DRAFT

ENVIRONMENTAL ASSESSMENT (EA)
FOR
RECONSTRUCTION OF RUNWAY (RW) 21R/03L
AT
TRAVIS AIR FORCE BASE, CALIFORNIA

PREPARED FOR:

Department of the Air Force

June 2021

Letters or other written comments provided may be published in the Final EA. As required by law, substantive comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the text of specific comments will be disclosed. Names, personal home addresses, and phone numbers will not be published in the Final EA.

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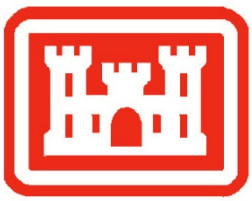

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFI	Air Force Instruction
AICUZ	Air Installation Compatible Use Zone
AMW	Air Mobility Wing
APE	Area of Potential Effect
APZ	Accident Potential Zone
ARB	California Air Resources Board
AST	Aboveground Storage Tank
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
CAAQS	California Ambient Air Quality Standards
CEQ	Council on Environmental Quality
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CTS	California Tiger Salamander
CWA	Clean Water Act
CY	Cubic Yard
dBA	Weighted Decibels
DNL	Day-Night Average Sound Level
DOD	Department of Defense
EA	Environmental Assessment
ECOS	Environmental Conservation Online System
EIAP	Environmental Impact Assessment Process
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FOD	Foreign Object Damage
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
GHGs	Greenhouse Gases
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NAS	National Airspace System
NHPA	National Historic Preservation Act

NEI	National Emission Inventory
NEPA	National Environmental Policy Act
NEWIOU	North/East/West Industrial Operable Unit
NOA	Notice of Availability
NPL	National Priorities List
NRHP	National Register of Historic Places
O_3	Ozone
OU	Operable Unit
PAPI	Precision Approach Path Indicator
PBO	Programmatic Biological Opinion
PCC	Portland Concrete Cement
PCI	Pavement Condition Index
PG&E	Pacific Gas and Electric Company
PPE	Personal Protective Equipment
PM2.5	Particulate Matter less than 2.5 micrometers in aerodynamic diameter
PM10	Particulate Matter less than 10 micrometers in aerodynamic diameter
POTW	Publicly Owned Treatment Works
RCRA	Resource Conservation and Recovery Act
REILs	Runway End Identifier Lights
RSA	Runway Safety Area
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SY	Square Yards
TCE	trichloroethylene
UFC	United Facilities Criteria
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile organic compounds
VRP	Visibility Reducing Particles
WABOU	West/Annexes/Basewide Operable Unit
WDR	Waste Discharge Requirements

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 PURPOSE OF THE ACTION

The 60th Air Mobility Wing (60 AMW) at Travis Air Force Base (AFB), California, and the Air Mobility Command are proposing to reconstruct Runway 21R/03L to include all facilities inside the hold lines, including pavements, pavement markings, storm drainage, and airfield lights and signs. The purpose of the proposed reconstruction of Runway 21R/03L at Travis AFB is to correct significant deficiencies in the integrity of the runway's surface, meet current runway standards, and to facilitate the safe operation of mission-required modern aircraft within the land-use constraints in and around the installation.

1.2 NEED FOR THE ACTION

The need for the proposed reconstruction of Runway 21R/03L is driven by Travis AFB's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week and in all weather conditions using modern aircraft. Runway 21R/03L supports multiple military and civilian large frame aircraft including, but not limited to, the C-5, C-17, KC-10, 46, 747, etc. This is the base's only precision instrument approach runway and is critical in meeting Department of Defense (DOD) readiness requirements.

A pacement condition index (PCI) score greater than 70 is required to ensure continued acceptable ratings (PCI scale is from 0 to 100). A recent evaluation of the runway's pavement surface revealed unsatisfactory conditions, resulting in PCI scores under 70, defined as fair to poor condition, in many sections of the runway.. Currently, the runway operates under operational waivers which permit Travis AFB's mission to continue despite the runway's degraded condition, albeit under restrictions on allowable aircraft loads that aim to slow the rate of deterioration. The runway is frequently closed for spot repairs, further interrupting the mission. Eventually, ongoing deterioration of the pavement will render Runway 21R/03L unfit for continued use in the near future.

The deterioration of the runway structure is attributable to chemical changes within the concrete aggregate, called alkali-silica reaction, which causes the concrete to expand when exposed to moisture. Repeated cycles of expansion and contraction lead to cracking, disintegration, and the formation of pits, cracks, and craters. These runway conditions can damage and stress aircraft landing gear and tires and severely diminish the overall weight-bearing capacity of the runway. Additionally, concrete fragments may cause Foreign Object Debris (FOD) damage to aircraft engines and external equipment. These runway conditions risk damage to equipment, interfere with flight operations, and pose a hazard to human safety. Pumping, which occurs when water from below the runway is drawn up through the cracks in the runway on to the surface of the runway, has been observed. Pumping indicates that not only are the cracks full depth, but the underlying subsurface drainage system has been compromised. Since cracks in the pavement extend from the surface of the pavement down to the underlying subsoil, fuels, oils, and solvents could penetrate through to the underlying soil, causing environmental contamination. The deteriorating condition of the runway pavement affects current operations and threatens long-term mission readiness. If this

deterioration is allowed to continue, Travis AFB would eventually be unable to support current and expected future airfield operations levels.

Runway 21R/03L does not meet current standards for runway design as promulgated in Airfield And Heliport Planning And Design (Unified Facilities Criteria (UFC) 3-260-01 et seq; DOD, 2020). Excess pavement connections and misaligned taxiways disrupt runway traffic and pose safety risks. Inadequate drainage systems currently allow ponding on the runway impacting safe operations. The proposed action seeks to correct these deficiencies.

The following reconstruction measures are required for Runway 21R/03L to comply with the UFC and enable safe, sustainable operations:

- Repair and reconstruct full length of runway
- Reduce runway from 300 feet to 150 feet wide with 25-foot shoulders
- Extend the length of 21R overrun to 1000 feet in length
- Repair taxiways out to hold lines
- Reconfigure taxiway connections to the runway
- Eliminate excess pavements and taxiways
- Eliminate unnecessary connections to runway pavement

Modern aircraft have different takeoff and landing distance requirements than the historic aircraft for which RW 21R/03L was originally designed. Higher maximum-load gross weight, and faster takeoff and landing speeds of mission-required aircraft require a longer distance to land safely during normal conditions. The paved overrun is stipulated by the UFC for Class B Runways to be 1,000 ft long and 150-ft wide. The size of the Runway Safety Area (RSA), or overrun, is similarly dependent on the type and size of the aircraft using the runway (NAS, 2008). In adverse conditions, due to a lower friction coefficient, stopping distances in rain and ice are considerably longer (FAA, 2014). In addition, adverse weather conditions often increase the probability of an “undershoot”, which is when a plane touches down before reaching the runway (NAS, 2008). Extension of RW 21R/03L is required to reduce risks to personnel safety and reduce the risk of damage to aircraft during takeoff and landing operations at maximum gross weights, in adverse conditions, to meet full mission requirements.

1.3 BACKGROUND INFORMATION

This Environmental Assessment (EA) has been prepared to evaluate the potential environmental, cultural, and socioeconomic impacts of the proposed repairs or reconstruction to Runway 21R/03L. The EA also evaluates repairs or reconstruction to appurtenant structures such as lighting, taxiways, and overruns on Travis AFB. The EA was prepared in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [USC] §4331 et seq.), the regulations of the President’s Council on Environmental Quality (CEQ) that implement NEPA procedures (40 Code of Federal Regulations [CFR] §§1500-1508), the Air Force Environmental Impact Assessment Process (EIAP) regulations at 32 CFR §989, and Air Force Instruction (AFI) 32-7061 (Secretary of the Air Force, 2003).

Purpose and Need For Action

The information presented in this document will serve as the basis for deciding whether the proposed action would result in a significant impact to the human environment, requiring the preparation of an environmental impact statement (EIS), or whether no significant impacts would occur, in which case a finding of no significant impact (FONSI) would be appropriate. If the execution of any of the proposed action would involve "construction" in a wetland as defined in Executive Order (EO) 11990, *Protection of Wetlands*, or "action" in a floodplain under EO 11988, *Floodplain Management* as amended by EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, a Finding of No Practicable Alternative (FONPA) would be prepared in conjunction with the FONSI.

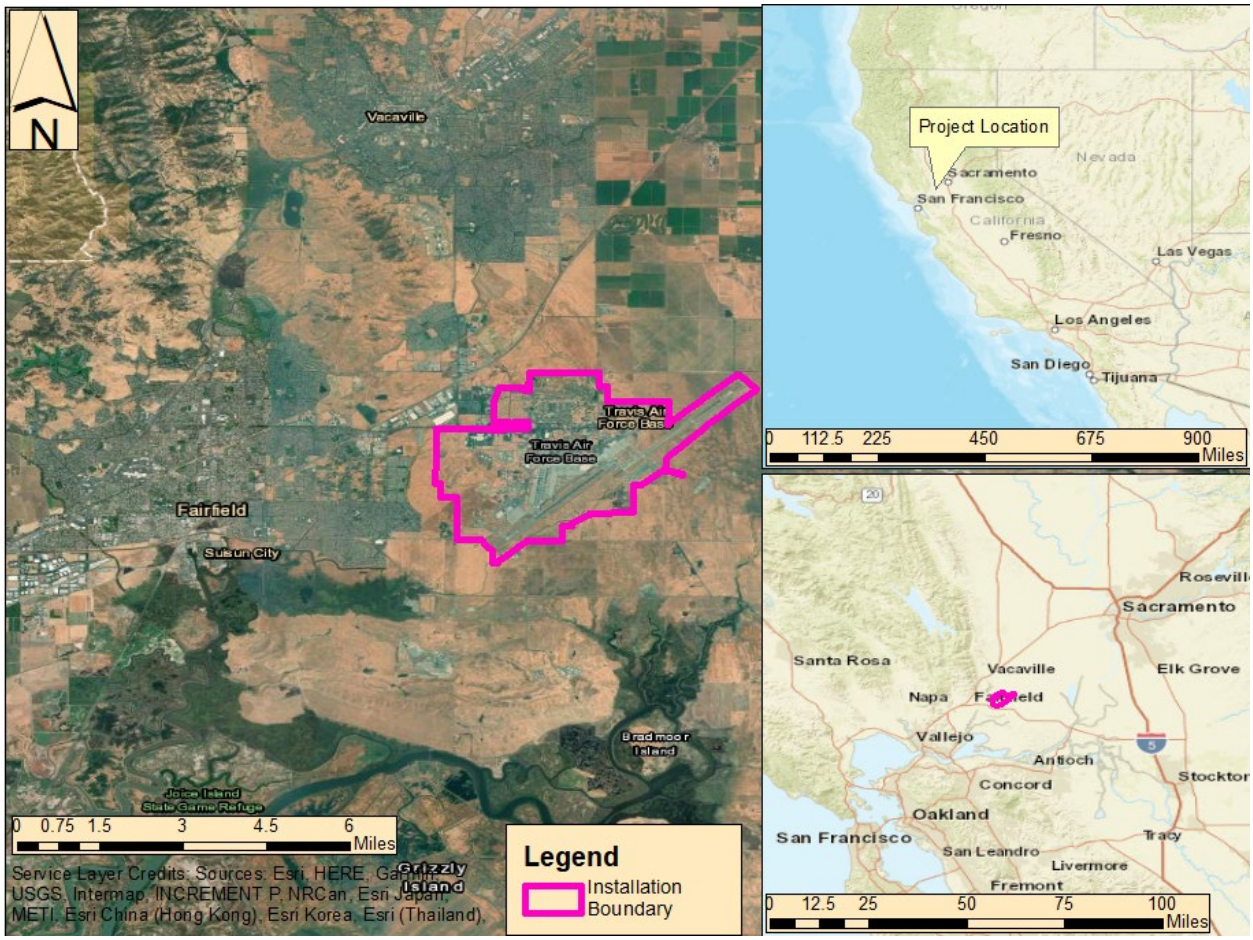

Figure 1-1: Travis AFB in context of the surrounding landscape

Travis AFB is located in Solano County, California, approximately 50 miles northeast of San Francisco, and occupies 6,383 acres of land (Figure 1-1). It was established in 1942 and has hosted a variety of missions and aircraft types throughout its history. The mission of Travis AFB is to provide rapid, responsive, reliable airlift of forces to any point on Earth in support of national objectives and to fulfill the global logistics needs of the DOD in sustaining its worldwide activities. Travis AFB is home to the 60th AMW. The 60th AMW is the largest air mobility organization in terms of personnel in the United States Air Force (USAF), with a fleet of C-5M

Purpose and Need For Action

Super Galaxy and C-17 Globemaster III cargo aircraft, KC-10 Extender refueling aircraft, and KC-46 military aerial refueling and strategic transport aircraft. Travis AFB supports about 42,000 aircraft operations annually, of which 41 percent occur at night between 10:00 p.m. and 7:00 a.m. The airfield is served by two runways: Runway 21R/03L, and Runway 03R/21L which run northeast-southwest (Figure 1-2). On these two runways, Travis AFB handles more cargo and passenger traffic through its aerial port than any other military air terminal in the US and is the West Coast terminal for aeromedical evacuation aircraft returning sick or injured patients from the Pacific area.

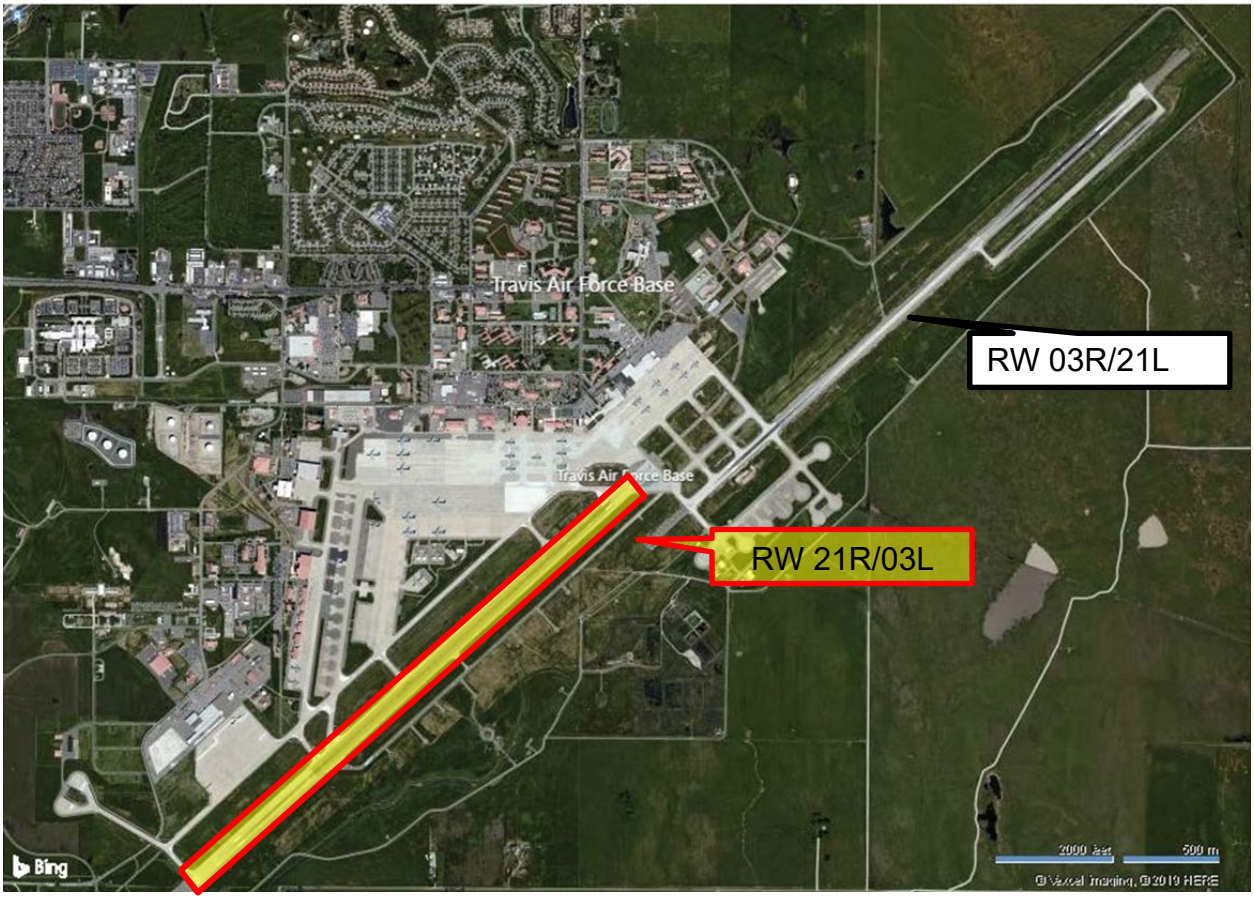

Figure 1-2: RW 021R/03L location on Travis AFB

Travis AFB is situated primarily in agricultural land between the rapidly growing suburban towns of Fairfield and Vacaville. Travis AFB is approximately five miles northeast of Fairfield, and ten miles southeast of Vacaville, California. The agricultural parcels to the east of the installation are rapidly being converted into subdivisions. To the south is the Montezuma-Suisun slough and wildlife areas. While the installation is not yet constrained with respect to growth boundaries, current trends in real estate prices with respect to the new housing development may restrict expansion of the installation in the near future.

Other restricted land use areas surrounding the installation include wetlands and federally-designated critical habitat under the Endangered Species Act (ESA). A

preliminary jurisdictional determination for wetlands in and around the installation completed in 2016 found numerous wetlands and other Waters of the US throughout the installation, including in the vicinity of Runway 21R/03L. This NEPA evaluation of the proposed action considers impacts to wetlands for all phases of construction. Critical habitat with potential to support ESA threatened or endangered species has been designated both on and around the installation. This proximity to designated critical habitat has prompted previous survey efforts which have identified additional suitable habitat for these species throughout the installation.

Due to the unique geology and hydrography of the area, there are an abundance of vernal pools in the vicinity of the installation. These vernal pools serve as high quality habitat for the federally-threatened California tiger salamander (CTS; *Ambystoma californiense*) and other associated vernal pool species. The installation operates within the terms of a U.S. Fish and Wildlife Service (USFWS) programmatic biological opinion (PBO) (Travis AFB, 2017b) which considers impacts to CTS; however, a project-specific formal consultation will have to be completed to address impacts to CTS and any other federally- or state-protected species present.

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, requires that the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) include a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants or contaminants throughout the United States. The National Priorities List (NPL) constitutes this list. The NPL contains the most serious of uncontrolled or abandoned hazardous waste, known releases, or threatened releases of hazardous substances, pollutants, or contaminants sites throughout the US and its territories. Travis AFB has been listed on the NPL since 1989 for soil contamination of various substances associated with military air support operations.

Nearly the entire installation and some areas off the installation are listed on the NPL. Any ground disturbing work will need to consider impacts from contaminated substances, such as liberated soil, on the surrounding environment and any personnel in the area. Further, the installation has a number of hazardous material management and disposal plans which govern the handling, storage, and disposal processes.

1.4 INTERAGENCY/INTERGOVERNMENTAL COORDINATION AND CONSULTATIONS

1.4.1 Interagency Coordination and Consultations

Scoping is an early and open process for developing the breadth of issues to be addressed in the EA and for identifying significant concerns related to a proposed action. Per the requirements of the Intergovernmental Cooperation Act of 1968 (42 USC. 4231(a)) and EO 12372, federal, state, and local agencies with jurisdictions that could be affected by the proposed action were notified during the development of this EA.

Appendix A contains the list of agencies consulted during this analysis and copies of correspondence.

1.4.2 Government to Government Consultations

E.O. 13175, Consultation and Coordination with Indian Tribal Governments directs Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally-administered lands. Consistent with that executive order, DOD Instruction 4710.02, Interactions with Federally-Recognized Tribes, and AFI 90-2002, Air Force Interaction with Federally-recognized Tribes, federally-recognized tribes that are historically affiliated with the Travis AFB geographic region will be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The government-to-government tribal consultation process is distinct from the NEPA process or the interagency coordination process, and it requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of other consultations. The Travis AFB point-of-contact for Native American tribes is the Installation Commander.

The Cortina Indian Rancheria of Wintun Indians of California and the Yocha Dehe Wintun Nation will be coordinated or consulted with regarding these actions. A copy of all correspondence provided will be listed in Appendix A.

1.4.3 Other Agency Consultations

Per the requirements of Section 106 of the National Historic Preservation Act (NHPA) and implementing regulations (36 CFR §800), Section 7 of the ESA and implementing regulations, the Migratory Bird Treaty Act (MBTA), Coastal Zone Management Act, and Clean Water Act (CWA), a findings of effect and request for concurrence were transmitted to the California State Historic Preservation Officer (SHPO), USFWS, the U.S. Army Corps of Engineers (USACE), and the San Francisco Regional Water Quality Control Board.

Correspondence regarding the findings, concurrence, and/or resolution of possible adverse effects is included in Appendix A Other Agency Consultations.

Travis AFB is in regular contact with the FAA for this and other actions and will utilize existing channels to continue coordination with the FAA if the project proceeds.

1.5 PUBLIC AND AGENCY REVIEW OF EA

Because the Proposed Action area coincides with wetlands and/or floodplains, it is subject to the requirements and objectives of EO 11990, Protection of Wetlands and EO 11988, Floodplain Management. The Air Force published early notice that the proposed action would occur in a floodplain/wetland in the newspapers of record (listed below) on 12 March 2021. The notice identified the state and federal regulatory agencies with special expertise that had been contacted and solicited public comment on the proposed action and any practicable alternatives. The comment period for public and agency input for actions in the floodplain and wetlands began on 12 March 2021 and

ended on 12 April 2021. No comments were received. Appendix B contains proof of publication.

A Notice of Availability (NOA) of the Draft EA and FONSI/FONPA was published in the newspapers of record (listed below), announcing the availability of the EA for review on DAY MONTH YEAR. The NOA invited the public to review and comment on the Draft EA. The public and agency review period begins on DAY MONTH YEAR and ends on DAY MONTH YEAR. The NOA and public and agency comments will be provided in Appendix B.

