DRAFT

ENVIRONMENTAL ASSESSMENT

For

DEVELOPMENT OF THE P205 ALERT FORCE COMPLEX PROJECT

At

TRAVIS AIR FORCE BASE, CALIFORNIA

JULY 2019

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DEPARTMENT OF DEFENSE
DEPARTMENT OF THE NAVY
DEPARTMENT OF THE AIR FORCE

FINDING OF NO SIGNIFICANT IMPACT (FONSI) AND FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA) FOR THE ENVIRONMENTAL ASSESSMENT FOR THE DEVELOPMENT OF THE P205 ALERT FORCE COMPLEX PROJECT AT TRAVIS AIR FORCE BASE, CALIFORNIA

Pursuant to the Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) implementing the National Environmental Policy Act (NEPA), Department of the Navy (Navy) NEPA regulations (32 CFR Part 775), Chief of Naval Operations Manual-5090.1, and the Department of the Air Force Environmental Impact Analysis Program (32 CFR Part 651), the Navy and Air Force give notice that an Environmental Assessment(EA)has been prepared for the demolition of the existing Fleet Air Reconnaissance Squadron Three Detachment Travis (VQ-3 Det Travis) Alert Force Complex (Complex) and the construction of a new Alert Force Complex (Complex) at Travis Air Force Base (AFB) in Fairfield, California. An Environmental Impact Statement is not required.

Proposed Action: The Navy proposes to replace the existing Complex and locate a replacement Complex outside the runway safety clear zone at Travis AFB in Fairfield, California. The Proposed Action includes the demolition of existing facilities near the southern boundary of Travis AFB (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 the Navy would be allowed to park it in any existing airplane parking space on base.

The need for the Proposed Action is to:

- Address Anti-Terrorism/Force Protection (AT/FP) concerns pertaining to potential threats along the installation boundary fence line;
- Address inadequate facility size. 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;
- Meet runway safety clear zone requirements. The majority of the existing facilities are currently within Travis AFB's runway clear zone. The United States Department of the Air Force (Air Force) standards for airfield clear zones are 3,000 by 3,000 linear feet, which encompasses the existing Complex;
- Address flooding hazards. Site conditions at Building 1175 direct drainage toward the building. Mold remediation in the sleeping quarters, due to flooding, is a constant concern at the existing facility; and,
- Address wildfire hazards. The risk of wildfire is increased by the proximity of nonnative grasslands to Travis AFB's exterior fence line. Recent wildfires breached the outer perimeter and encroached upon the Complex.

Public Participation: The Navy and Air Force solicited advance public comment on the proposed project in accordance with Executive Order 11990, Protection of Wetlands, as approximately 0.0046 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. Comments received during the advance public notice period were considered in preparing the Draft EA.

In addition, the public participation process included the publication of a Notice of Availability (NOA) of the Draft EA in local newspapers: the Vacaville Reporter, the Daily Republic (Fairfield/Suisum) and Travis AFB Tailwind starting (Date) through (Date).

The Draft EA is also available in hardcopy review at the following locations:

- Fairfield Civic Center Library, 1150 Kentucky Street, Fairfield, CA 94533
- Suisun City Library, 601 Pintail Drive, Suisun City, CA 94585

- Vacaville Public Library Cultural Center, 1020 Ulatis Drive, Vacaville, CA 95688
- Mitchell Memorial Library, 510 Travis Boulevard, Travis AFB, CA 94535

The Draft EA has been made available for public review on the Nave Region Southwest website (XXX).

The public comment period will run from September 13, 2019 through October 12, 2019. Comments received during the public review period, will be considered in the Final EA. A NOA of the Final EA and any proposed final Finding of No Significant Impact will be published in the Vacaville Reporter, the Daily Republic (Fairfield/Suisum) and Travis AFB Tailwind newspapers. Copies of the final documents will also be placed at the libraries listed above and on the Navy Region Southwest website.

Alternatives Analyzed: Under the No Action Alternative, the Proposed Action, as described above, would not occur and personnel would continue to work in deteriorated, undersized, and unsecure facilities.

Alternative 1: Under Alternative 1 a complete Alert Force Complex relocation would occur. Alternative 1 includes the following:

- Demolishing fourteen existing facilities: Buildings 1162, 1165, 1167, 1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894;
- Returning buildings 1164, 1177, and 1179 to the Air Force;
- Execution of a real estate agreement between the Navy and Air Force 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;
- Constructing 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;
- Providing approximately 154 parking spaces throughout the new Complex;
- AT/FP features including security fencing, vehicle barriers, security gates, intrusion detection system,

closed-circuit television, and pedestrian turnstiles in accordance with the DoD Minimum Anti-Terrorism Standards for Buildings;

- New Complex preparations including site clearing, trenching for utilities, and preparation for construction;
- Paving and site improvements including grading, parking, roadways, curbs, sidewalks, landscaping, and pedestrian features; and,
- Relocating and reusing current VQ-3 Det Travis operations five existing generators to support the new Complex.

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.

Alternative 2: Under Alternative 2 there would be a Partial Alert Force Complex Relocation. The same actions outlined in Alternative 1 would be included in Alternative 2, except the Navy would continue to utilize Buildings 1164, 1177 and 1179. These Buildings are outside of the runway safety clear zone.

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.

Alternative 2 would require a total of six generators.

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.

Deficiencies associated with Alternative 2 include duplicating some required functions associated with Buildings 1177 and 1179 at the new complex to adequately support the mission and E-6B Mercury aircraft. Additionally, Buildings 1164, 1177, and 1179 would remain within an area subject to wildfire due to proximity of private land. Security response times for Buildings 1164, 1177, and 1179 would unacceptably increase due to Navy Security Force moving to the north side

of the Travis AFB runways. This would result in increased security force resources to provide requisite protection.

Alternative to Be Implemented: The Proposed Action/Alternative 1 is the selected alternative for implementation as it best meets the purpose and need for the project and would not result in significant impacts to the human and natural environment.

Existing Conditions: Travis AFB is located approximately 7 miles north of the City of Fairfield, in Solano County, California. The Base occupies approximately 6,383 acres near Interstate 80, between the cities of Sacramento and San Francisco. The existing Complex is located in the southeast portion of the Base, north of Perimeter Road. 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 a vacant portion of the property.

Environmental Effects:

Air Quality: 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.

Water Resources: 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 direct and indirect impacts to a total of 1.0146 acres of jurisdictional waters of the U.S. may be required. Clean Water Act (CWA) Section 401 and Section 404 permit applications would be submitted to the California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, and the USACE, Sacramento District, respectively, for their review and approval. Approval of the CWA Section 401 and Section 404 permit applications would be obtained prior to commencement of any demolition or construction activities that could impact regulated resources. Once acquired, the Navy/Air Force would comply with all conditions outlined in the CWA

Section 404 and Section 401 Clean Water Act permits. Therefore, no significant impacts to water resources would occur.

Geologic Resources: Implementation of management practices required by the Construction Site Storm Water NPDES permit and SWPPP would be implemented during demolition and construction activities, that would further reduce the anticipated less-than significant impacts.

Cultural Resources: 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.
- Work would cease, and the Air Force Cultural Resources Manager would be contacted.
- If any new information or cultural items are found, Travis AFB would notify local Native American tribes.

The Air Force received a concurrence that a finding of no adverse effect to historic properties pursuant to 36 CFR Part 800.5(d)(1) is appropriate, per the California State Historic Preservation Office (SHPO), on September 7, 2018.

Biological Resources: Formal Section 7 consultation has been completed with the U.S. Fish and Wildlife Service (USFWS) and a Biological Opinion (BO) was written on April 08, 2019, for California tiger salamander (CTS), Delta green ground beetle (DGGB), vernal pool fairy shrimp (VPFS), and vernal pool tadpole shrimp (VPTS), regarding proposed project approval.

The USFWS Biological Opinion states that this project, as proposed, is not likely to jeopardize the continued existence of the CTS, VPFS, and VPTS. The conclusion was based on the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects. USFWS determined that the project would not rise to the level of precluding recovery or reducing the likelihood of survival of the species.

