FINDING OF NO SIGNIFICANT IMPACT
for
BEALE WAPA
INTERCONNECTION PROJECT

Pursuant to the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act of 1969 (NEPA), Title 40 of the Code of Federal Regulations (CFR) Parts (§§) 1500-1508 and the Air Force Environmental Impact Analysis Process Regulations (32 CFR Part [§] 989), the U.S. Air Force (Air Force) has prepared this Environmental Assessment (EA) to evaluate the potential impacts on the natural and human environment associated with Beale Air Force Base's (AFB), herein Beale AFB, interconnection request to Western Area Power Administration (WAPA) in Yuba County, California.

Purpose and Need

The project is needed because the Department of Defense (DoD) issued an Electric Power Resilience (ERP) memorandum in December 2013 that documented key resilience policies and requested that DoD installations adhere to them. It directed an ERP review to examine installation adherence to key resilience policies, identify gaps in policy, and define future energy resilience requirements.

In response to this directive, Beale AFB began planning to repair aged and outdated electrical infrastructure following the components defined in satisfying critical energy/power supply requirements. Currently, all electricity to Beale AFB is WAPA power delivered via Pacific Gas and Electric Company (PG&E) infrastructure; specifically, PG&E is contracted to deliver 25 megawatts (MW) to Beale AFB through two existing PG&E lines. As part of the planning activities in response to the DoD's memorandum, it was determined that Beale AFB is expected to require 38 MW by 2022 (personal communication Kemp, 2019). Additionally, communications between Beale AFB and PG&E revealed that in the event of a power outage PG&E would prioritize first responders and other institutions (e.g., hospitals) before Beale AFB.

For these reasons, Beale AFB is requesting an interconnection with WAPA's existing Cottonwood-Roseville line to provide Beale AFB with an electricity supply that would support their current and future missions.

Proposed Action

The Proposed Action, also referred to as the Northern B Alternative, totals approximately 4.3 miles of transmission line; approximately 0.9 mile located off Beale AFB and 3.4 miles on Beale AFB. It would consist of approximately 1.8 miles of overhead installation (0.9 mile off Beale AFB and 0.9 mile on Beale AFB) and 2.5 miles of underground installation (all within Beale AFB boundaries).

The Proposed Action alignment would begin at its interconnection point perpendicular to the existing Cottonwood-Roseville line; overhead double-circuit 230-kilo-volt (kV) lines would continue in a nearly straight east-to-west line following existing agricultural dirt roads up to the westernmost edge of Beale AFB. Portions of the line located off Beale AFB boundaries are bordered by agricultural fields to the north and south. Once on Beale AFB, the alignment would traverse flat, open grasslands interspersed with

seasonal wetlands (i.e., vernal pools), curving to avoid aquatic resources (see Section 2.2 pg 2-1, Project Design Features), existing infrastructure, and runway clearances. The transmission line continues as 230-kV overhead until its connection with a proposed new substation located along Patrol Road. The proposed new substation would step down the voltage to 60-kV, then the line would be routed underground in accordance with Beale's design and construction. The underground portion of the alignment curves northeast before turning southeast under Doolittle Drive and terminating at the existing Doolittle Drive Substation. Figure 1 is a map of the Project area, including all action alternatives.

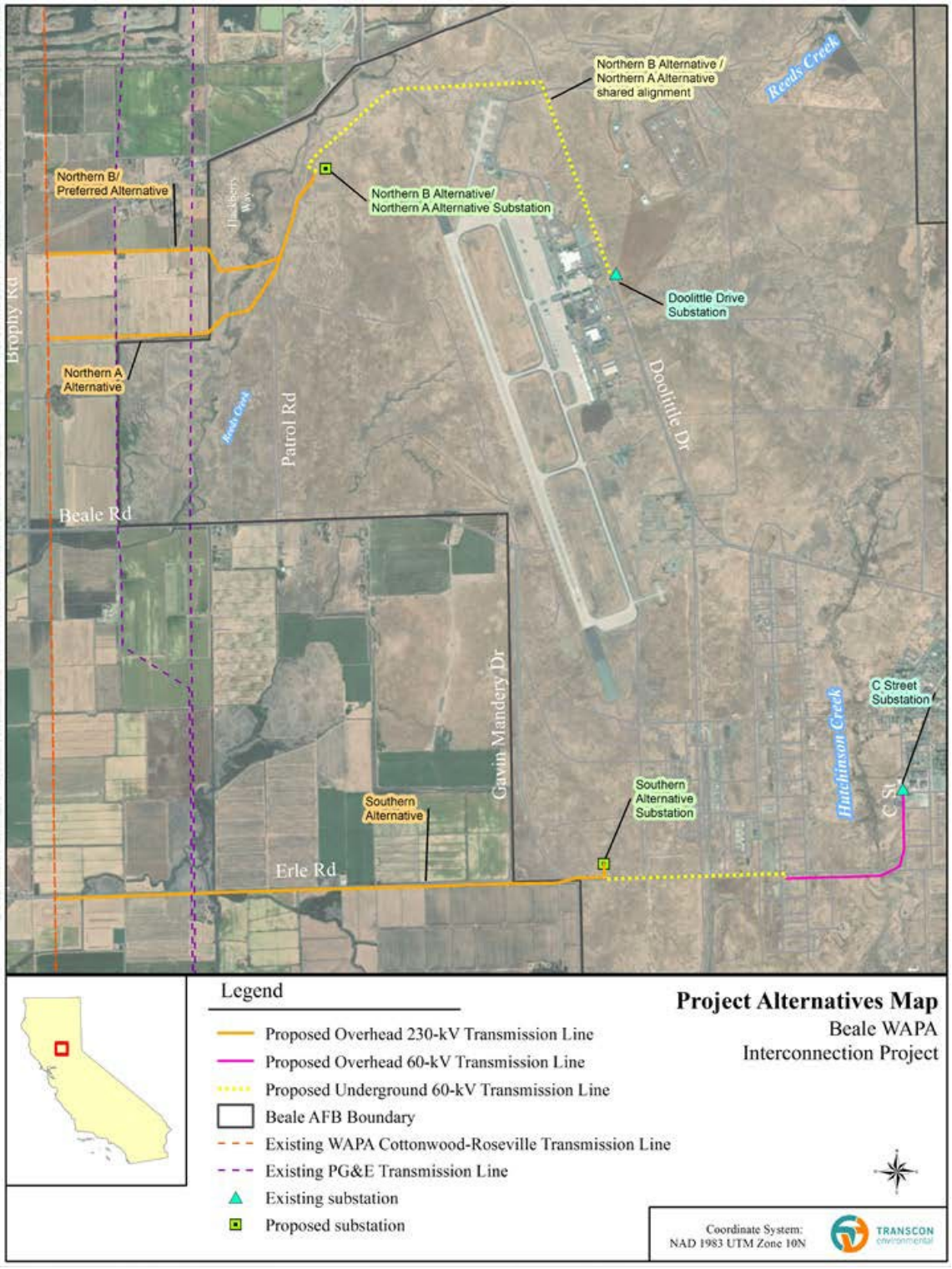

Figure 1: Project Alternatives Map

Alternatives

Beale AFB evaluated about 15 alternative routes, each following the same general east-to-west trajectory from WAPA's Cottonwood-Roseville line and terminating in the vicinity of Doolittle Drive. While none of the 15 routes met every selection standard, after further screening, Beale AFB dismissed all but two routes as being in too much conflict with the goals of the selection standards. Beale AFB requested that WAPA consider these two alternatives for interconnection, referred to in this EA as the Northern A Alternative and Southern Alternative. Beale AFB determined these are the most feasible and least impactful options. The Proposed Action (Northern B Alternative) was added later as a result of input received during public scoping.

No Action Alternative

Under the No Action Alternative, WAPA would not construct the proposed interconnection line. Through this alternative, Beale AFB would not be delivered reliable, resilient, and redundant electrical power in adhering to the DoD directive for the ERP, leaving the USAF and Beale AFB vulnerable to increased electrical failures and unplanned power outages which could interrupt execution of USAF missions.

Northern A Alternative

The Northern A Alternative alignment is very similar to the Proposed Action alignment, sited about 0.5 mile south of the Proposed Action and crossing Reed's Creek at a different location (see **Figure 1**). It totals approximately 4.5 miles of transmission line, approximately 0.8 mile located off Beale AFB and 3.7 on Beale AFB. It would consist of approximately 2 miles of overhead installation (0.8 mile off Beale AFB and 1.2 miles on Beale AFB), and 2.5 miles of underground installation (all within Beale AFB boundaries).

Beginning at its interconnection point perpendicular to the existing Cottonwood-Roseville line, overhead 230-kV lines would continue in a near-straight east-to-west line, bisecting agricultural fields up to the westernmost edge of Beale AFB. Portions of the line located off Beale AFB boundaries are bordered by agricultural fields to the north and south. Once on Beale AFB, the alignment traverses flat, open grasslands interspersed with seasonal wetlands (i.e., vernal pools), curving to avoid aquatic resources (see Section 2.2 pg 2-1, Project Design Features), existing infrastructure, and runway clearances. The transmission line continues as 230-kV overhead until its connection with the proposed new substation located along Patrol Road (same substation configuration and location as the Proposed Action). The alignment then follows the exact same path as the Proposed Action, the underground portions following under Doolittle Drive and terminating at the existing Doolittle Drive Substation.

Southern Alternative

The Southern Alternative is located about 3.25 miles south of the Proposed Action and Northern A Alternative alignments (see **Figure 1**). It totals approximately 5 miles of transmission line, approximately 2.5 miles located off Beale AFB and 2.5 on Beale AFB. It would consist of approximately 4.4 miles of overhead installation (2.5 miles of 230-kV off Beale AFB, 0.4 mile of 230-kV on Beale AFB, and 1.5 miles of 60-kV on Beale AFB); and 1 mile of underground installation (all within Beale AFB boundaries). The overhead 60-kV component is unique to the Southern Alternative (neither the Proposed Action nor the

Northern A Alternative include 60-kV overhead structures); specifications for those structures are described below.

Beginning at its junction with WAPA's Cottonwood-Roseville line, the Southern Alternative follows Erle Road, which is bordered by privately owned agricultural rice fields to the north and south. Once on Beale AFB, the alignment continues aerially along Gavin Mandry Drive for approximately 0.4 mile to the proposed new substation, after which the line would route underground beneath existing road substrates along Gavin Mandry Drive for 1 mile to prevent the need for flight clearance requirements, emerge back to overhead, and continue 1 mile east before turning north and following C Street for 0.5 mile to terminate at the existing C Street Substation.

Environmental Consequences

The Proposed Action would have no impacts on scenic viewpoints or highways; forestlands; cultural, tribal, and paleontological resources; geological hazards; floodplains; groundwater or water quality; land use or population growth; hazardous materials; water supply; or wastewater facilities. Long-term beneficial impacts would occur to storm drainage and to Beale AFB electrical & communications systems.

Negligible to minor impacts would occur on aesthetics for residents in the immediate area; farming operations; air quality, greenhouse gas (GHG) emissions, and climate change; vegetation communities and plants; geology and soils; surface water and wetlands; recreation; wildfire risk and electromagnetic field exposure; transportation and traffic; storm water runoff; and solid waste management.

Short-term Moderate impacts would occur to agricultural use and wildlife; this includes permanent removal of 10.07 acres of upland vegetation habitats (annual grasslands, agriculture, barren, and urban) for proposed structures and new access roads, and temporary disturbance of 44.27 acres of upland habitats from Project construction activities. Impacts to seasonal wetland habitats (potentially jurisdictional roadside ditches) would result from the installation of 6 new culverts for new access roads and the replacement of 8 culverts on existing roads. Disturbance to wetland habitat as a result from culvert work would include 0.02 acre of permanent impacts and 0.05 acre of temporary impacts (**Appendix I**). No major long-term impacts on demographics or social services and conditions would be expected, including demand for housing, education, law enforcement, fire protection, emergency medical services, and medical services. Disproportionate impacts on minority or low-income populations would not be expected.

Resource Protection Measures

Resource protection measures have been developed to lessen or minimize potential effects to resources. These are inclusive of Applicant Proposed Measure, Project Conservation Measures (PCMs), Standard Operating Procedures (SOPs), Best Management Practices (BMPs), and Avoidance and Minimization Measures (AMMs), collectively referred to as resource protection measures. These measures intend to achieve a common goal of minimizing effects from the Project and the terms are generally used synonymously (PCMs and SOPs are WAPA-specific terms commonly referenced in the biological analysis and when referring to WAPA programs). Resource protection measures are listed at the end of every Chapter 4 section in the Environmental Assessment.

An extensive list of resource protection measures that addresses potential impacts to aesthetics/visual resources; agriculture and forestry resources; air quality, GHG emissions, and climate change; biological resources; cultural resources; geology/soils; hydrology/water quality; lane use, Air Installation Compatible Use Zone Planning (AICUZ) compatibility, population growth, and recreation; noise; public health & safety and hazardous materials; and transportation/traffic has been created in coordination with regulatory agencies during the permitting process and is to be verified during final design—this list of resource protection measures can be found in Appendix D within the EA. Due to the considerable length of these resource protection measures, the list is not produced in this FONSI in accordance with Incorporation by Reference 40 CFR § 1502.21; however, all the resource protection measures within Appendix D are legally binding and must be carried out as the proponent implements the project pursuant to 32 CFR § 989.22 (b).

Public Review and Stakeholder Coordination

Because the Project crosses only private and Beale AFB land, no other land management agencies were invited to cooperate for this EA. A total of 4 federal, 9 state, and 16 local agencies were notified and invited to provide comments during the scoping period of the Project. The details of agency scoping efforts, including a list of agencies contacted, copies of correspondence, and the comments received, are described in the Scoping Summary Report (**Appendix B**). WAPA and Beale AFB, as joint leads, are sharing consultation responsibilities for the Project. Pursuant to the federal Endangered Species Act of 1973 (ESA), Beale AFB is leading consultation efforts with the U.S. Fish and Wildlife Service (USFWS) on potential impacts from the Project to threatened and endangered species. Pursuant to the Clean Water Act of 1977 (CWA), WAPA notified the California State Regional Water Quality Control Board (RWQCB) regarding potential impacts to state waters. The RWQCB would engage with the Project if an application for a Section 401 Certification is required. WAPA would apply for a CWA Section 404 permit from the U.S. Army Corps of Engineers (USACE) and a CWA Section 401 permit (Water Quality Certification) from the RWQCB should the Project impact wetlands or water features, as informed by the completed environmental analysis and final engineering.