The NOA and early notice of project execution in a floodplain/wetland was published in the following newspapers:

Vacaville Reporter 401 Davis Street, Suite F Vacaville, California 95688	**Daily Republic** 1250 West Texas Street Fairfield, California 94533
Tailwind Travis Air Force Base, California 94535	

The EA and draft FONSI will be available online and hard copies will be sent to the following local libraries:

Fairfield Civic Center Library 1150 Kentucky Street Fairfield, California 94533	**Suisun City Library** 601 Pintail Drive Suisun City, California 94585
Vacaville Public Library 1020 Ulatis Drive Vacaville, California 95688	**Mitchell Memorial Library** 510 Travis Boulevard Travis AFB, California 94535
Online: http://www.travis.af.mil/About-Us/Environment/	

1.6 DECISION TO BE MADE

The EA evaluates whether the proposed action would result in significant impacts on the human environment. If significant impacts are identified, Travis AFB would either undertake mitigation to reduce impacts to below the level of significance; undertake the preparation of an EIS addressing the proposed action; or abandon the proposed action.

This EA is a planning and decision-making tool to guide Travis AFB in implementing the proposed action in a manner consistent with Air Force standards for environmental stewardship. Multiple alternatives will be proposed in Section 2 of this EA. Some alternatives will be eliminated from further consideration because they cleary do not meet many of the selection standards. The others will be evaluated and their environmental and socioecomonic impacts will be defined. The impacts of each alternative will be compared with the others. Ideally, the alternative with the least impact would be chosen as the preferred alternative. However, the Air Force is not required to

choose the alternative with the least impacts. If the alterntive is not reasonable to implement or does not meet the selection standards fully then it would not be a suitable alterntive. Inshort, the lead agency must consider alternatives and provide reasoning for why thenon-preferred alternatives were not suitable. If an alternative has less impacts and meets the selection stanards and the purpose and need then that alternative should be the preferred alternative.

If the impacts of a preferred alternative are significant then the NEPA/EIAP documentation would need to be elevated to an Environmental Impact State (EIS). If the impacts are not significant and can be mitigated then a Finding of No Significant Impact statement is generated with the EA to explain that conclusion.

The decision to be made is the selection of an alternative for __[whom – base/MAJCOM/etc]_____ to support Reconstruction of Runway 21R/03L The decision options are:

1) To continue with current operations (the No Action Alternative);

2) Selecting an alternative and preparing a FONSI; or

3) Preparing an Environmental Impact Statement if the alternatives would result in significant environmental impacts.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

Alternative solutions, hereafter alternatives, that may fulfill the purpose of and need for the action are identified and described in Section 2.3. These alternatives were considered against selection standards which compare the advantages and disadvantages of each alternative in Section 2.2. Those alternatives which were considered but eliminated from further analysis because they were not found to meet the purpose and need of the project or were otherwise inconsistent with the selection standards are described in Section 2.4. The alternatives carried forward for full analysis, and the no action alternative are fully described in Section 2.5.

2.2 SELECTION STANDARDS

NEPA and the CEQ regulations mandate the consideration of reasonable alternatives for the proposed action. “Reasonable alternatives” are those that also could be utilized to meet the purpose of and need for the proposed action. Per the requirements of 32 CFR §989, the Air Force Environmental Impact Analysis Process (EIAP) regulations, selection standards are used to identify alternatives for meeting the purpose of and need for the proposed action. Selection standards enable Travis AFB to critically evaluate whether all reasonable alternatives are included in the analysis. In selecting alternatives for the repair/reconstruction of Runway 21R/03L at Travis AFB, the Air Force used the following selection standards:

- **Mission Compatibility** – Alternatives must support the mission of Travis AFB. The selected alternative will minimize disruption to ongoing airfield operations and mission. It will be implementable in a timely fashion, without excessive delays, and will avoid further foreseeable mission impacts
- **Land Constraint Considerations** – Alternatives must fit within multiple land constraints as given in Section 1.3. The selected alternative will be compliant with existing permits and regulatory requirements and must consider the presence of protected wetlands along the perimeter of Runway 21R/03L.
- **Regulation and Policy Conformance** – Alternatives must be consistent with design criteria as promulgated by multiple policies and regulations.
- **Feasibility** – Alternatives must be capable of being implemented.
- **Purpose and Need** – Alternatives must meet the purpose of and need for safe operations at maximum capabilities for modern runways. The selected alternative will meet Travis AFB mission requirements and permit continued long-term operation of C-5M Super Galaxy, C-17 Globemaster III cargo aircraft, KC-10 Extender refueling aircraft, and KC-46 Pegasus, at a minimum, and be capable of sustained operation, even in adverse weather conditions.

2.3 SCREENING OF THE ALTERNATIVES

The following potential alternatives that may meet the purpose and need were considered against the screening criteria:

2.3.1 Alternative 1 (Preferred Alternative): Reconstruction of RW 21R/03L with a Temporary Batch Plant

Under this alternative, a full reconstruction of Runway 21R/03L would be carried out to include all facilities inside the hold lines, including pavements, pavement markings, storm drainage, and airfield lights and signs. The runway would be demolished down to the subgrade and reconstructed with standard paved overruns at the new length, narrowed runway width, realigned taxiways, and removal of excess paved surfaces. The contractor would build a temporary batch plant at the south end of the runway, south of the south runway safety area. Personal vehicle parking would also occur in this area. Contractor staging and office areas would be constructed on an existing paved lot south of Ragsdale Street south of the V Street intersection and west of the aircraft maintenance hangars and on an existing gravel lot at the northeast corner of the Hangar Road – Ragsdale Street intersection.

2.3.2 Alternative 2: No Action Alternative

Under this alternative, the runway would not be repaired, and the geometry would remain the same. Regularly scheduled minor maintenance would continue but no large-scale repairs would be conducted. As no action would be conducted, no batch plant or other support facilities would be constructed.

2.3.3 Alternative 3: Construction of a Runway in an Alternate Area

Under this alternative, a new runway would be constructed in an alternate area. The Air Force would either acquire new land in the vicinity of Travis AFB or repurpose existing land in the cantonment area and construct a new runway to support modern aircraft. All necessary supporting facilities and structures would be constructed including an on-site batch plant.

2.3.4 Alternative 4: Spot repair of Runways and Taxiways

Under alternative 4, Travis AFB would continue to make spot repairs of runways and taxiways. Discrete full depth cracks would be demolished to subgrade and repaired where possible. The runway and runway safety areas would maintain their current sizes. Taxiways would maintain their current geometries and placements. To prevent a FOD hazard, unused taxiways and paved surfaces would be repaired as required. Appurtenant structures would be repaired as required.

2.3.5 Alternative 5: Reconstruction of RW 21R/03L with an Offsite Batch Plant

Similar to alternatives 1, under this alternative a full reconstruction of Runway 21R/03L, realign geometries, and reconfigure sizes of paved surfaces. However, to meet the

need for materials, the contractor would utilize commercial batch plants in the area to supply concrete, including cement, and aggregate.

2.3.6 Screening of the Alternatives

The selection standards described in Section 2.2 were applied to these alternatives to determine which alternative(s) to carry forward for full analysis.

Table 2-1: Summary of the Alternatives Against the Selection Standards

Alternative Descriptions	Selection Standards				
	Mission Compatibility	Land Constraint Considerations	Regulation and Policy Conformance	Feasibility	Purpose and Need
Alternative 1- Reconstruction of RW 21R/03L with a Temporary Batch Plant (Preferred Action)	Yes	Partially (impacts wetlands)	Yes	Yes	Yes
Alternative 2- No Action Alternative	No	Yes	No	Yes	No
Alternative 3- Construction of a Runway in an Alternate Area	Yes	No	Yes	No	Yes
Alternative 4- Spot repair of Runways and Taxiways	No	Yes	No	Yes	No
Alternative 5- Reconstruction of RW 21R/03L with an Offsite Batch Plant	Yes	Partially (impacts wetlands)	Yes	No	Yes

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Based on the screening criteria described in Section 2.2, the following alternatives have been eliminated from further consideration:

2.4.1 Construction of a Runway in an Alternate Area

Construction of a runway in an alternate location either on base, or, off base via the acquisition of land was considered. However, due to the space constraints on the installation, there is insufficient room to site a new runway. Furthermore, off site, the presence of federally designated critical habitat, sensitive wetland areas, and new

housing developments preclude the acquisition of sufficient quantities of land to construct a new runway. In addition, such an endeavor would likely be financially infeasible. Based on these factors, this alternative was removed from further consideration.

2.4.2 Spot Repair of Runway and Taxiways

Spot repair of the runway and taxiways was considered. While this alternative is the least invasive and the most cost effective in the short term, it only delays the need to fully repair the runway. Since the width of the runway would remain the same, and the length of the runway safety areas would remain the same, modern aircraft could still not be safely operated at Travis AFB, which would not fulfill the purpose and need of the project. The continued existence of excess pavement would either continue to unnecessarily drive up maintenance costs for the runway, or would continue to degrade, posing a FOD hazard. In addition, since the cracks in the pavement extend all the way to the subgrade, spot repair of taxiways and runways would only last a few years before needing repair again. For these reasons, this alternative was removed from further consideration.

2.4.3 Reconstruction of Runway with an OffSite Batch Plant

Use of off-base commercial batch plants to supply pavement mix for the proposed action was considered; however off-base commercial batch plant facilities would be unlikely to meet U.S. Geological Survey (USGS) 32 13 14.13 specifications. In addition, off-base production incurs a higher cost and is unlikely to have the production capacity required to support the runway reconstruction. To meet the production need of the proposed action, a batch plant would need to have the capacity to supply and transport the volume of material typically required to keep a paver in continuous motion (approximately 250 cubic yards of pavement per hour). In addition, transport of pavement mix to the airfield from an off-base supplier could result in delayed deliveries, which could interrupt continuous operation of the paver and would result in an increase in impacts to air resources due to increased emissions from transport. Finally, commercial batch plants do not routinely provide the sampling and testing required for airfield pavements; airfield pavement mix designs include parameters, such as aggregate gradation and slump requirements, that do not correspond with general commercial concrete production. Due to these factors, use of an offsite batch plant was removed from further consideration.

2.5 DETAILED DESCRIPTION OF THE ALTERNATIVES CARRIED FORWARD

NEPA and the CEQ regulations mandate the consideration of reasonable alternatives to the proposed action. “Reasonable alternatives” are those that also could be utilized to meet the purpose of and need for the proposed action. The NEPA process is intended to support flexible, informed decision-making; the analysis provided by this EA and feedback from the public and other agencies will inform decisions made about whether, when and how to execute the proposed action. Among the alternatives evaluated is a No-Action alternative. The No-Action alternative substantively analyzes the consequences of not undertaking the proposed action, not simply conclude no impact, and serves to establish a comparative baseline for analysis.

Only one alternative, Alternative 1: Reconstruction of the Runway with a Temporary Batch Plant, was found to satisfy the purpose of and need for the action and to most completely satisfy the selection standards. This alternative and the “No-Action” Alternative, are carried forward for detailed analysis.

Based on the screening criteria, the Air Force and Travis AFB propose to reconstruct Runway 21R/03L to include all facilities inside the hold lines, including pavements, pavement markings, storm drainage, and airfield lights and signs. As described in Sub-Sections 2.5.1 through 2.5.8 below, the Proposed Action would include demolition of the existing pavement down to subgrade, repair/replacement of drainage structures, reconstruction of the runway, removal of unnecessary paved surfaces, construction of a batch plant, installation/ construction of appurtenant structures, installation of lighting, clearance of vegetation, and construction of support/staging areas necessary to facilitate the proposed action. The No-Action alternative is described in Section 2.5.9.

2.5.1 Demolition of the Existing Pavement

The Proposed Action would involve demolition of the existing pavement. Demolition of the existing runway would be achieved by sawcutting the pavement into sections. Pavement sections would be removed using an excavator with a slab crab bucket. Depending on the condition of the material when it is removed, pavement would either be crushed, using a hydraulic concrete crusher or similar machinery, and reused as pavement subbase, or properly discarded. The total amount of paved surface area estimated to be removed is 387,300 square yards (sy), or approximately 120 acres. Since this project would reduce the width of the runway, remove unnecessary taxiways, and remove other unused paved surfaces, the total amount of paved surface area to be removed permanently is approximately 41 acres. A detailed estimate of pavement that would be demolished is provided in Table 2-2 below.

Table 2-2: Estimated Demolition Totals for the Proposed Action

Action	Surface Area Anticipated	Depth	Total Volume
Demolition with repavement	309,000 sy (~64 acres)	33 inches	283,250 cubic yards (cy)
Demolition with repavement	29,800 sy (~6 acres)	30 inches	24,833 cy
Demolition without repavement	241,500 sy (~50 acres)	24 inches	161,000 cy
Total	580,300 sy (~120 acres)		469,083 cy

2.5.2 Repair and Replacement of Drainage Structures

Sub-surface drainage structures underlying the runway and surface drainage structures adjacent to the runway would be repaired or replaced under the Preferred Alternative. Surface drainage pipes would be replaced with larger sized pipes as required. The new subsurface drainage layer would follow United Facilities Guide Specification 32 11 23.23. Stabilization of the open-graded material would be accomplished with either bitumen asphalt or Portland concrete cement (PCC). To create a stable construction platform for building the overlying pavement layers, the in-place subgrade would be modified with PCC. The subsurface drainage layer would be constructed within the shoulders of the pavement along the runway. In lieu of draining to adjacent turf, the subsurface drainage layer would drain to a perforated subdrain pipe system that is directly connected to the storm sewer pipe system.

2.5.3 Reconstruction of the Runway, RSA, and Taxiways

Following demolition, the runway would be reconstructed in the same footprint, with the same orientation and bearing. The width of the runway would be reduced from a total of 300 feet in width to a total of 200 feet in width. The runway itself would be 150 feet wide, with 25-foot paved shoulders on each side. The runway length would remain 11,001 feet, however, the paved overrun would extend to 1000 feet on each end and have the same width of the runway (Figure 2-1). Extension of the RSA on the 21R end would necessitate the removal of closed Taxiways E and F (Figure 2-2).

Description of the Proposed Action and Alternatives

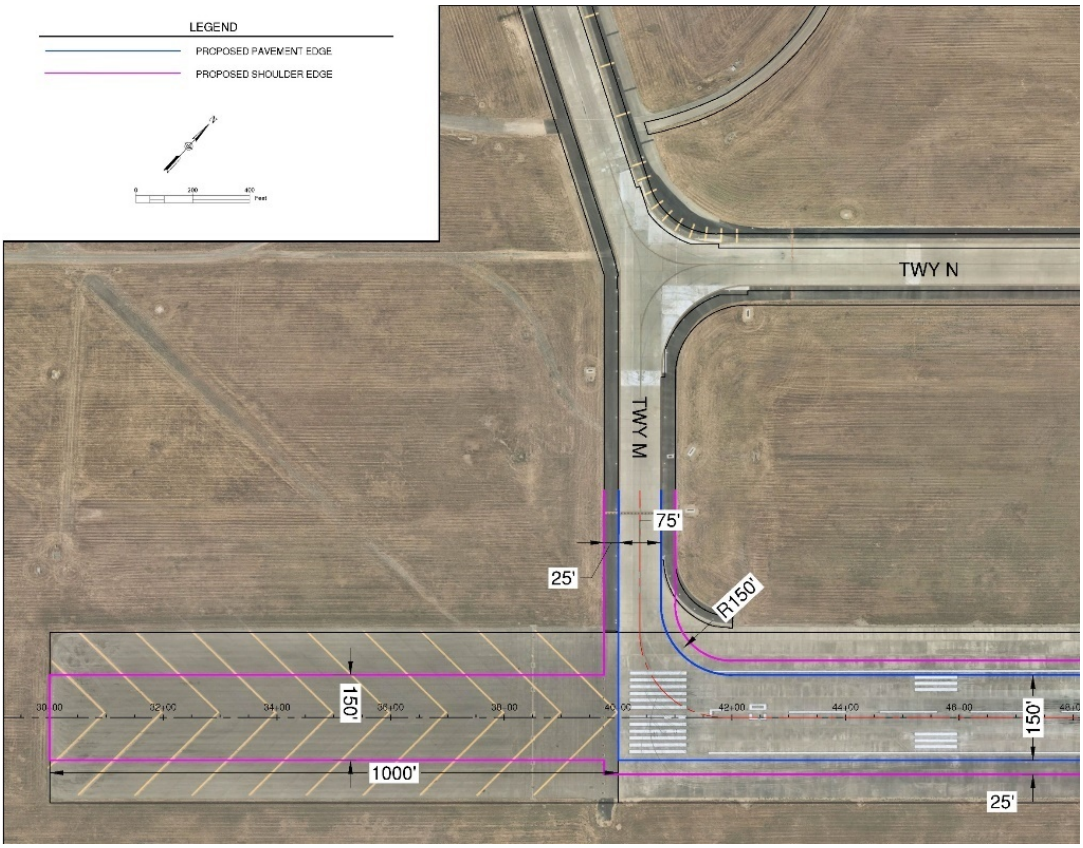

Figure 2-1: Proposed extension and reduction in width of overrun

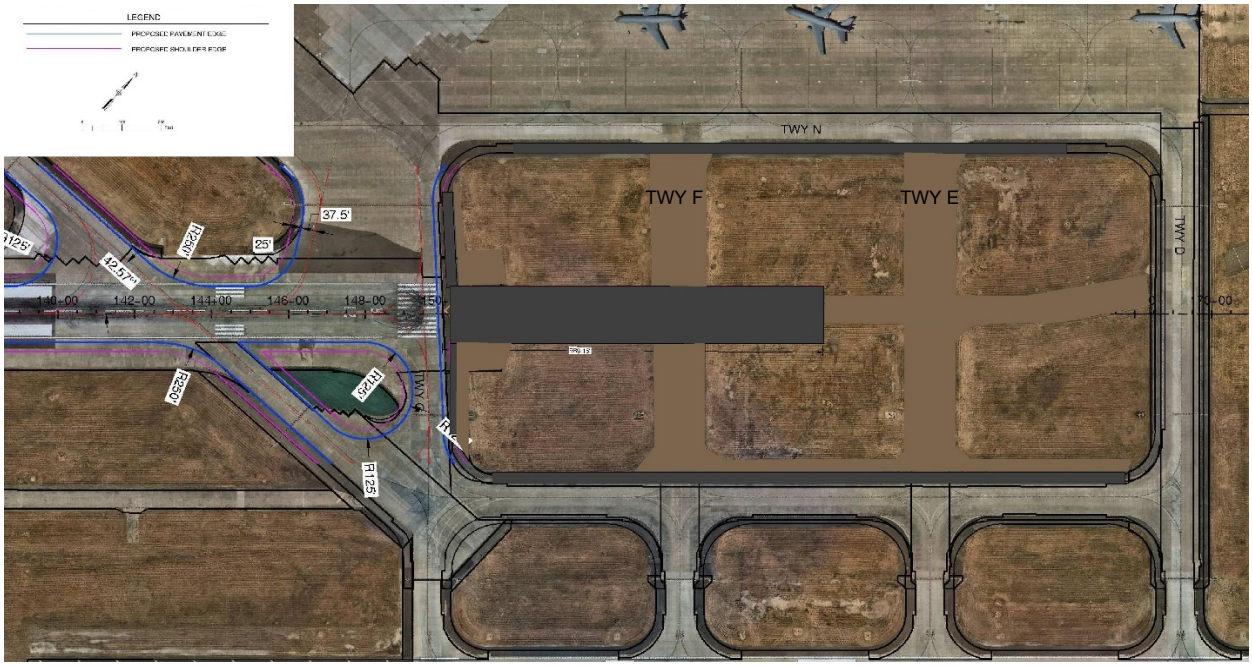

Figure 2-2: Proposed extension of overrun on the 21R end of 21R03L, showing excess taxiways removed21R/03L, Showing Excess Taxiways Removed.

Taxiways G, H, J (Figure 2-3), L, and M would be reconstructed approximately half their length to just beyond the hold lines. Reconstructed taxiways would be narrowed to 75 feet in width with 25-foot shoulders.

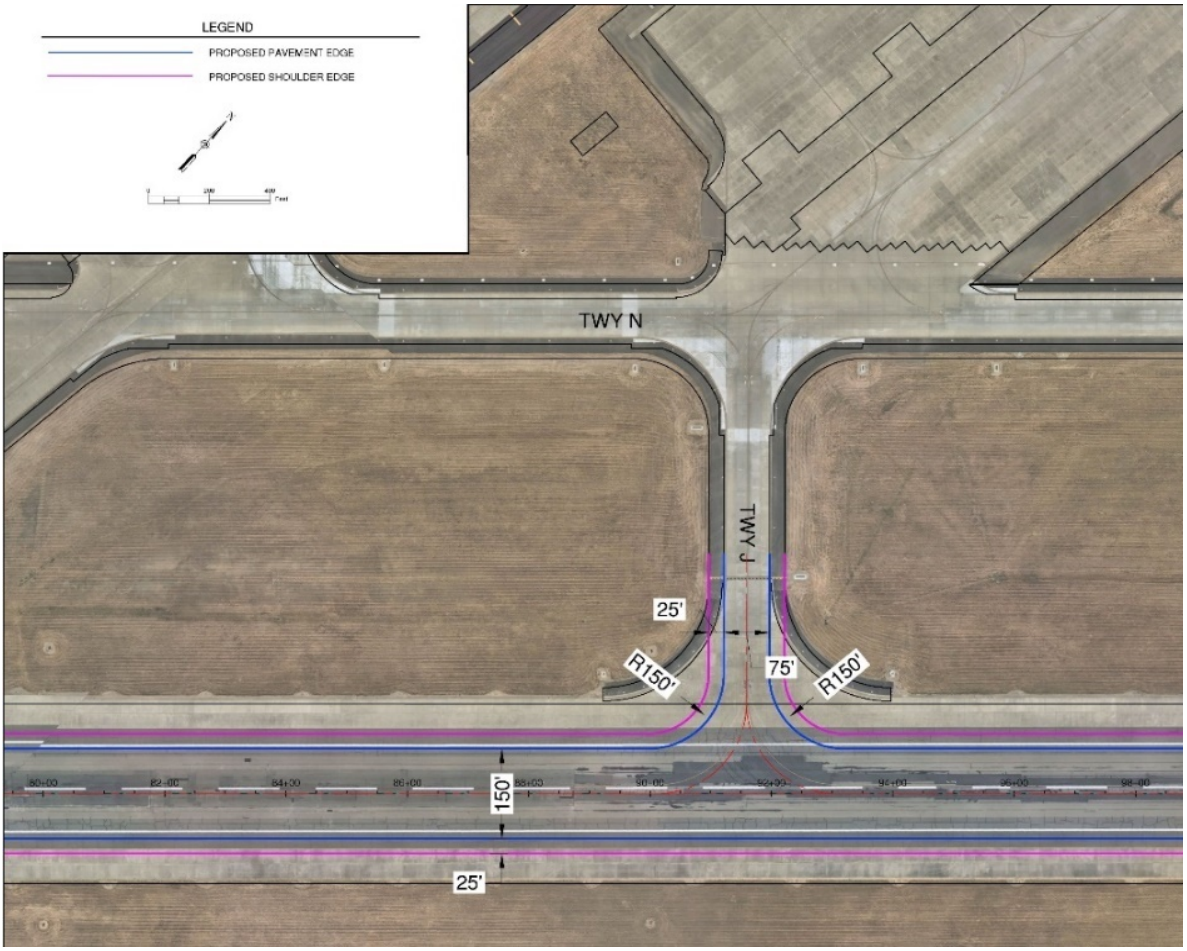

Figure 2-3: Proposed Realignment of Retained Taxiway J. Taxiways G & H to be realigned similarly. Figure showing reduction in width and minor adjustments to geometry.