Alternative 1 would result in permanent and temporary loss of suitable habitat for CTS, VPFS, and VPTS. To avoid or minimize

effects on the CTS, VPFS, VPTS, and DGGB, Travis AFB would fully implement the conservation measures outlined in Table 1 of the Biological Assessment (BA) (Navy 2019). This would include all 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, Solana County, California (USFWS 2018).

To offset the permanent loss of CTS upland habitat, Travis AFB has proposed to purchase 16.74 CTS credits from a USFWS-approved conservation bank. To offset temporary losses of CTS upland habitat, Travis AFB has proposed to purchase an additional 0.37 CTS credits from a USFWS-approved conservation bank.

Because the 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 1.02 vernal pool conservation credits from a USFWS-approved conservation bank.

Implementation of Mitigation Measures would provide compensation for these losses sufficient to offset potential adverse impacts to those species. Additionally, Travis AFB 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 located within 1 mile of known locations of DGGB, off of the main base at Travis AFB., which is presumed absent from the main base at Travis AFB. After reviewing all available information, the USFWS concurred with the Air Force with the determination that the proposed project may affect, but is not likely to adversely affect the DGGB. 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 DGGB exist. However, due to the fact that the DGGB to date has not been identified on Travis AFB, the USFWS believes that adverse effects to the DGGB are unlikely to occur, and are therefore discountable for the purposes of the USFWS consultation (USFWS 2019).

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.

To protect birds under the Migratory Bird Treaty Act, 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. The Navy will contact the Air Force’s 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.

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); (2) the construction crew may be required to shut down or restrict activities during breeding and nesting seasons; and (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.

With implementation of Mitigation Measures BIO-01 through BIO-09, impacts from Alternative 1 would not be significant.

Biological Avoidance/ Minimization Measures:

Mitigation Measure BIO-01: Alternative 1 would implement avoidance and minimization measures MM-1 through MM-18, as presented in Section 4.2 of the Biological Assessment (BA) (Navy 2019).

Mitigation Measure BIO-02: Alternative 1 would implement species-specific conservation measures CTS-1 through 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 area 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 1.48 acre of upland CTS habitats in the existing Complex through a combination of reestablishing on-site 0.74 acre of suitable CTS habitat to offset both permanent and temporary proposed project effects and through the purchase of 0.37 acres of CTS upland habitat at a USFWS-approved mitigation bank.

Mitigation Measure BIO-04: Alternative 1 would implement species-specific conservation measures VP-1 through VP-8, as presented in Section 4.2.4 of the BA (Navy 2019).

Mitigation Measure BIO-05: Alternative 1 would compensate for indirect effects to 1.01 acre of potential VPFS and VPTS habitat and 0.0046 acres of direct impacts through the purchase of 1.02 acres of vernal pool conservation credits at a Service-approved conservation bank.

Mitigation Measure BIO-06: During project activities in the existing Complex, Alternative 1 would implement species-specific conservation measures DGGB-1 through DGGB-8, as presented in Section 4.2.6 of the BA (Navy 2019).

Mitigation Measure BIO-07: To protect birds under the Migratory Bird Treaty Act, 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. The Navy will contact the Air Force’s 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 would 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.

Land Use: Implementation of Alternative 1 would remedy the incompatible land use of the existing operations and would not result in significant impacts to land use.

Infrastructure: Adherence to a dig permit issued by the Air Force's 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.

Finding of No Practicable Alternative: In accordance with 32 CFR 989.14(g), a FONPA will be required because of the permanent and temporary impacts on jurisdictional wetlands.

Pursuant to Executive Order (EO) 11990, Protection of Wetlands, if a federal agency proposes to conduct an activity in a wetland, it will consider alternatives to the action and modify its actions, to the extent feasible, to avoid adverse effects or potential harm.

There is no practicable alternative to avoid all wetland areas that would meet the purpose and need of this project. Alternatives considered but not carried forward for detailed analysis in the EA—since they did not meet the elements of the purpose and need for the project and/or did not satisfy the reasonable alternative screening factors presented in Section 2.2 of the EA are listed below:

- Relocation to Alternate West Coast Base - Other bases considered do not meet all of the physical and/or operational requirements needed for the mission, as

described in Section 1.4 of the EA. Other bases do 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 at other bases would not allow for Navy personnel to meet "on alert" time constraints.

- Reconstruct the Alert Force Complex in Existing Location - 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.

The attached EA identifies two action alternatives and a No Action Alternative to meet the purpose and need. Due to logistical factors associated with constructing a new Alert Force Complex, it was determined that the only reasonable and practicable alternative that meets the purpose and need is the proposed action (Alternative 1).

The proposed Complex site has a small jurisdictional seasonal wetland that flows from the northeast portion of the site towards the center. The seasonal wetland would be graded, filled and paved over, with additional contouring to allow for proper drainage. Construction of the proposed Complex would directly impact 0.0046 acre of seasonal wetland and indirectly impact 1.01 acre of vernal pools.

The project will provide compensatory mitigation for permanent impacts to 8.37 acres of upland CTS habitats in the proposed area through preservation of upland CTS habitat at a 2:1 ratio for a total of 16.74 acres of upland preservation. In addition, the project would compensate for indirect effects to 1.01 acre of potential VPFS and VPTS habitat and 0.0046 acres of direct impacts through the purchase of 1.02 acres of vernal pool conservation credits at a Service-approved conservation bank.

Based on the attached EA for the P205 Alert Force Complex Project at Travis Air Force Base, California, no significant impacts would be anticipated with the implementation of the proposed action. Additionally, there is no practicable alternative to implementing the proposed action of constructing a new Alert Force Complex.

FINDING OF NO SIGNIFICANT IMPACT (FONSI) AND FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA) FOR THE ENVIRONMENTAL ASSESSMENT FOR DEVELOPMENT OF THE P205 ALERT FORCE COMPLEX PROJECT AT TRAVIS AIR FORCE BASE, CALIFORNIA

Finding of No Significant Impact: Based on the analysis presented in the EA and coordination with SHPO, USFWS, United States Army Corps of Engineers (USACE) and the San Francisco Bay Regional Water Quality Control Board (RWQCB), the Navy finds that implementation of the Proposed Action/Alternative 1 would not significantly impact the quality of the human or natural environment or generate significant controversy on Travis AFB.

The EA prepared by the Navy addressing this action is on file and interested parties may obtain a copy from Ms. Wanda Green, Project Manager, Naval Facilities Engineering Command Southwest,

Attn: Environmental (Code EV25.WG), 937 N. Harbor Blvd., Bldg 1, 3rd Floor, San Diego, CA 92132, or via email at wanda.s.green@navy.mil.

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Date Rear Admiral John Korka, CEC, USN
Commander, Navy Region Southwest

_____ _____

Date Randy L. Boswell, Colonel, USAF

Abstract

Designation:	Environmental AssessmentEnvironmental AssessmentEnvironmental 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:	Wanda Green Naval Facilities Engineering Command - Southwest 1200 Pacific Highway, Building 131 San Diego, CA 92132 wanda.s.green@navy.mil
Date:	July 2019

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 acre 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 0.0046 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 XXXX, 2018 through XXXX, 2018, and public comments were accepted between XXXX, 2018 and XXXX, 2018. Comments received during the advance public notice period were considered in preparing 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 a total of **0.0046** acres 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, Sacramento 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 Formal Section 7 consultation has been initiated for California tiger salamander (CTS), vernal pool fairy shrimp (VPFS), and vernal pool tadpole shrimp (VPTS), and consultation would be completed prior to any decision regarding project approval. The Air Force and Navy are proposing that informal consultation be utilized for 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 and temporary loss of suitable habitat for CTS, 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-6 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-1 through MM-18, as presented in Section 4.2 of the Biological Assessment (BA) (Navy 2019). **Mitigation Measure BIO-02:** Alternative 1 would implement species-specific conservation measures CTS-1 through 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 area 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	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*
		temporary effects to 1.48 acre of upland CTS habitats in the existing Complex through a combination of reestablishing on-site 0.74 acre of suitable CTS habitat to offset both permanent and temporary proposed project effects and through the purchase of 0.37 acres of CTS upland habitat at a USFWS-approved mitigation bank. **Mitigation Measure BIO-04:** Alternative 1 would implement species-specific conservation measures VP-1 through VP-8, as presented in Section 4.2.4 of the BA (Navy 2019). **Mitigation Measure BIO-05:** Alternative 1 would compensate for indirect effects to 1.01 acre of potential VPFS and VPTS habitat and 0.0046 acres of direct impacts through the purchase of 1.02 acres of vernal pool conservation credits at a Service-approved conservation bank. **Mitigation Measure BIO-06:** During project activities in the existing Complex, Alternative 1 would implement species-specific conservation measures DGGB-1 through DGGB-8, as presented in Section 4.2.6 of the BA (Navy 2019). **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	

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*
		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.	
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	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

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*
	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.		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.