Finding of No Significant Impact

Based on my review of the facts, analyses, and proposed resource protection measures presented in the attached EA, I conclude that the Proposed Actions would not have a significant impact on the natural or human environment either by itself or cumulatively noted below. The requirements of NEPA and the CEQ's regulations have been fulfilled. An Environmental Impact Statement is not required and will not be prepared. This analysis fulfills the requirements of the NEPA, the President's CEQ 40 CFR §§ 1500 – 1508, and the USAF regulation 32 CFR § 989.

Finding of No Practicable Alternative

Executive Order (EO) 11990, *Protection of Wetlands*, (24 May 1977) directs agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland and the proposed construction incorporates all possible measures to limit harm associated with development in the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands. In accordance with EO 11990 and 32 CFR § 989, a Finding of No Practicable Alternative (FONPA) must accompany the Finding of No Significant Impact (FONSI) stating why there are no practicable alternatives to development within or affecting wetland areas.

Similarly, EO 11988, *Floodplain Management* (May 24, 1977), requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. If it is found that there is no practicable alternative, the agency must minimize potential harm to the floodplain and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted flood proofing and flood protection to include elevating structures above the base flood level rather than filling in land. In accordance with EO 11988, a FONPA must accompany the FONSI stating why there are no practicable alternatives to development within or affecting floodplains.

The Proposed Actions would result in impacts to wetlands but not floodplains. The following FONPA is, therefore, presented with the FONSI, pursuant to EO 11990.

Wetlands: Wetland impacts would be reduced to the maximum extent possible through project design and implementation of environmental protection measures. Pursuant to Section 404(b)(1) of the CWA, wetland impacts must be avoided to the greatest extent practicable. The Project has been designed and its alignment situated to avoid surface waters and minimize impacts to aquatic resources (see Section 2.2, Project Design Features within the EA). Short-term impacts on wetlands and vernal pools within the Project area would be expected from culvert construction. Impacts to seasonal wetland habitats (potentially jurisdictional roadside ditches) would result from the installation of 6 new culverts for new access roads and the replacement of 8 culverts on existing roads; this disturbance includes 0.02 acre of permanent impacts and 0.05 acre of temporary impacts (**Appendix I**). See Section 4.5.1, Vegetation Communities Environmental Consequences, for more information on vernal pool impacts from culverts. Channel topography and underlying substrates would not be modified with the installation of horseshoe culverts and no net loss in drainage would occur. Replacement of the eight existing culverts may improve the drainage at those locations.

Prior to any construction, a Section 404 permit would be submitted to the USACE Sacramento District to ensure compliance with the CWA. In addition, a Section 401 Water Quality Certification would also be

submitted to the Central Valley Regional Water Quality Control Board (CVRWQCB). Furthermore, a storm water pollution prevention plan (SWPPP) would be developed and followed for the project duration.

During construction and O&M activities, runoff from site improvements could result in a slight increase in turbidity in surface waters within the Project area. Potential impacts from an increase in turbidity would be minimized with implementation of BMPs (e.g., wetting of soils, silt fencing, and detention basins) and adherence to erosion and storm water management practices to contain soil and runoff on the Project area. In addition, erosion-control BMPs in accordance with the Beale AFB SWPPP (Beale AFB 2018b) would be implemented as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils (for soil stability), and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB storm water manager.

As noted in the attached EA, there are no practicable alternatives to the Proposed Actions that would avoid all impacts or further minimize impacts to wetlands because the objectives sought by this project precludes the selection of any practicable alternatives due to mission requirements, installation layout constraints, and the nature of proposed projects. In addition to the Proposed Action, multiple project sites were evaluated throughout the base using the selection standards identified in the EA. Beale AFB's selection standards during screening of alternatives considered interference with existing Beale AFB infrastructure (e.g., runways, explosion arcs, etc.); potential for environmental impacts (e.g., known wetlands, flood zones, etc.); security and the line and substation's vulnerability to vandalism or damage; existing access to Project facilities and limiting need for new roads; land purchases for infrastructure off Beale AFB; and the location where the line comes on Beale AFB such that it can deliver power across Beale AFB's existing distribution network.

Analysis of the alternatives revealed that, compared to the other two action alternatives, the Northern B Alternative (Proposed Action) would have less impacts to private landowners off Beale AFB, and would have less impacts to aquatic resources and wetlands. Additionally, the Northern B Alternative would better meet Beale AFB's selection standards for the Project; that is, the Northern B Alternative would not interfere with Beale AFB infrastructure, has relatively less environmental impacts compared to other alternatives, situates the substation onto Beale AFB for higher security, mostly follows existing roads eliminating the need for new road construction, and requires less land purchases off of Beale AFB (see Section 2.5 for more information on Beale AFB selection standards). Therefore, as analysis of the alternatives continued, WAPA and Beale AFB agreed that the Northern B Alternative is their Preferred Alternative, but that the EA shall consider impacts from all alternatives equally. Taking all the environmental, economic, and other pertinent factors into account, pursuant to EO 11990, the authority delegated by Secretary of the Air Force Order 791.1, and taking into consideration the submitted information, I find that there is no practicable alternative to this action and the proposed action includes all practical measures to minimize harm to the environment.

Floodplains: Implementation of the Proposed Action would have no impact to floodplains or flood zones, since the Project area is outside the 0.2% annual chance floodplain (FEMA 2011).

[SIGNATURE] **[Date]**

NAME
TITLE

Attachment: Draft Environmental Assessment

REVISED DRAFT ENVIRONMENTAL ASSESSMENT FOR THE *BEALE WAPA INTERCONNECTION PROJECT*

PREPARED FOR:

Department of Energy, Western Area Power Administration
U.S. Air Force, Beale Air Force Base

August 2020

Letters or other written comments provided may be published in the Final Environmental Assessment (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 names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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EXECUTIVE SUMMARY

The U.S. Air Force, Beale Air Force Base (AFB), in response to a 2013 Electric Power Resilience memorandum from the Department of Defense, is working to build a resilient power network to support missions on Beale AFB. Currently, Beale AFB is provided Western Area Power Administration (WAPA) electricity via one Pacific Gas and Electric Company (PG&E) pole line and has requested interconnection with WAPA's Cottonwood-Roseville transmission line located about 6 miles west of Beale AFB. This interconnection, with the existing power via the PG&E line, would provide Beale AFB a redundant supply of energy, reducing the risk of interruptions to missions during power outages or emergencies.

WAPA and Beale AFB are joint lead agencies on the Project, each constructing and owning portions of the interconnection line, and each with separate Decisions and permits to issue relevant to the Project. WAPA and Beale AFB shared consultation responsibilities on this Project, with WAPA leading National Historic Preservation Act Section 106 consultation and Beale AFB leading Endangered Species Act Section 7 consultation (see Section 1.3, Cooperating Agency and Intergovernmental Coordination/Consultation).

In 2016, Beale AFB requested interconnection with WAPA's Cottonwood-Roseville line and proposed two alternative routes for consideration. A third alternative was added to consideration as a result of public scoping. As Project planning progressed, WAPA and Beale AFB jointly decided their Preferred Alternative is the route introduced during scoping (the Northern B Alternative). The original two routes are included in analysis as they remain feasible alternatives (the Northern A and Southern Alternatives).

The Project includes an electric transmission line consisting of overhead 230-kilovolt (kV) structures and underground 60-kV lines. The line would be stepped down at a proposed new substation located on Beale AFB and would terminate at an existing substation on Beale AFB. These Project components are consistent across all action alternatives.

This Environmental Assessment (EA) was prepared to satisfy the National Environmental Policy Act. The purpose of the EA is to provide WAPA and Beale AFB sufficient information and analysis for decision-makers to make a significance determination and choose to select an action alternative or the No Action Alternative or to develop an Environmental Impact Statement if significance thresholds are met. In an effort to streamline permitting processes, this EA also includes California Environmental Quality Act (CEQA) elements (e.g., significance thresholds, completed checklist as **Appendix A**) to assist WAPA and Beale AFB to comply with CEQA should that be required in future Project planning and engineering. This EA is not meant to satisfy CEQA; if necessary, a separate CEQA document will be prepared under the purview of a Lead CEQA Agency.

Recommended Findings

Summaries of the recommended impact findings for all resources considered (see Section 3.1, Scope of the Analysis) are listed below. The qualifiers used (e.g., short term, minor, etc.) are defined in the introduction to Chapter 4, Environmental Consequences.

- *Aesthetics/Visual Resources:* no impact to scenic viewpoints or highways; long-term, minor impacts to residents in the immediate Proposed Action area.

- *Agriculture and Forestry Resources:* no impact to forestland; long-term, negligible impacts to agricultural use; short-term, moderate impacts during construction; long-term, minor impacts to farming operations.
- *Air Quality, Greenhouse Gas Emissions, and Climate Change:* short-term and negligible to no impacts during construction; long-term negligible to no impacts during operation; short-term negligible to no impacts to greenhouse gas emissions and climate change.
- *Biological Resources:* short-term and long-term minor to negligible impacts to vegetation communities and plants; short-term moderate to negligible impacts to wildlife.
- *Cultural, Tribal, and Paleontological Resources:* no impacts.
- *Geology/Soils:* short-term (soil disturbance during construction) and long-term (permanent facility placement) minor impacts to geology and soils; no impact to geological hazards.
- *Hydrology/Water Quality:* no impacts to floodplains; no impact to groundwater or water quality; short-term and negligible impacts to surface water and wetlands due to temporary disturbance during construction.
- *Land Use and Planning, AICUZ Compatibility, and Recreation:* no impacts to land use; short-term negligible to no impacts to recreation.
- *Noise:* short-term negligible to no impacts from noise due to construction activities; long-term negligible to no impacts during operation.
- *Public Health and Safety and Hazardous Material:* no impact to from hazardous materials; short-term, negligible impact from wildfire risk during construction; long-term negligible to no impacts from electromagnetic field exposure.
- *Transportation/Traffic:* short-term, minor impacts to transportation and traffic during construction activities.
- *Utilities/Service System:* no impact to water supply; no impact to wastewater facilities; long-term beneficial impacts to storm drainage from upgraded culverts; short-term, negligible impacts from construction-related stormwater runoff; long-term beneficial impacts to the Beale AFB electrical and communications systems; short-term, negligible to no impacts to solid waste management.

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TABLE OF CONTENTS

LIST OF FIGURES

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LIST OF TABLES

LIST OF APPENDICES

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AB 52	Assembly Bill 52
ACAM	Air Conformity Applicability Model
ACSR	Aluminum conductor steel reinforced
AE-80	Agricultural Exclusive 80
AFB	Air Force Base
AFPD	Air Force Policy Directive
AICUZ	Air Installation Compatible Use Zone
AMM	Avoidance and Minimization Measures
APE	Area of potential effects
AQMD	Air quality management district
BCE	Base Civil Engineer
BCRA	Beale Core Recovery Area
bgs	Below ground surface
BMP	Best management practices
CAA	Clean Air Act
Cal/OSHA	California Occupational Health and Safety Administration
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDTSC	California Department of Toxic Substances Control
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CRPAQS	California Regional Particulate Air Quality Study
CRPR	California Rare Plant Ranks
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CWA	Clean Water Act of 1977
dB	Decibel
dBA	A-weighting
DOC	Department of Conservation
DoD	Department of Defense

EA	Environmental Assessment
EDC	Environmental Design Criteria
EIR	Environmental Impact Report
EMF	Electric and magnetic field
EO	Executive Order
EPA	Environmental Protection Agency
EPR	Electric Power Resilience
ESA	Endangered Species Act
FMMP	Farmland Mapping and Monitoring Program
FRAQMD	Feather River Air Quality Management District
GHG	Greenhouse gas
GRI	General Requirements for Interconnection
HUD	U.S. Department of Housing and Urban Development
ICP	Integrated Contingency Plan
IDP	Installation Development Plan
ISR	Indirect source review
ISWMP	Integrated Solid Waste Management Plan
kcmil	Circular mills
kV	Kilovolt
Ldn	Average sound level (in dBA) occurring over a 24-hour day-night period
Leq	Equivalent sound level over a given time period
L_{max}	Maximum decibel noise level
mgd	Million gallons per day
MRS	Munitions Response Site
MW	Megawatt
NAAQS	National Ambient Air Quality Standard
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NOI	Notice of Intent
NOx	Nitrogen oxides
NO_2	Nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NR	Natural Resources
NRHP	National Register of Historic Places
NRM	Natural resources manager
O&M	Operations and maintenance
O_3	Ozone
PA	Preliminary Assessment

pB	Lead
PCM	Project Conservation Measure
PGA	Peak ground acceleration
PG&E	Pacific Gas and Electric Company
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
PM_{10}	Particulate matter less than 10 microns in diameter
POW	Prisoner of war
PRC	Public Resources Code
PSD	Prevention of Significant Deterioration
PVC	Polyvinyl chloride
ROW	Right-of-way
RWQCB	Regional Water Quality Control Board
SF_6	Sulfur hexafluoride
SHPO	State Historic Preservation Officer
SI	Site inspection
SMP	Soils Management Plan
SOP	Standard Operating Procedure
SO_X	Sulfur oxide
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCP	Traditional cultural property
tpy	Tons per year
TRLIA	Three Rivers Levee Improvement Authority
TSP	Tubular steel pole
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Service
WAPA	Western Area Power Administration
WOTUS	Waters of the U.S.

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1.0 INTRODUCTION

The U.S. Air Force (USAF), through Beale Air Force Base (AFB), herein Beale AFB, requests that the Western Area Power Administration (WAPA) provide interconnection to WAPA's Cottonwood-Roseville transmission line in Yuba County, California. The Project, referred to as the Beale WAPA Interconnection Project (Project), would include a new 230-kilovolt (kV)/60-kV transmission line that would extend approximately 5 miles from its connection point at the existing WAPA Cottonwood-Roseville transmission line located east of Yuba City and would terminate on Beale AFB at an existing substation.

Project facilities would include a new 230-kV overhead transmission line, a new substation located on Beale AFB, and an underground 60-kV line. WAPA would construct, own, operate, and maintain the 230-kV overhead portion of the Project up to and including the new substation; Beale AFB would construct, own, operate, and maintain the 60-kV portion up to and including the existing substation where the Project terminates. Three alternative alignments are being considered: the Northern A Alternative, Northern B Alternative, and Southern Alternative (see **Figure 2-1**, Project Alternatives Map). Chapter 2 describes these alternative alignments and how the agencies identified and narrowed a broader range of alternatives down to these three options. The Northern B Alternative has been determined by WAPA and Beale AFB to be the Preferred Alternative for the Project, as described in Chapter 2.