Taxiway geometries would be slightly adjusted to meet current specifications. Due to the narrowing of taxiways, and the removal of unnecessary taxiways, this would not result in any new ground disturbance. Excess pavement and unnecessary taxiways would be removed (Section 2.5.4).

Commercial grade fill would be used in areas where grade does not match specification, such as in the clear zones off the ends of the runway. No on-site borrow would be utilized.

2.5.4 Permanent Removal of Unnecessary Paved Surfaces

The runway and both runway safety areas would be reduced in width from the current 300 feet wide to 150 feet wide with 25-foot shoulders (Figure 2-1) in line with current requirements. Pavement outside the new boundary would be demolished, the area re-graded and converted to turf.

Taxiways E and F have been out of service for some time. To allow for the extension of the overrun, both taxiways would be removed, with some of the area re-graded and paved for the overrun and the rest re-graded to turf (Figure 2-2). An old portion of Taxiway R runs parallel to Runway 03L-21R on the south side and has two paved connections to the runway and one to Taxiway H. Each of these paved connections would be removed and converted to turf (Figure 2-4).

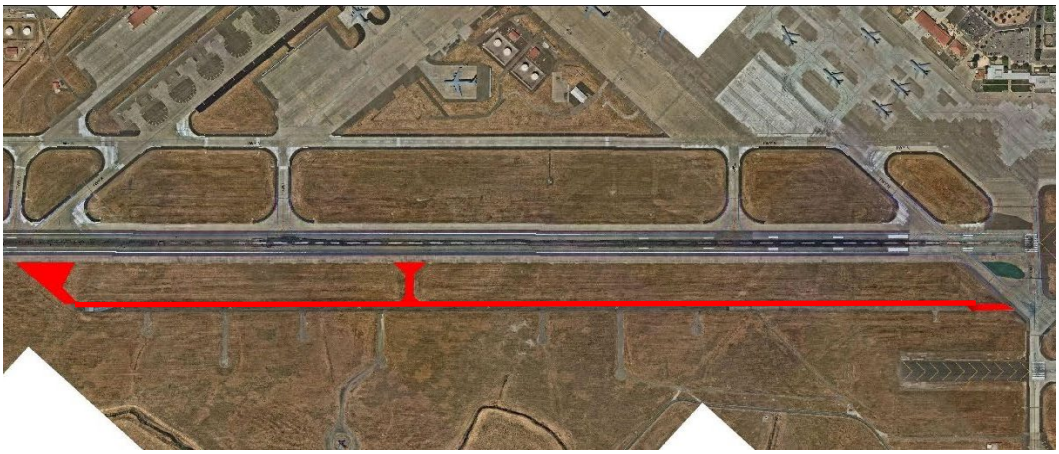

Figure 2-4: Excess pavement proposed to be removed (highlighted in red) and converted to turf

Excess pavement surrounding Taxiways H and G would be removed (Figure 2-5). Taxiway I was recently reconstructed and renamed Taxiway C. Excess pavement around Taxiway C would be removed.

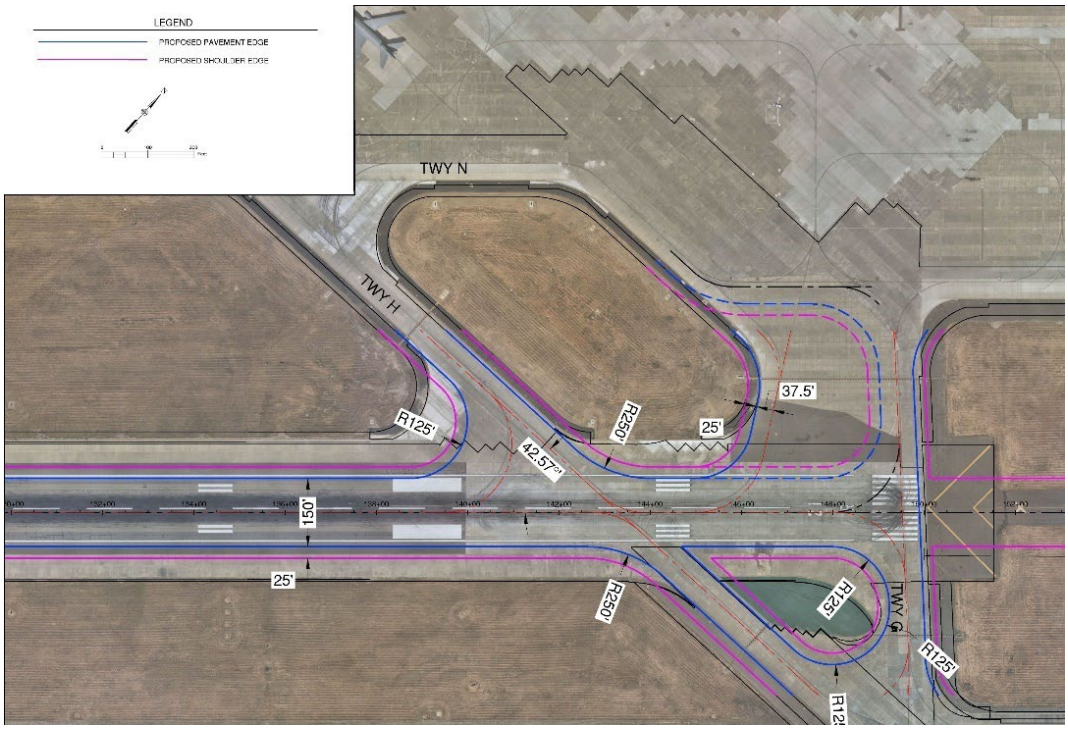

Figure 2-5: Excess pavement to be removed around existing taxiways as a part of overall width reduction and conformance to specifications, areas outside of lines to be converted to turf

Taxiway K is constructed on a skew from perpendicular that does not enhance its operational effectiveness, the pavement condition is poor, and it is located a non-standard distance from the runway. Based on these factors, Taxiway K would be removed from service and converted to turf (Figure 2-6).

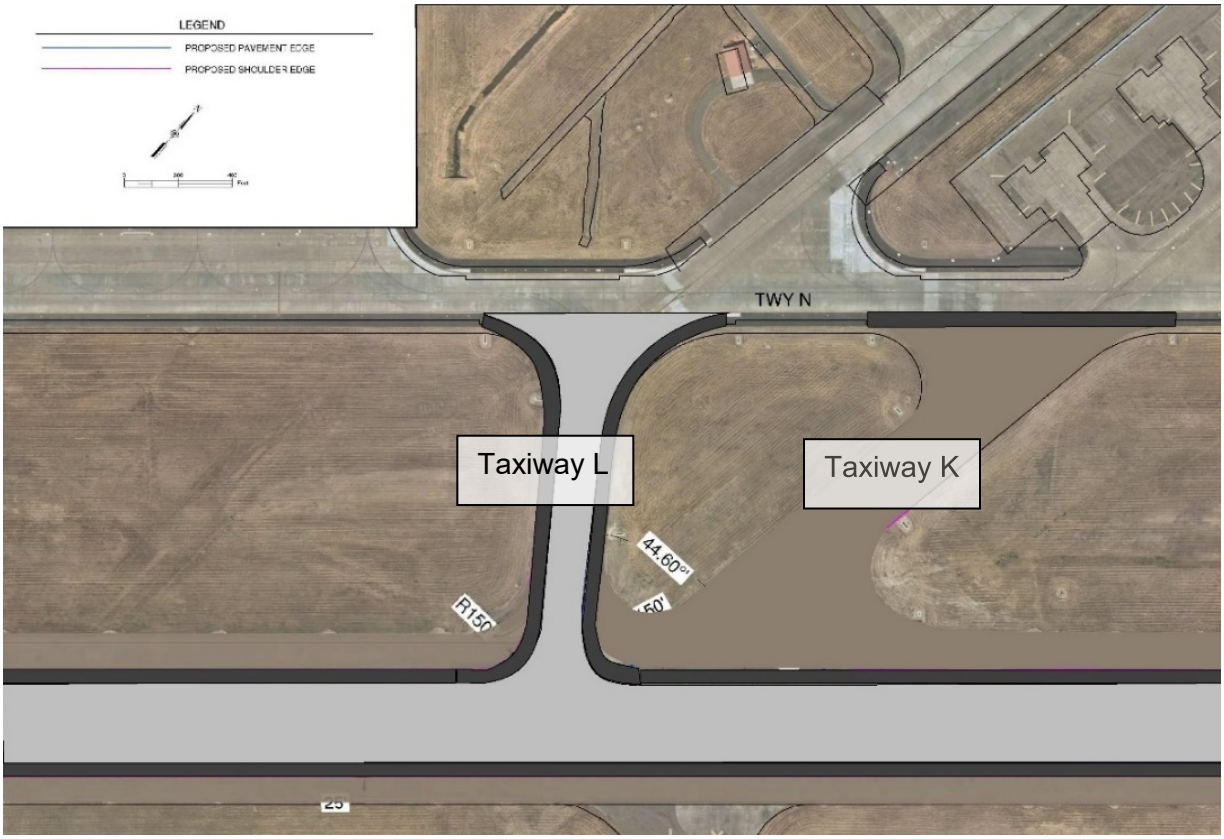

Figure 2-6: Proposed geometry of Taxiway L, showing a reduction in width and realignment to standards

Commercial grade fill procured from commercially available sourceswould be used where additional material would be needed to bring decommissioned areas up to the proper grade. No on-site borrow would be utilized.Fill would be transported to the site by truck in accordance with Bay Area Air Quality Management District best practices (2016).

2.5.5 Construction of a Batch Plant

In order to provide high quality concrete for the proposed action, a batch plant would be constructed within the cantonment area. The batch plant would either be sited at the south end of the runway, east of the south overrun area (Section 2.5.10) as a temporary facility.

2.5.6 Installation and/or Construction of Lighting and Appurtenant Structures

To support runway operations lighting and appurtenant structures would be installed and/or constructed. All pavement markings would be repainted according to Airfield and Heliport Marking (UFC 3-260-04; DOD, 2018).

2.5.6.1 Upgrades to Existing Lighting Systems

The existing Runway 21R/03L lighting system consists of runway edge lights, taxiway edge lights, threshold light bars, precision approach path indicators, and supporting conduits, base cans, and cables. The proposed lighting system would upgrade runway edge lights to high intensity runway edge lighting that would be installed relative to the new 150 ft wide runway. Runway edge light fixtures would be installed 5 ft outside the defined runway edge marking to align with the threshold bar light fixtures and spaced evenly between threshold bars no more than 200 ft apart. Threshold/End Light Bars would be completely replaced (conduit, light bases, foundations, cable, fixtures). The new threshold light bar would be installed a maximum of 10 ft in front of the runway threshold (approach side). Taxiway edge lights included in the project limits would be re-configured to align with new geometry changes. Recently installed LED taxiway edge lights would be salvaged and re-installed on new base cans. New Precision Approach Path Indicator (PAPI) systems would be installed for Runways 21R/03L. The PAPI's would have a visual range of at least 3 miles during the day and up to 20 miles at night. New Runway End Identifier Lights (REILs) would be installed for both ends of the runway and connected to the runway edge lighting circuit. REILs would be installed between 40 and 100 ft from the runway edge and in line with the threshold bar. New runway lighting would use incandescent fixtures. New taxiway lighting and signage would use LED. In general, the lighting system layout and wiring would be designed in compliance with Visual Air Navigation Facilities (UFC 3-535-01; DOD, 2017) and Design Drawings for Visual Air Navigation Facilities (UFC 3-535-02; DOD, 2018).

To support lighting upgrades new duct bank would be constructed with PVC conduits placed into trenches with spacers to hold the conduits in place. The new duct bank would be adjacent to Runway 21R/03L. All duct banks would be concrete encased and constructed with a minimum 24-inch soil cover. Marker tape would be installed above the duct bank. New handholes, or Type B Junction Can Plazas and duct bank systems, would be installed throughout the airfield to provide conduits for all the new airfield lighting systems.

2.5.6.2 New Lighting Systems

There is no existing approach lighting system for the 03L end ofRunway 21R/03L. Installation of CAT-I or CAT-II would require acquisition of an easement of 1.2 acres of land to accommodate the new runway approach lights. The land needed is privately held and is currently zoned residential.

A superimposed landing zone with both overt (white spectrum) and covert (red spectrum) lighting for a 90' wide by 3,500' ft long landing zone would be installed. The

new superimposed landing zone lighting system would be installed and suitable for use by C-17 and C-130 aircraft. Lights would be unidirectional with both incandescent and infrared semi-flush in-pavement light fixtures. Concrete-encased conduits and cables would be connected to existing regulators.

2.5.6.3 Signs and Structures

New runway distance remaining, hold, runway exit, and guidance signs would be installed on new foundations. In accordance with UFC 3-535-01 (US DOD, 2021) requirements, runway distance remaining signs would be placed 50 to 75 ft from the runway edge to the inside edge of the sign. Supporting electrical cables would be installed in new concrete-encased conduits and connected to runway edge lighting circuits. Existing wind cones for Runway 21R/03L would be removed and replaced with new LED wind cones for each approach end and tied into the lighting circuitry. Paved housekeeping pads surrounding the sign foundations would be included to facilitate mowing around signs.

2.5.7 Clearance of Vegetation

To facilitate construction, vegetation surrounding the runway may have to be removed. No trees or shrubs currently exist in the proposed construction footprint. All vegetation that would be removed is limited to grass and similar herbaceous species. Work limits are expected to extend out 300 feet from the existing edge of the pavement on either side of the runway.

2.5.8 Construction Schedule, Access, Haul Routes and Staging Area

Construction would occur year-round and would be expected to take approximately two full years to complete. Normal workdays would be Monday through Friday, excluding federal holidays, from 0730-1630, however work may occur 24 hours a day, seven days a week, when necessary to minimize impacts to airfield operations.

Construction vehicles would enter Travis AFB through the South Gate. The primary access to the airfield would be at the south end on an existing old roadbed leading to the south overrun from the perimeter road. The contractor would be required to follow the haul routes from the South Gate, around the perimeter road, and onto the airfield on the south end. Where haul routes cross active airfield pavements, the contractor would control construction traffic with flaggers posted on either side of the crossing point. The flaggers would be in radio contact with the air traffic control tower to deconflict construction traffic with aircraft traffic. The contractor would be responsible for maintaining control to the airfield throughout construction to prevent unauthorized vehicles from entering the airfield environment.

The staging area for contractor offices, parking and storage would be either on the north side of Ellis Drive, near the ammunition storage area or at the southwest corner of Hangar Road and Ragsdale Street. The contractor batch plant area would be at the south end of the runway, west of the south overrun (Section 2.5.9). Personal vehicle

parking would only be permitted in the staging or batch plant area, with only company vehicles allowed on the airfield.

2.5.9 Alternative 1: Reconstruction of the Runway with a Temporary Batch Plant (Proposed Action)

Under Alternative 1, Proposed Action, Travis AFB would reconstruct Runway 21R/03L in place in its entirety as described in Sections 2.5.1 through 2.5.8. A temporary PCC batch plant would be constructed at the south end of Runway 21R/03L, south of the south runway safety area (Figure 2-7).

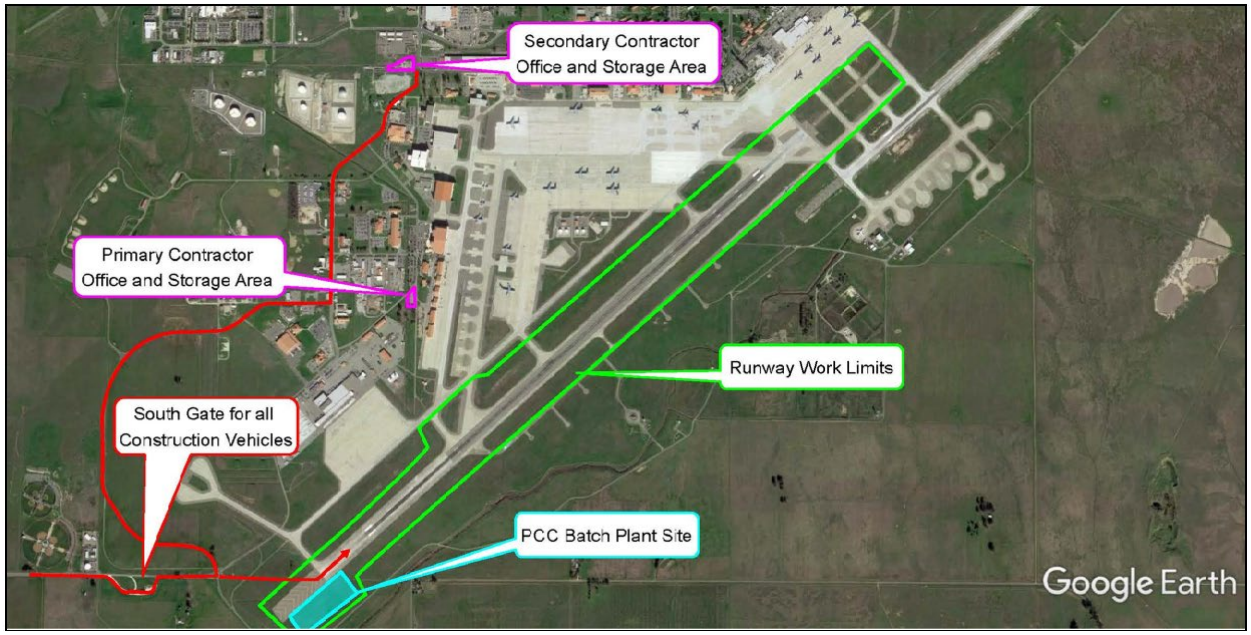

Figure 2-7: Temporary batch plant location, staging, access, and haul routes under Alternative 1

Construction of a temporary batch plant would require grading and leveling the temporary site. Since the site would be temporary, it would remain compacted dirt, and covered in gravel to reduce erosion. Contractor staging and office areas would be constructed on an existing paved lot south of Ragsdale Street south of the V Street intersection and west of the aircraft maintenance hangars and on an existing gravel lot at the northeast corner of the Hangar Road – Ragsdale Street intersection (Figure 2-7). The site would be sized to accommodate storage for raw and finished material storage areas, equipment parking areas, and lay down areas. Electrical and water for the operation of the temporary batch plant would be tied into existing adjacent lines.

Aggregate would be transported to the project area in belly type trucks from an off-site approved quarry, or from reutilized on-site material. While the quarry to be used has not been determined, a list of commercial quarries in the area is summarized in Table 2-3. Access would be via the route shown in Figure 2-7. Once ready for placement, the concrete would be transported by truck, from the batch plant site to its destination, depending on the distance from the batch plant.

Upon completion of the project, approximately 2 years, the batch plant would be removed, and the site would be regraded to turf.

Table 2-3: Quarries near the Proposed Project Area

Name of Quarry	Distance from Proposed Project Location	Types of Materials Offered
Vulcan Materials Company	23 miles	Gravel, sand, crushed stone
Bertinoia Winters Aggregae	20 miles	Gravel, sand, crushed stone
CEMEX- Cache creek sand and gravel	32 miles	Gravel, sand, crushed stone, cement, readymix
Eagle Rock Aggregates	40 miles	Gravel, sand, crushed stone
Teichert Aggregates	21 miles	Gravel, sand, crushed stone

2.5.10 Alternative 2: No-Action Alternative

Under the No Action Alternative, the proposed reconstruction of Runway 21R/03L at Travis AFB would not proceed. Under this alternative, Travis AFB would be unable to maintain full mission readiness or support unrestricted, full-time airfield operations in inclement weather conditions. Eventually, the ongoing deterioration of the pavement surface of Runway 21R/03L would render the runway unfit for use, as minor maintenance actions are insufficient to restore the runway to full functionality, and the runway would be decommissioned in place. This would permanently impact airfield operations at Travis AFB by hampering the airfield's ability to support all-weather operations, and the airfield would be unable to support current and expected future airfield operations levels.

The No-Action Alternative cannot be considered a reasonable course of action as it fails to address the purpose of and need for the action as described in Chapter 1. However, it will be carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the proposed action and alternatives can be assessed.

3.0 AFFECTED ENVIRONMENT

This section describes the environmental resources and aspects that could be affected as a result of implementing any of the alternatives carried forward. Throughout this EA, the area that could be physically disturbed via construction, renovation, demolition, and/or staging is referred to as the “Proposed Project Area”. The term “affected environment” is used to describe the complete geographic scope of potential consequences for the resource area. For most of the resource areas, the affected environment is confined to the boundaries of Travis AFB. However, for some resources, such as noise, air quality, and socioeconomics, the affected environment extends into surrounding communities with a varying extent unique to that specific resource.

Resource information for this EA was obtained through review of existing environmental documents, available Geographic Information System data, field observations, and communications with Travis AFB staff, regulatory agencies, and other agencies and organizations. Information is presented to the level of detail necessary to provide a frame of reference about conditions that prevail currently or existed in the recent past, and to support the analysis of potential impacts in Section 4.

3.1 SCOPE OF THE ANALYSIS

The potentially affected human environment is interpreted comprehensively to include natural, cultural, socioeconomic, and physical resources and the relationship of people with those resources (40 CFR §1508.14). Information presented in this section serves as a baseline from which to identify and evaluate any individual or cumulative changes to the human environment likely to result from implementation of the alternatives carried forward for analysis; Alternative 1 (Proposed Action), and the No Action Alternative.

