistent with the routine operational activities described in the Final PBA (Travis AFB 2018). Activities in the proposed Complex would consist of routine VQ-3 Det Travis operations consistent with the overall mission of Travis AFB and would also be consistent with the routine operational activities described in the PBA (Travis AFB 2018). Each activity described in the Final PBA would be analyzed for the level of effect it may have to listed species according to the Effects Analysis Framework described in Section 1.4.2 of the Final PBA (Travis AFB 2018).

6.3 Delta Green Ground Beetle

The Proposed Action would not affect suitable habitat for DGGB and the species is considered absent from most of the main base; however, projects within the 1-mile buffer for off-base habitat may have potential to affect the species. The existing Complex is within a 1-mile buffer for off-base habitat. The Final PBA specifies that informal consultation will be conducted for projects proposed within the 1-mile buffer for DGGB habitat (Travis AFB 2018).

Impacts to Species and Habitat

Primary biological factors of critical habitat for DGGB that may be affected by project activities in the existing Complex include vernal pools. Proposed demolition of buildings and removal of structures are not expected to have impacts on vernal pool habitat, as most of the work occurs on paved surfaces and implementation of conservation measures in Section 4.2 would reduce the potential for adverse effects. The Proposed Action *may affect and is not likely to adversely affect* Delta green ground beetle.

Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action Area. Future Federal actions unrelated to the Proposed Action would require separate consultation under section 7 of the Endangered Species Act.

Following demolition of the existing Complex, that area would revert to Air Force management, and activities in that portion of the action area would be consistent with the routine operational activities described in the Final PBA (Travis AFB 2018). The proposed Complex is not within the 1-mile buffer for DGGB habitat and projects on Travis AFB outside of the 1-mile buffer are considered to have *no effect* on DGGB (Travis AFB 2018).

7 Conclusion

No threatened or endangered species have been recorded within the Action Area (Travis AFB 2018, 60 CES/CEIE 2016); however, suitable habitat exists within the Action Area for California tiger salamander (upland habitat) and vernal pool fairy shrimp. Although implementation of the conservation measures listed in Section 4.2 would reduce the potential for the Proposed Action to adversely affect CTS, VPTS, VPFS, and DGGB.

The Proposed Action would result in permanent and temporary loss of suitable habitat for CTS and indirect effects to suitable habitat for VPFS/VPTS.

Construction of the proposed Complex would result in permanent removal of 8.37 acres of annual grassland upland habitat suitable for CTS. Travis proposes to offset the loss of high risk California tiger salamander upland habitat at a ratio of 2:1 for permanent impacts. 16.74 acres will be purchased from a Service approved conservation bank.

Temporary high risk CTS upland habitat disturbance is expected to be 1.48 acres from the maneuvering of heavy equipment in the uplands surrounding the demolition projects. Since the demolition of buildings and concrete pavement in the existing Complex will be permanently removed (total approximately 0.74 acres), these areas will be returned to their natural, or pre-construction condition and small mammal activities are expected to resume. Travis proposes the temporary disturbance of 1.48 acres of CTS high risk upland habitat be offset with the 0.74 acres that will be returned to upland grassland for a total of 0.74 (1.48 – 0.74 = 0.74) acres of temporary disturbance to be purchase from a Service approved conservation bank at a ratio of 0.5:1.

Construction of the proposed New Complex will result in indirect effects to 1.01 acres of VPFS/VPTS species habitat from the hydrological modification of the surrounding grasslands. To compensate for the indirect effects to 1.01 acres of vernal pool branchiopod habitat, Travis AFB shall preserve vernal pool branchiopod habitat within a USFWS-approved conservation area/mitigation bank at a ratio of 1:1.

0.05 acre of wetlands that are not suitable habitat for vernal pool species would be removed within the proposed New Complex site, however, a Clean Water Act permit would be obtained prior to the start of the project.

Table 3. **Summary of Impacts and Compensatory Mitigation**

Location	Habitat	Type	Impact (ac)	Ratio	Mitigation (ac)
Proposed Complex	Annual Grassland	Permanent	8.37	2:1	16.74
Existing Complex	Annual Grassland	Temporary	0.74	0.5:1	0.37
Proposed Complex	Wetland	Indirect	1.01	1:1	1.01

The Proposed Action has been determined *may affect and is likely to adversely affect* CTS, VPTS, and VPFS, and *may affect but is not likely to adversely affect* DGGB.