This Environmental Assessment (EA) has been prepared to support Beale AFB's interconnection request to WAPA in compliance with the National Environmental Policy Act (NEPA). WAPA and Beale are joint leads for this Project under NEPA, and this EA was written by a third-party NEPA preparer ("consultant") in coordination with both agencies to evaluate the possible impacts to the environment from all alternatives. This EA recommends conclusions on the significance of these impacts; for the purposes of this EA, the term "impacts" and "effects" are synonymous. Should California Environmental Quality Act (CEQA) compliance be required during the permitting process, this EA includes a CEQA Checklist as **Appendix A**. This EA is not meant to satisfy CEQA; if necessary, a separate CEQA document will be prepared under the purview of a Lead CEQA Agency.

1.1 PURPOSE AND NEED FOR THE PROJECT

1.1.1 Beale AFB Purpose and Need

The Department of Defense (DoD) issued an Electric Power Resilience (EPR) memorandum in December 2013 that documented key resilience policies and requested that DoD installations adhere to them. It directed an EPR review to examine installation adherence to key resilience policies, identify gaps in policy, and define future energy resilience requirements.

In response to this directive, Beale AFB began planning to repair aged and outdated electrical infrastructure following the components defined in satisfying critical energy/power supply requirements. Currently, all electricity to Beale AFB is WAPA power delivered via Pacific Gas and Electric Company (PG&E) infrastructure; specifically, PG&E is contracted to deliver 25 megawatts (MW) to Beale AFB through two existing PG&E lines. As part of the planning activities in response to the DoD's memorandum, it was determined that Beale AFB is expected to require 38 MW by 2022 (personal communication Kemp 2019). Additionally, communications

between Beale AFB and PG&E revealed that in the event of a power outage PG&E would prioritize first responders and other institutions (e.g., hospitals) before Beale AFB.

For these reasons, Beale AFB is requesting an interconnection with WAPA's existing Cottonwood-Roseville line to provide Beale AFB with an electricity supply that would support their current and future missions.

1.1.2 WAPA Purpose and Need

WAPA's purpose and need is to consider and respond to Beale AFB's interconnection request submitted in accordance with WAPA's General Requirements for Interconnection (GRI). WAPA is responsible for receiving and processing interconnection requests received under the GRI. In processing interconnection requests, WAPA must ensure that existing reliability and service is not degraded. WAPA provides transmission and system studies to ensure that system reliability and service to existing customers are not adversely affected by new interconnections. These studies also identify system upgrades or additions necessary to accommodate the proposed request and address whether the upgrades or additions are within the proposed Project scope. The results of the System Impact Study Report dated April 2017 indicated that no mitigation or system improvement of the existing system is required to accommodate Beale AFB's request.

1.2 DECISION TO BE MADE

1.2.1 Beale AFB Decision to be Made

Beale AFB is the Project proponent and joint-lead agency under NEPA. After the appropriate environmental analysis has been completed, the USAF would then decide whether to proceed with the Project and request final funding. Beale AFB would then work with WAPA on interconnection design/engineering, construction, installation, and operations and maintenance (O&M).

1.2.2 WAPA Decision to be Made

WAPA would respond to Beale's interconnection request and work with Beale AFB to choose the final route where Project components would be built. In reviewing this interconnection request, WAPA must ensure that its existing reliability and service is not degraded. WAPA's approval of this interconnection would enable the proposed Project to proceed. Based on the analysis presented in this EA, WAPA would determine whether to issue a Finding of No Significant Impact for the Project's Preferred Alternative.

1.3 COOPERATING AGENCY AND INTERGOVERNMENTAL COORDINATION/ CONSULTATIONS

1.3.1 Interagency and Intergovernmental Coordination and Consultations

Because the Project crosses only private and Beale AFB land, no other land management agencies were invited to cooperate for this EA. A total of 4 federal, 9 state, and 16 local agencies were notified and invited to provide comments during the scoping period of the Project. The details of agency scoping efforts, including a list of agencies contacted, copies of correspondence, and the comments received, are described in the Scoping Summary Report (**Appendix B**).

WAPA and Beale AFB, as joint leads, are sharing consultation responsibilities for the Project. Pursuant to the federal Endangered Species Act of 1973 (ESA), Beale AFB led consultation efforts with the U.S. Fish and Wildlife Service (USFWS) on potential impacts from the Project to threatened and endangered species. Formal consultation was initiated by Beale AFB on November 29, 2019 and concluded with USFWS issuance of a Biological Opinion on May 7, 2020. Pursuant to the Clean Water Act of 1977 (CWA), WAPA notified the California State Regional Water Quality Control Board (RWQCB) regarding potential impacts to state waters. The RWQCB would engage with the Project if an application for a Section 401 Certification is required. WAPA would apply for a CWA Section 404 permit from the U.S. Army Corps of Engineers (USACE) and a CWA Section 401 permit (Water Quality Certification) from the RWQCB should the Project impact wetlands or water features, as informed by the completed environmental analysis and final engineering.

1.3.2 National Historic Preservation Act and Tribal Consultations

1.3.2.1 Regulatory Framework

A variety of federal statutes specifically address cultural resources. These statutes generally become applicable to specific projects if the project involves: 1) a federal agency license, permit, approval, or funding and/or if it 2) crosses federal lands. The cornerstone of modern heritage preservation legislation is the National Historic Preservation Act of 1966 (NHPA), as amended. The NHPA defines historic properties as districts, sites, buildings, structures, or objects included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) as well as artifacts, records, and remains related to such properties. According to 36 Code of Federal Regulations (CFR) Part 800, Protection of Historic Properties (amended 8-5-2004) are the implementing regulations for compliance with Section 106 and define key procedures for consulting with State Historic Preservation Officers (SHPOs), the Advisory Council on Historic Preservation, and other interested parties to ensure that historic properties are duly considered when federal projects are planned and implemented. The proposed Project is considered a federal undertaking; therefore, it is subject to NHPA regulations and review.

A number of less relevant federal statutes address cultural and tribal resources. These are: the Antiquities Act of 1906 (16 USC § 431 et seq.); Historic Sites Act of 1935 (PL 74-292; 49 Stat. 666; 16 USC 461-467); NEPA; Executive Order (EO) No. 11593; American Indian Religious Freedom Act of 1978; Archaeological Resources Protection Act of 1979, as amended (PL 96-95: 93 Stat 721; 16 USC 470 aa et seq.); Native American Graves Protection and Repatriation Act, Pub. L. 101-601, 25 U.S.C. 3001 et seq., 104 Stat. 3048; EO 13007 (Indian Sacred Sites); and EO 13175.

As part of WAPA's environmental compliance review, it is required under Section 106 of the NHPA (54 USC 300101 et seq.) to take into account the effects its proposed construction activities would have on historic properties included in or eligible for listing on the NRHP. As federal agencies, WAPA and Beale AFB must follow the implementing regulations of Section 106 of the NHPA as found in 36 CFR 800. These regulations describe the steps that federal agencies must take to identify and evaluate historic properties and assess the potential of the undertaking (in this case, new interconnecting transmission line) on such properties, and under these regulations, they must take into consideration any adverse effects of the undertaking on historic properties by implementing avoidance or mitigation measures. While both WAPA and Beale AFB have the same NHPA responsibilities as federal agencies, WAPA has been designated as Lead Federal Agency for the purposes of Section 106 compliance.

State Regulations

If CEQA analysis is triggered for the Project, the following California state laws are applicable:

- The California Health and Safety Code (Section 7050.5) and the California Public Resources Code (PRC) (Section 5097.98) covers any human remains recognized in any location other than in a dedicated cemetery.
- Paleontological resources are protected under CEQA [Article 1, Section 15002(a)(3)], the PRC (5097.5) Section 50987.5, and the California Code of Regulations (CCR) (Title 14, Division 3, Chapter 1) Section 4307.

Tribal Consultation Regulations

The National Historic Preservation Act (NHPA) Section 106, codified as 54 U.S.C. 306108, its implementing regulations, located at 36 CFR Part 800, and EO 13175, Consultation and Coordination with Indian Tribal Governments (6 November 2000), direct 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. To comply with legal mandates, federally recognized tribes that are affiliated historically with the Beale AFB geographic region are invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal coordination process is distinct from NEPA consultation or from the Interagency/ Intergovernmental Coordination for Environmental Planning processes and requires separate notification to all relevant tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations.

Paleontological Resources Regulations

Regulations are listed for Paleontological Resources because it is described and analyzed in Chapters 3 and 4 as a sub-section under Cultural and Tribal Resources. Protection of paleontological resources within the Project is regulated by the Antiquities Act of 1906 (16 USC 431-433), the Archaeological and Paleontological Salvage Act (23 USC 305), the NHPA (54 USC 300101 et. Seq), and NEPA (42 USC 4321).

1.3.2.2 Lead Section 106 Agency

Pursuant to Section 106 of the NHPA, WAPA is leading consultations with Native American tribes and the SHPO. Consultation was carried out and continues to be ongoing with 13 tribes. This list of tribes was obtained from the Native American Heritage Commission and from Beale AFB. Additional details about results of tribal consultation can be found in Section 3.6, Cultural and Tribal, and Paleontological Resources Affected Environment.

1.4 PUBLIC SCOPING

The Project included two rounds of scoping. The initial round of scoping occurred December 2017/January 2018 and included two Project route alternatives. As a result of public and landowner feedback during scoping, and more information obtained regarding natural resources in the area, a third alternative was added to the Project, and scoping was reinitiated in July 2018/August 2018 to inform the public of the newly added alternative. The Scoping Summary Report is included in **Appendix B** and contains a description of public outreach methods, details on public meetings, and a full list of comments received during both scoping periods.

The Draft EA was made available for public review for a total period of 60 days. Outreach methods are summarized in **Appendix C**. All comments received during public review and responses to those comments are itemized in the Public Comment Tracking Table (**Appendix D**).

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2.0 PROJECT DESCRIPTION

The Project includes three action alternatives: the Northern A Alternative, Northern B Alternative, and Southern Alternative. The Northern B Alternative, which is also the WAPA and Beale AFB Preferred Alternative, was identified as a result of public scoping, as described in Section 2.3.

2.1 PROJECT LOCATION

The Project area comprises all action alternatives, located within and extending west from Beale AFB, which is located approximately 8 miles east of Yuba City, California. Specifically, it is located within Section 13 of Township 15 North, Range 4 East, and Section 18 of Township 15 North and Range 5 East. The interconnection line, for all action alternatives, traverses generally east-to-west from its interconnection point with WAPA's Cottonwood-Roseville transmission line west into Beale AFB. **Figure 2-1** is a map of the Project area, including all action alternatives.

The specific right-of-way (ROW) would be defined after WAPA and Beale AFB issue final decisions on their preferred route. This EA evaluates potential impacts to Project alternative corridors, rather than to specific Project facility sites; these study corridors are wider than what the final ROW would be in order to account for areas needed for construction.

2.2 PROJECT DESIGN FEATURES

Beale AFB and WAPA have worked to design all Project alternatives to avoid wetlands and endangered species habitat to the extent possible and to work around Beale AFB infrastructure and flight/radar requirements. The proposed Project has also been designed to take advantage of upland areas that do not provide habitat for threatened or endangered species. These considerations were taken into account since the beginning of Beale's planning phase, prior to requesting interconnection with WAPA's existing line.

Final engineering is not expected to be complete for the Project prior to issuance of the Final EA. Specific structures would be located in areas to limit impacts to wetlands. Disturbance acreages for all action alternatives are included **Appendix E** and represent the maximum needed for typical WAPA standard facilities and operations.

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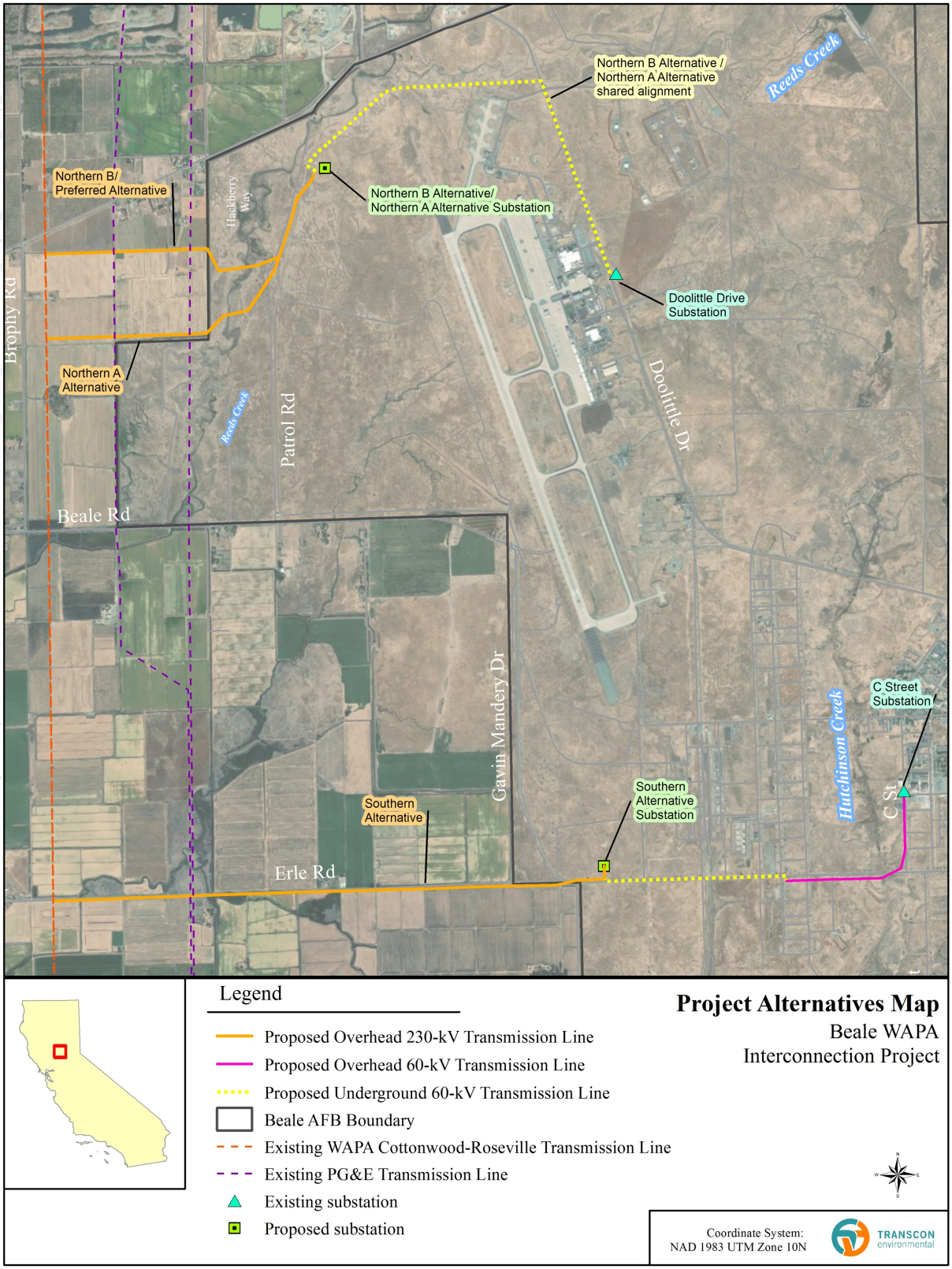

Figure 2-1. Project Alternatives Map

2.3 ACTION ALTERNATIVES

After analysis of 15 potential routes (see Section 2.5, Alternative Eliminated from Further Consideration), Beale AFB proposed two alternative alignments to WAPA for the interconnection line: the Northern A Alternative and the Southern Alternative. As a result of public scoping and additional data collection, the Northern B Alternative was added for consideration. Of the 15 initial routes, these 3 alternatives were determined to best meet Beale AFB's selection standards and are fully analyzed in this EA. Selection standards are metrics used to analyze possible alternatives that would meet the purpose and need for the USAF action; specific selection standards that Beale AFB used to analyze potential alternatives are described in detail in Section 2.5.1. During Project planning and impact analysis, WAPA and Beale AFB determined the Northern B Alternative is their Preferred Alternative, primarily because it would result in relatively fewer impacts to landowners, farming operations, and the environment:

- *Landowners and Farming Operations.* The Northern B Alternative follows a road and therefore, will have fewer impacts to landowners and farming operations than the Northern A Alternative, which traverses through agricultural fields.