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
BASH	Bird/Wildlife Aircraft Strike Hazard
BMP	Best Management Practices
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 6,383 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.

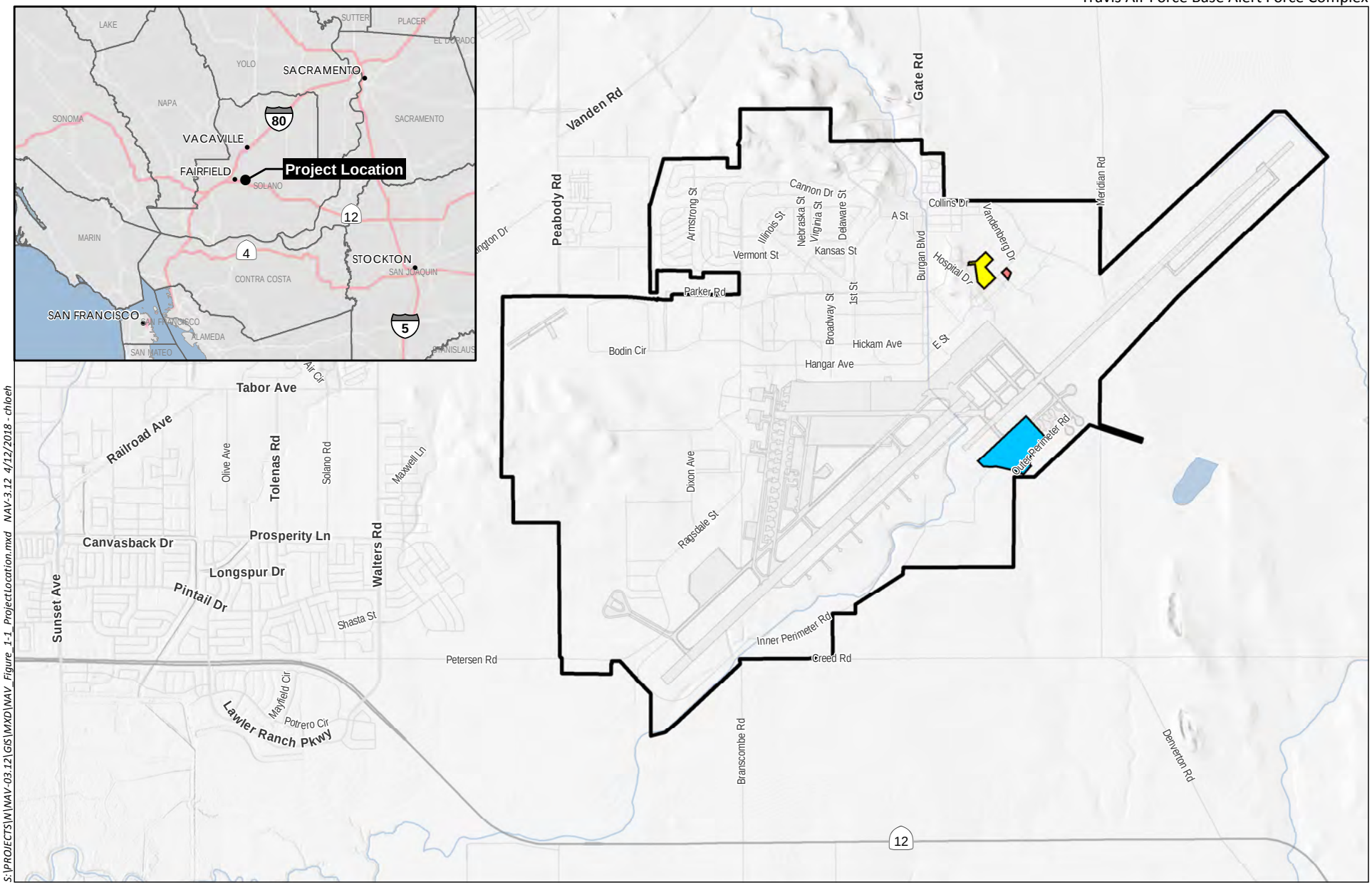
1.4 Purpose of and Need for the Proposed Action

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

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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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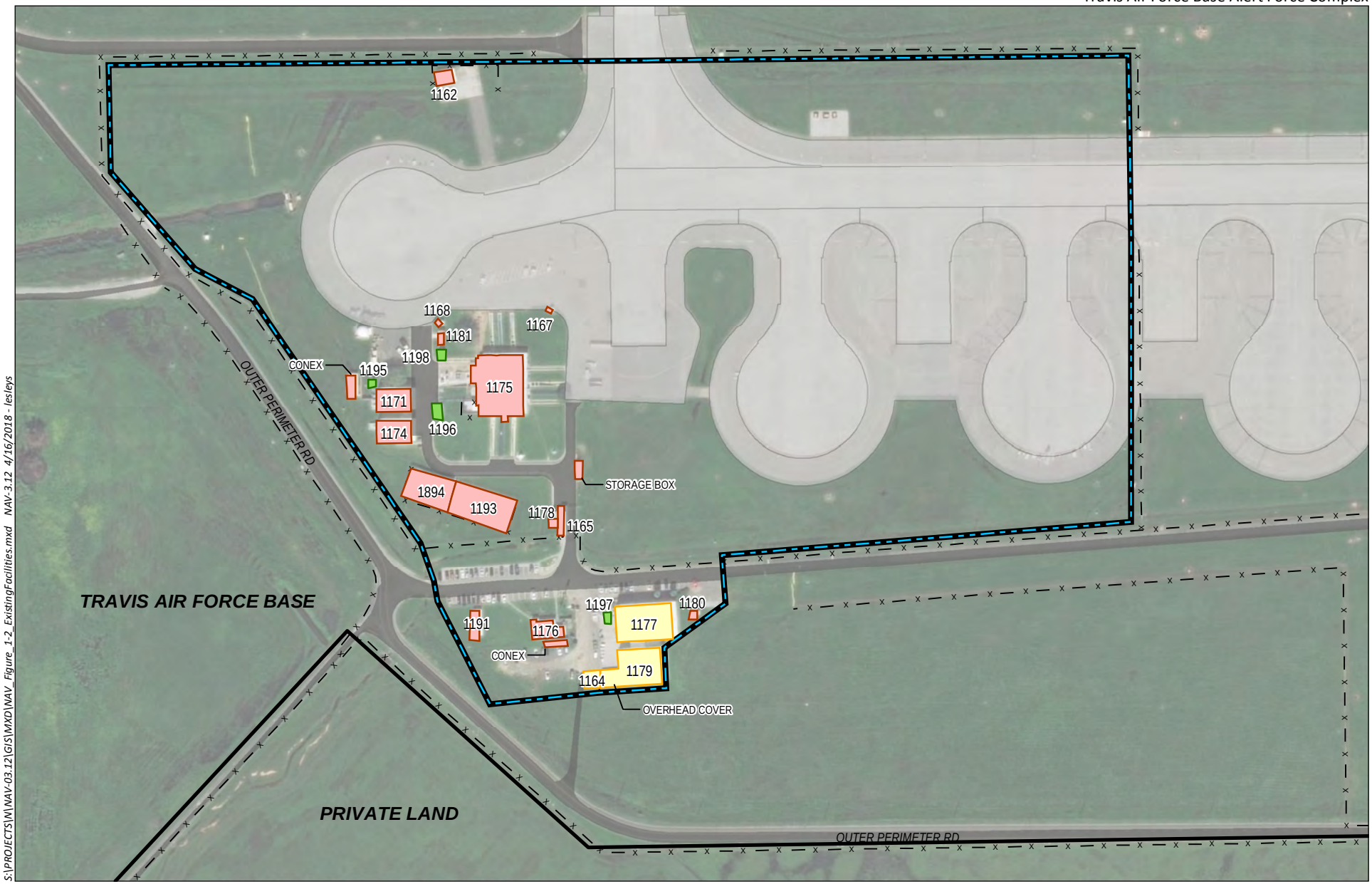

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Source: Travis AFB, Esri 2017

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.
- *Biological Assessment for the P205 Alert Force Complex Project at Travis Air Force Base*. June 2018. This study was prepared to assess potential project impacts to federally listed species with the potential to occur near the project impact areas.
- *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 Draft 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 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 has also been 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 Month, dd–dd, yyyy. 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

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) is being initiated for the Proposed Action as part of the NEPA and Section 106 processes.