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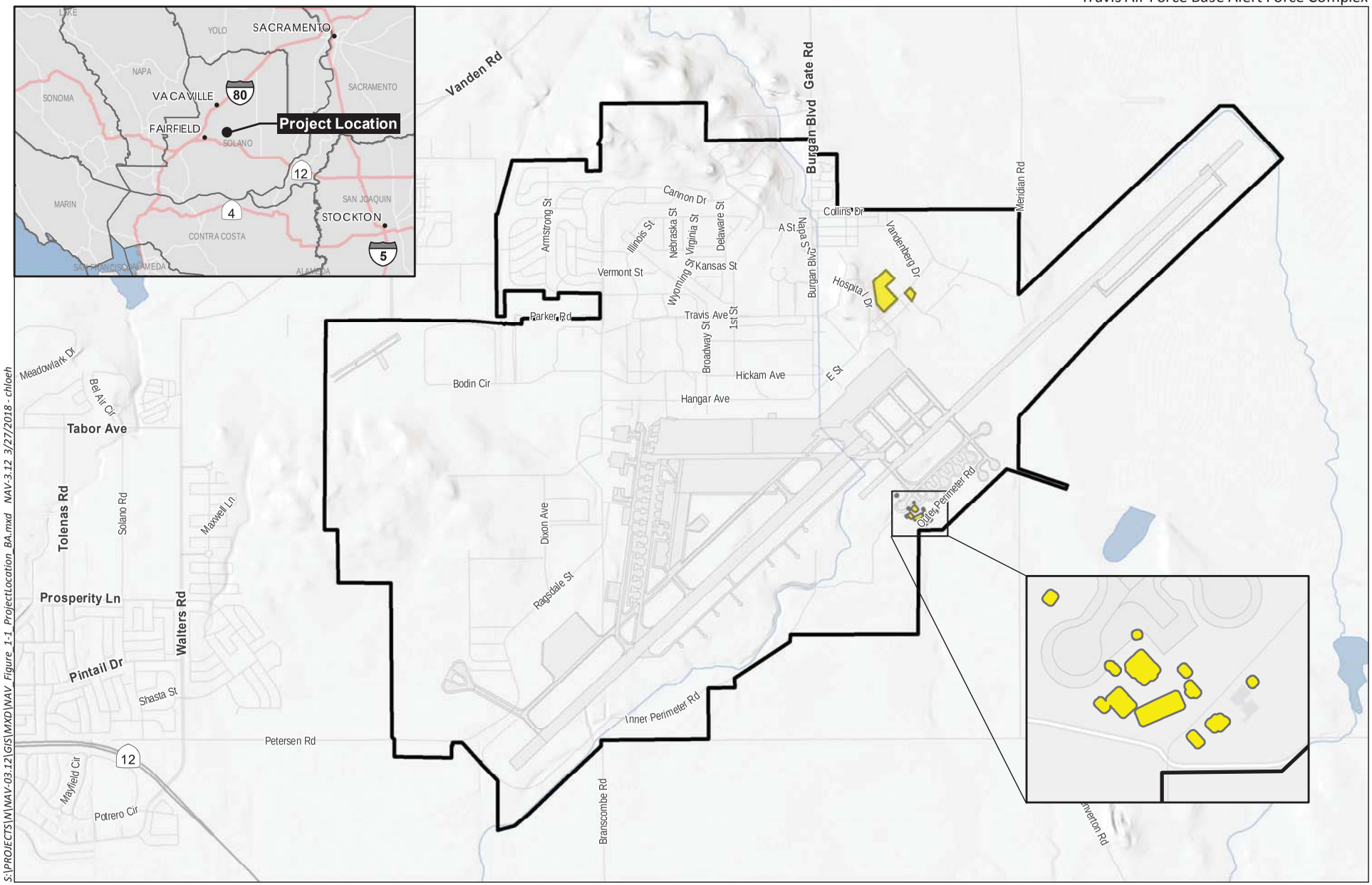