  The Northern B Alternative crosses fewer private land parcels than the Southern Alternative and thus, causes fewer impacts to landowners and farming operations.

- *Environmental Impacts*. The Northern B Alternative requires fewer improved or new access roads than the Northern A Alternative and thus, creates fewer impacts from road construction disturbance.

  The Northern B Alternative does not permanently impact vernal pools and thus, creates fewer impacts than the Southern Alternative (see Section 4.5.1.3 for a description of wetland/vernal pool impacts from the Southern Alternative).

Project facilities would be similar for all action alternatives, including overhead aerial lines, the crossing of two existing PG&E transmission lines, a new substation on Beale AFB, underground 60-kV lines on Beale AFB, and a terminus at an existing substation on Beale AFB. Action alternatives would be comprised of similar structures built using the same construction methods; the only differences between the action alternatives is their location and configuration of overhead and underground facilities, as described below.

2.3.1 Preferred Alternative (Northern B Alternative)

The Preferred Alternative, also referred to as the Northern B Alternative, totals approximately 4.3 miles of transmission line; approximately 0.9 mile located off Beale AFB and 3.4 miles on Beale AFB. It would consist of approximately 1.8 miles of overhead installation (0.9 mile off Beale AFB and 0.9 mile on Beale AFB) and 2.5 miles of underground installation (all within Beale AFB boundaries).

The Preferred Alternative alignment would begin at its interconnection point perpendicular to the existing Cottonwood-Roseville line; overhead double-circuit 230-kV lines would continue in a nearly straight east-to-west line following existing agricultural dirt roads up to the westernmost edge of Beale AFB. Portions of the line located off Beale AFB boundaries are bordered by agricultural fields to the north and south. Once on Beale AFB, the alignment would traverse flat,

open grasslands interspersed with seasonal wetlands (i.e., vernal pools), curving to avoid aquatic resources (see Section 2.2, Project Design Features), existing infrastructure, and runway clearances. The transmission line continues as 230-kV overhead until its connection with a proposed new substation located along Patrol Road. The proposed new substation would step down the voltage to 60-kV, then the line would be routed underground in accordance with Beale's design and construction. The underground portion of the alignment curves northeast before turning southeast under Doolittle Drive and terminating at the existing Doolittle Drive Substation. These components are displayed on **Figure 2-2**. Specific Project facilities and construction methods are described below.

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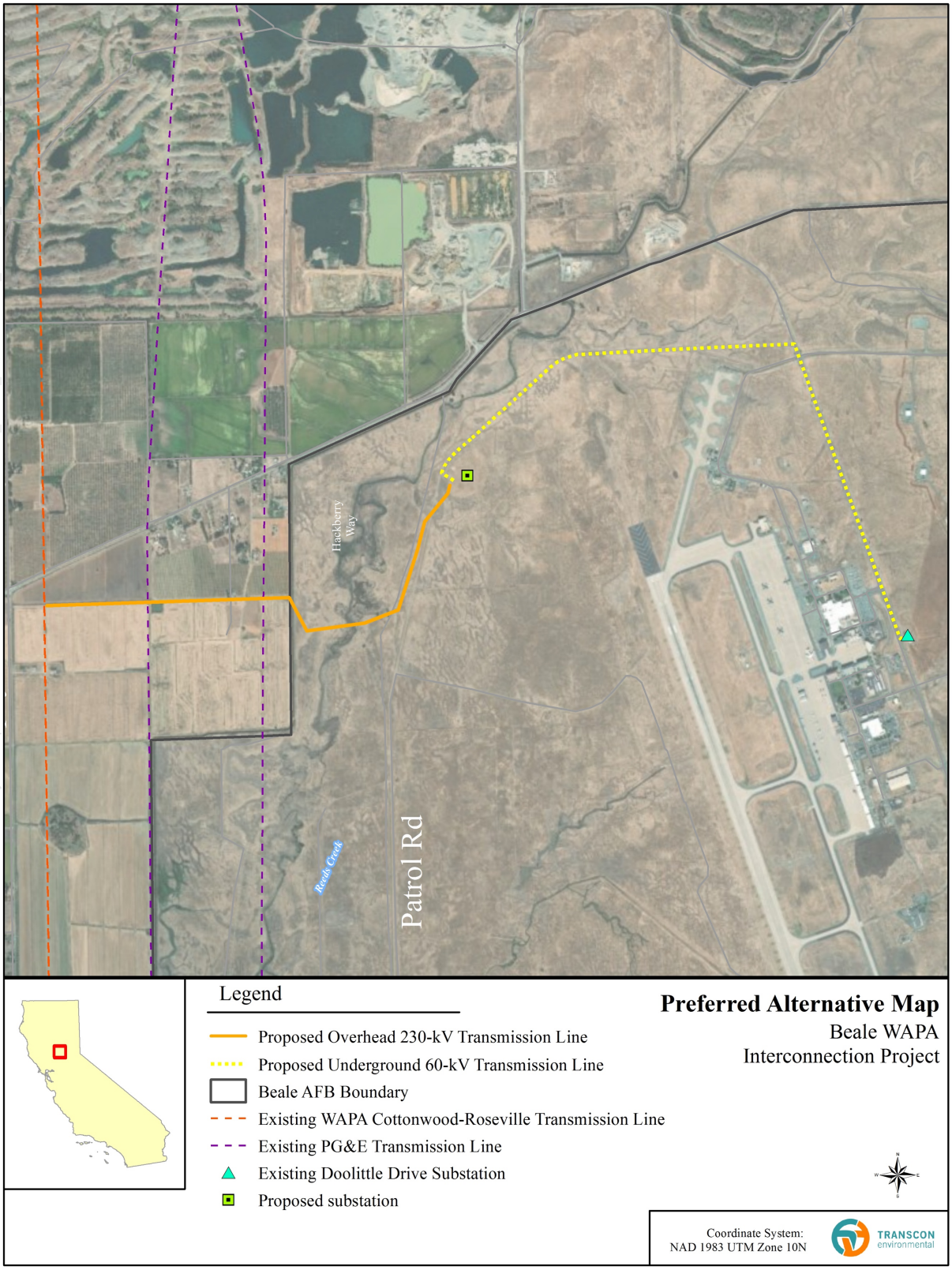

Figure 2-2. Preferred Alternative Overview Map

2.3.1.1 Overhead Facilities and Construction

230-kV and 60-kV Overhead Facilities

The 230-kV overhead portions of the Preferred Alternative would be built on double-circuit monopoles or single-circuit H-frame steel poles or equivalent, depending on final engineering. Disturbance calculations in this EA (**Appendix E**) assume the largest possible disturbance (i.e., H-frames), but specifics for other typical structures that may be used on this Project are described below.

The double-circuit delta configuration monopoles would range between 72 and 85 feet tall on Beale AFB (**Figure 2-3**), 80 and 190 feet tall off Beale AFB (**Figure 2-4**), and have up to a 40-foot embedment depth. Structure foundations would be direct embed or formed concrete measuring up to 7 feet diameter at each pole base, which would be permanently disturbed per monopole structure, and up to a 0.7-acre area would be temporarily disturbed for construction activities per structure. All temporarily disturbed areas would be restored to original grade and contour as much as possible.

Single-circuit H-frames require two structures per location, each ranging between 50 and 60 feet tall, each with two poles per structure that are 24 inches diameter at the base with 7- to 8-foot direct embedment depth, and 12 inches diameter at the top. The H-frames would range up to 105 feet wide, inclusive of both structures and required distance between the structures (**Figure 2-5**). Each structure would require 2 foundations, each up to a 7-foot-diameter area, which would be permanently disturbed, and up to a 0.7-acre temporary disturbance area per pair of structures for construction activities. For the purposes of this Project, one set of H-frames are referred to as a single location. All temporarily disturbed areas would be restored to original condition as much as possible.

Spans between structures would range between 300 and 1,250 feet, with approximately 5 to 10 structures per mile. Spans crossing PG&E lines, whether crossing under or above the existing lines, would be around 300 feet in length. The conductor would be aluminum steel reinforced (ACSR), and the static wire would be optical ground wire or equivalent.

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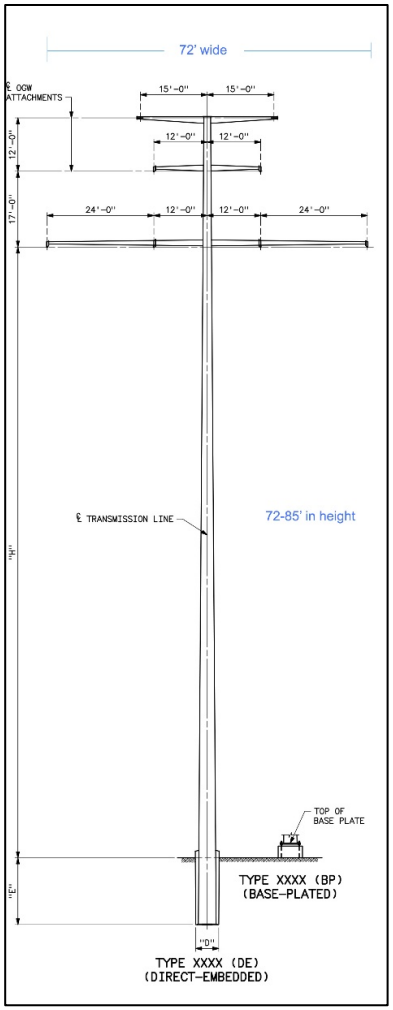

Figure 2-3. WAPA Delta 230-kV Double-Circuit Tubular Steel Pole (TSP).

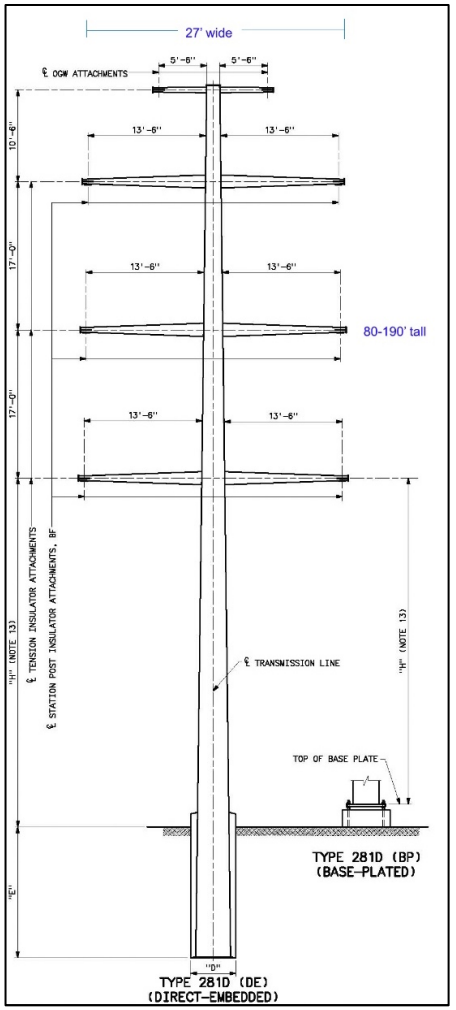

Figure 2-4. WAPA Standard 230-kV Double-Circuit TSP.

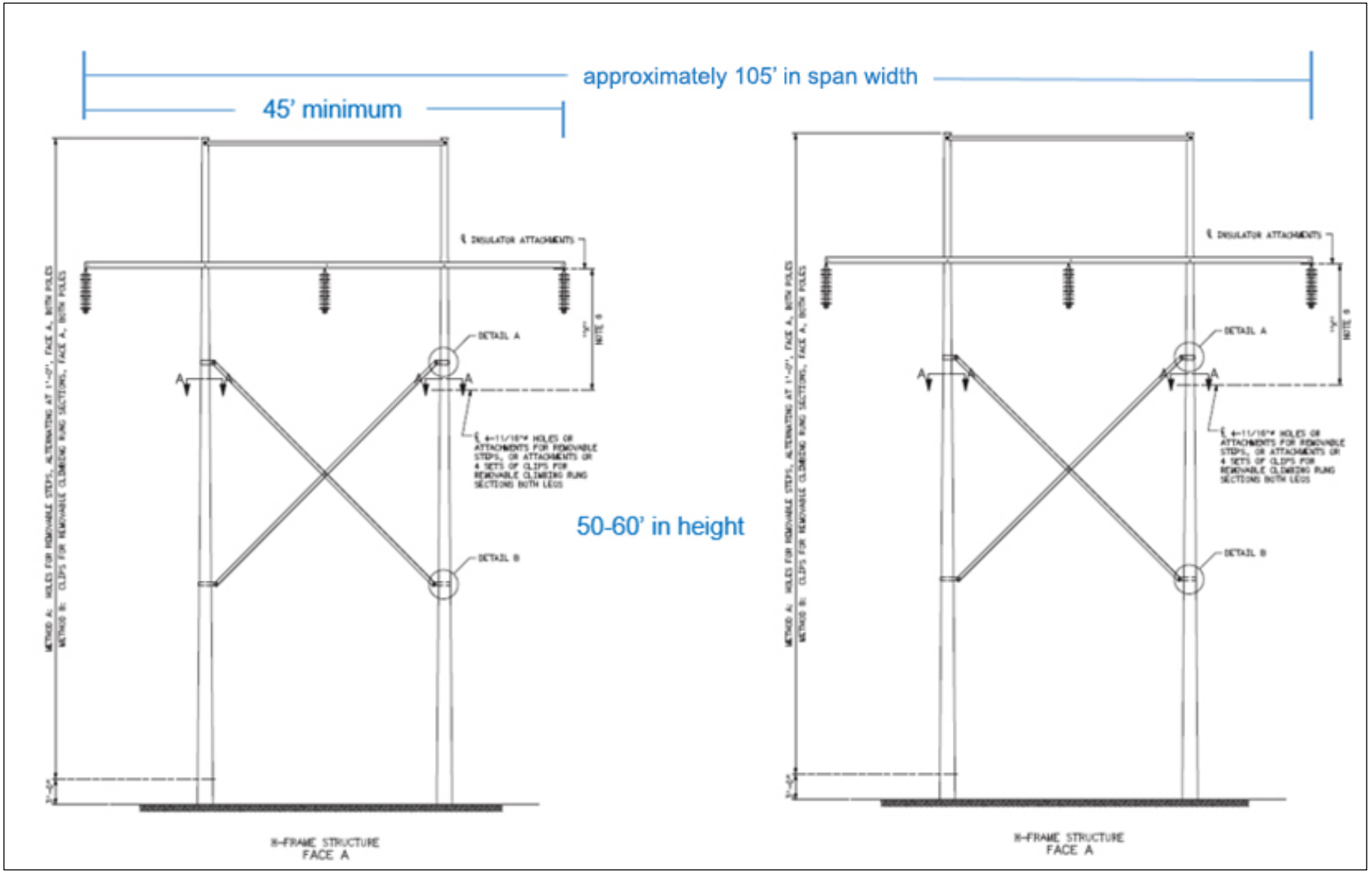

Figure 2-5. Typical Single-Circuit H-Frame.