Formal consultation with the United States Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA) is being initiated for potential impacts CTS and VPFS. Informal consultation with USFWS is being initiated for potential impacts to DGGB.

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

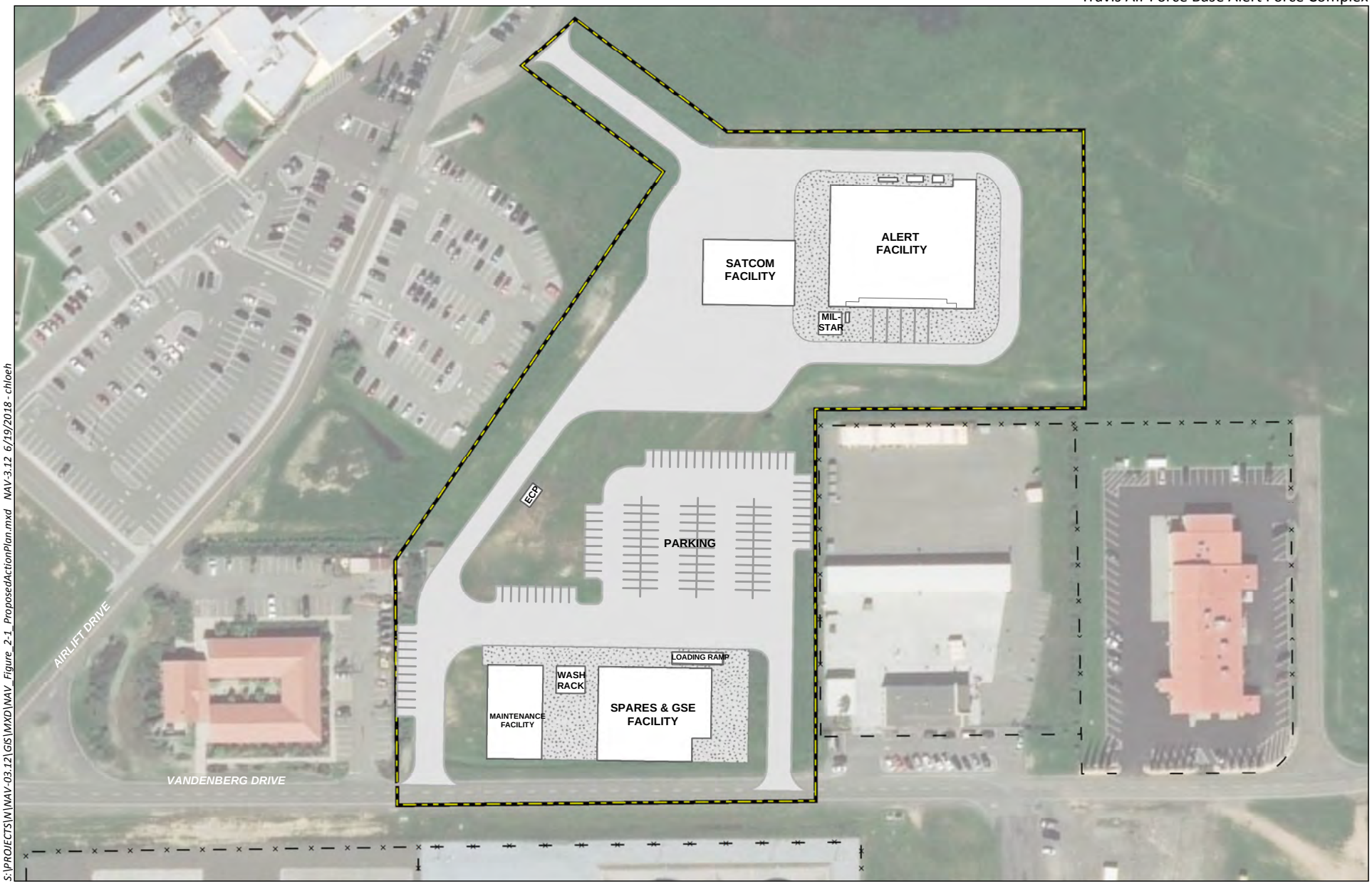
Under Alternative 1 – Complete Alert Force Complex Relocation (Alternative 1), the following existing facilities near the southern boundary of Travis AFB would be demolished: Buildings 1162, 1165, 1167, 1168, 1171, 1174, 1175, 1176, 1178, 1180, 1181, 1191, 1193, and 1894. Buildings 1164, 1177, and 1179 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

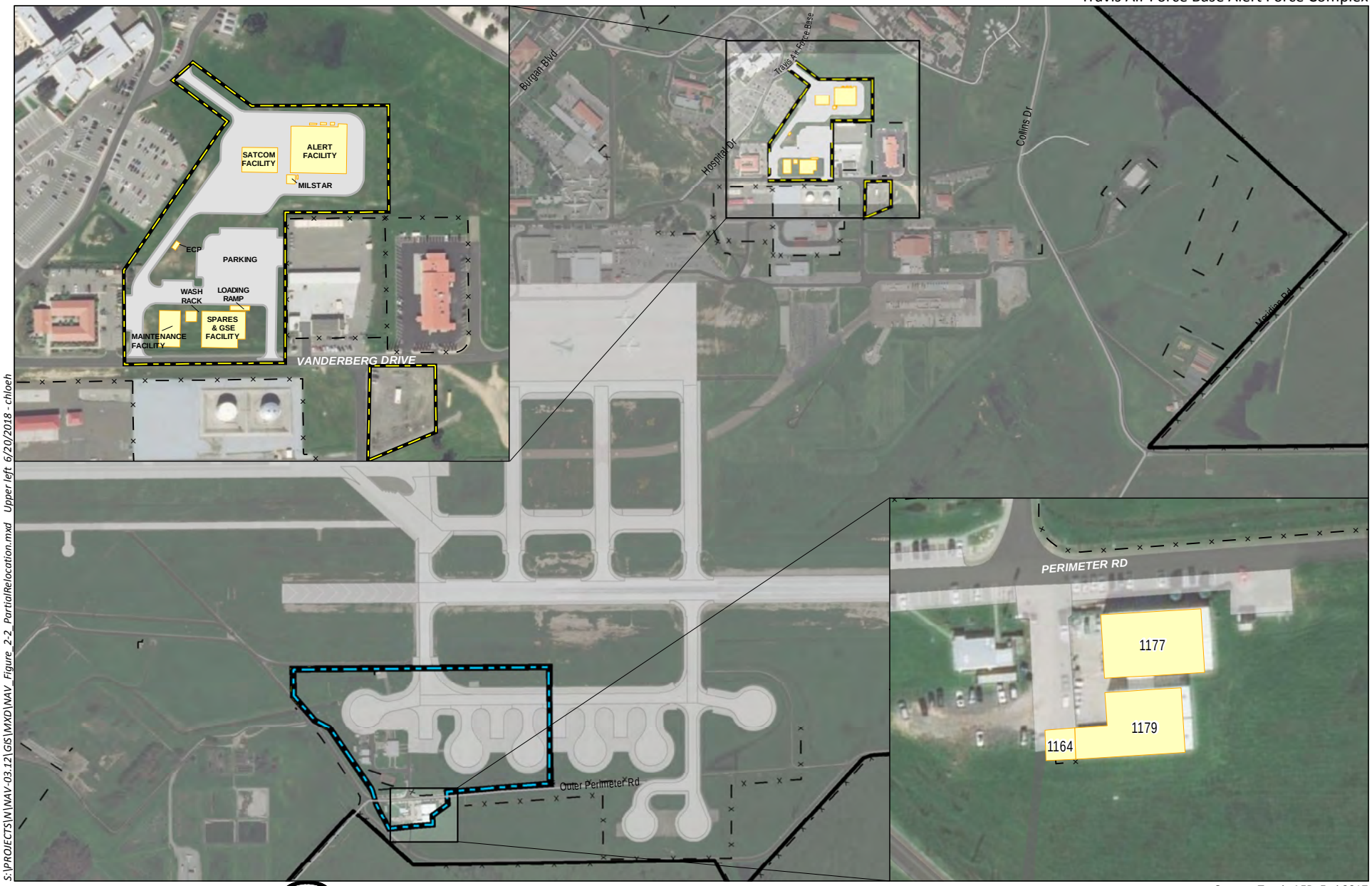
Under this alternative, the existing Complex on Travis AFB would be decommissioned, and the VQ-3 would relocate to another base on the west coast. Other bases considered did not provide adequate runways to support the three E-6B aircrafts, 24/7 operational capacity, support facilities and aircraft parking 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