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Source: ESRI 2017, USGS

0 0.65 Miles

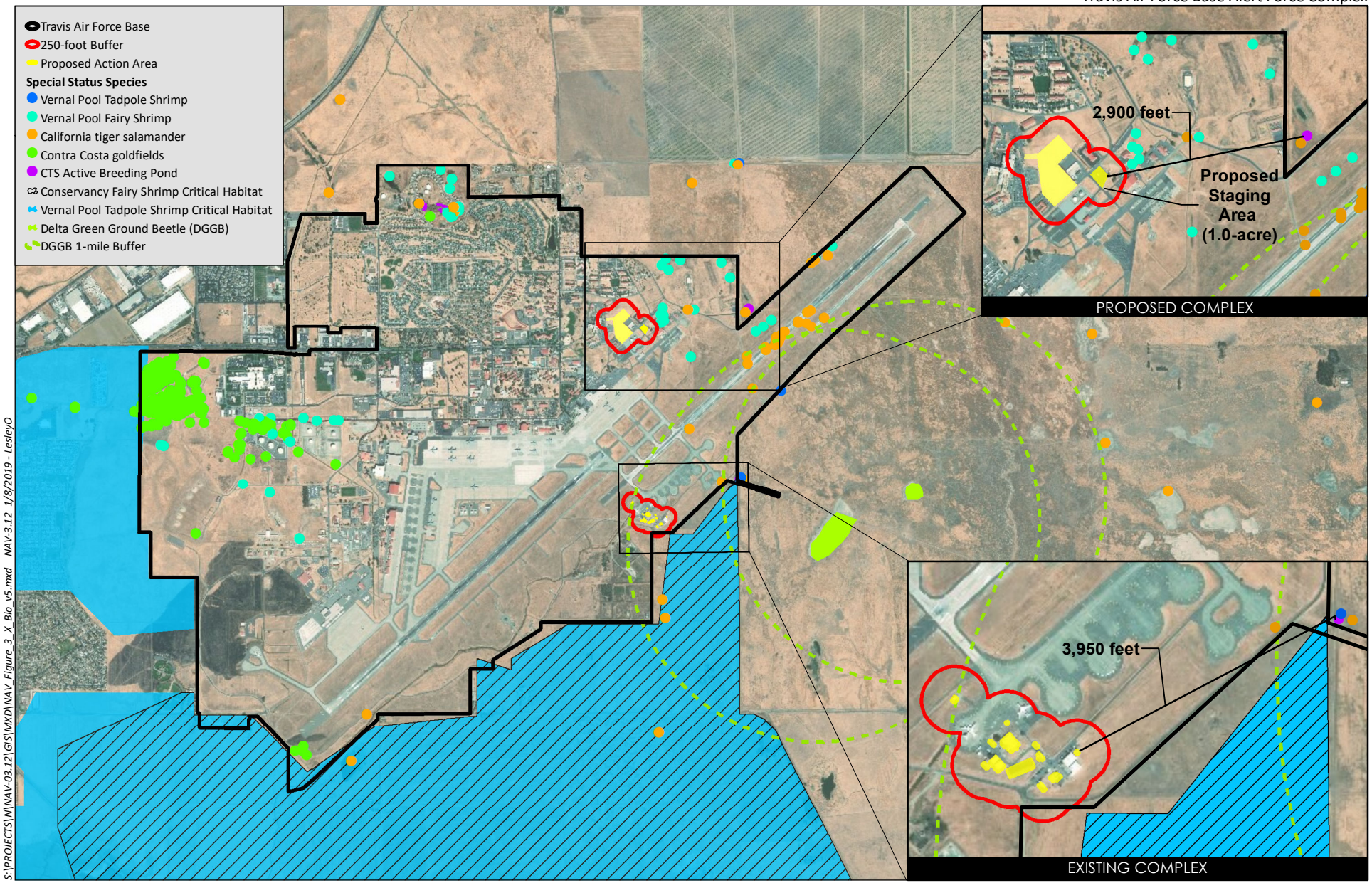
Travis Air Force Base

Proposed Action Area

Regional Location Map

Figure 1