Qualified technical subject matter experts examined each action component for potential effects on each resource area, considering the scope of the action and available resource information. The examination resulted in certain resources being dismissed from detailed analysis. Regardless of the alternative selected, resources dismissed from detailed analysis would not be affected by any of the alternatives proposed and are therefore not discussed in detail in this EA.

3.2 RESOURCES NOT CONSIDERED IN DETAIL

The following sections describe those resource areas not carried forward for a detailed analysis, along with the rationale for their elimination.

3.2.1 Visual, Scenic, and Aesthetic Resources

Visual and aesthetic resources include natural and manmade physical features that provide the landscape its character and value as an environmental resource. The nearest scenic vista is 18 miles from the installation. There are no surrounding land uses which rely upon or utilize scenic resources. In general, the airstrip, where the proposed action would take place is typically subjected to military industrial uses. No permanent changes to the overall use or general appearance of the airstrip or surrounding area are proposed under this project. Base residents and users are

accustomed to the presence of heavy machinery in these areas and would not likely be disrupted by the proposed temporary work. Persons not on base would not likely be able to see the work, therefore there is a low likelihood of disrupting off base scenic resources.

3.2.2 Environmental Justice and Protection of Children

EO 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

All of the alternatives analyzed would occur within Travis AFB boundaries. No residences are located within the disturbance area of any of the alternatives analyzed and no minority or low-income populations in the surrounding area would be affected by the construction of any of the analyzed alternatives. The nearest residential area to the Proposed Action is approximately 1 mile to the northeast.

The Proposed Action would generate some additional traffic on Travis AFB during construction operations; however, the additional traffic would not be located near residential areas. Traffic would enter and exit the Base from the South Gate (Figure 2-7), located south of the cantonment area in the vicinity of the airfield and in industrial areas of the Base. After exiting the base, traffic would be directed aong Petersen Road, to Walters Road, and then to Highway 12. Traffic would enter the base through the same roadways. Residences exist near the junction of Petersen and Walters Road, but truck traffic does not utilize residential roads and largely bypasses communities. All roads used are major thoroughfares, highways, or agricultural/industrial roads which are regularly used for truck and heavy equipment traffic.

Hazardous wastes produced at the site during construction and operation would not pose a disproportionate risk to minority populations. They would be managed and disposed of in accordance with applicable regulations and the *Travis AFB Integrated Solid Waste Management Plan* (Travis AFB, 2007) and the *Hazardous Waste Management Plan* (Travis AFB, 2004).The Proposed Action would not disproportionately affect minority populations, low-income populations, or children.

3.2.3 Land Use

No change in land use designation would be required with implementation of any of the proposed alternatives. Permanent impacts of any of the proposed alternatives would be confined to the boundaries of the installation. Therefore, no impact on existing land use would occur and this resource category was eliminated from further analysis.

3.2.4 Recreation

There are no publicly accessible recreation areas in the footprint of the proposed project area or any of the alternatives. The nearest recreation center is the Lambrecht Sports complex, approximately half a mile from the proposed project site. The complex contains four fully fenced and lighted fields, batting cages, and a clubhouse. While construction of the project may cause temporary light, noise, and traffic disturbance noticeable from the sports complex, these effects would be temporary and short term. Access to, or use of, the recreation area would not be curtailed due to the completion of any of the proposed alternatives. Therefore, no impact on recreation use would occur, and this resource category was eliminated from further analysis.

3.2.5 Socioeconomics

Socioeconomic resources include the population, income, employment, and housing conditions of a community or region of influence. While the construction of the proposed project could increase employment opportunities temporarily, these jobs would terminate when the construction is complete. Runway renovations would not permanently impact the permanent number of jobs available and would therefore be unlikely to affect regional population, housing, or income levels.

3.2.6 Wilderness

There are no federally or state designated wilderness areas in the vicinity of the proposed project area or alternatives. Therefore, no impacts to wilderness would occur.

3.3 AIRSPACE/AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) AND AIRFIELD OPERATIONS

Airfield operations refer to any takeoff or landing at Travis AFB; these activities may be either part of a training maneuver or defense-related operations. Travis AFB has established several clearance zones, in accordance with UFC 3-260-01. Clearance zones are imaginary surfaces developed to promote safe operations in the airfield vicinity and include the following:

- **Primary Surface –** extends 200 feet beyond each end of the runway and 1,000 feet on both sides of the runway centerline.

- **Clear Zone –** extends 3,000 feet from the end of the runway and 1,500 feet on either side of the runway centerline.

- **Accident Potential Zones I and II –** Accident Potential Zone I extends 5,000 feet from the clear zone; accident Potential Zone II extends an additional 7,000 feet from the edge of Accident Potential Zone I.

• **Approach/Departure Clearance Surface –** established to ensure safe landing/ takeoff of aircraft at Travis AFB. The inclined surface, which is 2,000 feet wide at one end of the runway and 16,000 feet wide at the opposite end, extends 50,000 feet outward from the runway, at a slope of 50:1 along the runway centerline, to an elevation of 500 feet above ground surface. Activities are restricted in this area to ensure safe aircraft operations. Restricted activities include those that penetrate the clearance surface, release substances into the atmosphere that could reduce visibility or impair pilots' vision (e.g., smoke, dust, and light emissions), produce emissions that could affect aircraft operation (e.g., communication or navigational equipment), or could attract birds.

• **Transitional Imaginary Surface –** an inclined surface extending outward and upward, beginning at 1,000 feet from the runway centerline, at right angles to the centerline, at a slope of 7:1.

• **Taxiway Clearance Line –** extends 200 feet from the taxiway centerline. No obstacles, fixed or mobile, are allowed within this zone.

3.4 AIR QUALITY AND CLIMATE CHANGE

Air resources are defined as breathable and surrounding gases in a given area to include the upper atmosphere. Air resources include volumes which may be polluted by substances which are directly harmful to human health, such as ozone, or indirectly harmful to human health and well-being, such as greenhouse gases. Travis AFB is in central Solano County, which is at the eastern edge of the San Francisco Bay Area Air Basin (Basin). The Basin extends from Napa County in the north to Santa Clara County in the south. The Basin is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD) as mandated by the California Air Resources Board (ARB).

Climate change is a long-term shift in the mean and variability of meteorological variables. In conventional terms, climate change refers to the rise in global temperatures from the mid-20th century to present. One cause of contemporary climate change is an increase in greenhouse gasses (GHG) including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor. Increases in GHG emissions can exacerbate climate change. Climate change can likewise have effects on the implementability and longevity of projects.

Regional Climate

In general, California has a Mediterranean climate, with mild wet winters and hot dry summers. Inland valleys tend to have more extreme temperatures than the coast, experiencing hotter summers and colder winters. The mean annual temperature is 60 degrees Fahrenheit (°F). The lowest temperatures occur in January, with a mean low temperature of 37.6°F. The highest temperatures occur in July, with a mean high temperature of 89.0°F. The monthly mean relative humidity typically ranges from 50 percent in June to 77 percent in January. The mean annual relative humidity is 60 percent. Precipitation is approximately 22.7 inches per year.

Travis AFB is located in an inland valley near the coast and is subject to numerous wind events. Winds originating over the Pacific Ocean from the north and west funnel through the Carquinez Strait during the summer and can reach deep into the central valley depending on the presence and strength of the inversion layer. Winds tend to flow from the west at 15 to 20 miles per hour and are typically strongest in the afternoon. Travis AFB occasionally experiences easterly winds generated in the Central Valley.

Adverse conditions for air pollution can be created under a number of conditions. One such condition occurs primarily in summer and fall when high pressure over the Pacific Coast diminishes the regular westerly winds. Under this regime, temperatures are warm, winds light, and an elevated inversion restricts vertical dilution. These conditions result in peak ozone concentrations, and typically last three to five days. The second weather pattern is high pressure in the winter. Light or calm winds combined with a ground-based radiation inversion severely restrict dilution of pollutants in the evening and night hours. Under these conditions, emissions from automobiles, together with fireplace and woodstove emissions, cause peak concentrations of carbon monoxide. In addition, recent increases in wildfire activity have also routinely contributed to poor air quality with respect to particulate matter from approximately August through November yearly.

Current Air Quality Conditions

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 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.

Relevant ambient air quality standards are listed in Table 3-1, with the area's respective attainment status. The area where Travis AFB is located, the San Francisco Bay Area portion of the Solano County, is designated nonattainment for state ozone (O_3) standards, particulate matter less than 10 micrometers in aerodynamic diameter (PM10) and particulate matter less than 2.5 micrometers in aerodynamic diameter (PM2.5) (BAAQMD, 2017). For federal standards, San Francisco Bay Area is designated nonattainment for 8-hour O_3 and 24-hour PM2.5. All other criteria pollutants are designated attainment or are unclassified. Although monitoring data shows that the Bay Area meets national and state standards for PM2.5, the Bay Area is still formally designated as non-attainment for several PM2.5 standards. Regarding the national standards, the non-attainment designation will continue to apply until the Air District submits, and the USEPA approves, a redesignation request and a maintenance plan.

Conformity Rule

According to USEPA's General Conformity Rule (40 CFR §51, Subpart W), any proposed federal action with the potential to cause violations in a NAAQS in a nonattainment or maintenance area must undergo a site-specific conformity analysis to determine if de minimis thresholds could be exceeded. For projects not within nonattainment or maintenance areas, an analysis is conducted to determine if net annual emissions from a proposed management action or project are likely to remain below applicable de minimis thresholds. If it is possible that de minimis thresholds could be exceeded, a CAA Conformity Determination is required to ascertain if emissions coincide with the approved State Implementation Plan (SIP). Failure to conform to the SIP would exclude a proposed project from further consideration.

Table 3-1: Air Quality Standards for Travis Air Force Base

		CAAQs		NAAQs	
Pollutant	**Averaging Time**	**Standard**	**State Attainment Status**	**Standard**	**Federal Attainment Status**
Ozone	1 hour	0.09	Non-attainment	-	Non-attainment
	8 hour	0.070		0.070	
Carbon Monoxide	1 Hour	20 ppm	Attainment	35 ppm	Attainment
	8 Hour	9.0 ppm		9 ppm	Attainment
Nitrogen Dioxide	1 Hour	0.18 ppm	Attainment	0.100 ppm	-
	Annual*	0.030 ppm		0.053 ppm	Attainment
Sulfur Dioxide	1 Hour	-	Attainment	0.075 ppm	Attainment/ Unclassified
	24 Hour	0.04 ppm		-	
	Annual*	-		0.030 ppm (80 µg/m$^{3)}$	
PM 10	24 Hour	50 µg/m^3	Non-attainment	150 µg/m^3	Unclassified
	Annual*	20 µg/m^3		-	
PM 2.5	24 Hour	-	Non-attainment	35 µg/m^3	Attainment/ Unclassified
	Annual*	12 µg/m^3		12.0 µg/m^3	Non-attainment
Sulfates	24 Hour	25 µg/m^3	Attainment	-	-
	30-day average	1.5 µg/m^3		-	
Lead	Calendar Quarter	-	-	1.5 µg/m^3	Attainment
	Rolling 3 Month Average	-		0.15 µg/m^3	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Unclassified	-	-
Vinyl Chloride (Chloroethene)	24 Hour	0.010 ppm (26 µg/m^3)	-	-	-
Visibility Reducing Particles	8 Hour (10:00 to 18:00 PST)	**	Unclassified	-	-

Attainment status is for the San Francisco Bay Area portion of Solano County;
µg/m^3= micrograms per cubic meter
**Annual arithmetic mean; certain areas only*
*** Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range. Sources: USEPA, 2017 BAAQMD, 2019*.

Table 3-2 lists the number of days when pollutant concentrations exceeded NAAQS or CAAQS in the Basin from 2010 to 2019 for state and federal criteria pollutants. From 2010 to 2019 there were no exceedances of CO or SO_2 for the federal or state standards. NO_2 levels exceeded the federal standards twice during the ten-year period, with no exceedances of state standards.

Concentrations of O_3 exceeded the NAAQS (8-hour) and CAAQS (1-hour and 8-hour) every year in the Basin from 2010 to 2019. The State 8-hour standard was exceeded on 12 days in 2015 in the Air District; most frequently in the Eastern District (Livermore, Patterson Pass, and San Ramon). PM10 levels exceeded federal standards only once but exceeded state standards in nine out of ten years. National PM2.5 standards were also exceeded in nine out of ten years.

Table 3-2: Exceedances of Criteria Pollutants Recorded in the Last 10 years in the BAAQMD

Ten Year Bay Area Air Quality Summary Days Over Current Standards												
	Standard Exceeded	Period	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
O_3	Federal	8 hour	11	9	8	3	9	12	15	6	3	9
	State	1 hour	8	5	3	3	3	7	6	6	2	6
		8 Hour	11	10	8	3	10	12	15	6	3	9
CO	Federal	1 Hour	0	0	0	0	0	0	0	0	0	0
		8 Hour	0	0	0	0	0	0	0	0	0	0
	State	1 Hour	0	0	0	0	0	0	0	0	0	0
		8 Hour	0	0	0	0	0	0	0	0	0	0
NO_2	Federal	1 Hour	0	0	1	0	0	0	0	1	0	0
	State	1 Hour	0	0	0	0	0	0	0	0	0	0
SO_2	Federal	1 Hour	0	0	0	0	0	0	0	0	0	0
	State	24 Hour	0	0	0	0	0	0	0	0	0	0
PM10	Federal	24 Hour	0	0	0	0	0	0	0	0	1	0
	State	24 Hour	2	3	2	6	2	1	0	6	6	5
PM2.5	Federal	24 Hour	6	8	3	13	3	9	0	18	18	1

The closest O_3 monitoring station is about 5 miles north of Travis AFB, at 2012 Ulatis Drive in Vacaville, Solano County. At this monitoring station, 8-hour O_3 concentrations ranged from 0.004 to 0.093 ppm from 2010 to 2019, exceeding the NAAQS for 5 of the 10 years (ARB, 2019). Since Ozone is not directly emitted from pollution sources but is formed in the atmosphere through chemical reactions between hydrocarbons and nitrogen oxides in the presence of sunlight, exceedances are generally due to a combination of meteorological conditions, such as presence of an inversion layer along with increases in vehicle emissions during the summer.

The closest PM10 monitoring station is at 650 Merchant Street in Vacaville. At this monitoring station, the measured 24-hour PM10 concentrations ranged from 1.0 to 237.7 µg/m3, exceeding the CAAQS in 3 of the 10 years since 2010. The 24-hour PM10

NAAQS was exceeded only once in the last 10 years (ARB, 2019). PM2.5 concentrations are monitored at 304 Tuolumne Street in Vallejo. Measured 24-hour PM 2.5 concentrations ranged from 0.0 to 250.3. Exceedances of the federal standard were observed in 9 of the 10 monitoring years. Combustion of fossil fuels and wood (primarily residential wood-burning) and dust are the primary sources of PM in the region. Exceedances are typically caused by combination of stable ambient conditions and low mixing heights during the wood burning season. In addition, prevailing easterly winds can elevate PM2.5 levels high enough to cause an exceedance due to pollutant loads transported from the Central Valley. Overall, however, emissions and ambient concentrations of PM have both been greatly reduced in recent years, with the exception of high wildfire years. As a result, the Bay Area currently meets national and state standards for both daily and annual average levels of PM2.5.

Greenhouse Gases

Greenhouse gases (GHGs) include naturally occurring(biogenic) and anthropogenic gases that trap heat in the earth's atmosphere, creating a process known as the greenhouse effect. The accumulation of GHGs in the atmosphere influences the long-term range of average atmospheric temperatures. Sharp rises of GHGs over the last century and a half have led to higher overall worldwide temperatures, reduced snowpack in the higher elevations, greater fluctuations of temperature and precipitation, sea level rise, and more frequent and severe extreme weather events. In the United States, the main source of GHG emissions is transportation (includes all sources), followed closely by electricity generation (USEPA, 2020). Likewise, in California, transportation sources make up the largest category of GHG-emitting sources, followed by electricity generation. In 2018, the most recent year for which data are provided, the annual California statewide GHG emissions were 425.3 million metric tons of carbon dioxide equivalent (CO2e) (ARB, 2018).

Baseline Air Emissions

The current level of air emissions within a region represent the baseline emissions. For Solano County and California, the most recent available baseline emissions levels were obtained from the National Emission Inventory (NEI) as provided by USEPA in 2017 (Table 3-3). Solano County contributes to about 1 percent of California's overall emissions.

Table 3-3: Current Air Emissions in the County and State

Location	Emissions (tons/year)						
	CO	NO_x	PM10	PM2.5	SO_2	VOC	GHG's
Solano County	29,365	7,144	4,936	2,200	156	9,621	3,104,100[D]
California	5,730,651	505,311	797,137	455,356	50,050	1,482,749	425,300,000

(A) County level emission totals reported in tons per year from the 2017 NEI.
(B) State totals reported in tons per year from the 2017 NEI, note that Air District totals were not available in the 2017 data.
(C) GHG emissions reported as CO_2 equivalent.
(D) Note that 2014 values were used as 2017 data was not available.
** Air basin could be a smaller unit of analysis for ROI in lieu of the state, basin data is no longer aggregated by USEPA

3.5 BIOLOGICAL / NATURAL RESOURCES

Biological resources include living organisms such as vegetation or wildlife that could be affected by proposed project activities. Travis AFB lies at the intersection of the Central California Foothills and Coastal Mountains and the Central California Valley ecoregion (USEPA, 2017). The Coastal Mountains and Foothills are defined by chapparal and oak woodlands interspersed with perennial grasslands. Much of this landform has been used for ranching at some point during its history. By contrast, the Central California Valley ecoregion is generally uniformly flat, heavily cultivated, and has little remaining natural habitat.

These ecoregions are sub-refined as the Suisun Terraces and Low Hills and the Yolo Alluvial Fan (USEPA, 2017). The Suisun terraces and low hills consist of the Potrero and Montezuma hills, which are characterized by mostly non-native grasslands and are used primarily for grazing and windfarms, outside of military uses. The Yolo alluvial fan contains richer soils and more moisture, and hosts oak woodlands interspersed with perennial grasslands. Areas under cultivation in this ecoregion host numerous different crops.

There are two predominant habitat types in the Proposed Action area, Northern Claypan Vernal Pools and Swales and Annual Grassland, as defined in the Travis AFB Integrated Natural Resources Management Plan (INRMP). Northern Claypan Vernal Pools and Swales are found in depressional areas throughout the Proposed Action area and are characterized by depressions, swales, or drainage features. The depressional areas hold water for short periods of time relative to active vernal pools on adjacent properties or on the western and southwestern portion of the Base. These areas are dominated by Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), popcorn flower (*Plagiobothrys* spp.), wooly marbles (*Psilocarphus brevissimus*), Italian ryegrass (*Festuca perennis*), ripgut brome (*Bromus diandrus*), wild oat (*Avena barbata*), and filaree (*Erodium* spp.). The Annual Grassland vegetation type consists of naturalized annual grasses and weedy forbs such as wild oat, soft chess (*Bromus hordeaceus*), ripgut brome, Medusa head (*Elymus caput-medusae*), Italian ryegrass, and black mustard (*Brassica nigra*). The remainder of the proposed action area is managed turfgrass, paved, or otherwise unvegetated.

Special Status Species

A special status species is a species which is protected by federal and/or state law under the ESA. Such species may be “endangered”, “threatened”, or “candidate” species. The ESA directs all federal agencies to participate in conservation of threatened and endangered species within their authority. ESA Section 7 requires federal agencies to consult with the USFWS to ensure that actions they fund, authorize, permit, or otherwise carry out will not jeopardize the continued existence of any listed species or adversely modify designated critical habitats. Table 3-4 lists species that potentially occur in the Proposed Action Area and has been compiled from several sources including the results of previous studies conducted on Travis AFB; information from the California Natural Diversity Database (2021); the California Native Plant

Society (2021); and the Environmental Conservation Online System (ECOS) Information for Planning and Consultation (IPaC; 2021). Federal special status species were assessed in the Travis AFB PBO (Travis AFB, 2017b), and only species likely present based on that assessment are included. A full list of species within a five-mile radius of the Proposed Project area is available in Appendix C-1. Rare plants within a 5-mile radius are listed in Appendix C-2.