Travis Air Force Base
Existing Complex Site
Airfield
Proposed Complex Site
Fence
Proposed Buildings & Facilities
Vehicle Pavement

0 1,000 Feet

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*
	○ 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. ○ Prevent rain from washing away soil. ○ Prevent soil from becoming saturated and sliding. • Vegetation ○ Preserve existing vegetation. ○ Maintain 50-foot vegetated buffer strip to all waterways. ○ Divert flow away from exposed soil. ○ Slow flow to reduce velocity and erosion. ○ Filter flow to remove sediment. ○ 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, 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). 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 (Auxilio, 2015). 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.

The proposed Complex site contains a small seasonal wetland, approximately 0.0046 acres. Four other Four other vernal pools were identified 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

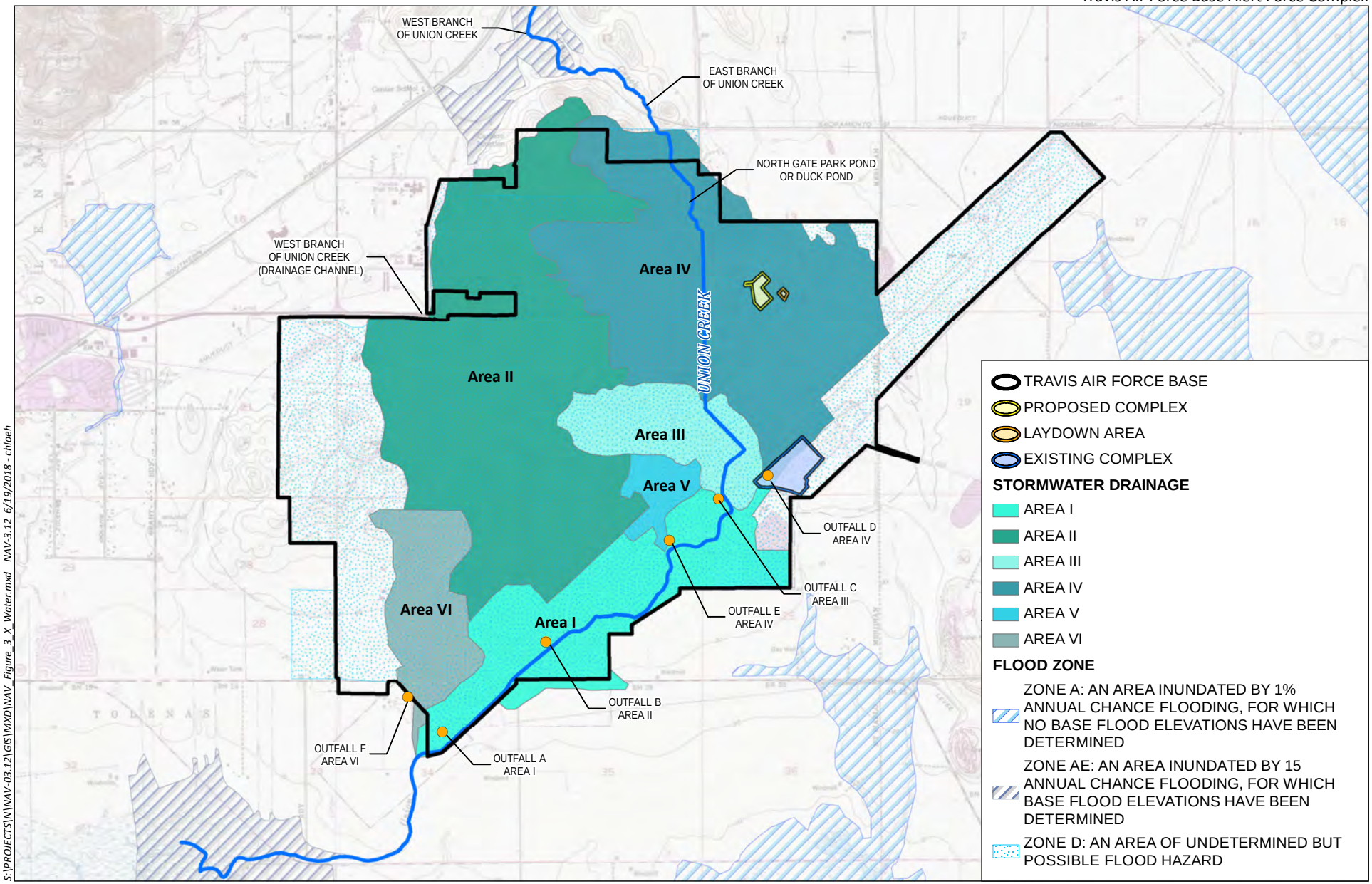
Under the No Action Alternative, no ground disturbing activities would occur, and there would be no change to baseline water resources. Therefore, no impacts to water resources would occur with implementation of the No Action Alternative.

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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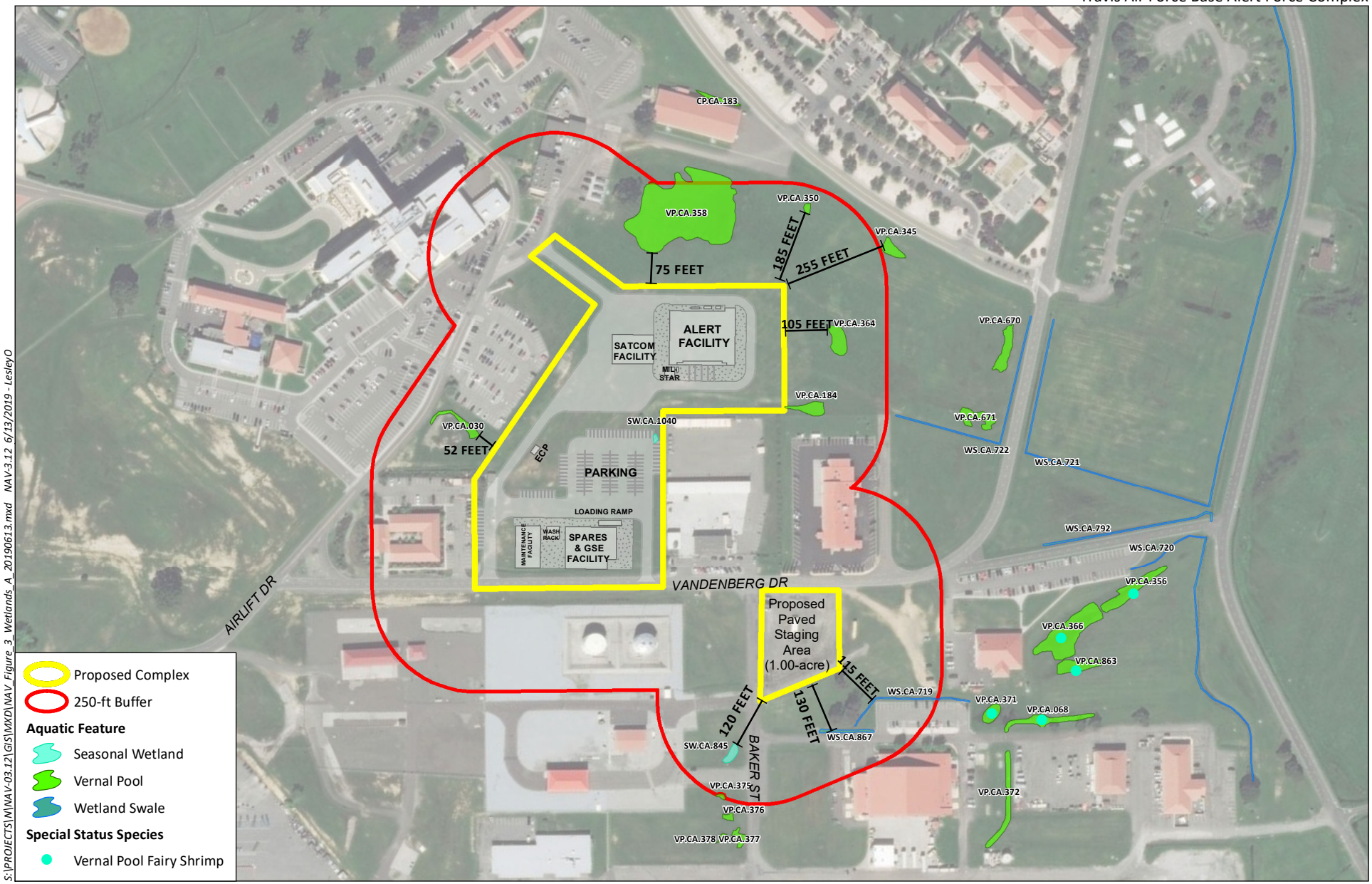