Travis Air Force Base Alert Force Complex



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Source: ESRI 2018, USGS

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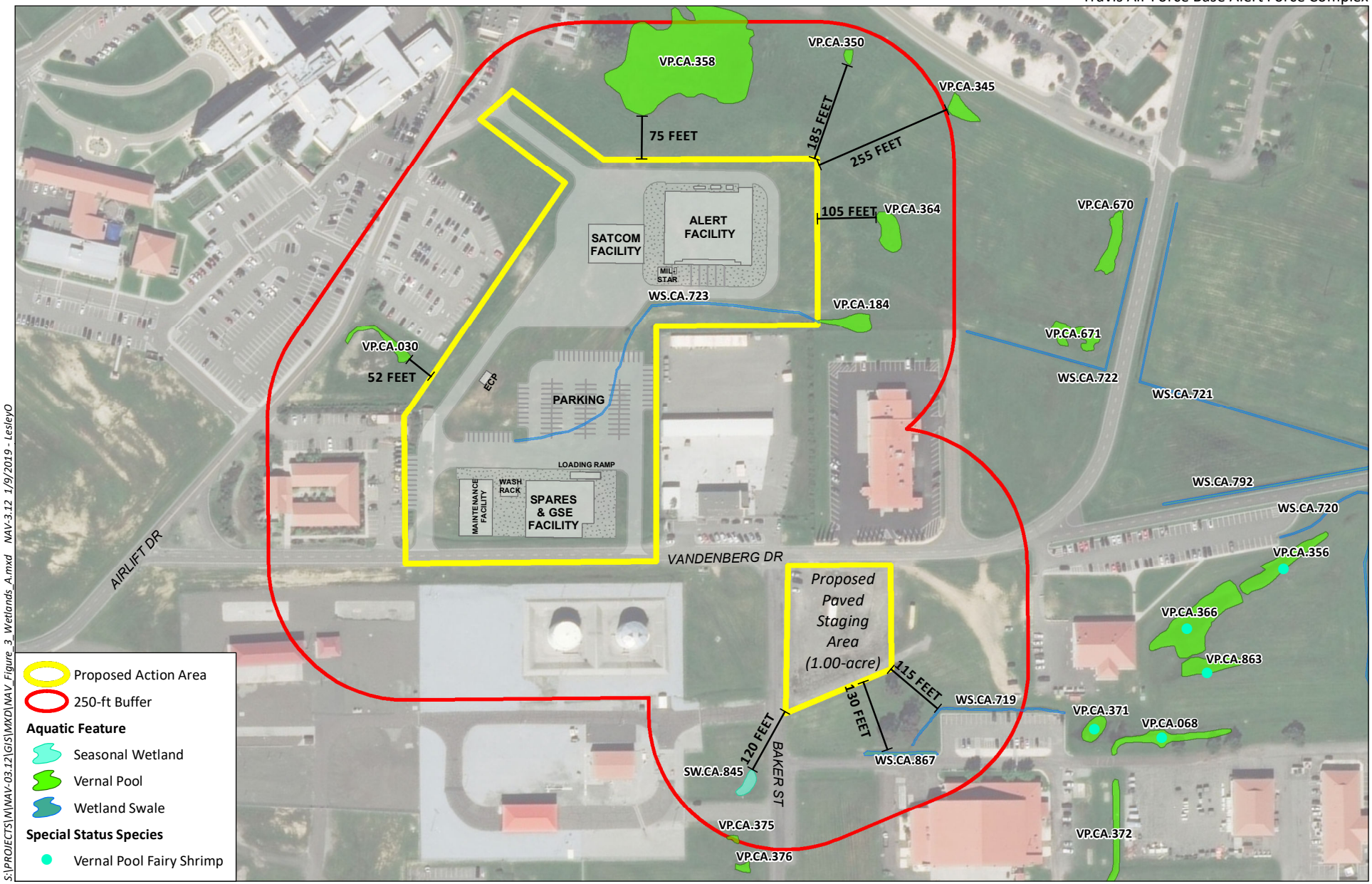
Special Status Species Map