Table 3-4: Special Status Species Potentially Present in the Affected Environment

Special Status Species Potentially Present in the Affected Environment					
Scientific Name	Common Name	Lifeform	Federal Status	State Status	Likelihood of Presence
Ambystoma Californiense	California tiger salamander	Amphibian	**T**	**T**	High- recorded habitat in Proposed Project Area
Branchinecta conservatio	Conservancy fairy shrimp	Crustaceans	**E**	None	Low- no suitable habitat on the installation
Branchinecta lynchi	Vernal pool fairy shrimp	Crustaceans	**T**	None	Low- on the base, not near the Proposed Project Area
Lepidurus packardi	Vernal pool tadpole shrimp	Crustaceans	**E**	None	Low- on the base, not near the Proposed Project Area
Lasthenia conjugens	Contra Costa goldfields	Plant	**E**	Rare-1.B1	Medium- on the installation, near the Proposed Project Area, outside the limits of disturbance
Agelaius tricolor	Tricolored blackbird	Bird	None	**T**	Medium- inhabits marshes
Buteo swainsonii	Swainson's hawk	Bird	None	**T**	Medium- could fly over, but generally nests in trees
Laterallus jamaicensis coturniculus	California black rail	Bird	None	**T**	Medium- Generally inhabits dense marsh
Rana boylii	Yellow-legged frog	Amphibian	None	**E**	Low- Occurrence is greater than 5-miles away; no suitable habitat in Proposed Project area

Note: Bombus occidentalis was listed as a Candidate under California Endangered Species Act (CESA) within 5 miles on November 13th 2020, the Sacramento Superior Court ruled that insects are not eligible for listing under the CESA ; Almond Alliance of California v. California Department of Fish and Wildlife, Sacramento Superior Court No. 34-2019-80003216
*Note: **T** – Threatened; **E** - Endangered*

Affected Environment

Migratory Birds

The USFWS is responsible for administering the MBTA (16 USC Section 703-711). Pursuant to the MBTA, it is illegal to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, any migratory bird, or the parts (including feathers), nests, or eggs of such a bird. Parties whose activities may impact species protected under this Act are required to confer with USFWS to ensure that such activities are carried out in a manner that safeguards wildlife. Based on information from ECOS-IPaC and the Cornell Institute for Ornithology Electronic Bird Mapper, the following birds protected under the MBTA may be present in the proposed project area:

Table 3-5: Migratory Birds Protected Under the MBTA Potentially Present in the Affected Environment

Birds Protected Under the MBTA Potentially Present in the Affected Environment		
Scientific Name	**Common Name**	**Likelihood of Presence**
Selasphorus sasin	Allen's hummingbird	Low- nests in shrubs, lives in woodlands
Laterallus jamaicensis	Black rail * *Also protected under CESA (threatened)*	Low- Generally inhabits dense marsh, but may be found in rice or hay fields, likely only on the periphery or just outside the proposed project area.
Athene cunicularia	Burrowing owl	High- inhabits open grasslands, lives in burrows
Aechmophorus clarkii	Clark's Grebe	Low- inhabits marshes with deep standing water, creates floating nests
Geothylpis trichas sinuosa	Common yellowthroat	Low- lives in scrub, nests in shrubs
Melanerpes lewis	Lewis's woodpecker	Low- lives in open woodlands, nests in cavities
Numenius americanus	Long-billed Curlew	Medium- lives in grasslands and agricultural fields, nests on the ground
Picoides nuttalli	Nuttall's Woodpecker	Low- lives in open woodlands, nests in cavities
Baeolophus inornatus	Oak titmouse	Low- lives in open woodlands, nests in cavities
Selasphorus rufus	Rufous hummingbird	Low- nests in trees, lives in woodlands
Melospiza melodia	Song sparrow	Low- lives in open woodlands, nests in shrubs

Birds Protected Under the MBTA Potentially Present in the Affected Environment (Cont)		
Scientific Name	**Scientific Name**	**Scientific Name**
Pipilo maculatus clementae	Spotted towhee	Low- lives in scrub, nests on the ground
Agelaius tricolor	Tricolored blackbird * *Also protected under CESA (threatened)*	Medium- lives in marshes, nests in shrubs, common in agricultural fields, likely only present along the periphery of the proposed project area
Sturnella neglecta	Western Meadowlark	High- documented observations of ground nesting activities surrounding the airfield
Numenius phaeopus	Whimbrel	Not present- lives on shorelines, nests on the ground
Tringa semipalmata	Willet	Not present- lives on shorelines, nests on the ground
Chamaea fasciata	Wrentit	Low- lives in scrub habitat, nests in shrubs
Pica nuttalli	Yellow-billed magpie	Medium- lives in open woodlands, nests in trees, locally common in agricultural settings

Bald and Golden Eagles

The Bald and Golden Eagle Protection Act (16 USC. Section 668) prohibits the “take” of bald or golden eagles, including their parts, nests or eggs, Take under this Act is defined as those activities that disturb, agitate, or bother a bald or golden eagle to a degree that substantially interferes with normal breeding, feeding, or sheltering behavior.

Both golden and bald eagles have been observed near the proposed project area (less than 1 mile) within the last five years, however, no nests have been recorded.

Invasive Species

Enacted in 2016, EO 13751 amends EO 13112 and directs Executive Branch departments and agencies to implement steps to prevent the introduction and spread of invasive species, and to eradicate and control populations of established invasive species. Invasive species are easily spread on vehicles and construction equipment. In addition, activities which move soil from one location to another could move non-native soil-borne pathogens or harbor seeds of invasive species.

3.6 CULTURAL RESOURCES

Cultural resources can be defined as any physical evidence or place of past human activity including the built environment such as sites, structures, objects; but also include landscapes or natural features which have significance to a group of people traditionally associated with it or containing evidence of past human activity. These areas may be designated as historic and protected by federal, state, and/or local laws. Projects that involve federal funding or permitting must comply with the provisions of NHPA, as amended (54 USC. 306108). Cultural resources are considered during federal undertakings chiefly under Section 106 of the NHPA through one of its implementing regulations, 36 CFR §800 (Protection of Historic Properties). Properties of traditional religious and cultural importance to Native Americans are considered under Section 101(d)(6)(A) of the NHPA. Other relevant federal laws include the American Indian Religious Freedom Act of 1978, Archaeological Resources Protection Act of 1979, and Native American Graves Protection and Repatriation Act of 1989.

Regional History

The region where Travis AFB is located was once inhabited by the Suisun/Patwin Indians. These early inhabitants of the region were hunter-gatherers. Deer, tule elk, and pronghorn were hunted, and fish and fowl were harvested from rivers and marshes. Acorns, buckeyes, grass-seeds, bulbs, greens, sunflower seeds, and blackberries were also part of the Suisun/Patwin diet. Remnants of the Suisun/Patwin are now considered part of the Wintun group. The Yocha Dehe Wintun Nation was federally recognized in 2009 and is composed of Patwin-speaking Wintun people who live in Capay Valley in Lake County, California. The Cortina Indian Rancheria (Kletsel Dehe Band of Wintun Indians) was established in 1907 and is based in Williams, Colusa County, California. (Travis AFB, 2016a).

The area surrounding Travis AFB is cultivated for agricultural products and used for grazing livestock. These activities were first performed during the Spanish and Mexican Period (1750–1849) and early settlement in Solano County and Travis area (1842–1880). The land occupied by Travis AFB was once public land that bordered three Mexican land grants that date to 1841. Large ranchos focused on farming and ranching existed in the region until the discovery of gold in the Sierra Nevada Mountains in 1849. (Travis AFB, 2016a).

Railroad development in Solano County and the Travis AFB area began in 1918. The first state highway in Solano County was constructed in 1912–1914, which allowed for growth in the eastern half of the county. During the Great Depression in the 1930s, farm incomes decreased by approximately 50 percent, although the area in the vicinity of Travis AFB was only marginally affected because farming there was minimal. Grazing and secondary grain cultivation was the principal land use until 1942 (Travis AFB, 2016a).

The U.S. Army established a wartime airfield near Fairfield and Suisun City, California in 1942. The Fairfield-Suisun Army Air Base became the point of embarkation for tactical

bombers for the Pacific Theater and was expanded with additional acreage in 1943. After World War II, Travis AFB became an intercontinental reconnaissance and bomber installation. The Base was an important aerial transport hub and had become the Army Air Force's largest base on the West Coast. (Travis AFB, 2016a).

Cultural Resource Investigations and Resources

Travis AFB has been surveyed for archaeological and historic resources. Ten archaeological sites have been located during the surveys: three prehistoric and seven historic sites. None of these sites were determined eligible for listing in the National Register of Historic Places (NRHP) (Travis AFB, 2016a). The *Geoarchaeological Overview and Site Sensitivity Assessment for Travis Air Force Base, Solano County, California* (Far Western Anthropological Research Group, Inc., 2017) evaluated the potential for buried sites on Travis AFB. The report concluded that 8 acres of land on the Base has a high potential for buried artifacts. Within the area of potential effect (APE) for 21R/03L, some areas of high to moderate buried sensitivity were identified.

On Travis AFB, 28 buildings and structures have been determined eligible for listing in the NRHP with SHPO concurrence or are managed as NRHP eligible. Building 810 has been determined to be individually NRHP eligible, and the other 27 structures contribute to either the Alert and Readiness Area Historic District or the Air Force Special Weapons Project Historic District on base (Travis AFB, 2016a). Of the historical buildings, none are located near the Proposed Action area. Sources demonstrated that 3L/21R is over 50 years old and therefore meets the minimum requirements for consideration as a historic property eligible for listing on the NRHP. However, after review by a qualified historian, and with concurrence of the SHPO, runway 21R/03L was determined to be ineligible for NRHP consideration (Appendix B). Two homestead sites were identified within the APE and determined to be ineligible as they were previously destroyed by modern construction and runway activity (Travis AFB, 1996). No other extant historic properties, or Traditional Cultural Properties, have been identified within the APE (Travis AFB, 2021).

Copies of correspondence between Travis AFB, the SHPO, and Native American tribes are included in Appendix B.

3.7 EARTH RESOURCES

Earth resources include topography, geology, and soils. Topography refers to elevation, slope, aspect, and surface features found in a given area. Geology includes bedrock and weathered bedrock materials, while soil refers specifically to those components as integrated with biological constituents and the associated interactions.

Topography

Physiographically, Travis AFB is in the Pacific Border physiographic province, which is a long region running along the western margin of the United States. It can be divided into two distinct types of topography: lowlands and mountains (National Park Service, 2017). Travis AFB is mostly composed of low hills that extend from the Vaca Mountains

southeastward to connect with the Montezuma Hills southeast of the installation. The topography of the installation slopes gently to the south. Elevations range from approximately 15 feet above Mean Sea Level (MSL) in the southwest corner to approximately 140 feet above MSL along the northern boundary (Travis AFB, 2013.

Geology

Travis AFB is located on an alluvial plain at the western edge of the Sacramento Valley segment of the Great Valley Geomorphic Province, east of the Coast Range Geomorphic Province, which consists of folded and uplifted bedrock mountains (Thomasson et al., 1960). 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 (Travis AFB, 2013).

Soils

Soil develops from geologic material exposed at the earth's surface as the material is altered through physical, chemical, and biological processes. The defining characteristics of soils are imparted by the parent material and the processes that material has undergone. Soils near Travis AFB are primarily various compositions of Antioch and San Ysidro soil types. Antioch Soils are typically moderately to poorly drained clay to clay loams with slow to medium runoff, with very slow permeability. San Ysidro soils are generally well drained deep sandy loams, with slow to medium runoff, and very slow permeability.

Within the Proposed Action area soils are primarily Antioch-San Ysidro complex with a small amount of San Ysidro sandy loam (Figure 3-1). None of the soils within the Proposed Action area are hydric soils. The Antioch San Ysidro complex-thick surface is a farmland soil of statewide importance.

Seismicity

Travis AFB is in the San Francisco Bay Area (Bay Area), which is susceptible to frequent earthquake activity. The Bay Area is faulted by the San Andreas, Hayward, and Calaveras Faults, which are located 20 miles or more from the Base (Travis AFB, 2006a).The USGS concluded that there is a 72 percent probability that at least one Magnitude 6.7 or greater earthquake capable of causing widespread damage could strike the Bay Area within the next 30 years (USGS, 2015).The nearest fault system to the Proposed Action area is the Vaca Fault system, which traverses the eastern portion of the Base. However, the Vaca Fault has not experienced displacement within the past 11,700 years (City of Vacaville, 2012). The Green Valley Fault, located 10 miles west of the Base, has been active within the last 200 years (City of Vacaville, 2012).

Affected Environment

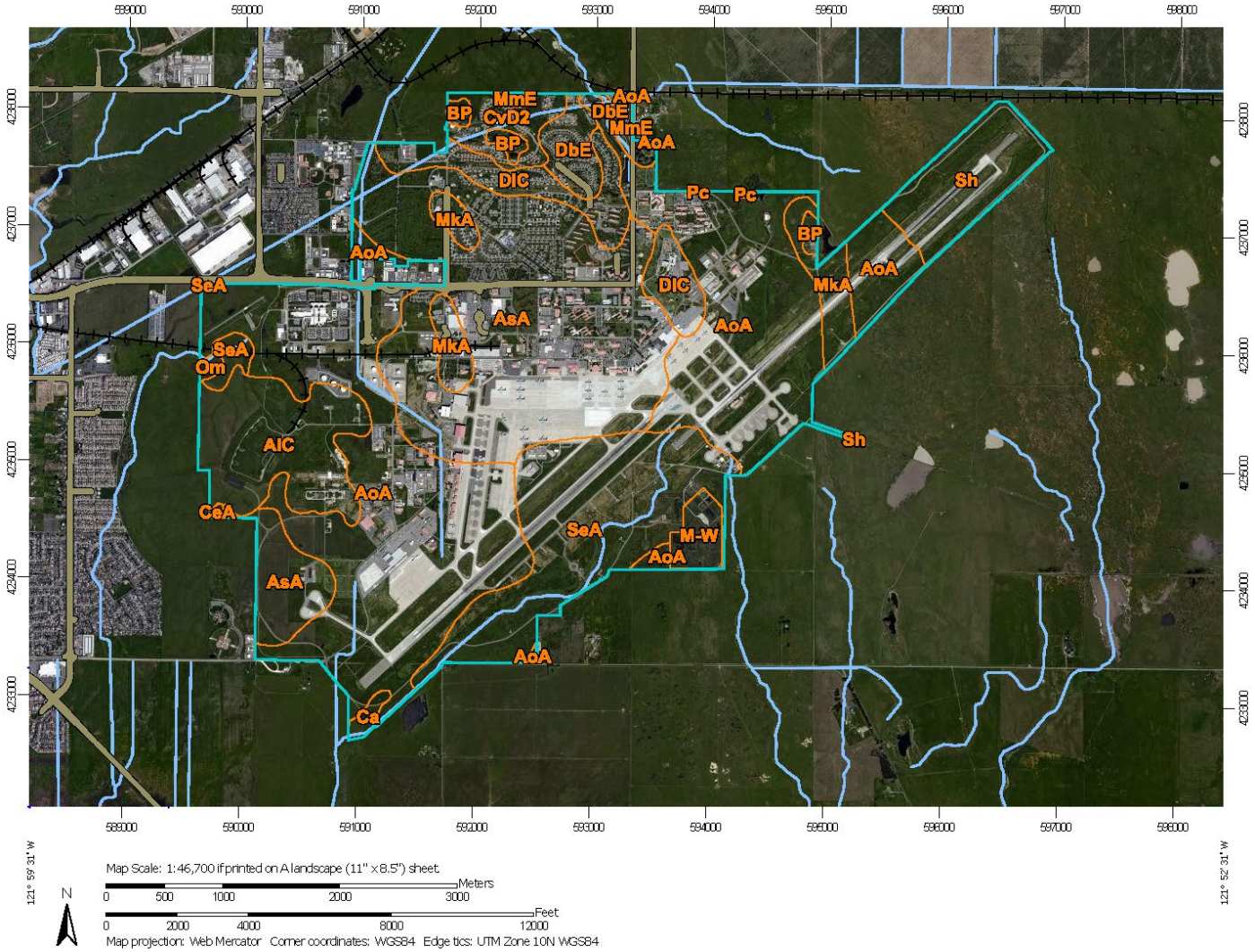

Figure 3-1: Soils present on Travis AFB. Map units in the Proposed Project area are as follows: AoA- Antioch San Ysidro Complex, AsA- Antioch San Ysidro Complex, SeA- San Ysidro Sandy Loam

3.8 HAZARDOUS MATERIALS / WASTES AND SOLID WASTES

Solid Waste

A solid waste is any discarded material, as determined by the generator, that is not excluded by regulation (40 CFR §261.2). A solid waste can be gas, liquid, semi-solid or solid per Solid Waste Disposal Act (RCRA) §1004(27).

Solid waste generated at Travis AFB during fiscal year 2012 totaled 190,023 tons, including recycled waste and waste sent to a disposal facility. The amount of diverted applications (which includes composting, mulching, recycling, and reusing) averaged approximately 185,134 tons. The amount of solid waste sent to disposal facility averaged approximately 4,889 tons (Travis AFB, 2012a). Solid waste at Travis AFB is collected and disposed of by Solano County Garbage Company. The Potrero Hill Landfill site is used for solid waste disposal and would likely be used for wastes generated from the Proposed Project. The Potrero Hills Landfill is located in Suisun City, California. It has a permitted daily capacity of 4,330 tons per day, the remaining permitted capacity is 13,872,000 cubic yards, and it an estimated “cease operation date” of February 14, 2048 (CalRecycle, 2019). All solid waste is disposed of in accordance with the *Travis AFB Integrated Solid Waste Management Plan* (Travis AFB, 2007).

Hazardous Materials and Hazardous Wastes

A hazardous material (HM) is defined as any substance or material that could adversely affect the safety of the public, handlers, or carriers during transportation. Certain materials and wastes are specifically regulated by the USEPA under the Superfund Amendments and Reauthorization Act of 1986 (40 CFR §355 et seq.) All other HM designated as wastes are regulated under the Resource Conservation and Recovery Act (RCRA) Section 1004(5) which defines hazardous waste (HW) as, “A solid waste, or combination of solid waste, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed” (USEPA, 2005).

The activities conducted at Travis AFB that use most of the HM include aircraft maintenance, transportation maintenance, fueling, and equipment and facilities maintenance. These activities contribute approximately 95 percent of the total volume of HW generated at the Base, including flammable solvents, contaminated fuels and lubricants, stripping chemicals, waste oil, waste paint, absorbent materials, and outdated materials (chemicals stored beyond their expiration date) (Travis AFB, 2006a). Many of the aforementioned activities have taken place in the proposed project area, using the listed substances.

HM are ordered, stored, and used in accordance with the *Travis AFB Hazardous Material (HAZMAT) Management Procurement Procedures* (60th CES, 2017). The Base

maintains and implements the plan to comply with state, RCRA, and Air Force regulations. The plan establishes the procedures, training requirements, inspections, and record management processes for HW. The Base has one facility, Building 1365, that is permitted for long-term storage of HW. Building 1365 is managed by the 60th Civil Engineering Squadron Environmental Flight (60 CES/CEIE) and operated by contractors (Travis AFB, 2006a).

Operable Units and Environmental Restoration Program Sites

This project overlays or is close to three CERCLA sites with Land Use Controls, (LUCs) in place. These sites are documents in a Record of Decision (ROD) that was signed by the 60th AMW Commander. The ROD defines the sites on the installation and outlines remedies for these areas. An operable unit (OU) is a geographical area that contains sites with soil or groundwater contamination. There are currently two OUs on Travis AFB: the West/Annexes/ Basewide Operable Unit (WABOU) and the North/East/West Industrial Operable Unit (NEWIOU). The Proposed Action is located primarily within the NEWIOU; however, some transit may occur through the WABOU (see Figure 3-2).

The Environmental Restoration Program (ERP) at Travis AFB is administered by the Air Force Civil Engineer Center (AFCEC) Installation Support Team to remediate all accident, disposal, and spill sites that might pose a potential threat to human health and welfare or the environment. ERP sites include fire protection training areas, spill sites, waste disposal sites, drum storage areas, leaking underground storage tank (UST) and piping, oil-water separators, and waste treatment plants (Travis AFB, 2013). The Proposed Action area overlaps portions of ERP sites SS016, SS029, and ST032 (see Figure 3-2) as follows:

- SS016 consists of a 7-acre parcel in the central part of the NEWIOU and consists of the Oil Spill Area; Facilities 11, 13/14, 20, 42/1941, and 139/144; and portions of the Storm Sewer Right-of-Way. The facilities within the site support flight line service equipment repair, aircraft engine repair, fuel storage, aircraft wash racks, and vehicle maintenance. Administrative controls at this site prohibit the use of groundwater for potable purposes, and restrict residential development. Excavation of the PAH impacted soil was completed in 2020 (Travis AFB, 2020)..
- SS029 is in the southern portion of the NEWIOU. Site SS029 is an open field south of Taxiway R and includes an ordnance disposal range. Groundwater contamination at Site SS029 has been defined primarily as a Trichloroethylene (TCE) and cis-1,2-DCE plume that lies within the boundaries of Travis AFB. Land Use Controls require that groundwater is not used for potable purposes. The groundwater contamination at SS029 also poses a potential indoor air vapor intrusion risk to industrial workers, and precautions must be taken to prevent unnecessary exposure.
- Site ST032 is located within the active main runway/taxiway area of Travis AFB, directly east of and adjacent to the eastern boundary of Site SS016. Site ST032 covers approximately 22 acres and comprises two grassy, open areas surrounded by runway and taxiway pavement. Two separate contaminant plumes are present in this site. Plume A was characterized as a mixture of fuel

hydrocarbon and TCE contamination. Plume B, located in the southern part of the site, was characterized primarily by fuel hydrocarbon contamination, including light non-aqueous phase liquid. Based on the most recent Annual Land Use Control report (2018), since residual benzene levels are above the risk levels for industrial land use, and to ensure that future construction workers are protected, when ground disturbance activities are performed at Site ST032, contaminant levels of benzene will need to be monitored for health and safety purposes. Either an industrial hygienist or a representative of Bioenvironmental Engineering will be required to oversee the health and safety monitoring throughout the duration of ground disturbing activities. Additionally, any intrusive activity should be performed in accordance with the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard (29 CFR §1910.120). Any wastes generated with the intrusive work need to comply with 40 CFR §§260-268.

Affected Environment

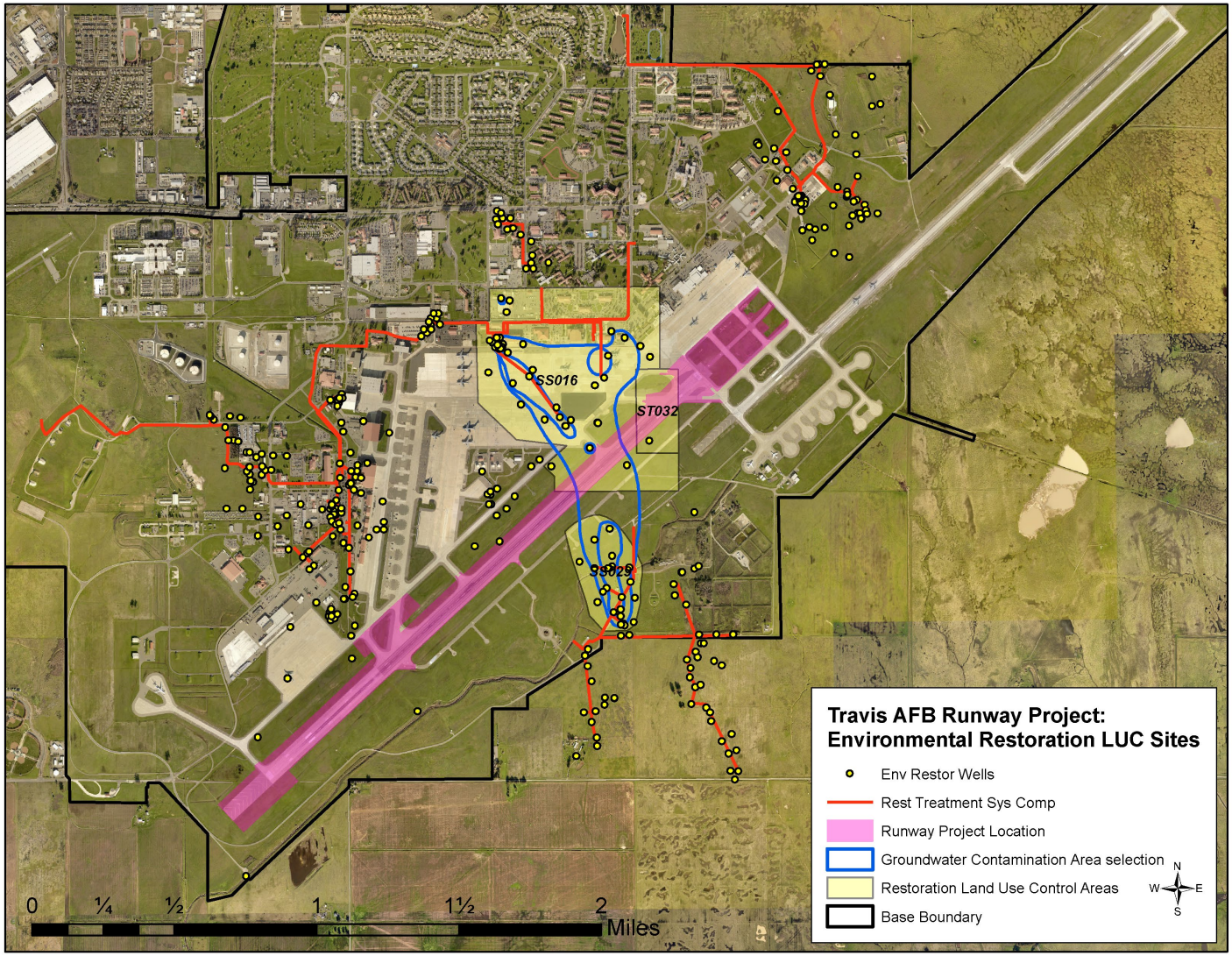

Figure 3-2: ERP sites on Travis AFB with Limits of Disturbance (LOD) overlay. Note that work would only occur within the LOD.