S:\PROJECTS\N\WAV-03.12\GIS\MXD\WAV_Figure_3_Wetlands_A_20190613.mxd NAV-3.12 6/13/2019 - LesleyO

Source: Travis AFB, Esri 2017

0 250 Feet

Aquatic Features within 250 ft of the Proposed Complex

Figure 3-2

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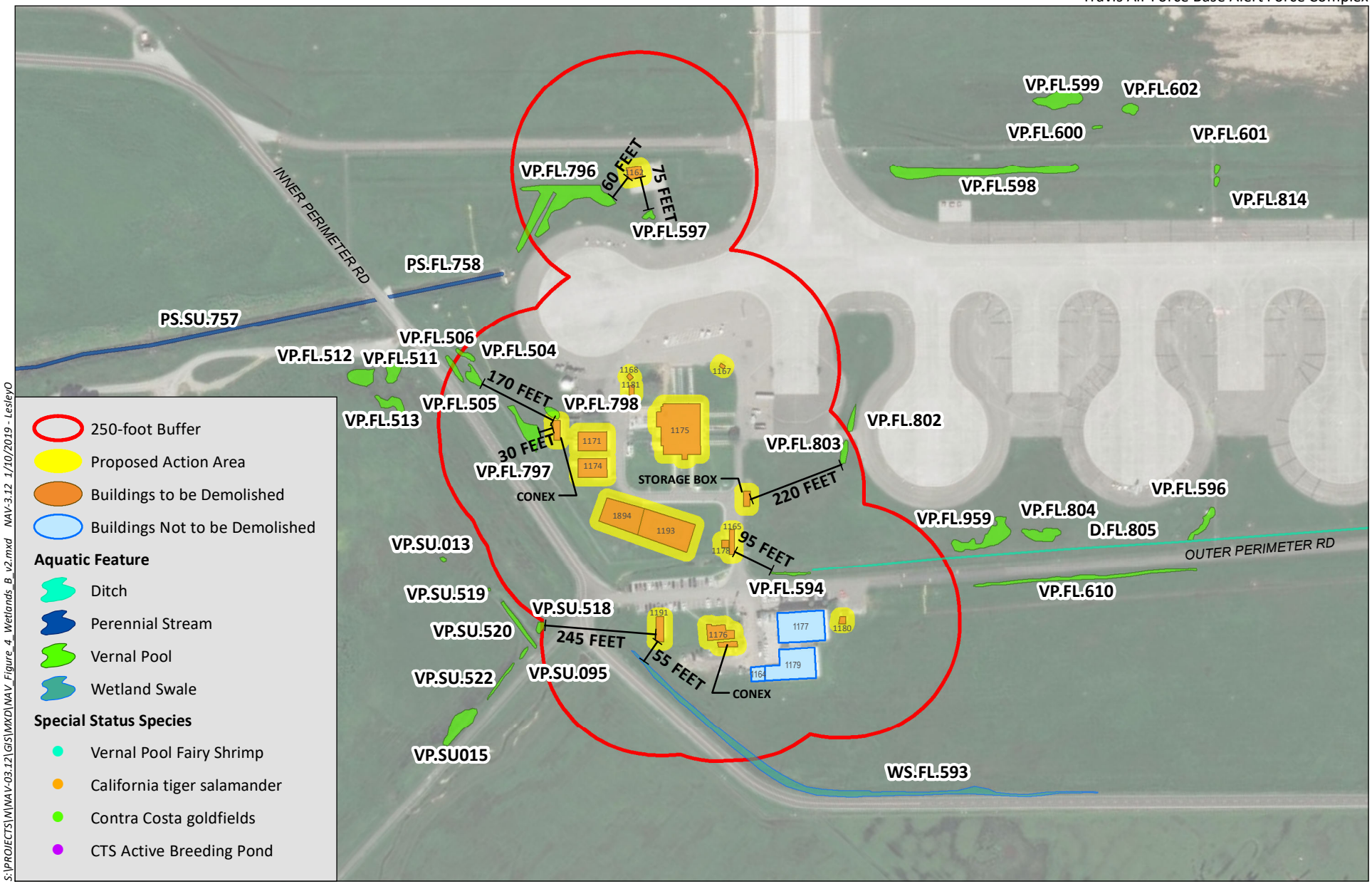

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Source: Travis AFB, Esri 2017

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, a seasonal wetland, and a ditch within 250 feet of the facilities slated to be demolished. A vernal pool is adjacent to a structure planned for demolition (VP.FL.798 in Figure 3-3), and demolition of the existing facility has the potential to indirectly impact 0.01 acre of vernal pools.

The proposed Complex site has a small jurisdictional seasonal wetland 0.0046 acre. The seasonal wetland would be graded, filled and paved over, with additional contouring to allow for proper drainage. Construction of the proposed Complex would fill 0.0046 acre of seasonal wetland.

Compensatory mitigation for direct and indirect impacts to a total of 1.0146 acres 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 Fransisco 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.