Overhead Transmission Line Construction

The following general construction descriptions apply to all overhead electric structures.

Preconstruction. Soil sampling and potholing would be conducted before construction. Soil information would be provided to construction crews to inform them about soil conditions and existing utility locations. If hazardous materials are encountered in soil samples, work would be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. Hazardous materials would be handled, transported, and disposed of in accordance with federal, state, and local environmental regulations, including Chapter 6.95 of the California Health and Safety Code and Title 22 of the CCR.

Bore holes would need to be dug along the roadway and into some fields to inform geotechnical engineering; all holes would be within the study area and would likely be within the 0.7-acre temporary disturbance required per structure. The typical boring would be up to 2 feet in diameter to a depth of up to 40 feet. Additionally, the bore hole would be drilled to accommodate any specification for transmission pole capability.

Excavation and Foundation Installation. Installation of structure foundations may require grading and vegetation removal. Where grading is needed, topsoil would be removed and stockpiled for use in site restoration. Temporary topsoil stockpiles would be protected from erosion during construction. Excavating transmission structure foundations is typically done with a backhoe, front-end loader, or pressure auger.

Reinforced concrete foundations would be used for most structures. After the foundation concrete is placed, a mechanical tamp would be used to re-compact soil around the foundation. The disturbed area would be re-graded so that surfaces drain naturally, blend with the natural terrain, are left in a condition that would facilitate revegetation or reseeding, provide for proper drainage, and prevent erosion.

Structure Assembly and Erection. Structure components would typically be transported to installation sites by truck or helicopter. Structures would be erected with cranes. Structure assembly equipment may include cranes (ground or helicopter); augers; bulldozers; bucket trucks; backhoes; air compressors; electric generators; pickup trucks; and other vehicles, machinery, and equipment. Structures would be assembled, erected, and attached to the foundations.

Conductor Stringing. Conductor stringing would occur at designated pulling and tensioning sites (pull sites). Generally, the pull sites would be located within the easement, and temporary disturbance from pull sites are considered in the disturbance calculations (**Appendix E**). Angle-structure pull sites would require temporary easement rights if located outside the easement to pull the conductor in a straight line. The locations of pull sites depend on environmental constraints, conductor length, and equipment access. Pull sites would be located within the study area of this EA.

Large reels of conductor would be transported to the staging areas or pull sites on flatbed trucks. Other equipment would include stringing trailers, tensioning machines, pullers, bulldozers, and several trucks, including a bucket truck.

Temporary stringing sheaves or travelers (pulleys) would be attached on the crossarms of each structure at the bottom of the insulator strings. A sock line (rope or lightweight wire) would then be strung from structure to structure through the stringing sheaves. This may be completed using a helicopter. A pull line would then be attached to the end of the sock line and pulled back through the sheaves between pull site locations. Conductor would then be strung using the pull line.

Powered pulling equipment would be used at one end and tensioning equipment would be used at the other end to establish the proper tension and sag for crews to permanently "clip" conductors onto structure hardware and maintain the proper ground clearance for the conductors. After conductors are clipped in, the stringing sheaves would be removed and the new conductor connected to the insulators hanging from the crossarms. Ground wire would be installed last and would be attached to the top of the structures using a pulling technique similar to that used for the conductors.

PG&E Crossing and Construction

PG&E has two existing lines in the Project area: Colgate-Rio-Oso and Cresta-Rio-Oso 230-kV transmission lines. All alternative alignments would cross these lines along the 230-kV overhead portions of the Project off Beale AFB. The interconnection line may cross above or below the existing PG&E lines, depending on final engineering. PG&E will be coordinated with accordingly.

Fiber Optic Line

The Project would include new fiber optic cable. The fiber cable would be strung along the overhead structures on crossarms placed above the power cable. There is an existing fiber optic line on WAPA's Cottonwood-Roseville pole line that would be the interconnection source for the fiber.

2.3.1.2 Substation Facilities and Construction

New Substation

To accommodate the new proposed 230-kV transmission line, a new substation would be built on Beale AFB to step 230-kV down to 60-kV. At this time, it is anticipated that WAPA would construct, own, operate, and maintain the new substation facility. Permanent disturbance for the new substation would be a footprint of 7 acres, an additional 4.8 acres would be temporarily disturbed to facilitate construction (see **Appendix E**).

Generally, substation construction would include site grading, property and substation fencing, and installation of electrical facilities. The site would be excavated and graded to accommodate the required construction and permanent facility buildings, equipment, and electrical structures. A fence would be erected around the substation perimeter and the substation would be graveled. Including the area needed for drainage, permanent impacts for substation construction total 7 acres. Up to an additional 4.8 acres may be temporarily impacted by construction activities. Area lighting would be provided by multiple 300-watt tungsten-quartz lamps mounted near major electrical equipment. Additionally, downward-oriented 100-watt yellow flood lamps would be placed near entrances and the substation gate for night entry and would remain on at night.

Existing Substation

The Preferred Alternative alignment would terminate at the existing Doolittle Drive Substation. A future project related to the existing Doolittle Drive Substation is described in Chapter 5, Cumulative Effects. For the purposes of this Project, no modifications or updates are required to the existing substation. At the eastern extent of the underground 60-kV line, two poles would be installed to transfer power aboveground into the existing Doolittle Drive Substation and switching yard.

2.3.1.3 Underground Facilities and Construction

The Project's underground facilities would be installed within and under existing roadways; new permanent aboveground disturbance is not expected for these portions of the Project. Temporary disturbance (see **Appendix E**) includes the digging of a 3-foot-wide, 8-foot-deep trench and associated vaults under the existing paved road, which would be compacted and improved, and the use of a temporary road adjacent to the existing Patrol Road.

Buried Conduit and Vaults

The underground portion of the Project would consist of 12 polyvinyl chloride (PVC) conduit/duct encased in a concrete duct and up to 13 buried vaults. The concrete bank would measure 32 inches wide by 18 inches tall, buried to a depth of 48 to 60 inches, including 24 inches of native soil cover. The duct is thermally designed to contain heat generated by the conductors so the temperature of the surrounding soil is not affected. Warning tape would be installed above the bank to warn of buried energized electrical circuits.

Of the 12 conduits inside the duct, 8 would be 6-inch conduits for the power conductors and 4 would be 2-inch conduits for the fiber line. Of the 8 conduits for electric conductors, 6 would be used and 2 would remain open for future maintenance or repair activities; of the 4 conduits for fiber, 2 would be used and 2 would remain open for future growth or maintenance activities.

The transmission cables would be cross-linked polyethylene insulated cable types utilizing aluminum for the conductor material (**Figure 2-6**). The overall cable diameter would be 2.28 inches (including cable diameter, conductor shield, insulation, etc.) (750 circular mills [kcmil]). Fiber optic cable(s) installed underground would be the same as are strung on the overhead structures.

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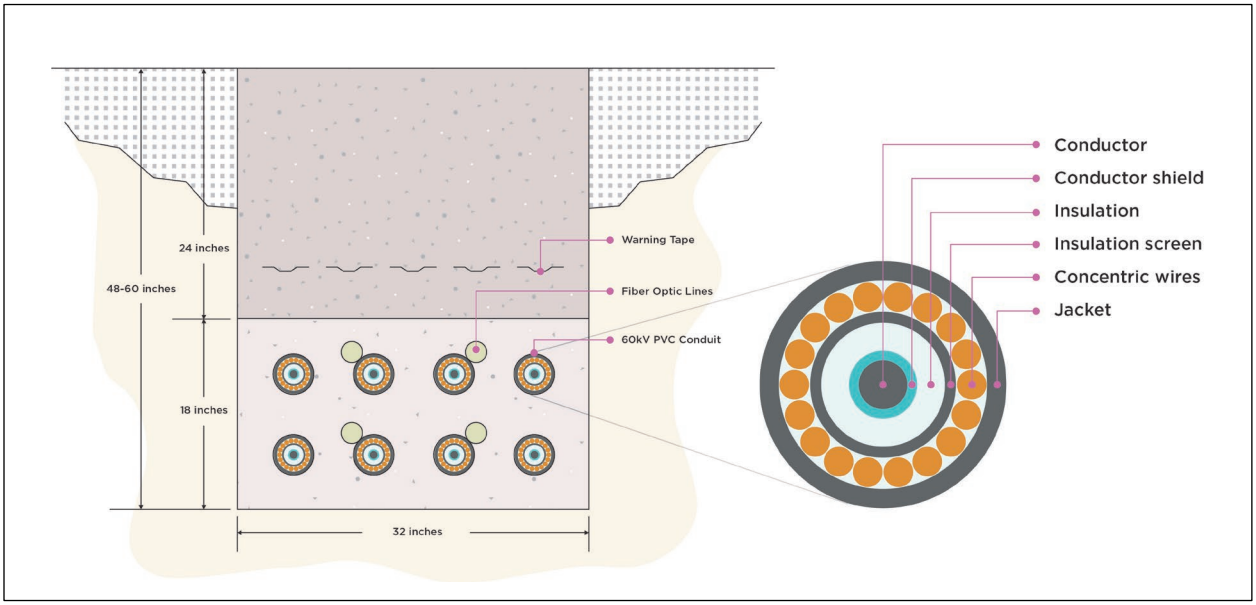

Figure 2-6. Typical underground concrete bank and enclosed cables.

Approximately 13 pairs of buried vaults would be needed along the underground portion of the alignment to allow for pulling and splicing the lines and to allow access to underground facilities for future maintenance work. Vaults would be constructed of steel-reinforced concrete (either prefabricated or cast-in-place). The vault pairs would be sized approximately 36 feet in length, 10 feet in width, and 8 feet in depth, and designed to withstand the maximum credible earthquake in the area as well as heavy truck traffic loads.

Vaults would be buried under the roadways within the trenches created for the concrete bank installation, with the trenches expanding to 15 feet wide at each vault site to allow installation. The vaults would be placed so the top is flush with the ground/road. Associated disturbance calculations are included in **Appendix E**.

Underground Construction

The concrete bank that encloses the conduit and transmission line measures 32 inches wide by 18 inches tall. The construction sequence for installing the underground bank is described below.

Preconstruction. Soil sampling and potholing would be conducted before construction. Potholes would be placed within the study area of this EA, likely within already disturbed areas. Soil information would be provided to construction crews to inform them about soil conditions and existing utility locations.

Trenching. After the trench route is marked, work would begin with a concrete saw cutting the trench line. The trench pavement would be broken into manageable pieces for removal and the trench dug to a depth of 8 feet. Spoils resulting from excavation would be either piled on the disturbed roadbed or placed directly into a truck to be hauled to a legal or commercial disposal site off Beale AFB. Approximately 11,000 cubic yards of asphalt and spoil would be removed, resulting in approximately 1,100 truck trips during excavation. Spoils would not be stored outside the roadbed or staging areas.

Vault Placement. The Project would require placement of up to 13 pairs of vaults; at each vault location, the trench size would be increased to be 15 feet wide for a length of 40 feet. Installation of each vault would take place over a 3-day period with excavation and shoring of the vault pit being followed by delivery and installation of both vaults, filling and compacting backfill, and repaving of the excavation area.

Duct Placement. The pre-fabricated concrete duct would be placed in the trench using cranes.

Backfilling. Once the duct bank is installed, thermal-select or controlled backfill would be imported, installed, and compacted. A road base backfill or slurry concrete cap would then be installed, and the road surface would be restored in compliance with the locally issued permits. While the completed trench line sections are being restored, additional trench line would be opened farther down the road. This process would continue until the entire conduit system is in place. After backfilling and prior to cable pulling, road and culvert work would continue as described in Section 2.3.1.4, Access Roads and Culverts.

Cable Pulling. Cable would be pulled through individual ducts at the rate of approximately two pulls per day. After cable installation is completed, the cables would be spliced between all vaults and riser structures. A splice trailer would be located directly above the manhole openings for easy access by workers. A mobile power generator would be located directly behind the trailer. The dryness of the vault must be maintained 24 hours per day to ensure that unfinished splices are not contaminated with water or impurities. Normal splicing hours would be 8 to 10 hours per day, with some workers remaining after hours to maintain splicing conditions and guard against vandalism and theft. These conditions are essential to maintaining quality control through completion of splicing. As splicing is completed at a vault, the splicing apparatus setup is moved to the next vault location and the splicing is resumed.

Duration. Trenching, installation of the concrete duct bank, and vault installation would be completed within 5 months, while cable installation, splicing, and terminating would require approximately 6 months, totaling 13 months to construct the underground portion of the Project. Underground construction would require approximately 10 to 20 crew members.

Best Management Practices. Standard erosion and dust control measures will be used during construction. These methods include installation of sediment and erosion control structures according to best management practices to protect biological resources, roadways, and adjacent properties. Watering for dust control will also be employed. Temporary lane closures along Beale AFB roads as required for underground construction would be coordinated with Beale AFB.