Stored Fuels

Fuel is stored on Travis AFB in USTs and Aboveground Storage Tanks (ASTs). Fuel is supplied to the flight line by hydrant systems fed by 10 bulk ASTs that have a combined capacity of 16 million gallons (Travis AFB, 2013). Gasoline and diesel fuel used for military vehicles, ground equipment, and backup generators is stored in additional USTs and ASTs at various Base locations. The *Travis Air Force Base Hazardous Waste Management Plan* (Travis AFB, 2004) states that emergency responses and actions for incidents involving hazardous substances are conducted in accordance with the Integrated Contingency Plan for Oil and Hazardous Substance Spill Prevention and Response. The plan describes the facilities and operational procedures in place for managing the storage and transfer of petroleum, oil, lubricants, and hazardous substances. The plan also describes the contingency systems and plans in place for responding to, and cleaning up after, any discharges that could occur. Travis AFB is required to comply with California Spill Prevention Regulations, which apply to all organizations including tenant organizations on Travis AFB. The *General Plan for Travis Air Force Base, California* (Travis AFB, 2006a) states that the Base provides a facility response plan to satisfy the requirements of the federal Oil Pollution Rule (40 CFR §112). The plan demonstrates to the USEPA that Base resources are managed in a manner compliant with the regulations.

The nearest fuel storage tanks are approximately 500 feet from the Proposed Action area.

Soil Sampling

Soil sampling was conducted in support of the proposed project. All measured soil concentrations were below the appropriate respective comparison criteria (Appendix E), which indicates that the material is suitable to leave in place during construction activities for runway repair. However, if soil adjacent to the existing runway is excavated and proposed for offsite disposal, waste characterization and transport to an appropriate facility will be required. No impacts to current receptors or repair activities are anticipated.

3.9 NOISE

Noise or “unwanted sound” can be intermittent or continuous, steady or impulsive, stationary or transient. Humans or wildlife can be affected by noise either interfering with normal activities or diminishing the quality of the environment. The impact of noise greatly depends upon its characteristics (e.g., loudness, pitch, time of day, and duration) and the sensitivity or perception of the noise receptor. The Day-Night Average Sound Level (DNL) is widely used to assess noise in aviation settings. DNL represents the total accumulation of all sound energy spread out uniformly over a 24-hour period.

Delineations of noise zones by DNL were conducted in support of the *AICUZ Study* (Travis AFB, 2009). The AICUZ assumes that the flightline exists and is in operation as

the baseline condition. Land uses which are not compatible with noise generated through the operation of the flightline are prohibited from being established at specified distances from the flightline based on how sound travels (Figure 3-3). During flight operations, localized, intermittent noise levels exceed 80 decibels and decrease with distance from the flightline. Since flight operations regularly could occur at any time of the day, for any number of hours, the noise exposures shown on Figure 3-3 are assumed to be static for the purposes of assessing new sources of noise. The baseline 65 weighted decibels (dBA) DNL noise contour extends approximately 2 miles from both ends of the runway. There are no schools or churches within the 65 dBA DNL contours. There are 20 residences within the baseline 65 dBA DNL contour.

Affected Environment

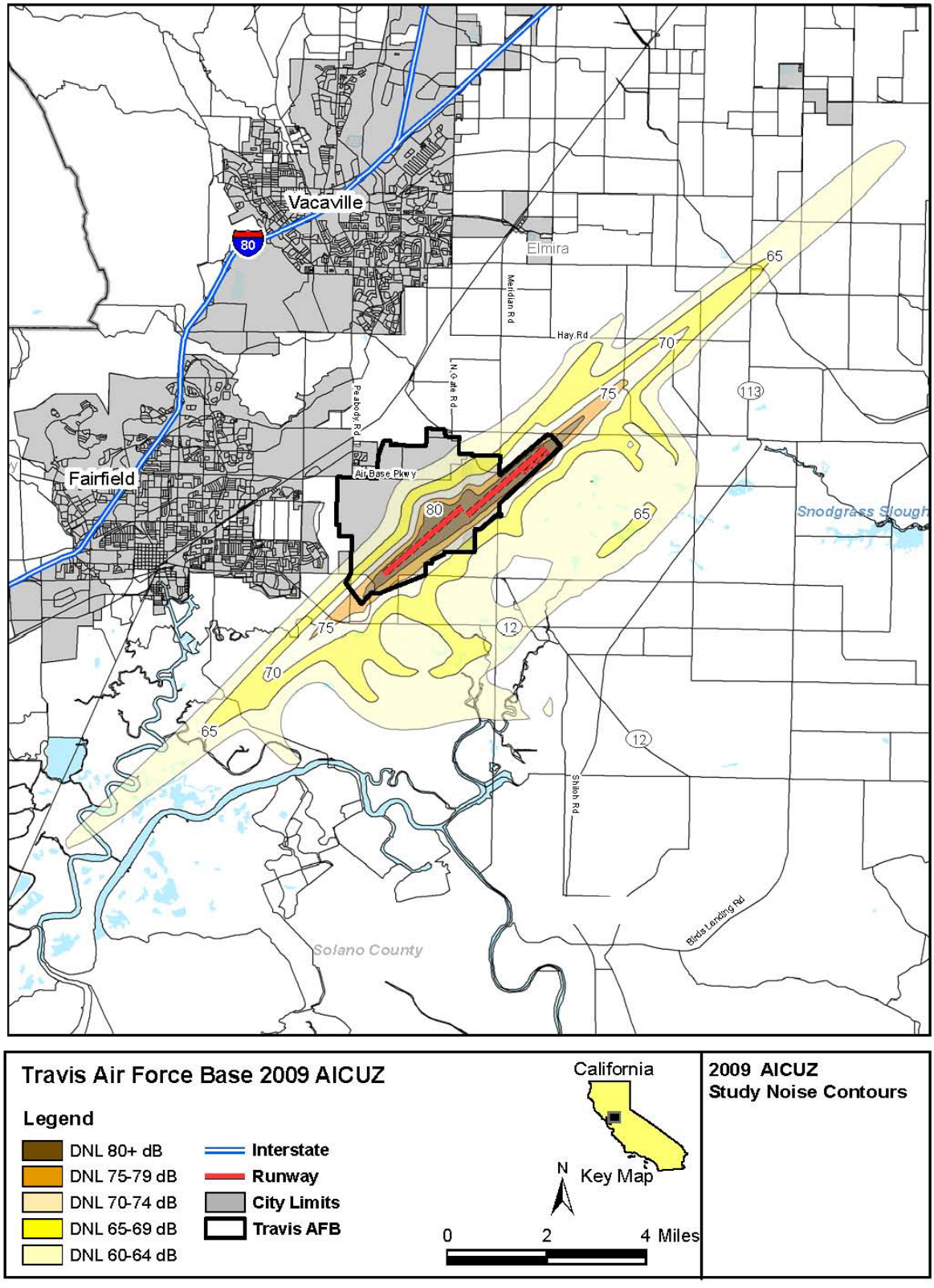

Figure 3-3: Noise contours from 2009 AICUZ study

3.10 PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Occupational safety considers issues associated with facility construction and renovation, and addresses airfield operations and maintenance activities that support base operations. Occupational safety considerations typically also include land use compatibility on- and off-installation and emergency response capabilities.

3.11 TRAFFIC AND TRANSPORTATION

Information regarding the transportation system is summarized from the *General Plan for Travis Air Force Base, California* (Travis AFB, 2006a). The road network serving Travis AFB consists of several major thoroughfares including Travis Avenue, Ragsdale Street/Cannon Drive, Burgan Boulevard, Parker Road, Hickam Avenue, and Hangar Avenue. Minor streets that branch from these main roadways are Skymaster Drive, Broadway Street, W Street, Cordelia Avenue, and 1st Street, which serve as collector facilities for the Base. Perimeter Road is adjacent to the airfield on the south side of the Base. The maximum design vehicle weight capacity of on-base roads is 14,000 pounds (i.e., Highway Class). The Proposed Action area is in the western portion of the Base. Perimeter and Ragsdale road are the primary access roads to the Proposed Action area. No other roads border the Proposed Action area.

After exiting, or prior to entering the base, traffic would associated with the Proposed Action would travel along major US Highways and Freeways then likely from Highway 12 to Walters Road, to Petersen Road and on to the installation.

3.12 WATER QUALITY, WATER RESOURCES, AND WETLANDS

Water resources comprise groundwater, surface water, floodplains, stormwater, and wastewater. Travis AFB is in the Union Creek watershed, which drains to Suisun Marsh, then to Suisun Bay, and ultimately to San Francisco Bay (Travis AFB, 2013).

Executive Order 11990 (1977) Protection of Wetlands

The purpose of EO 11990 is to “minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.” To achieve this aim, federal agencies are mandated to consider alternatives to wetland sites, limit potential damage if a planned activity may impact a wetland and involve the public throughout the wetland’s protection decision-making process.

Wetlands

Wetlands are areas that “are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (USACE, 1987). Wetlands and other waters are ecological habitats that are protected under federal laws and regulations. CWA is the primary statute providing protection of aquatic resources

and is administered by the USACE and the California State Water Resources Board (as delegated). Actions that involve the placement of fill material into jurisdictional waters or wetlands must comply with Sections 404 and 401 of the CWA.

A jurisdictional determination is used to establish whether a waterbody or wetland is considered a Waters of the United Statess. Jurisdictional waters and wetlands include the territorial seas and traditional navigable waters; perennial and intermittent tributaries that contribute surface water flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters (33 CFR §328).

Per the Porter-Cologne Act, “Waters of the State” means any surface water or groundwater, including saline waters, within the boundaries of the state. Therefore, most waterbodies and wetlands in the State are subject to state regulation, unless otherwise federally regulated.

Identified aquatic features located within the Proposed Action area include: 0.13 acres of seasonal wetlands, 7.58 acres of vernal pools and 0.12 acres of wetland swale, totaling 7.83 acres. These aquatic features are not jurisdictional wetlands as they do not meet the definition of adjacent wetlands in 33 CFR §328.3 (a)(4) since they are not adjacent to jurisdictional waters. However, these features do meet the definition of waters of the state and the definition of wetlands per EO 11990 and would be regulated accordingly.

Since all of the wetlands within this project area would likely be considered waters of the State, the discharge of fill materials would therefore be regulated under the Waste Discharge Requirements in the Porter Cologne Water Quality Control Act. However, the State of California does not have the authority to regulate this proposed action that the U.S. Air Force is proposing because Congress has not required federal agencies to comply with state laws regarding the discharge of fill material into aquatic resources. The Approved Jurisdictional Determination (Appendix A-3) is evidence that no federally regulated waters (under Section 404 of the Clean Water Act) are within the project area. The Federal Facilities Pollution Control (33 CFR 1323(a)) requires compliance with local, state and federal laws by federal agencies associated with the discharge of pollutants into waters. The material being deposited associated with this project is not a pollutant and is being placed in areas that are isolated from downstream aquatic connections and therefore the U.S. Air Force is not required to comply with this Waste Discharge Requirement of the Porter Cologne Water Quality Control Act.

Groundwater

Groundwater is water that collects or flows beneath the Earth’s surface. Groundwater originates from rain and melting snow and ice. Groundwater fills the porous spaces in soil, sediment, and rocks, and it is the source of water for aquifers, springs, and wells. The upper surface of groundwater is the water table. An unconfined groundwater aquifer does not have a confining layer between it and the surface. In an unconfined

groundwater aquifer, water seeps from the ground surface directly above the aquifer. 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 coarse-grain sediment. Groundwater wells in the 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, 2002a). Domestic wells, several of which are downgradient from Travis AFB, are typically used to provide water to households for domestic use (Travis AFB, 2002a).

The groundwater gradient indicates the direction of groundwater flow. The general direction of the groundwater gradient beneath Travis AFB is to the south, which follows the regional trend. 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 the Base (Travis AFB, 1997). The depth to groundwater in the Proposed Action area ranges from approximately 4 to 15 feet below ground surface.

Surface Water

Surface water is water on the surface of the planet such as in a stream, river, lake, wetland, or ocean. A hydrologic basin, or drainage basin, is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water (USGS, 2014). Travis AFB is in the northeastern portion of the Fairfield-Suisun Hydrologic Basin. Within the basin, water generally flows south to southeast toward Suisun Marsh, which comprises approximately 85,000 acres of tidal marsh, managed wetlands, and waterways. Suisun Marsh is the largest remaining wetland around San Francisco Bay (Moyle, P. Manfree, A., and Fiedler, P., 2014). 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, which ultimately discharge 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 the Base, near the Vaca Mountains. As shown on Figure 3-2, 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 3-2). 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).

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. A 500-year flood has a 0.2 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 2021) as flooding hazard has not been assessed on the installation.

Since flooding hazard has not been assessed, the surrounding areas were analyzed to infer the flooding hazard (Figure 3-4). The majority of the lands surrounding the installation are reported as Areas of Minimal Flood Hazard and are not considered in the floodplain. A small section to the northwest of the base is within the 500-year floodplain.

Affected Environment

Stormwater

Stormwater is water that originates during precipitation events. Approximately 38 percent of Travis AFB consists of impervious areas. To prevent flooding, runoff from the impervious areas of the Base enters the Base stormwater drainage system. The drainage system consists of a series of underground storm drains and open ditches. The Base storm drain capacity is designed for a 10-year, 24-hour storm. Only minor temporary flooding occurs during extreme rain events in areas where storm drain piping is undersized or infiltrated by roots.

The Proposed Action area which would take place within the footprint of the existing runway is almost entirely paved. There are unpaved areas surrounding the airstrip.

Wastewater

Wastewater is water that has been adversely affected in quality by use in processes that include washing, flushing, manufacturing, and sewage. The wastewater system on Travis AFB consists of industrial wastewater pipes and connections to the sanitary sewer from all lavatories, showers, and janitorial sinks in Base buildings and housing units. Wastewater is transported off base via underground piping to the local, publicly owned treatment works (POTW). Discharges from Travis AFB to the POTW average approximately 1 million gallons per day. At the POTW, wastewater is treated and either reclaimed or discharged to Suisun Slough under the POTW National Pollutant Discharge Elimination System permit (Travis AFB, 2013).

Affected Environment

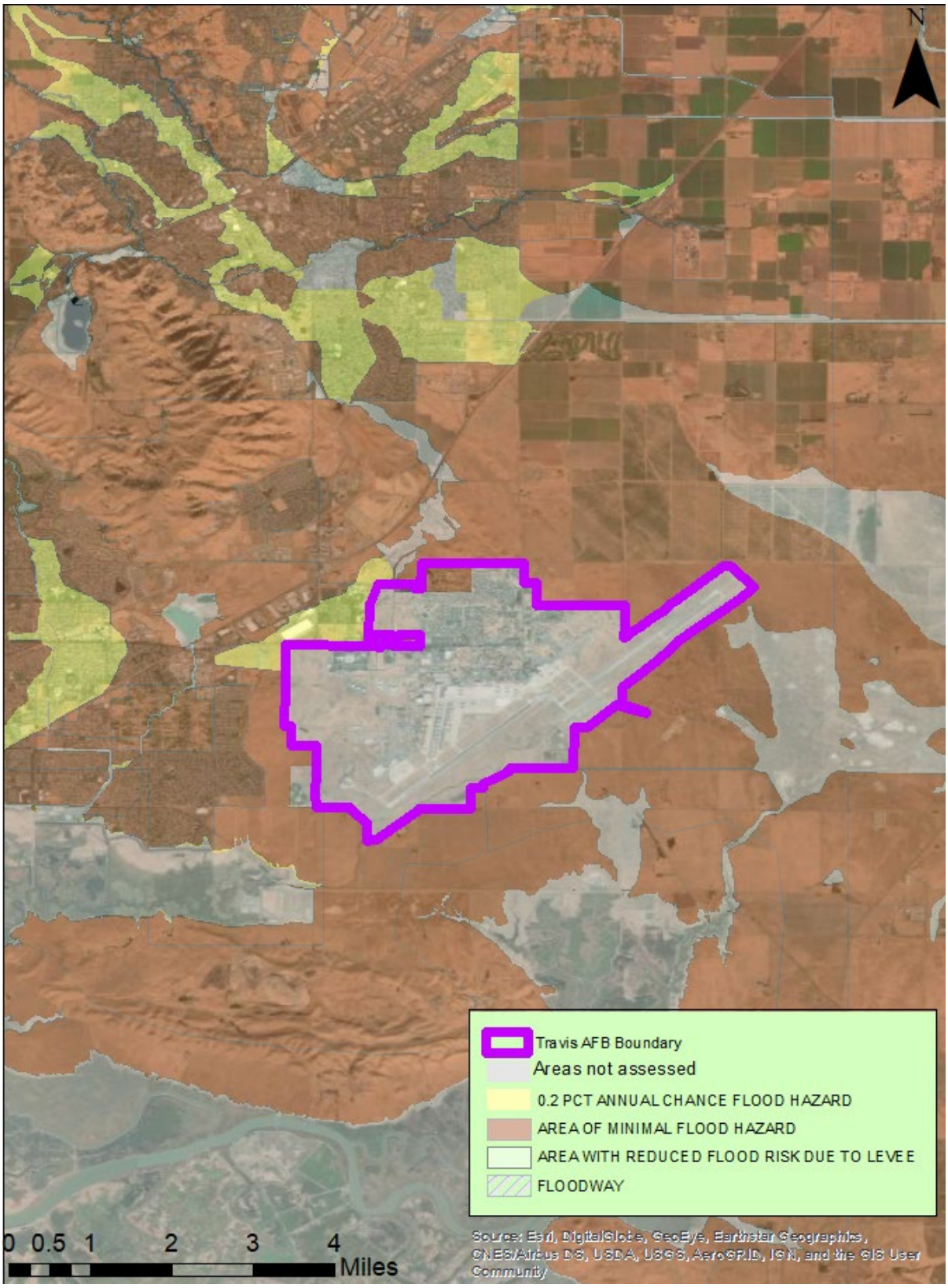

Figure 3-4: Travis AFB within the context of the surrounding floodplains

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

The potential impacts, as they apply to the Affected Environment as described in Section 3, of Alternative 1 (the Proposed Action) and the No Action alternative are described in this Section.

Potential impacts described are evaluated in terms of type (positive/beneficial or adverse), context (setting or location), degree (none, negligible, minor, moderate, severe), and duration (short-term/temporary or long-term/permanent). The type, context, and degree of an effect on a resource are explained under each resource area. Unless otherwise noted, short-term effects or impacts are those that would result from the activities associated with a project's construction and/or demolition phase, and that would end upon the completion of those phases. Long-term effects or impacts are generally those resulting from the operation of a proposed project.

Preparing an EA involves determining the significance or importance of environmental impacts associated with a Proposed Action. CEQ regulations (40 CFR §§1500-1508), direct that in considering whether the effects of the proposed action are significant, the potentially affected environment and degree of the effects of the action shall be analyzed including connected actions consistent with §1501.9(e)(1).

4.2 AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ)

Effects to the AICUZ would be significant if they caused a substantial risk to the safety of the public within the context of the region which the AICUZ impacts. Effects would also be significant if they posed a substantial risk to the safety of operations on Travis AFB.

Alternative 1 (Proposed Action).

Construction of the preferred alternative would require substantial encroachment on the AICUZ's. An obstruction to air navigation includes natural or man-made objects that protrude above the planes or imaginary surfaces and/or any man-made objects that extend more than 500 feet above ground level at the site of the structure.

No new structures which extend more than 500 feet above the ground would be constructed. However, machinery used during the reconstruction of RW 21R/03L would periodically be encroach on the primary surface of RW 03R/21L, which would be the primary runway in use during the reconstruction. In addition, the majority of the work would occur within the Clear Zone Surface of RW 03R/21L. All of the work would take place within the Accident Potential Zone (APZ) Surfaces as APZ 1 extends the majority of the length of RW 21R/03L and APZ II extends well beyond the end of RW 21R/03L.

According to the AICUZ, the following uses are restricted or prohibited:

- Releases into the air of any substance that would impair visibility or otherwise interfere with the operation of aircraft (e.g., steam, dust, or smoke);

- Light emissions, either direct or indirect (reflective), that would interfere with pilot vision;
- Electrical emissions that would interfere with aircraft communications systems or navigational equipment;

Construction activities such as demolition of the runway, grading, paving, and operation of the batch plant could release substance into the air, such as dust, fumes, and steam, that could impair visibility or interfere with the operation of aircraft. Further, construction operations at night would create a source of light that could interfere with pilot vision. Presence of metallic construction equipment could also create sources of glare that could impair vision. Lastly, some advanced construction equipment, such as ground penetrating radar used for detecting utility lines, and GPS assisted construction equipment could emit electrical signals which could interfere with aircraft communication and/or navigational systems. In addition, any use of runways, or taxiways introduces the hazard of FOD, which has the potential to damage or destroy aircraft if entrained into the engine. Because these effects would disrupt and reduce the safety of air operations at Travis AFB, the effects are considered adverse. The described impacts would only affect air operations at Travis AFB and would not extend beyond Travis AFB airspace. All of the described impacts would be temporary and restricted to the duration of the construction.