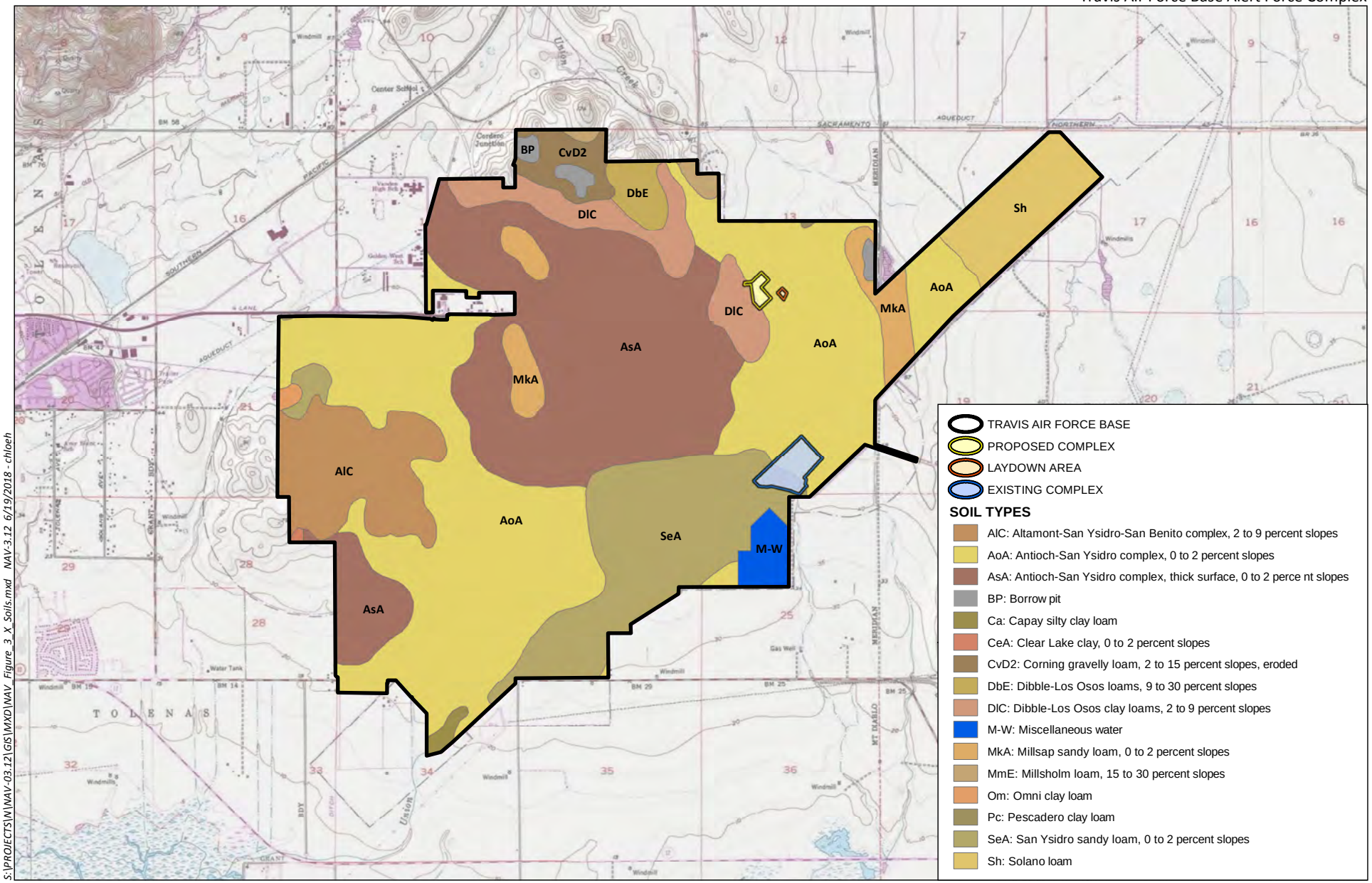
3.3.3.1 No Action Alternative

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 other 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 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 National Register of Historic Places (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 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)

HELIX Environmental Planning

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 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 (See Appendix B for Tribal Government-to-Government Documentation). 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.

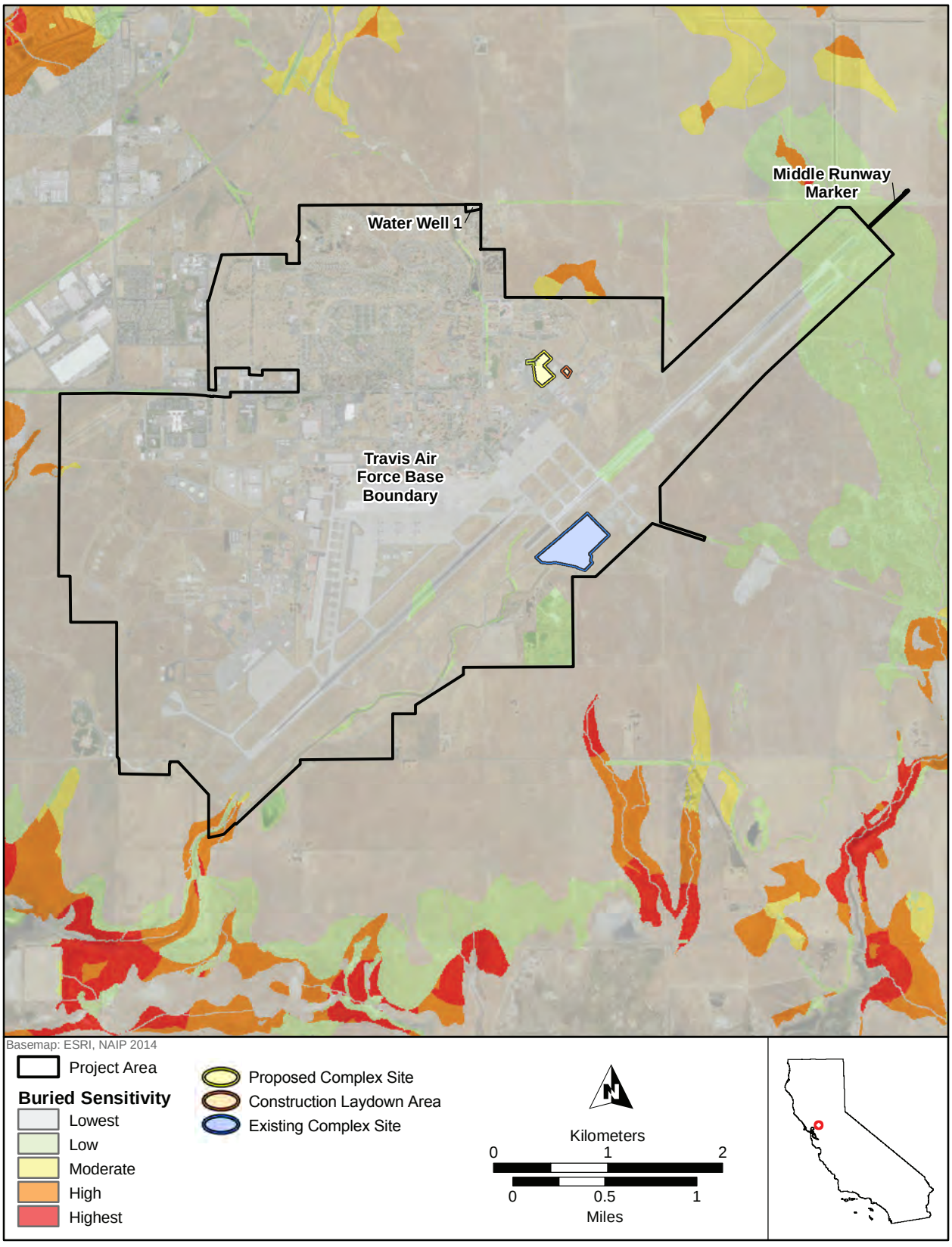

Figure 7. Potential for Buried Sites within the Main Part of Travis Air Force Base.

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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 Biological Assessment (BA) (Navy 2019), BA Technical Memorandum, and the USFWS Biological Opinion (BO) for the proposed action which references the Travis AFB Integrated Natural which references the Integrated Natural Resources Management Plan (Travis AFB, 2016c) and the Programmatic Biological Assessment 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 undeveloped 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 includes five vernal pools that are adjacent to the action area for the proposed Complex and woud be directly affected by ground disturbance in the action area: VP.CA.184, VP.CA.350, VP.CA.358, VP.CA.364, and VP.CA.030 (Figure 3-2 in Section 3.2, Water Resources). There are 10 other mapped vernal pools adjacent to the existing Complex site (USACE, 2016) that would not be affected by demolition activities: VP.FL.796, VP.FL.597, VP.FL.797, VP.FL.798, VP.FL.594, VP.FL.802, VP.FL.803, VP.FL.598, VP.FL.595, VP.FL.804, and VP.FL 596 (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 seasonal wetland (SW.CA.1040) that will be permanently removed (filled) (Figure 3-3 in Section 3.2, Water Resources).

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 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 Programmatic BA for six federally threatened and endangered species (Navy, 2019). Formal Section 7 consultation has been initiated with USFWS for VPFS, VPTS, and CTS.

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, the BA specifies that informal consultation would be proposed for projects within a 1-mile buffer around known locations of DGGB (Navy, 2019).