2.3.1.4 Access Roads and Culverts

Road access to the Project area would be via existing private and county roads, including county-maintained Hackberry Road off Beale AFB and Patrol Road and Doolittle Road on Beale AFB. These roads provide personnel and equipment access. Some roads on Beale AFB would require improvements to provide sufficient access for transmission line construction. Approximately 0.65 mile of new roads would be constructed, and approximately 1.41 miles of existing roads would be improved to allow Project construction on Beale AFB. WAPA would obtain necessary temporary or permanent encroachment permits from Yuba County Public Works for construction usage on county roads.

Access roads that are improved or constructed new would be dirt or gravel roadways with the exception of Patrol Road. Patrol Road, where the underground portion of the Project would be installed, would be improved as part of this Project after installation of the underground line. Improvements to Patrol Road include restoring the current road substrate and adding 3 inches of asphalt.

Road Construction and Improvement

Access to each site would be on an existing road that would be improved or new roads that would be constructed where necessary. The construction of new access roads is generally the same as the construction to improve existing access roads and is described below. Whether new or improved, access roads would be constructed to a width of 12 feet, increasing to 16 to 20 feet around corners. An area up to 30 feet wide would be temporarily disturbed to facilitate road construction, which would involve brush clearing, grading, and erosion control. Temporary areas needed during construction would be restored to pre-existing conditions and/or grades as much as possible.

A bulldozer or grader would prepare the roadway by flattening, filling low areas, and regrading the road to the desired height. New materials (gravel and construction grade fill) are then brought in to increase the road strength. After the new materials are laid on the surface, water trucks and rolling compactors are brought in to compact and reinforce the surface of the road. This process is done in layers until the road is graded properly and the foundation is to specification. The paving equipment is then brought in to lay the initial asphalt surface; large rollers are run over the entire surface until it is flattened to specification. A final asphalt (finishing surface) is then laid on the entire surface to seal the final road for use. Throughout construction, old and unused asphalt, concrete, and spoils would be hauled off by truck to a legal or commercial disposal site off Beale AFB. Watering may be required to control dust and retain fine surface rock.

In determining the final location of new roads, impacts to large trees, wetlands, vernal pools or other natural features would be minimized. All new and improved roads would be constructed to withstand weights up to 40 tons.

Temporary Access and Weight Dispersion Mats

During the trenching on Patrol Road for the underground portion of the Project, temporary access may be necessary on either side of Patrol Road for vehicle and equipment passing. This temporary access would not be more than 12 feet wide and would be designed to avoid vernal pool and wetland features to the extent feasible. For those areas where avoidance of vernal pool or wetland features is not possible, weight dispersion mats would be placed over the feature and removed upon completion of work in that area. Dispersion mats would only be used during the dry season and access over vernal pool or wetland features would not be permitted during the wet season. Temporary impacts associated with the use of weight dispersion mats are considered in Project disturbance calculations (**Appendix E**).

Culvert Replacement and Construction

Culverts would be installed or replaced where drainages or waterways cross the new or improved access roads. For the Preferred Alternative, 6 new culverts would be installed and up to 8 existing culverts would be replaced. For each culvert, an area measuring up to 36 to 60 square feet would be disturbed. Three-sided culverts (aka horseshoe culverts) would be used to

preserve the natural soil substrates and minimize impacts to existing waters and wetlands (**Figure 2-7** and **2-8**).

To install culverts, the pavement would be saw cut, excavation and demolition would be conducted by backhoe or small excavator, and the bottom of the trench would be adequately prepared and compacted. The culvert would be placed in the trench by small crane or boom. Cast-in-place headwalls would be framed and poured. Trenching and backfilling would be completed using native materials or materials specified in design documents. Twelve inches of crushed rock road base would be placed below 4 to 6 inches of asphalt pavement to match existing grade. If a culvert is being replaced within an unpaved surface, native materials would be used for backfill to the surface and the area would be revegetated to match existing conditions. Culvert construction would be performed during the dry season.

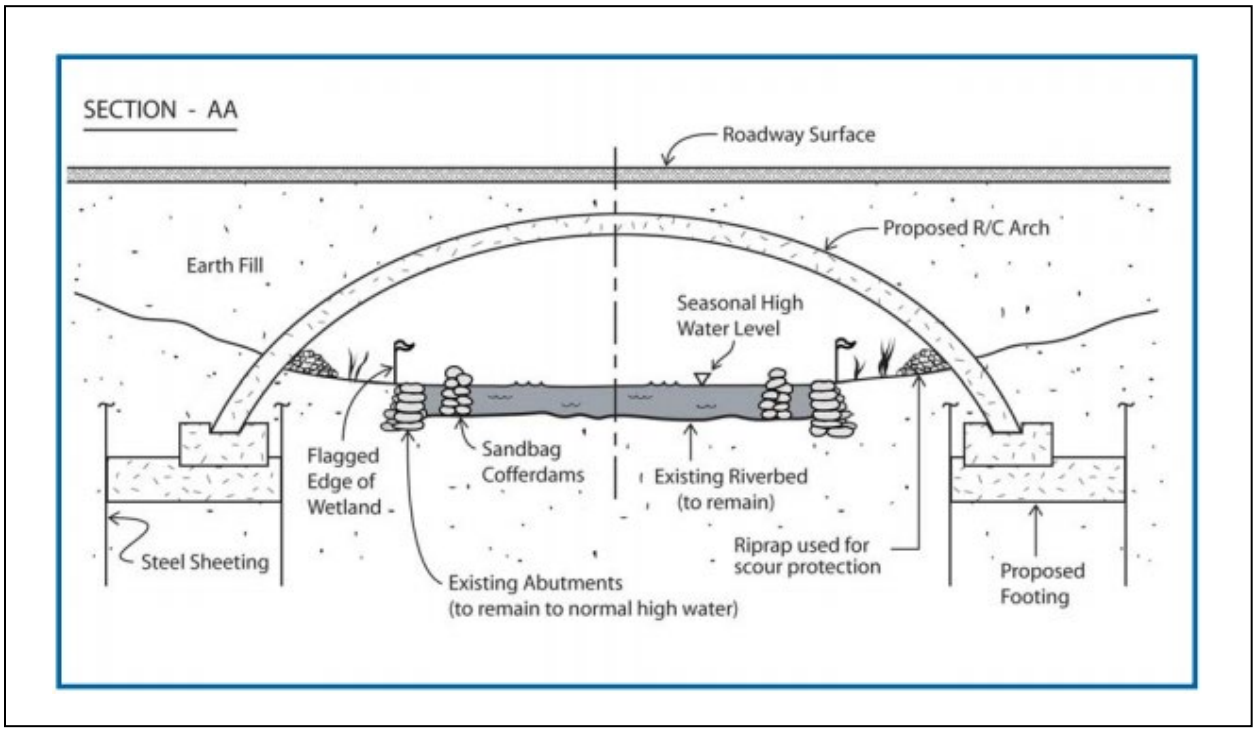

Figure 2-7. Typical culvert cross-section.

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2.3.1.5 Other Project Activities

Ground Disturbance

Ground disturbance from the Project would occur from grading construction staging and laydown areas, grading and drilling holes for new structure foundations, constructing and improving roads for vehicle and equipment access, installing underground duct and vaults, and establishing pull sites for conductor installation, as well as construction of the new substation.

Permanent disturbance for this Project is defined as those areas where Project facilities would be built and remain (i.e., pole foundations, new access roads, the new substation). Temporary disturbance for this Project is defined as those areas needed to construct Project facilities (e.g., equipment staging and laydown areas, pull and tensioning sites, etc.); areas of temporary disturbance are expected to be disturbed in the short term and would be restored in accordance with WAPA's standard BMPs. Permanent and temporary ground disturbance areas are provided and calculated for each facility for each action alternative in **Appendix E**. Specific to the Preferred Alternative, a total of 10.07 acres of permanent disturbance and 46.23 acres of temporary disturbance are expected.

General Construction Activities

Construction would commence after securing required permits and land rights. Multiple crews may work simultaneously on different Project components. Construction generally would take place between 7:00 a.m. and 7:00 p.m., 6 days per week, except for those areas where local ordinances and traffic considerations dictate otherwise, in which case working hours would be consistent with local requirements. Project construction is likely to take 16 months, including overhead and underground components, and the line would be energized within approximately 2 months of completing construction.

Construction Staging and Laydown Areas

Temporary construction staging and laydown areas would be needed to store and stage materials, construction equipment, and vehicles, and would also be used for helicopter landing zones. These areas are planned as follows:

- Within Beale AFB, 4 locations totaling approximately 3.6 acres have been identified for staging and laydown. Other pre-disturbed (paved or gravel) areas on Beale AFB may also be used.
- One 5-acre location off Beale AFB would be located within the study area on previously disturbed soil. This staging area would avoid impacts to sensitive resources and would be dependent upon landowner negotiations.
- The 0.7-acre areas needed per structure location would be used for construction staging and laydown.
- Project construction may be planned to allow the new substation pad to be installed early during construction, which would also be used for staging and laydown.

Construction Equipment

Typical equipment needed to complete construction activities are listed below. Construction would be conducted in stages; therefore, equipment would not be working on all tasks

simultaneously at a given location, but there would be some overlap in tasks and equipment in use.

- 2-ton flatbed truck
- Air compressors
- Air tampers
- Augers
- Backhoes
- Blader
- Bulldozers
- Cable puller truck
- Cable reel trailers
- Cement trucks
- Compressors
- Concrete saw
- Cranes
- Crawler backhoe
- Dump trucks
- Excavators
- Flatbed boom truck
- Flatbed trucks
- Front-end loader
- Fuel truck
- Grader
- Helicopter Hughes 500
- Hydro-cranes
- Hydro-lifts
- Jackhammer(s)
- Large backhoe
- Large mobile crane
- Light truck
- Manlifts
- Materials trucks
- Mechanic truck
- Mixer trucks
- Pavement breaker
- Pickup trucks
- Portable generators
- Pullers
- Reel trailers
- Rigging truck
- Rollers
- Shop vans
- Small mobile cranes (< 12 tons)
- Splice trailer (40 feet)
- Tensioners
- Tractor
- Welders
- Winch truck

Operations and Maintenance

WAPA O&M Activities

WAPA would construct and perform O&M activities on the 230-kV off-Beale AFB portion of the Project, up to and including the new substation located on Beale AFB. WAPA must comply with North American Electric Reliability Corporation and Western Electricity Coordinating Council standards and requirements for transmission system reliability, including maintenance and vegetation management. In order to comply with these requirements, WAPA has a comprehensive O&M program for all of its property and facilities, including transmission lines, substations, communication facilities, and legal access roads. This O&M program ensures reliability of the transmission systems and safe access to WAPA facilities. The O&M activities proposed for this Project would be consistent with WAPA's O&M program (WAPA 2010).

For this Project, WAPA would conduct Category A, B, and C O&M activities, as described in their Final EA for the North Area ROW Maintenance Program (WAPA 2010). These activities are generally described below, and example activities per category are listed in **Table 2-1**.

Category A activities are primarily inspection-type actions, with some minor repairs that would cause minimal, if any, soil disturbance. Category B activities include typical repair tasks that would occur along WAPA's existing ROW. Category B actions have the potential to cause minimal effects to sensitive resources. Category B maintenance equipment may include but would not be limited to rubber-tired vehicles such as bucket trucks, backhoes, front-end loaders, cranes, auger trucks, bobcats, and pole trucks. Category C tasks are generally those maintenance activities that would disturb large areas and would utilize heavy equipment. Category C maintenance equipment may include but would not be limited to the use of steel-tracked and/or rubber-tired bulldozers, graders, backhoes, and front-end loaders.

TABLE 2-1
WAPA O&M ACTIVITIES PER CATEGORY

Category A—Inspection and Minor Maintenance Activities

Substation Maintenance

- Maintenance and replacement of transformers and breakers
- Servicing and testing of equipment at existing substations, including oil change-outs
- Installation or replacement of bushings
- Cleaning or replacement of capacitor banks
- Maintenance or installation of propane tanks within a substation yard
- Maintenance of switches, voltage regulators, reactors, tap changes, reclosers, and valves
- Replacement of wiring in substations and switchyards
- Replacement of existing substation equipment, including regulators, capacitors, switches, wave traps, radiators, and lightning arresters
- Installation of cut-out fuses
- Adjustment and cleaning of disconnect switches
- Placement of temporary transformers
- Maintenance, installation, and removal of solar power arrays and controllers
- Installation of foundation for storage buildings above ground mat within existing substation yard
- New footings
- Ground mat repairs
- Remediation of small oil and hazardous materials spills (less than 1 gallon)
- Clearing vegetation by hand within the property boundary of a fenced substation
- Application of soil sterilants and herbicides within the property boundary of a fenced substation

Transmission Line Maintenance

- Ground and aerial patrols
- Ground wire maintenance
- Aircraft warning device maintenance
- Insulator maintenance
- Bird guard maintenance
- Crossarm maintenance on wood pole structures
- Emergency manual removal and/or pruning of danger trees or vegetation
- Steel members of steel transmission line structures
- Hardware on wood and steel transmission line structures
- X-brace and knee-brace maintenance
- Dampener maintenance
- Ground rod maintenance
- Armor rod maintenance and clipping-in structures
- Conductor upgrade/maintenance
- Emergency placement of rocks at bases of poles or structures to stabilize small eroded areas
- Remediation of small oil and hazardous materials spills (less than 1 gallon)
- Antennae maintenance
- Structure mile marker maintenance

Communication System

- Microwave radio tower maintenance
- Communication tower and antennae maintenance
- Light beacon maintenance
- Microwave dish maintenance
- Parabolic dish maintenance
- Periodic antenna tower climbing inspections

Facilities Maintenance

- Building maintenance including interior and exterior painting and roof, ceiling, floor, window, and door maintenance
- Application of soil sterilants and herbicides within the property boundary of fenced maintenance facility

TABLE 2-1
WAPA O&M ACTIVITIES PER CATEGORY

• Clearing vegetation by hand within the property boundary of fenced maintenance facilities	
Category B—Routine Maintenance Activities	
Transmission Line Maintenance	
• Maintenance and repair of existing culverts • Removal of soil deposition around tower legs • Ground anchors maintenance • Filling of erosional features on access roads • Vehicle and equipment staging • Placement of fill or rock(s) around existing culverts • Remediation of small oil and hazardous materials spills (between 1 and 10 gallons) • Grading existing access roads • Application of herbicides	• Installation and repair of fences and gates • Installation or replacement of underground and overhead power, communication, or ground electrical line (less than 100 feet) • Manual removal and/or pruning of danger trees or vegetation • Mechanical vegetation management by means of masticators or other similar mechanical equipment
Communication System Maintenance	
• Foundations or footings maintenance • Installation of underground and overhead power, communication, or ground electrical line (less than 100 feet) • Installation of cellular equipment onto existing infrastructure	• Maintenance and repair of existing culverts • Remediation of small oil and hazardous materials spills (between 1 and 10 gallons) • Application of soil sterilants and herbicides
Category C—New Infrastructure	
Transmission Line and Communication System Maintenance	
• Adding new access roads • Installation of new culverts • Installation of new foundation for storage building at existing facilities • Erosion-control projects at existing facilities • Reconductoring • Mechanical vegetation management by means of bulldozers or other similar mechanical equipment	• Tower/pole relocation/realignment within existing ROW • Installation or replacement of underground and overhead power, communication, or ground electrical line (greater than 100 feet) • Remediation of a small spill of oil and hazardous materials (greater than 10 gallons)
Source: WAPA 2010	

WAPA Project construction and O&M activities would comply with Standard 13, Environmental Quality Protection, of WAPA's 2013 Construction Standards, as well as the ESA, consultations and permits, and Project- and Beale AFB-specific BMPs. WAPA and Beale AFB would enter into an O&M agreement for any Project activities occurring on Beale AFB. These may include agreements governing helicopter use, flight plans, and access. Other aspects of the O&M agreement between Beale AFB and the WAPA may be developed as various O&M needs are identified.