These adverse, temporary impacts could create a significant safety hazard for both construction crews on the ground as well as for pilots. Therefore, the Proposed Action would have a temporary impact to air operations at Travis AFB.

Avoidance & Minimization Measures Proposed

Since the proposed action would have adverse effects on operations within the AICUZ, the following avoidance and minimization measures are proposed to reduce the effects to less than significant:

- Flight operations and construction in the clear zones would not be scheduled concurrently. Work near the clear zones during flight operations would be strictly coordinated with airfield operations. Deference would always be given to safety.
- Dust control practices would be in effect.
- A vacuum sweeper truck for removal of FOD on-site and available at all times.
- To reduce the hazard of FOD, all air field pavements, taxiway aprons, and shoulder areas used in any way during the construction would be required to be routinely vacuum swept throughout the construction, and immediately before the pavement is opened to aircraft traffic.
- Only vehicles necessary for the construction would be allowed in the AICUZ's, all other vehicles would be required to be parked and otherwise stored in the staging areas. No equipment or vehicles would be stored in the AICUZ.
- Access to the flightline would need to be coordinated through the Airfield management operations office

- A minimum of seventy-two hours prior to any work being performed on the airfield, Travis Air Force Base Airfield Management Operations would publish a Notice-to-Airman (NOTAM) prior to any work commencing.
- Red lighting would be required for use during night construction operations. White lighting would be used for tall obstructions present during daylight hours.

With these hazard mitigation measures; all impacts would be reduced below the level of significance. Although, air operations would still be temporarily impacted, mitigation measures would reduce project related risks to acceptable safety levels.

No Action Alternative.

If the Proposed Action were not carried out, there would not be incursions into the AICUZ's, and air operations would continue as they currently do, to the extent that the existing runways can support air operations. There would be no effect to current AICUZ's under the No Action Alternative.

4.3 AIR QUALITY AND CLIMATE CHANGE

Impacts to air quality could be significant if impacts would result in:

- a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area under NAAQS and CAAQS;
- a violation of any air quality standard or a substantial contribution to an existing or projected air quality violation; or
- a conflict with, or an obstruction to implementation of the applicable air quality plan.

Assessment of general conformity requires federal agencies to prepare a written conformity assessment for federal actions in or affecting areas which are in non-attainment or maintenance for the NAAQS. An assessment begins with an applicability analysis, which includes screening for exemptions or presume-to-conform actions and, if needed, an estimate of net change in air emissions that would be generated by the Proposed Action compared to the de minimis threshold levels defined in the general conformity rule. If the emission levels are below the threshold levels, a Record of Non-Applicability (RONA) is prepared. If the emission levels are above the threshold levels, a detailed conformity determination is required.

Alternative 1 (Proposed Action).

An applicability analysis for the Proposed Action was conducted and it was found that emission levels were below the de minimus threshold levels. A Record of Non-Applicability has been prepared and is in Appendix D.

Emission sources associated with the Proposed Project include off-road construction equipment operating at project sites, on-road vehicles traveling to and from the project sites, operation of the temporary batch plant, utility usage, minor land conversion changes, VOC's from paints, and fugitive dust associated with demolition, grading, soil disturbance, and transport of debris. These emission sources would be solely

associated with construction activities. After completion of the reconstruction, operations would return to normal and no new sources of continuing emissions would be created.

Table 4-1: Federal General Conformity de Minimis Thresholds and Proposed Action Emissions

Air Basin	ROG	NO_x	CO	PM10	PM2.5
	Annual Air Pollutant Emissions in Tons per Year				
Bay Area Air Basin (BAAQMD)	100	100	100	N/A	100
Proposed Action Emissions 2022	0.835	5.577	4.642	105.364	0.223
Proposed Action Emissions 2023	0.646	1.715	0.084	0.084	0.081

Implementation of the Proposed Action would cause temporary, adverse, short-term air quality impacts as a result of construction emissions. Construction-related impacts are expected to be local (i.e., confined to the construction site area) and limited to the duration of the construction activities. No significant impacts from construction emissions are anticipated under the Proposed Action.

Greenhouse gasses would also be produced as a result of implementation of the Proposed Action. Greenhouse gasses would be generated from the operation of fossil fuel powered equipment as well as from electricity needed to complete the project. Greenhouse gasses generated as a result of the Proposed Action would be a very small contribution to the region's overall carbon footprint (Table 4-2).

Table 4-2: CO_2 Contribution of Proposed Action to Regional Air Basins

Table 4-2: CO2 Contribution of Proposed Action to Regional Air Basins

Air Basin	CO_2	Percentage of Total
	Annual GHG Emissions in Mega Tons per Year	
Solano County	3,104,100	0.046
State of California	425,300,000	3.35×10^{-6}
Proposed Action	1,426	

Nevertheless, to reduce air emissions to the maximum extent practicable, the following Best Management Practices (BMPs) would be in effect:

- Vacuum/sweep pavements as necessary to control dust and FOD
- Treat dust abatement on access roads with applications of calcium chloride, water sprinklers, or similar methods or treatment.
- A specific dust and dirt control plan would be developed for the project.
- Only designated haul routes shall be used.
- Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

No Action Alternative.

Under the No Action alternative, construction would not occur, and air pollutant emissions associated with construction would not be generated. However, as degradation of the pavement continues, to include unused surfaces, emissions of fugitive dust would increase. While these levels would be less than significant, they would increase over time.

4.4 BIOLOGICAL/NATURAL RESOURCES

Impacts to biological resources could be considered significant if unique or ecologically critical areas were damaged or destroyed, there were substantial, unmitigable, adverse effects on special status species, or if the action would violate any federal or state laws.

Alternative 1 (Proposed Action).

Implementation of the Proposed Action would have temporary and permanent adverse impacts on biological resources.

Within the context of the surrounding landscape, the Proposed Project area has already been largely disturbed. The total limits of disturbance are 191 acres, of these 113 acres are already paved. Paved surfaces do not possess habitat value. The remaining 78 acres of grassland/turf habitat, and 4.5 acres of wetlands, are also generally heavily managed.

Within the Proposed Project area special status species make use of both the grassland and wetland habitat.

California Tiger Salamander (CTS)

CTS is known to exist on the installation, and upland habitat exists within the Proposed Project area. The non-jurisdictional wetlands in the Proposed Project area are not

breeding ponds. Ground disturbance which would occur as a part of the Proposed Action could result in killing CTS from trampling, collapse of burrows, entrapment in project excavation areas, or by being run over by construction equipment. Ground vibration from demolition activities could disturb CTS in the area, causing them to abandon their habitat, which could expose them to predation, starvation, or desiccation. To reduce the chance of mortality, the entire area within the limits of disturbance would be fenced off and unavailable to the species as habitat for the duration of the project. Impacts from habitat exclusion, harassment from ground vibration, and potential for mortality would be temporary adverse impacts associated with the construction of the project and would cease and return to baseline levels at the completion of the proposed project.

Improvements to the storm drainage system would reduce the contaminant load to the adjacent aquatic features, which would also benefit the species in the long term.

The consultation process with USFWS is on-going. During this process, appropriate conservation measures are anticipated to be finalized in an approved biological opinion which would be binding on the project. The intent of the conservation measures would be to minimize adverse impacts to the species.

The installation would not take any actions which could jeopardize the continued existence of CTS and would ensure that all adverse impacts are minimized to the extent practicable and mitigated where avoidance is not practicable.

Contra Costa Goldfields

Surveys conducted in support of the PBO detailed the locations of Contra Costa goldfields on the installation. All of these locations are outside of the proposed limits of disturbance for the project. Furthermore, these areas would be clearly marked for avoidance to prevent accidental destruction or damage. Strict erosion and dust control measures would reduce the chance of indirect impacts on nearby populations. Therefore, no impacts, temporary or permanent, direct, or indirect, would be expected as a result of implementation of the Proposed Action.

Vernal Pool Branchiopods

The proposed project would result in the fill of 4.5 acres of vernal pool wetlands. Any tadpole shrimp or fairy shrimp eggs would be destroyed by the Proposed Action. However, while these pools could provide suitable habitat for the tadpole shrimp and the fairy shrimp, none have been found during surveys, and these wetlands were considered low quality during the assessment for the PBO. Conservancy fairy shrimp are understood to inhabit vernal pools similar to the aforementioned species, however, none have been found on any of Travis AFB's properties.

Installation of a drainage system beneath the runway would direct any precipitation that falls on the impervious surface into the storm drain and not allow runoff to the surrounding wetland drainages, as it currently does. Currently, impervious surface represents 113 acres out of an estimated drainage area of 390 acres, based on topography. This impervious surface area would be permanently reduced by approximately 41 acres which would result in a benefit since more precipitation would

be able to infiltrate the soil than currently. New impervious surface would represent 72 acres out of a total of 390 acres, or approximately 18 percent. While surrounding drainages would receive less runoff, they would receive more recharge from infiltration of areas converted to grassland as a result of reducing impervious cover. Since runoff from the runway would be redirected, less contaminants would be directed into adjacent wetlands resulting in a benefit.

During construction, due to the conservation measures avoiding or minimizing erosion, no adverse effects are anticipated for surrounding vernal pool or swale habitat. These habitats outside the limits of disturbance will not be altered by the proposed project and any tadpole shrimp or fairy shrimp within these vernal pools will not be adversely affected.

Consultation is on-going. The installation would not take any actions within the Proposed Project area, which could jeopardize the continued existence of vernal pool branchiopods and would ensure that all adverse impacts are minimized to the extent practicable and mitigated where avoidance is not practicable. If the Proposed Action is selected Travis AFB would purchase mitigation credits in accordance with the biological opinion for the Proposed Project, as required, at a USFWS-approved mitigation bank to compensate for vernal pool habitat loss. Based on market research conducted in support of the Proposed Action, USFWS approved mitigation banks in the Travis AFB service area that have credits for purchase for species of concern include the North Suisun Mitigation Bank and the Elise Gridley Mitigation Bank.

Migratory Birds

A number of migratory birds could be in the general proposed project area; however, very few are likely to be within the limits of disturbance. A primary reason for this is that airfields are managed specifically to reduce the incidence of birds in and around the airstrip (Travis AFB, 2011). Therefore, there are no shrubs, trees, or dense marshlands, as these could attract birds which would present a hazard to both the birds and aircraft. Consequently, the only migratory birds likely to be present in the Proposed Project area would be Tricolored black birds, and the long-billed curlew. Only the curlew is a ground nester.

Surveys would be conducted prior to the commencement of work to identify any migratory birds or their nests. Active nests would be flagged for avoidance.

With appropriate surveys and avoidance, there would be no impacts to migratory birds.

Bald and Golden Eagles

Both bald and golden eagles have been observed near the proposed project area. However, both of these species nest on top of tall structures, such as trees or power transformer, none of which are present near the Proposed Project area. Tall structures have been excluded from most areas of the AICUZ clear zones for the safety of aircraft. Since there are no suitable nesting locations, the Proposed Action would not have an effect on bald and golden eagles.

Invasive Species

Invasive species can have a significant and adverse effect on the health of the environment. Consequently, it is of great importance to ensure that projects do not transport any non-native biological media. Despite the fact that there is already substantial invasion of non-native species in the proposed project area, care must be taken to not introduce additional invasive species. Since biological material with invasive potential is pernicious, the following minimization measure would be in effect if the Proposed Action were selected:

- Previously used construction equipment would be thoroughly cleaned prior to bringing it onto the project site. Equipment must be free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. Additional cleaning requirements per the U.S. Department of Agriculture would be in effect for noxious weeds or pests of local concern.

Non-jurisdictional wetlands

To the extent possible, the Proposed Action is designed to avoid impacts to jurisdictional and non-jurisdictional wetlands. While the Proposed Action would result in the loss of 4.5 acres of non-jurisdictional wetlands, off-site compensatory mitigation for these wetlands would be achieved through the purchase of mitigation credits at an approved bank in compliance with Waste Discharge Requirements (WDR) under the Porter-Cologne Act and the California state policy of “No Net Loss” of wetlands.

Measures to protect wetlands adjacent to the Proposed Project area include the installation of temporary construction fencing around seasonal wetlands and the implementation of stormwater BMPs, including installation of silt fencing and straw wattles to minimize runoff into wetland features.

Potential impacts on wetland resources would be less than significant with implementation of avoidance and minimization measures and with compensatory mitigation for unavoidable loss of wetlands.

No Action Alternative.

Under the No Action Alternative, construction or other changes to the physical environment that could affect biological resources would not occur. Current impacts to biological resources from routine operation of the airfield would continue at current levels.

4.5 CULTURAL RESOURCES

Effects to Cultural Resources would be considered significant if they violated any federal or state laws. Effects would also be considered significant if they substantially adversely affected historic districts, structures, or objects listed or eligible for listing in the NRHP, or if such actions caused a loss or destruction of tribal cultural resources.

Alternative 1 (Proposed Action).

Construction of the Proposed Action would necessitate demolition of Runway 21R/03L. While the runway is greater than 50 years old, through consultation with the SHPO, it was determined that the runway was not eligible for NRHP listing due to modifications and repairs that have occurred during the course of operations. Other structures on the installation which are contributing elements to recognized Historic Districts on the base or are individually eligible are sufficiently far enough away from the work such that they would not be adversely affected by the proposed work.

As with any ground disturbing project, there is a possibility of unearthing unanticipated artifacts, remains, or objects of cultural significance. However, records searches, and previous archeological survey indicated that intact prehistoric and historic sites are not likely to occur within the APE of the Proposed Project area.

Travis AFB has inadvertent discovery procedures outlined in their Integrated Cultural Resources Management Plan (ICRMP), which outlines actions required to protect the resource to the maximum extent practicable.

In addition, Travis AFB reached out to tribes historically associated with the lands of the installation. No objections to the Proposed Action were received. Copies of the consultation are available in Appendix B.

Because no cultural resources are reasonably expected to be impacted by the Proposed Action, no potential to cause adverse effects, temporary or permanent, are expected as a result of the Proposed Action.

In the event of inadvertent discovery, which could lead to unanticipated impacts, the following best management practices would be in effect:

- If, during excavation or other construction activities, any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found, activities that may damage or alter such resources would be suspended. The area would be secured to prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources. Resources include, but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. The Installation Cultural Resources Manager would be contacted who would consult with the SHPO or Tribal representative, as applicable, on the appropriate course of action.

No Action Alternative.

If the No Action Alternative is selected, no new ground disturbance would occur, and no excavation or removal of existing pavements would occur. Since there would be no ground disturbance, there would be no potential for effect on Cultural Resources.

4.6 EARTH RESOURCES

Alternative 1 (Proposed Action).

Implementation of the Proposed Action would not introduce any new permanent standing structures to the installation, therefore there would be no new source of risk to people from seismic activity as a result of the Proposed Action.

Implementation of the Proposed Action would result in the removal of soil sufficient to both extend the runway overruns, as well as to excavate any volumes contaminated by previous air operations.

Soil sampling conducted in support of this project indicated that contamination levels were below contamination thresholds, consequently, it is not anticipated that substantial volumes of soil would need to be removed due to contamination (Appendix E).

Therefore, the only soil anticipated to be removed would be those volumes necessary for the extension of the overruns. The overrun would be placed in the footprint of an existing taxiway; thus, it is likely that some replacement of the underlaying native material has already occurred. To meet pavement criteria, this results in an estimated removal volume of approximately 10,000cy of soil which would likely be disposed of at the Potrero Hills landfill.

In addition, twelve inches of soil below all runway, taxiway, and overrun surfaces would be modified with Lime or cement to stabilize the foundation of the runway. The total volume of soil impacted by the modification would be approximately 105,000cy of native material.

The San Ysidro soil series is associated with farmland of statewide importance, as the soil itself and the climate possess the characteristics needed for the production of crops. However, these soils are moderately extensive, extending throughout much of California’s central valleys. Therefore, the permanent loss of this amount of these soils would be less than significant.

While construction for national defense purposes is exempt from the Farmland Protection Policy Act, to minimize native material loss to the maximum extent practicable, the following BMPs would be in place:

- Clean soil would be able to be reused for backfill. Contaminated soil cannot be reused for backfill.
- Where possible, topsoil would be stripped and stockpiled for replacement at the completion of work.

- To minimize the disposal of native material to the maximum extent practicable, specific written authorization would be required to dispose of native soil material excavated as a part of this project that would otherwise be satisfactory for use.

No Action Alternative.

If the No Action Alternative is selected, there would be no excavation needed to support the new overrun, and the existing subgrade would remain as-is, without modification. Therefore, there would be no new impacts to soils, or any other Earth Resources.

4.7 HAZARDOUS MATERIALS / WASTES AND SOILD WASTES

Impacts to the human environment from solid waste generation could be significant if the capacity of local landfills were to be exceeded, eliminating this resource from public use. Impacts to the human environment from HM and /or HW could be significant if these materials were introduced into an area where they did not previously exist and should not be; if they adversely affect the health and safety of the public; substantially degraded the health or quality of the environment; or introduce unknown or uncertain risks.

Alternative 1 (Proposed Action).

Construction of the Proposed Action would result in the generation of solid wastes. Depending on the recycling rate the project is able to employ, wastes generated from the Proposed Action could total between approximately 228,000 cubic yards of material to 10,000 cubic yards of material. PCC is 100 percent recyclable, while only approximately 30 percent is anticipated to be reused on site, Vulcan Materials, Teichert Aggregates, and Bell Marine Industries, among others, accept construction debris for recycling. Maximizing reuse and recycling of aggregate would reduce the cost of the Proposed Action, as some of these companies accept the debris free of charge. Hot mix asphalt is not widely recyclable and was considered a solid waste for the purposes of this assessment. The current capacity of the Potrero Hills Landfill is 13,872,000 cubic yards, therefore, wastes from the Proposed Action could consume 0.016 percent of the remaining capacity. However, due to the weight of the material, if wastes were disposed of, disposal would need to be distributed over time to prevent exceeding the daily tonnage allowance, or a waiver would be needed. Based on these factors, the Proposed Action would not result in a significant impact to solid waste handling facilities or significantly reduce availability of these resources to the public.

Construction of the Proposed Action would result in the handling of HM and the generation of HW.

Demolition of the existing runway could cause a release of asbestos as naturally occurring asbestos is sometimes found in PCC rubble. However, testing cores were taken in support of the Proposed Project, and no asbestos above the detection level was found.

Some soil disturbance necessary to complete the Proposed Action would occur in managed ERP sites on the installation. Soils and groundwater at SS016 are contaminated. Soils removed from SS016 would have to be handled and disposed of as

HW when excavated. In addition, precautions for workers would need to be in effect when working within ERP site SS016. Similarly, TCE contamination exists at SS029. Hazardous vapors could be present during soil disturbing operations at this site. Residual benzene present at ST032 could present a hazard to workers.

If soil is determined to be hazardous (Appendix E), it would need to appropriately disposed of. Such soil would not be suitable for re-use or stockpiling, as this would increase the chance of an uncontrolled release of HM to the environment. Transportation of contaminated soils to appropriate facilities could increase risk of HM exposure to the public.

To successfully complete the Proposed Action, excavation into the ground would need to occur to a minimum depth of 36-inches or 3 feet in most instances, with a potential to excavate deeper to level underlying material. Depth to groundwater in the Proposed Project Area ranges from 4 feet to 15 feet below ground surface. While the permanent aquifer is generally 12 to 30 feet below ground surface, during the excavation groundwater could nonetheless begin to seep in and accumulate in excavation pits. In and near the managed ERP sites, this groundwater could be contaminated and would need to be handled accordingly.

Only one monitoring well exists within the LOD for the project. This monitoring well would be flagged for avoidance like any other sensitive resource. The well would be protected in place. Four monitoring wells exist near the LOD, since the entire LOD would be fenced, these monitoring wells would be unlikely to be affected by the Proposed Project activities.

Use and operation of the batch plant needed to generate PCC for the runway could generate a number of HW such as mercury, and metal contaminated ash, in addition to air emissions as discussed in Section 4.3.

Lastly, paints used for runway markings could contain volatile organic compounds (VOCs) or other hazardous constituents. The paint proposed for this action would be low VOC, and water based.

Travis AFB is highly experienced at handling HM/HW. Numerous policies and procedures are in place to reduce the risk of uncontrolled release of HM/HW to the environment, and to ensure proper handling and disposal of HM/HW. While the full scope of handling for HW is outlined in the Travis AFB Hazardous Waste Management Plan, key provisions which have particular bearing on the safe execution of the Proposed Action are outlined below:

- Personnel working in areas of known or suspected contamination would need the appropriate level of HAZWOPER certifications, which would be verified prior to the commencement of work.
- A spill plan, and an accident prevention plan would be required prior to the commencement of work.
- Transportation of HW would only be done by licensed transporters, to licensed facilities.

- Soil excavated from the Proposed Project area would be characterized to determine if it contains contamination above acceptable limits. Contaminated soil would be segregated, then disposed.
- Groundwater in excavated areas would be treated as hazardous if it occurs in areas identified by the ERP.
- Operation of the batch plant would occur under the proper permit to ensure safe operation.

Since Travis AFB has established policies and procedures in working with HM/HW, and the locations of contamination are well known and documented, implementation of the Proposed Action is not expected to increase known risks or to introduce an unknown risk of any significance.In addition, the robustness of these procedures and policies substantially reduces the risk of exposure to the public. While there is always a risk of spill, or uncontrolled release, proper worker certifications in addition to a spill prevention and response plan would reduce the environmental damage that could result from a release.

In addition, a provision of the ROD is the "Travis AFB shall seek prior concurrence of EPA and the State before any anticipated action that may disrupt the effectiveness of the LUCs or any action that may alter or negate the need for LUCs." As the Proposed Action has the potential to disrupt the effectiveness of the LUCs, regulatory notification is required. AFCEC will seek appropriate regulatory concurrence prior to construction actions on the Proposed Action commence.

Taken together, the risks to the environment and/or public safety from the Proposed Action due to the handling, use, generation, storage and disposal of HM/HW is less than significant.

No Action Alternative.

If the No Action Alternative is selected, no additional HW would be generated. Regularly scheduled maintenance would still generate small amounts of HW, which would be handled and disposed of in accordance with existing procedures. These maintenance actions would continue until Runway 21R/03L would be rendered completely unusable. Existing ERP sites would continue to be managed as is and current risk levels would remain unchanged.

4.8 NOISE

Impacts to the human environment from noise would be significant if they substantially increased the ambient noise levels, even temporarily, near sensitive receptors, or to a level where a state or local law would be violated.