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

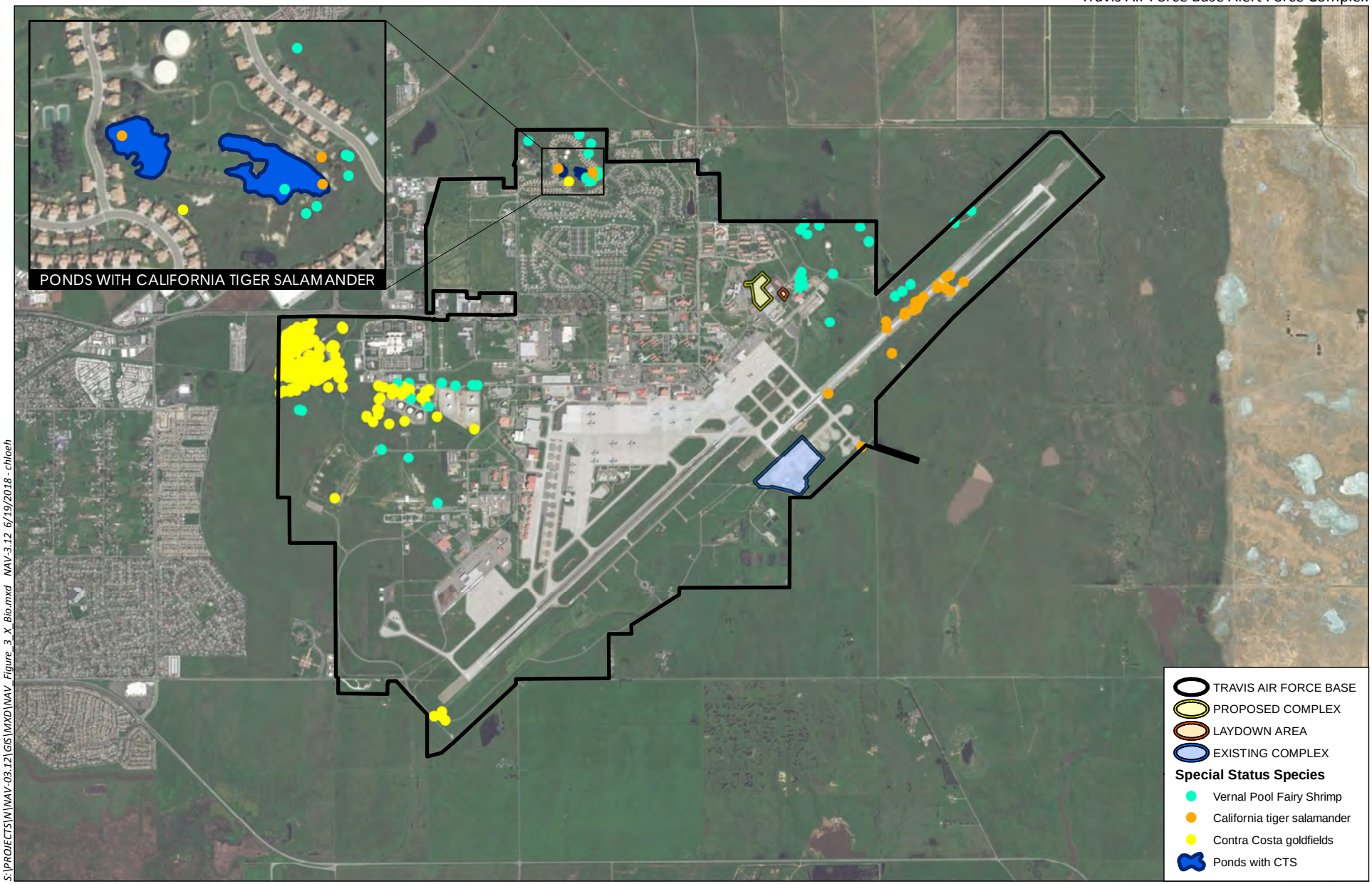
Vernal pool fairy shrimp was listed as threatened under the ESA on September 19, 1994 (59 CFR 48136). A final designation of critical habitat for VPFS was published by USFWS on August 11, 2005 (70 FR 46924), with revisions on February 10, 2006 (71 FR 7118).

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 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

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 seasonal wetland 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 seasonal wetland 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; 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).

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 geographically separated units (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 Landfill 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 8.35 acres of annual grassland, and 0.0046 acre of seasonal wetland. Additional indirect effects would occur to 1.01 acre 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. Nearby wetlands and vernal pools will be avoided and protected.

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. 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

Threatened or endangered plant species are not known to occur in the existing or proposed 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 three general locations north of the Base runways: the Aero Club Preserve, the Castle Terrace Preserve, and a single location in the southwest corner of the Base.

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 seasonal wetland 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.

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 8.35 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 indirect impacts to 1.01 acre of vernal pool habitat suitable for the threatened VPFS and the endangered VPTS. Alternative 1 is partially within a 1-mile 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 will 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-1 through MM-18, as presented in Section 4.2 of the BA (Navy 2018).

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. Formal consultation under Section 7 of the ESA has been initiated for CTS and will be completed prior to any decision with respect to whether to implement the proposed action.

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. However, with full implementation of conservation measures required by Mitigation Measure BIO-02, these incidences would be avoided.

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.

Implementation of conservation measures required by Mitigation Measure BIO-02, these incidences would be avoided.

Under Alternative 1, the Navy proposes to implement species-specific conservation measures listed in Section 4.2.4 of the BA (Navy, 2019), according to Mitigation Measure BIO-02 listed below. Compensatory mitigation for loss of upland CTS habitat would be provided according to Mitigation Measure BIO-03 listed below.

BIO-02: Conservation Measures for CTS. Alternative 1 would implement species-specific conservation measures CTS-1 through 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 8.35 acres of upland CTS habitats in the proposed Complex through preservation of upland CTS habitat at a 2:1 ratio for a total of 16.7 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 preservation of upland CTS habitat at a 0.5:1 ratio, for a total of up to 0.74-acre of upland preservation. Compensation would be provided through purchase and permanent preservation of habitat off-base, including purchase of 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 acre of vernal pool habitat (VP.CA.184, VP.CA.030, VP.CA.358, VP.CA.350 and VP.CA.364) either through topographic modification or disruption of water tables. Direct impact to vernal pool habitat SW.CA.1040 will 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. Formal consultation under Section 7 of the ESA has been completed for VPFS.

Under Alternative 1, the Navy proposes to implement species-specific conservation measures listed in Section 4.2.5 of the BA (Navy, 2019), according to Mitigation Measure BIO-04.

Alternative 1 would directly and indirectly affect 1.0146 acre of wetland habitat. Projects that directly or indirectly affect wetlands on Travis AFB are considered *may affect, and likely to adversely affect*, VPFS and VPTS. Compensatory mitigation for loss of suitable VPFS habitat would be provided according to Mitigation Measure BIO-05.

BIO-04: Conservation Measures for VPFS. Alternative 1 would implement species-specific conservation measures VP-1 through VP-8, as presented in Section 4.2.4 of the BA (Navy, 2019).

BIO-05: VPFS Habitat Compensation. Alternative 1 would compensate for indirect effects to 1.01 acre of potential VPFS habitat 1.02 at a 1:1 ratio, and for direct effects to 0.0046 acres of potential VPFS habitat at a ratio of 3:1,for a total of 1.02 acre. Compensation would be provided through

purchase of vernal pool conservation credits at a USFWS-approved conservation 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, 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. The BA proposes that informal consultation would be conducted for projects proposed within the 1-mile buffer for DGGB habitat, and that projects would implement species-specific conservation measures (Navy, 2019). 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-1 through DGGB-8, as presented in Section 4.2.6 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 15 – 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.

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 6,383 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 a native 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-075), 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 Installation Stormwater Management Plan requires that up to 60 percent of construction and demolition debris be diverted (Travis AFB, 2013b). 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 Programmatic Biological Assessment 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 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 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 acres of seasonal wetland and potential habitat for VPFS/VPTS and the permanent loss of 8.37 acres of CTS upland habitat. 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 acres of jurisdictional waters of the United States. The filling or rerouting of seasonal wetland requires the United States Army Corp of Engineers (USACE) to 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 Fransisco District, and the California RWQCB, San Francisco Bay Region, for approval to fill 0.0046 acres of jurisdictional waters of the United States. 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.

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M.A. Anthropology
B.A. Anthropology
Years of Experience: 19
Responsible for: Cultural Resources

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:_____

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 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
Organization: HELIX Environmental Planning Inc.
Email: VictorO@helixepi.com
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 Government-to-Government Documentation

Appendix C

Biological Assessment for the Development of the P205 Alert Force Complex Project