Beale AFB O&M Activities

Beale AFB would construct and perform O&M activities on the underground 60-kV portion of the Project, up to and including the connection to the existing Doolittle Drive Substation. Beale AFB would monitor and control functions using the telecommunications circuit connected to the new WAPA substation. Protective relay communication would be through a power line carrier system. Beale AFB would annually inspect all aboveground Project facilities for corrosion, misalignment, and excavations.

Beale AFB would implement both a comprehensive sustainability and outage/disaster plan that would meet and exceed the current Beale AFB standards. This would include annual maintenance as well as a functional outage and disaster recovery plan for any issue that could occur on Beale AFB or the surrounding area around Beale AFB. Maintenance would be on a semiannual basis to ensure the incoming line and monitoring equipment in the transmission system are functioning properly. Beale AFB would use its current outage and disaster recovery plan to fix any issue that could come up over time.

Helicopters may be used for annual line patrol and for transmission tower and line maintenance and repair. USAF Regulation AFI 32-7063, Air Installation Compatible Use Zones (AICUZ) Program, restricts crane activities and certain types of overhead construction activities, including helicopter use. To ensure compliance with AICUZ, coordination with Airfield Operations would occur prior to work involving cranes or helicopters on Beale AFB. Helicopter staging and landing zones would be within areas designated for the Project (see Section 2.3.1.5, Construction Staging and Laydown).

Beale AFB Project construction and O&M activities would comply with USAF Policy Directive (AFPD) 32-70, Environmental Quality; AFPD 90-8, Environmental, Safety, and Occupational Health Management and Risk Management requirements, as well as ESA, consultations and permits, and Project- and Beale AFB-specific BMPs. WAPA and Beale AFB would enter into an O&M agreement for any Project activities occurring on Beale AFB.

Geotechnical Boring

Once the final Project route is chosen, geotechnical boring would be performed along the selected alignment to inform Project engineering, including where specific structure locations would be placed within the Project corridor. The boring activities are considered part of this Project and would be located within the study area considered in this EA, and likely within the 0.7 acre of temporary disturbance needed per structure. Bore holes are further described, including hole size, in Section 2.3.1.1, Overhead Transmission Line Construction.

Environmental Clearances

Environmental clearances would be obtained prior to construction activities, as required. All activities requiring field access would be performed on-foot or from existing roads or pre-disturbed areas. Beale AFB would be required to comply with regulations listed in **Table 2-2**, organized by the title of clearance and associated regulations.

TABLE 2-2
USAF ENVIRONMENTAL CLEARANCE REQUIREMENTS

Title of Clearance	Specific Regulation	Description
AF Form 103 Base Civil Engineer (BCE) Work Clearance Request	• AFI 32-1001 Civil Engineer Operations	BCE Work Clearance Request is required for any work that may disrupt aircraft or vehicular traffic flow, base utility services, fire protection, intrusion alarm systems, air quality, water quality, stormwater flow, biovents/monitoring wells, recreation trails/activities, wetlands, vegetation or routing activities of the installation. The AF103 is request must be processed prior to start of work. If work is not started within 30 days of the approval date or it is suspected that job site conditions have changed, this request must be reprocessed by all shops and validated by the approving officer.
Authority to Construct / Permit to Operate / Portable Equipment Registration (PERP)	• 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants for Source Categories • AFMAN 32-7002, Environmental Compliance and Pollution Prevention Title 13 CCR, Section 2485 (State of California)	The "Authority to Construct" is a permit issued by the Feather River Air Quality Management District (FRQMD) granting permission to install, modify, and/or construct equipment or processes that will meet local air quality standards. The "Permit to Operate" is a permit granting permission to operate the equipment or processes within enforceable limits designed to meet local air quality standards. Use of portable equipment having engines greater than 50 brake horse power (bhp) shall have a valid Portable Equipment Registration Program (PERP) permit issued by California Air Resources Control Board (CARB). Copy of PERP registration and photo of PERP registration plate shall be provided to 9 CES/CEIE in order to verify current registration while the equipment is being operated on Beale AFB property.
Air Conformity Applicability Model (ACAM) Report Record of Conformity Analysis (ROCA)	• AFMAN 32-7002, Environmental Compliance and Pollution Prevention • AFCEC Air Quality EIAP Guide, Volume I and II • 32 CFR 989 Environmental Impact Analysis Process • 40 CFR 93 Subpart B General Conformity Rule	The Record of Conformity Analysis (ROCA) report provides a summary Air Conformity Applicability Model (ACAM) analysis. The Air Force's Air Conformity Applicability Model (ACAM) is used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Instruction 32-7040, Air Quality Compliance and Resource Management; the Environmental Impact Analysis Process (EIAP, 32 CFR 989), and the General Conformity Rule (GCR, 40 CFR 93 Subpart B).

TABLE 2-2
USAF ENVIRONMENTAL CLEARANCE REQUIREMENTS

Title of Clearance	Specific Regulation	Description
C&D Debris Diversion and Disposal Report	• AFI 32-7042 Waste Management	Beale AFB has a requirement to recycle and reuse equipment and materials and to divert as much solid waste from disposal as possible. The AF813 will specify the requirements for materials to be recycled and disposed.
Clean Water Act (CWA) Section 401 Certification	• 40 CFR 121 State Certification of Activities Requiring a Federal License or Permit • AFMAN 32-7003, Environmental Conservation	Under Section 401 of the Clean Water Act (CWA), a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into waters of the United States unless a state or authorized tribe where the discharge would originate issues a Section 401 water quality certification verifying compliance with existing water quality requirements or waives the certification requirement.
Environmental Design Criteria (EDC)	• 32 CFR Part 989	Specific requirements for all environmental issue areas that must be included in the awarded contract. Project-specific EDCs will be provided in the final Tier B AF813.
Finding of no Practicable Alternatives (FONPA) (if applicable)	• AFMAN 32-7003, Environmental Conservation • UFC 3-201-01 Civil Engineering • DoDI 4715.03 • Natural Resources Conservation Program • Clean Water Act Sections 401, 404 and 404(b)(1) Guidelines • Provisions of E.O. 11990 and E.O. 11988	If applicable, the finding contained in a FONSI or Record of decision that explains why there are no practicable alternatives to an action affecting a wetland or floodplain, based on appropriate EIAP analysis or other documentation. FONPAs must be submitted to HQ USAF/ILEVP when the alternative selected is located in wetlands or floodplains and must discuss why no other alternatives exist to avoid impacts.
Finding of no Significant Impact (FONSI) (if applicable)	• 32 CFR Part 989.15 • 40 CFR 1508.13	If applicable, the FONSI describes why and action would not have a significant effect on the environment and will not be the subject of an EIS. The unsigned FONSI must be available must be available for public review at least 30 days before approval and implementation of the Project.
Floodplains	• 32 CFR Part 989E.O. 11988 Floodplain Management • 40 CFR §1508.20 • 32 CFR Part 989.22(a)	Proposed actions that will occur in, or could adversely affect floodplains, require compliance with the EIAP and E.O. 11988 “Floodplain Management” prior to implementing an action. Proponents shall, during initial planning and design, reduce the risk of flood loss; minimize the impact of floods on human safety, health and welfare and the Air Force

TABLE 2-2
USAF ENVIRONMENTAL CLEARANCE REQUIREMENTS

Title of Clearance	Specific Regulation	Description
		mission; and restore or preserve the natural and beneficial values served by floodplains.
General Conformity Applicability Analysis	• AFMAN 32-7002, Environmental Compliance and Pollution Prevention • AFCEC Air Quality EIAP Guide, Volume I and II • Clean Air Act, Section 176(c)(1) • 32 CFR 989 Environmental Impact Analysis Process • 40 CFR 93 Subpart B General Conformity Rule	Conformity applies only to federal actions in nonattainment and maintenance areas. Beale Air Force Base is located in area designed maintenance area for certain NAAQS criteria pollutants and non-attainment designation for certain CAAQS air pollutants. Before implementing any federal action in an air quality nonattainment or maintenance area, the proponent shall complete a General Conformity applicability analysis per 40 CFR § 93.154 to ensure the action does not interfere with a state's plan to attain and maintain the NAAQSs (known as State Implementation Plans or SIPSs). IAW CAA, Section 176(c), any action that negatively affects the implementation or goals of the SIP is not allowed to proceed. Proponent shall perform the General Conformity Applicability Analysis using the Air Force approved Air Conformity Applicability Model (ACAM). Proponent shall ensure all EIAP documents address applicable conformity requirements and the status of compliance.
General Conformity Determination	• AFMAN 32-7002, Environmental Compliance and Pollution Prevention • AFCEC Air Quality EIAP Guide, Volume I and II • Clean Air Act, Section 176(c)(1) • 32 CFR 989 Environmental Impact Analysis Process • 40 CFR 93 Subpart B General Conformity Rule	Conformity applicability analyses and determinations are developed in parallel with EIAP documents but are separate and distinct requirements and should be documented separately. If ACAM determines General Conformity is applicable, the proponent will perform and approve a conformity determination before the EIAP process is completed. Proponents shall prepare required conformity documents in coordination with the installation and AFCEC/CZ. AFCEC/CZ will transmit draft conformity determinations for higher HQ coordination and SAF/IEE approval prior to release for public review.
Geotechnical Borings Permit	• Yuba County Environmental Health Division/CUPA • UFC 3-220-01 Geotechnical Engineering • UFC 3-250-01 Pavement Design for Roads and Parking Areas	Geotechnical and exploratory borings for projects require a permit if they are 15 ft deep OR within 10 ft of groundwater.

TABLE 2-2
USAF ENVIRONMENTAL CLEARANCE REQUIREMENTS

Title of Clearance	Specific Regulation	Description
National Pollution Discharge Elimination System (NPDES) Permit	• AFI 32-1067 Water and Fuel Systems • 40 CFR § 122 EPA Administered Permit Programs: The National Pollutant Discharge Elimination System	The Clean Water Act prohibits anybody from discharging "pollutants" through a "point source" into a "water of the United States" unless they have an NPDES permit. In essence, the permit translates general requirements of the Clean Water Act into specific provisions tailored to the operations of the Project discharging pollutants.
Notice of Intent (NOI) for Wetlands	• AFMAN 32-7003, Environmental Conservation • 32 CFR Part 989.17	For such actions that are being initially evaluated in an Environmental Assessments (EA), an NOI will be prepared per 32 C.F.R. Part 989.17. The EPF must furnish, through the MAJCOM, to HQ USAF/A7CI the NOI (40 CFR 1508.22) describing the proposed action for congressional notification and publication in the Federal Register. The EPF, through the host base public affairs office, will also provide the approved NOI to newspapers and other media in the area potentially affected by the proposed action. The EPF must provide copies of the notice to the SPOC and must also distribute it to requesting agencies, organizations, and individuals. Along with the draft NOI, the EPF must also forward the completed DOPAA, through the MAJCOM, to HQ USAF for information.
State Historic Preservation Offices (SHPO) Consultation	• 36 CFR PART 800 Protection of Historic Properties • AFMAN 32-7003 Environmental Conservation	Section 106 requires Federal agencies to take into account the effects of their undertakings on historic properties and cultural resources to provide the Advisory Council on Historic Preservation (ACHP) with a reasonable opportunity to comment. In addition, Federal agencies are required to consult on the Section 106 process with State Historic Preservation Offices (SHPO), Tribal Historic Preservation Offices (THPO), Indian Tribes (to include Alaska Natives) [Tribes], and Native Hawaiian Organizations (NHO).
Storm Water Pollution Prevention Plan (SWPPP)	• 40 CFR § 122 EPA Administered Permit Programs: The National Pollutant Discharge Elimination System • AFI 32-1067 Water and Fuel Systems	Required if Project disturbs 1 acre or more.

TABLE 2-2
USAF ENVIRONMENTAL CLEARANCE REQUIREMENTS

Title of Clearance	Specific Regulation	Description
Tier B AF Form 813 Request for Environmental Impact Analysis	• 32 CFR Part 989 • PL 91-190 National Environmental Policy Act of 1969	Per local Beale AFB policy, an initial AF813 was prepared for the WAPA project to cover the development of the EA and any required studies during project development. During design, a Tier B AF813 will need to be developed that will cover Project design and construction.
United States Army Corps of Engineers (USACE) Section 404 Permit	• 40 CFR 233 CWA Section 404 State Program Regulations • AFMAN 32-7003, Environmental Conservation	Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States (WOTUS) regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities).
United States Fish and Wildlife Service (USFWS) Section 106 Consultation	• Section 6 of the National Historic Preservation Act • 36 CFR Part 800 Protection of Historic Properties	When an activity or project USFWS is performing, managing, licensing, permitting, or providing Federal assistance for meets the NHPA's definition of an undertaking, then the Service must initiate a review under Section 106 of NHPA. Initiating this review process is a Federal responsibility and is designed to consider the project's effects on historic properties. The Federal agency manages the process and determines other parties with whom it will consult under the Section 106 review.
United States Fish and Wildlife Service (USFWS) Section 7 Consultation	• 50 CFR 402 Interagency Cooperation- Endangered Species Act of 1973, as Amended • AFMAN 32-7003, Environmental Conservation	Under Section 7, Federal agencies must consult with the U.S. Fish and Wildlife Service (Service) when any action the agency carries out, funds, or authorizes (such as through a permit) may affect a listed endangered or threatened species. This process usually begins as informal consultation. In the early stages of project planning, for example, a Federal agency approaches the Service and requests informal consultation. Discussions between the two agencies may include what types of listed species may occur in the proposed action area, and what effect the proposed action may have on those species.
Well Construction, Destruction, or Repair	• Permit to construct, destroy, or repair a well or drill a soil boring on land parcel within Yuba County.	Under the Construction General Permit, dewatering of uncontaminated non-storm water is an authorized non-storm water discharge. xvi The Construction General Permit regulates dewatering, unless a regional

TABLE 2-2
USAF ENVIRONMENTAL CLEARANCE REQUIREMENTS

Title of Clearance	Specific Regulation	Description
		NPDES permit applies. xvii Non-storm water includes, but is not limited to, groundwater, dewatering of piles, water from cofferdams, water diversions, and water used during construction activities that must be removed from a work area. Under the Construction General Permit, discharges must meet specific requirements of the Construction General Permit including meeting the prohibitions of the applicable Basin Plan, compliance with the prohibitions on discharges of toxics, implementing BMPs to prevent contact of dewatering waters with construction materials or equipment, and monitoring for and compliance with applicable numeric action levels (NALs), receiving water triggers, or numeric effluent limitations (NELs)
Dewatering	• General Permit R5-2013-0074 • Resolution R5-2013-0145 • General Permit R5-2013-0073 & R5-2013-0075	
Source: personal communication Beale AFB 2019		

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Engineering

Engineering work would locate the transmission line centerline, determine accurate topographical profiles along the centerlines, and determine the exact location of structures. Final Project engineering is not expected to be complete by the time the Final EA is issued. Engineering activities would be conducted from existing roads using a pickup and foot travel to proposed Project component locations as needed. Final engineering would site Project facilities within the study area corridors analyzed in this EA.