Alternative 1 (Proposed Action).

Representative noise levels associated with the construction of the proposed action would be as follows:

Table 4-3: Noise Levels of Construction Activities Associated with the Proposed Action

Type of Equipment	Decibels (at 50 feet)	AICUZ Noise Zone Where Used
Backhoe	80	DNL 80+
Compacter	80	DNL 80+
Compressor	80	DNL 80+
Concrete saw	90	DNL 80+
Concrete Batch Plant	83	DNL 80+
Concrete mixer truck	85	DNL 80+
Crane	85	DNL 80+
Grader	85	DNL 80+
Paver	85	DNL 80+
Scraper	85	DNL 80+
Trucks	55	DNL 80+
Vacuum Sweeper Truck	85	DNL 80+

Since all actions associated with the Proposed Action would be on, or immediately adjacent to the flightline, the noise associated with the Proposed Action does not differ significantly from the baseline.

Since the installation was in place prior to growth of the surrounding area, adjacent land uses are largely rural and there are few sensitive receptors within the established airfield noise contours. As stated in Section 3.9, there are no sensitive receptors within the 80+ zone, and there are 20 residences within the 65 dBA contour.

Because the noise emitted from construction machinery is substantially similar to, or less than the noise emitted from flight operations, there would be no impact to the human environment from noise associated with the Proposed Action.

No Action Alternative.

If the No Action Alternative were to be implemented, the current noise environment would remain unchanged. Expected contributions to noise under the No Action Alternative would include continuing flight operations, regularly scheduled maintenance, and other activities associated with the normal functioning of the air field. Noise contours associated with operations on Travis Airfield would remain as they currently are.

4.9 PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY

Impacts to public and occupational health and safety could be significant if they posed a danger to the general public, posed unknown/uncertain risks to workers, or violated any federal or state laws.

Alternative 1 (Proposed Action).

Implementation of the Proposed Action could pose risks to worker health and safety. Implementing the Proposed Action would require construction activities involving military

and civilian personnel. Administrative controls would reduce risks to workers. Prior to commencement of work, a project specific health and safety plan, and an accident prevention plan are required to be drafted and approved. All personnel would be trained on the contents of the plan, and regular safety reminders, such as tailgate safety meetings would reduce the risk of an unsafe environment. The use of Personal Protective Equipment (PPE) as appropriate to the task, in accordance with regulations, would be required on the job site at all times. In addition, a designated Safety Officer would be required to be on-site during jobs of this magnitude to ensure a safe working environment. To reduce risks to the public, access to the jobsite would be controlled through the use of barriers, signs, or other methods as appropriate. At the end of each workday, the jobsite would be secured to prevent unauthorized access.

With implementation of the health and safety plan, accident prevention plan, PPE and appropriate supervision, the potential for adverse impacts on safety and occupational health are expected to be minor during construction of the Proposed Action.

No Action Alternative.

If the No Action alternative is selected current airfield operations would continue to the extent practicable. However, as the condition of the runway is degrading, there is an increased risk of mishaps due to pavement failures. Crumbling asphalt, and chips of cement could become FOD. Continued pumping of water from under the runway due to full depth cracks could change the frictional coefficient on the runway which would increase risk when landing. In addition, the shorter overrun currently existing is inherently less safe than a longer overrun.

While no new risks would be introduced, existing risk from air operations would increase until such time as the runway could no longer be operated. Regular maintenance actions would be insufficient to bring the runway up to a safe operating condition, therefore continued operation would increase risks to pilots and ground personnel. Over time, this risk could become significant to the extent that the runway would be removed from operation.

4.10 TRAFFIC AND TRANSPORTATION

Impacts to traffic and transportation would be significant if they significantly increased the vehicle miles traveled by persons utilizing the road networks, or if they created substantial traffic congestion and increased the idling time of vehicles on the road.

Alternative 1 (Proposed Action).

If the Proposed Action were to be implemented, there would be increases of traffic along the haul route during the phases of construction that would require the removal of material from the site or delivery of material to the site. The majority of increased traffic would be limited to the boundaries of the installation. Trucks would enter via the southern gate, therefore, base traffic, which is concentrated in the northern sections of the installation, would not be affected. Haul routes would then lead off the installation to the nearest refuse site. The nearest landfill is five miles from the Proposed Project area.

The roads leading to this landfill are seldom used by the general public. Speed limits range from 15 miles per hour to 50 miles per hour on Highway 12.

Since speeds are generally low, and the roads are only lightly used by the general public, these temporary impacts to traffic and transportation would be less than significant.

No Action Alternative.

The No Action alternative assumes that the construction of the Proposed Action would not occur. Therefore, traffic patterns would continue as they currently are, and there would be no effect.

4.11 WATER QUALITY, WATER RESOURCES, AND WETLANDS

Impacts to wetlands could be significant if there was a substantial effect on federally-protected wetlands or other waters of the U.S., as defined by Section 404 of the Clean Water Act. Impacts to water quality could be significant if they violated water quality standards or waste discharge requirements or any other laws.

Alternative 1 (Proposed Action).

Wetlands

Water quality impacts that could result from project construction activities and project operations were evaluated based on the construction practices and materials that would be used, the location and duration of the activities, and the potential for degradation of water quality or beneficial uses of project area waterways.

If the proposed action were implemented 4.5 acres of non-jurisdictional wetlands would be filled to accommodate the new overrun. Since the aquatic features are non-jurisdictional, the requirements Section 404 and 401 of the Clean Water Act would not apply. However, these features would still be recognized as wetlands by EO 11990. No permit would be sought for compliance with the Waste Discharge Requirement of the Porter Cologne Water Quality Control Act (Section 3.12).

Construction in wetlands conforming to the definition in EO 11990 is only permitted if there are no other practicable alternatives. Based on the screening of alternatives as outlined in Section 2, there are no other practicable which would meet the purpose and need of the project which do not have impacts on wetlands. Extension of the overrun is needed to operate the runway safely in compliance with Air Force and FAA requirements. The overrun could not be extended to the south, as there are wetlands with endangered species in them. The alternative selected is the only practicable alternative which meets the purpose and need of the project. The construction boundaries have been minimized to the maximum extent practicable, and minimization measures would be employed as outlined below, and as further defined by permit requirements to minimize impacts to adjacent wetlands. Mitigation for impacts to vernal pool habitats may require the purchase of credits from an appropriate USFWS approved mitigation bank. This mitigation purchase would fulfill requirements for both ESA under section 7 as well as EO 11990.

Filling of wetlands would be a permanent adverse effect; however, with avoidance, minimization and mitigation measures as stipulated by the SWPPP and other permits, as applicable and required, the loss would be temporary and less than significant.

Groundwater

Groundwater beneath Travis AFB is not used for potable purposes due to nearby ERP sites, however, groundwater still has environmental value. Implementation of the Proposed Action would reduce the amount of impervious surface on the installation. Consequently, this would increase potential groundwater recharge, which would be a permanent, beneficial effect.

Surface Water and Stormwater

Numerous activities associated with the Proposed Action could have an adverse effect on surface water quality during construction directly, and indirectly through stormwater runoff. Removal of vegetation, grading, pavement demolition, and material hauling could liberate soils which could move into surface waters if runoff is not controlled. Since the Proposed Project would disturb more than one acre of land, a Construction General Permit would be required. Acquisition of a permit would require a Stormwater Pollution Prevention Plan be prepared prior to on-site construction related work on the project commencing. In addition, implementation of the Proposed Action would include repairs and upgrades to the existing storm drain system. As some of these conveyances have been encroached on by plant roots, implementation of the Proposed Action would result in a beneficial effect on stormwater systems.

Floodplains

Since the Proposed Action would not occur in a base floodplain, there would be no adverse impact to floodplains from the Proposed Action.

Wastewater

Operation of the temporary batch plant as a component of the Proposed Action would generate wastewater. However, wastewater generation on base currently averages 1 million gallons per day. At full capacity, the batch plant would produce approximately 30,000 gallons of wastewater per day. This represents approximately 3 percent of the current volume. Therefore, impacts to wastewater treatment systems, and impacts from generated wastewater would be less than significant.

Taken together, impacts from the Proposed Action would result in some minor adverse impacts, and some minor beneficial impacts. The following Best Management Practices taken from Travis AFB's current Stormwater Pollution Prevention Plan (SWPPP) would help reduce impacts to water resources and water quality by keeping dust and particulates damp, using only enough water for dust control.

Minimize sediment laden runoff by:

- Spraying water on structures being demolished
- Spraying water on debris piles being moved or loaded for hauling off Base

- Spraying water on areas being graded or excavated as well as access roads and parking areas being traveled by equipment
- Using covered roll-off dumpsters to minimize handling and exposure to wind, cover at the end of every shift

Cover exposed soil by:

- Keeping debris piles covered when windy or until site removal has occurred by using a secured tarp with ropes, weighted sandbags and/or securely fasten with stakes.
- Preventing rain from washing away soil
- Preventing 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 to the maximum extent practicable:

No Action Alternative

If the No Action Alternative is selected, no changes to wetlands, water resources, floodplains, or wastewater would occur. No changes to the stormwater drainage system or stormwater management would occur.

5.0 OTHER NEPA CONSIDERATIONS

5.1 UNAVOIDABLE ADVERSE EFFECTS

This EA identifies any unavoidable adverse impacts that would be required to implement the Proposed Action and the significance of the potential impacts to resources and issues. NEPA §1508.27 specifies that a determination of significance requires consideration of context and intensity. Reconstruction of Runway 21R/03L would impact the local project area at Travis AFB. The severity of potential impacts would be limited by regulatory compliance for the protection of the human and natural environment, proposed avoidance and minimization measures, and compensatory mitigation.

Unavoidable short-term adverse impacts associated with implementing the Proposed Action would include temporary erosion and sedimentation from soils disturbance, a temporary increase in fugitive dust and air emissions during construction, intermittent noise, and minor alterations to local traffic and airfield operations. However, these effects are considered minor and would be confined to the immediate area. Use of environmental controls and implementing controls required in permits and approvals obtained would minimize these potential impacts. Unavoidable, long-term, adverse impacts would occur to up to 4.5 acres of non-jurisdictional wetlands during Runway 21R/03L replacement.

For the Proposed Action to be accomplished, these adverse impacts would occur. The action is required to ensure safe airfield operations in accordance with FAA regulations and Air Force guidance. No other alternatives would provide the engineering solution to meet the safety standards for this unique mission of national security.

5.2 RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

The relationship between short-term uses and enhancement of long-term productivity from implementation of the Proposed Action is evaluated from the standpoint of short-term effects and long-term effects. In reference to the Proposed Action, “short-term” refers to the temporary phase of construction of the proposed project, while “long-term” refers to the operational life of the proposed project and beyond.

Construction of the Proposed Action would result in short-term construction-related impacts such as interference with air operations on Travis AFB, limited air emissions, dust generation, disturbance of wildlife, loss of wetland habitat, and generation of solid wastes. These impacts would be temporary and would occur only during construction and are not expected to alter the long-term productivity of the natural environment.

The Proposed Action would assist in the long-term productivity of the surrounding habitat by reducing the amount of impervious surface, which would reduce runoff and increase groundwater recharge. It would assist in the long-term productivity of the human environment by retaining Runway 21R/03L in its current location, in lieu of creating new land disturbance elsewhere. It would also assist in the long-term productivity of the human environment by increasing safety of air operations using the runway which would allow the military mission to continue. These long-term beneficial

effects of the Proposed Action would outweigh the mitigable short-term adverse impacts to the environment resulting primarily from project construction.

5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

NEPA §101 2(c)(iv) requires a detailed statement on any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented. Irreversible and irretrievable resource commitments are related to the use of non-renewable resources and the effects that the use of those resources have on future generations. Irreversible commitments of resources are those that cannot be reversed except over an extremely long period of time. These irreversible effects primarily result from destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural site).

The proposed action would constitute an irreversible or irretrievable commitment of non-renewable or depletable resources, for the materials, time, money, and energy expended during activities implementing the proposed action. Under the Proposed Action, there would be irreversible and irretrievable commitments of resources.

Use of landfills to accept construction wastes and debris would result in a permanent incremental loss of landfill capacity.Consumption of fossil fuels and energy would occur during construction and operation activities. Fossil fuels (gasoline and diesel oil) would be used to power construction equipment and vehicles. Electrical power would be used for lighting and operations. The energy consumed for project construction and operation represents a permanent and non-renewable commitment of these resources.

Materials for construction, including cement and asphalt constituents, piping, electrical components, and other appurtenant structures, would be irretrievably committed for the life of the project. Use of these materials represents a further depletion of natural resources. Construction and maintenance activities are considered a long-term non-renewable investment of these resources.

Land, including the 4.5 acres of non-jurisdictional wetlands and small amounts of grasslands to support the extended overrun, would be physically altered by construction and would be committed to the new use for the foreseeable future. This would represent a permanent commitment of the land to a developed use for the life of the project and would decrease the amount of open land available for other uses. The capital and labor required for construction would be an irreversible and irretrievable commitment of resources.

In addition to the resources expended during the reconstruction of Runway 21R/03L, there would be consumptive use of certain non-renewable energy resources and repair materials required to maintain Runway 21R/03L for the new remaining life of the project.

5.4 CUMULATIVE EFFECTS

This EA also considers the effects of cumulative impacts as required in 40 CFR §1508.7 and concurrent actions as required in 40 CFR §1508.25[1]. A cumulative impact, as defined by the CEQ (40 CFR §1508.7) is the "…impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Actions announced for the region of influence for this project that could occur during the same time period and have effects which could combine with effects of the Proposed Action include:

- Repair south gate search wall & drainage points at traffic check on Travis AFB.
- Repair Foam Fire Suppression Systems, Hangar B14 on Travis AFB.
- Invasive Species Management Environmental Assessment on Travis AFB- Travis Air Force Base is proposing management methods to control invasive species on Travis AFB. An EA will be developed to evaluate the impacts of implementing those methods.
- Highway 12 Logistics Center Project, City of Suisun-The project proposes development of approximately 1.28 million square feet of building space for warehousing and logistics on approximately 93 acres of land area (development area) and approximately 389 acres of permanently preserved open space. The project would permanently preserve approximately 389 acres of the project site as open space. This open space could be planned and managed to offset impacts of on-site development, serve as mitigation for other projects, and/or preserve and avoid impacts to covered species consistent with the City of Suisun City's General Plan and the Solano County Multispecies Habitat Conservation Plan, once adopted. The project will include ongoing land management requirements for preserved open space and will include features to avoid environmental degradation, such as improvements and a management regime to capture and remove solid waste that historically has been accumulating in area drainages. Grazing on the project site will be planned and managed consistent with the project's habitat conservation strategy and mitigation requirements.
- Recology Hay Road Landfill Expansion Project- The project involves expanding an existing landfill into adjacent undeveloped land. The project will result in impacts to 18.36 acres of CTS and giant garter snake (*Thamnophis gigas*) habitat including temporary impacts to 0.61 acres; the project will permanently remove 16.32 acres of CTS habitat and 1.43 acres of giant garter snake habitat.
- Pacific Gas and Electric Company (PG&E) Bay Area Operations & Maintenance 30 Year Plan- The plan would cover PG&E's Operations and Maintenance, and minor new construction activities for its natural gas and electric lines, and establish a comprehensive approach to avoid, minimize, and fully mitigate

impacts on covered species and habitat (collectively “covered activities”). PG&E has filed an application for an Incidental Take Permit under Section 2081 of CESA with the California Department of Fish and Wildlife. The permit will provide incidental take coverage for three species, CTS, Alameda whipsnake, and California freshwater shrimp (covered species), for the next 30 years. The geographic scope of the proposed Project encompasses Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Sonoma, and Solano Counties. Within those nine counties, the Permit Area consists of PG&E gas and electric transmission and distribution facilities, rights-of-way, lands owned or obtained by PG&E or subject to PG&E easements, access routes, and conservation areas acquired to provide compensatory mitigation for impacts resulting from covered activities.

For this EA analysis, these announced actions are addressed from a cumulative perspective and are analyzed in this section using available information to reasonably consider incremental impact. However, future federal actions would be evaluated in detail under separate NEPA actions conducted by the appropriate federal agency involved.

5.4.1 Air Installation Compatible Use Zone (AICUZ)

While some of the future foreseeable projects are located within the cantonment area of the installation, none occur near the flightline. Thus, none of the reasonably foreseeable future projects would have an impact on air operations and would therefore not be cumulatively significant.

5.4.2 Air Quality and Climate Change

Cumulative impacts on air quality could result from multiple simultaneous construction projects. Construction of the Proposed Action and planned reasonably foreseeable future projects would cause temporary air quality impacts due to the exhaust emissions from construction equipment and vehicles as well as fugitive dust. The cumulative increases in construction emissions from the Proposed Action and the foreseeable future projects would be minimized because the projects would comply with applicable federal, state, and local regulations for construction equipment and vehicle emission standards and implementing fugitive dust control measures. However, because the air quality impacts from construction of the Proposed Action are strictly temporary and no new permanent source of emissions would be created, cumulative impacts to air quality from construction of the Proposed Project and foreseeable future projects would be temporary, and less than significant due to regulatory controls.

5.4.3 Biological/Natural Resources

Implementation of the Proposed Action would result in temporary impacts to CTS upland habitat, however, at the conclusion of the work, these effects would end. The Recology Hay Road Landfill Expansion Project would also result in the loss of 18.36 acres of CTS habitat, of this 16.32 acres would be permanently affected. However,

review of the project's documents revealed that compensatory habitat will be provided in advance of the project at a ratio of 3:1. Since compensatory mitigation would be completed in advance of the project, habitat losses to CTS would not be cumulatively significant in the region. In addition, the operations and maintenance plan proposed by PG&E would likely result in the direct mortality of CTS within the region. While these PG&E project impacts would be adverse, and cumulative, they would remain less than significant due to mitigation measures to be implemented in advance of habitat disturbance and at mitigation sites located as close as possible to the areas of disturbance.

In addition, Travis AFB has proposed an invasive species management plan. Invasive species exert a high level of stress and competition on existing native species. Implementation of the plan would likely improve habitat for CTS and vernal pool species on the installation, which in many ways serves as a refugia for these species, as comparatively little development occurs on the periphery of the installation.

None of the other projects are anticipated to impact wetlands, jurisdictional or otherwise.

Taken together, impacts to biological resources would not be cumulatively significant.

5.4.4 Cultural Resources

The Proposed Action would not affect known historic or cultural resources; therefore, no contribution to cumulative impacts on cultural resources would occur from the construction of the Proposed Project.

5.4.5 Earth Resources

Construction of the Proposed Action would result in the loss or modification of native soil materials. All other projects off of the installation would similarly involve the loss or modification of native soil materials including some soils designated as farmland of statewide importance. While land conversion and soil loss are occurring at a high rate throughout the region, general planning documents, including the Solano County General Plan (2008), and the Vacaville General Plan (2015) are generally supportive of development within specified zones. Travis AFB is considered a non-agricultural or non-preserved zone (Solano County, 2008). Therefore, these impacts are not considered to be cumulatively significant.

5.4.6 Hazardous Materials / Waste

The generation of HM/HW could be considered to be cumulatively significant if capacities for storage, handling, or disposal of these substances were exceeded. Repair Foam Fire Suppression Systems, Hangar B14 on Travis AFB could also generate HW, however, HM are routinely used, and HW is routinely and properly disposed of or recycled in accordance with AFI 32-7086, *Hazardous Materials Management* (Air Force, 2004); AFI 32-7042, *Solid and Hazardous Waste Compliance* (Air Force, 2010); and the *Travis AFB Integrated Solid Waste Management Plan* (Travis AFB, 2007). In addition, there is a robust network of receiving facilities which are operated by the county and

private operators which have many successful recycling programs. With implementation of management practices in accordance with regulations, the Proposed Action, in conjunction with other future proposed projects would not be cumulatively significant.

5.4.7 Noise

Because of the way noise travels, and the fact that sound disperses and loses energy with increasing distance, only those projects which would occur withing the 65 dBA zone of the airstrip would be considered for cumulative effects. The Recology Hay Road Landfill Expansion Project falls within this zone. Review of documents for the Recology project revealed that the project would not substantially (greater than 3dB increase) increase ambient noise levels. Therefore, taken together, impacts to noise from the Proposed Action and nearby projects would not be cumulatively significant to the human environment.

5.4.8 Public and Occupational Health and Safety

While implementation of the Proposed Action would improve both public safety in the region and occupational safety on the installation, none of the other reasonably foreseeable projects appear to impact public safety.

Meaningful assessments of cumulative impacts to occupational health and safety would be limited to the projects located on the installation, as jobsites are generally separable elements which do not necessarily interact in a way that could cause a cumulative impact. However, there could be a reasonable expectation of employee interchange between jobsites on the installation, as well as potential overlap of jobsites or transit routes on the installation. Implementation of health and safety plans at all jobsites would reduce potential risks to workers.

Consequently, implementation of the Proposed Action and other actions would not result in adverse cumulative impacts on health and safety.

5.4.9 Traffic and Transportation

The Proposed Action would temporarily affect the local roadway network during project construction because of short-term increases in truck traffic and traffic from construction workers in personal vehicles. Other reasonably foreseeable future projects constructed concurrently with the Proposed Action would also temporarily affect the local roadway network. However, it is anticipated that traffic volumes during construction and operation would be within the capacity of on base and off base roadways, and no long-term increases in traffic volume are anticipated; therefore, the contribution of the Proposed Action to cumulative traffic impacts would not be significant. The Proposed Action, combined with other cumulative projects, would not result in adverse cumulative impacts on transportation.

5.4.10 Water Quality, Water Resources, and Wetlands

Implementation of the Proposed Action would result in the filling of 4.5 acres of non-jurisdictional wetlands. This loss of wetlands would be compensated for through the purchase of mitigation credits, as needed per permit requirements, at an approved wetlands mitigation bank and would be compliant with California's no net loss of wetlands policy. Since all other projects would similarly be required to provide compensatory mitigation for impacts to wetlands there would be no significant cumulative impacts.

End Matter

6.0 LIST OF PREPARERS

This EA has been prepared under the direction of the Air Force Civil Engineer Center, USAF, the USAF Air Mobility Command and Travis AFB

This Environmental Assessment was prepared by the USACE Sacramento District. The individuals that contributed to the preparation of this EA are listed below.

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End Matter

7.0 PERSONS AND AGENCIES CONSULTED/COORDINATED

The following Persons and Agencies were contacted in the preparation of this EA

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