Figure 2



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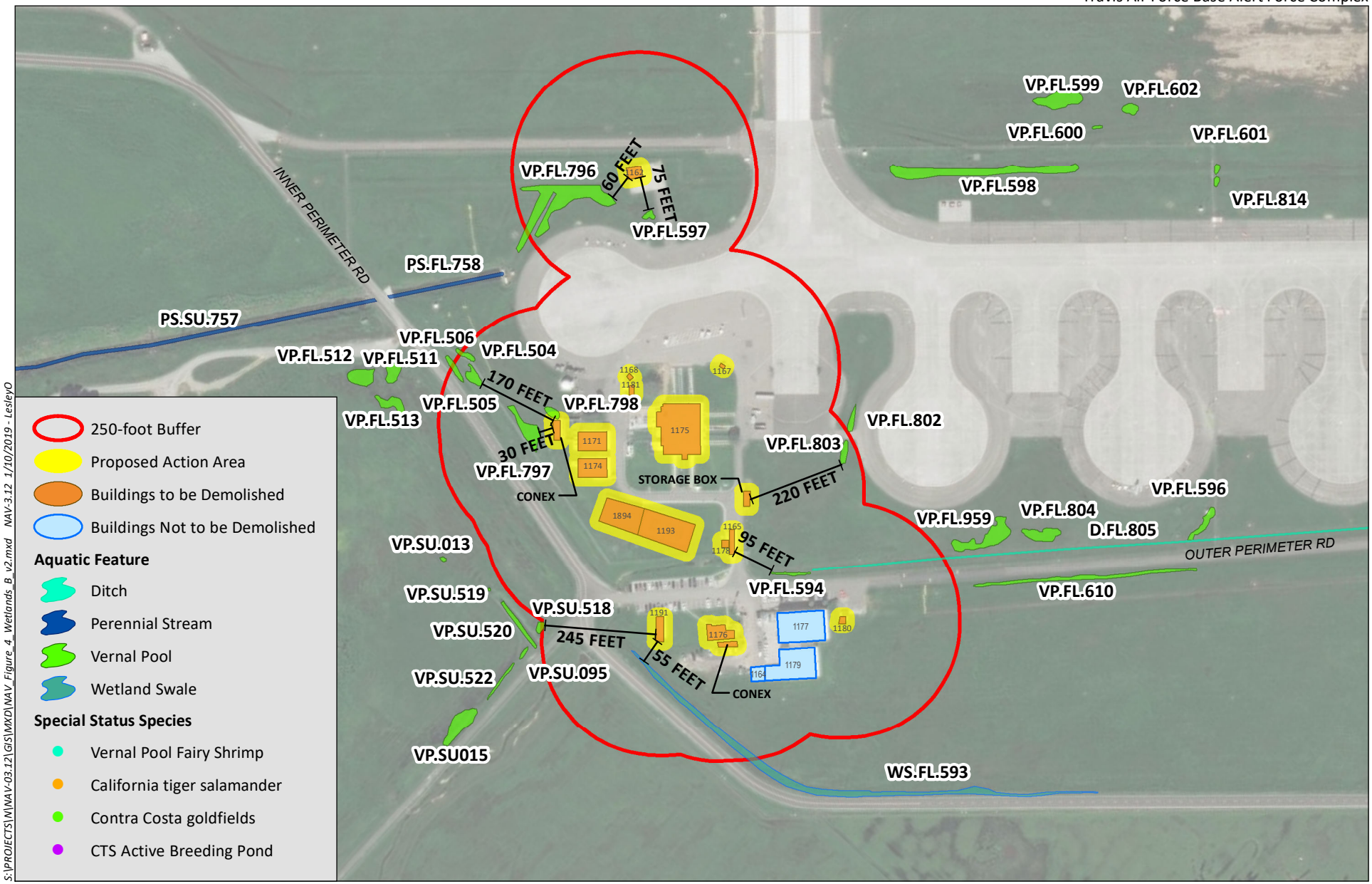
Source: Travis AFB, Esri 2017

0 250 Feet

Aquatic Features within 250-ft of the Proposed Action Area

Figure 3



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Source: Travis AFB, Esri 2017

0 300 Feet

Aquatic Features within 250-ft of the Action Area-Existing Facilities

Figure 4

Photo taken January 15, 2019 from on top of berm that will be removed and graded for the construction of the New Complex. Well defined small mammal burrows present throughout the sloped sides of the berm. WS.CA.723 is shown.

Photo taken January 15, 2019 from on top of berm that will be removed and graded for the construction of the New Complex. Vernal pool VP.CA.184 in the distance would be indirectly impacted by the project.

Photo taken January 15, 2019 from on top of berm that will be removed and graded for the construction of the New Complex. Vernal pool VP.CA.358 is in the distance would be indirectly impacted by the project.

Photo taken December 17, 2018 of carport and concrete driveway that will be removed from the Existing Complex site. Vernal pool VP.FL.796 in the distance would be avoided.

Photo taken December 17, 2018 of steel containers that will be removed from the Existing Complex site. Vernal pool (VP.FL.798) in the distance would be avoided.