Safety

WAPA, or its construction contractor, would prepare and conduct a safety program in compliance with all applicable federal, state, and local safety standards and requirements, in addition to WAPA's general practices and policies. The safety program would include, but not be limited to, procedures for accident prevention, use of protective equipment, medical care of injured employees, safety education, fire protection, and general health and safety of employees and the public during construction. WAPA would also establish provisions for taking appropriate actions in the event the contractor fails to comply with the approved safety program.

Fueling and Cleanup

Fuels anticipated to be used during construction of the Project are petroleum hydrocarbons and their derivatives (e.g., oils, lubricants, and solvents) required to operate construction equipment. Fueling locations would be at approved staging areas. Hazardous material BMPs can be found in **Appendix F**.

ROW Restoration

WAPA would ensure construction sites, material storage yards, and access roads are kept in an orderly condition during the construction period. Crews would collect waste construction materials and debris from all construction areas and dispose of it at approved sites upon completion of construction at each site. All structure assembly and erection pads not needed for normal maintenance would be returned to their original contour, and natural drainage patterns would be restored. Areas temporarily disturbed by construction would be restored to preconstruction conditions to the extent feasible. WAPA would re-grade disturbed areas to establish original contours and redistribute topsoil. All disturbed soil, other than surfaces intended for permanent access roads, would be seeded with native species free of invasive seeds. Within Beale AFB, installation-specific policies require that areas requiring re-vegetation for soil stabilization be seeded using the Beale AFB-approved seed mix (Beale AFB 2019). Agricultural fields would be restored per individual landowner agreements.

Abandonment/Decommissioning

If no longer needed, facilities would be removed or abandoned in accordance with a separate interconnection agreement made between WAPA and Beale AFB. On Beale AFB, if WAPA were to abandon the line, it would be recommissioned or removed by USAF. Facilities that could potentially be removed or abandoned include wires, insulators, hardware, structures, foundations, and buried conduit. All decommissioning activities would occur within the same disturbance area identified for construction.

Material would be disposed of in accordance with applicable regulations and may be salvaged/recycled or sold. The equipment required to safely remove the wires and structures

would be similar to that required for installation. Following removal, areas disturbed during line dismantling would be restored and rehabilitated. Disturbed surfaces would be restored to the original contour. Disturbed soil, other than agricultural fields and surfaces intended for permanent access roads, would be seeded with native species free of invasive seeds. Within Beale AFB, installation-specific policies require that areas requiring re-vegetation for soil stabilization be seeded using the Beale AFB-approved seed mix (Beale AFB 2019).

WAPA would reclaim temporary service roads following removal or abandonment in accordance with land management agency or landowner agreements. Equipment and personnel for restoration operations would be similar to that required at the end of construction.

2.3.1.6 ROW Needs

Once the final route is determined, WAPA would acquire necessary private land rights (easements). WAPA would purchase rights through negotiations with private landowners based on independent appraisals; landowners would retain land title, and landowner ROW use would be allowed for any purpose unless it creates a safety hazard or interferes with WAPA's rights. All private land rights would be acquired in accordance with applicable laws and regulations. Generally, easements would be up to 200 feet wide.

WAPA would obtain necessary temporary or permanent encroachment permits from Yuba County for work or Project facilities on county lands. WAPA would enter into an agreement with Beale AFB for joint use of line easements on Beale AFB.

2.3.2 Northern A Alternative

The Northern A Alternative alignment is very similar to the Preferred Alternative alignment, sited about 0.5 mile south of the Preferred Alternative and crossing Reed's Creek at a different location (see **Figure 2-1**). It totals approximately 4.5 miles of transmission line, approximately 0.8 mile located off Beale AFB and 3.7 on Beale AFB. It would consist of approximately 2 miles of overhead installation (0.8 mile off Beale AFB and 1.2 miles on Beale AFB), and 2.5 miles of underground installation (all within Beale AFB boundaries).

Beginning at its interconnection point perpendicular to the existing Cottonwood-Roseville line, overhead 230-kV lines would continue in a near-straight east-to-west line, bisecting agricultural fields up to the westernmost edge of Beale AFB. Portions of the line located off Beale AFB boundaries are bordered by agricultural fields to the north and south. Once on Beale AFB, the alignment traverses flat, open grasslands interspersed with seasonal wetlands (i.e., vernal pools), curving to avoid aquatic resources (see Section 2.2, Project Design Features), existing infrastructure, and runway clearances. The transmission line continues as 230-kV overhead until its connection with the proposed new substation located along Patrol Road (same substation configuration and location as the Preferred Alternative). The alignment then follows the exact same path as the Preferred Alternative, the underground portions following under Doolittle Drive and terminating at the existing Doolittle Drive Substation (**Figure 2-8**).

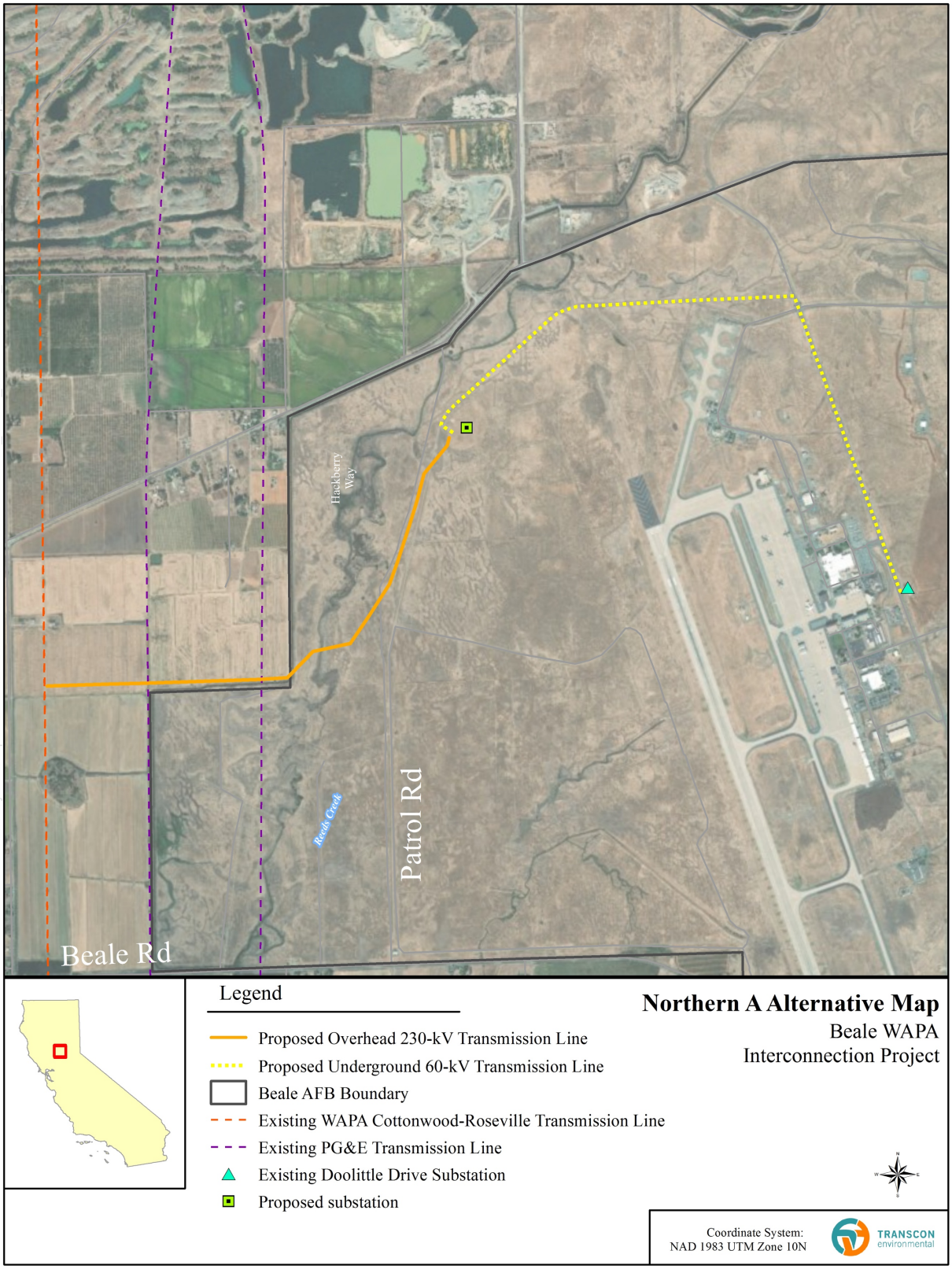

Figure 2-8. Northern A Alternative Overview Map

2.3.2.1 Overhead Facilities and Construction

The overhead portion of the Northern A Alternative would be comprised of the same typical WAPA structures that are described under the Preferred Alternative (see **Figures 2-3** to **2-5**). This part of the alignment is parallel and about 0.5 mile south of the Preferred Alternative alignment. It would require about the same number of structures, be built using the same construction methods, and cross Reed's Creek about 0.25 mile south of the Preferred Alternative.

2.3.2.2 Substation Facilities and Construction

The Northern A Alternative would connect to the same proposed new substation as described under the Preferred Alternative and would terminate at the existing Doolittle Drive Substation, as described under the Preferred Alternative.

2.3.2.3 Underground Facilities and Construction

The underground portion of the Northern A Alternative would follow the same alignment as the Preferred Alternative and would be comprised of the same amount of underground duct built using the same construction methods as described under the Preferred Alternative.

2.3.2.4 Access Road and Culverts

Road access to the Northern A Alternative area would be via existing private and county-maintained Brophy Road as well as Patrol Road on Beale AFB. Approximately 1.51 miles of existing roads would require improvements to provide sufficient access for transmission line construction. Also, approximately 0.91 mile of new permanent access roads would need be constructed on Beale AFB to access structures around the Reed's Creek area. During the trenching on Patrol Road, weight disturbance mats may be temporarily placed on either side of Patrol Road to allow vehicle and equipment passing (see Section 2.3.1.4, Temporary Access and Weight Dispersion Mats).

Culverts required under the Northern A Alterative would be the same quantity and design as described under the Preferred Alternative.

2.3.2.5 Other Project Activities

Ground disturbance would occur as described for the Preferred Alternative; specifically, a total of 10.59 acres of permanent disturbance and 49.78 acres of temporary disturbance are expected from the Northern A Alternative. Specific calculations are shown in **Appendix E**.

Construction activities and O&M would occur as described under the Preferred Alternative, as well as geotechnical boring, obtaining environmental clearances, final engineering, safety, fueling and cleanup, ROW restoration, and line abandonment/decommissioning.

2.3.2.6 ROW Needs

ROW needs would be similar, with WAPA entering an agreement with Beale AFB for Project operation on Beale AFB, and WAPA obtaining necessary land rights for the private land portion, as described for the Preferred Alternative (see Section 2.3.1.6, ROW Needs).

2.3.3 Southern Alternative

The Southern Alternative is located about 3.25 miles south of the Preferred Alternative and Northern A Alternative alignments (see **Figure 2-1**). It totals approximately 5 miles of transmission line, approximately 2.5 miles located off Beale AFB and 2.5 on Beale AFB. It would consist of approximately 4.4 miles of overhead installation (2.5 miles of 230-kV off Beale AFB, 0.4 mile of 230-kV on Beale AFB, and 1.5 miles of 60-kV on Beale AFB); and 1 mile of underground installation (all within Beale AFB boundaries). The overhead 60-kV component is unique to the Southern Alternative (neither the Preferred Alternative nor the Northern A Alternative include 60-kV overhead structures); specifications for those structures are described below.

Beginning at its junction with WAPA's Cottonwood-Roseville line, the Southern Alternative follows Erle Road, which is bordered by privately owned agricultural rice fields to the north and south. Once on Beale AFB, the alignment continues aerially along Gavin Mandry Drive for approximately 0.4 mile to the proposed new substation, after which the line would route underground beneath existing road substrates along Gavin Mandry Drive for 1 mile to prevent the need for flight clearance requirements, emerge back to overhead, and continue 1 mile east before turning north and following C Street for 0.5 mile to terminate at the existing C Street Substation (**Figure 2-9**).

2.3.3.1 Overhead Facilities and Construction

The overhead 230-kV portion of the Southern Alternative would be comprised of the same typical WAPA structures as described under the Preferred Alternative. This part of the alignment is parallel and about 3.5 miles south of the Preferred Alternative alignment. It would require about the same number of structures and be built using the same construction methods.

Once the underground portion returns back to overhead, the 60-kV line would be attached to new distribution poles and follow C Street north where it terminates at the C Street Substation. This 60-kV portion of the Southern Alternative would be constructed of tube steel monopoles or equivalent (**Figure 2-10**). The pole heights for 60-kV installations are typically 65 feet to 100 feet tall, and pole circumference is typically 4 feet. Structure foundations would be cement 5 feet in diameter and 15 feet direct embed depth. Up to a 5-foot-diameter area would be permanently disturbed per monopole structure, and up to a 0.7-acre area would be temporarily disturbed during construction activities per pole location. All temporarily disturbed areas would be restored to their original grade and contour as much as possible.

Spans between these structures would be 300 to 400 feet, with 7 to 14 structures per mile, with an estimated 13 total structures. The conductor would be "Hawk" ACSR (477 kcmil, 26/7) or equivalent, and the static wire would be fiber optic ground wire (0.375 inch) or equivalent.

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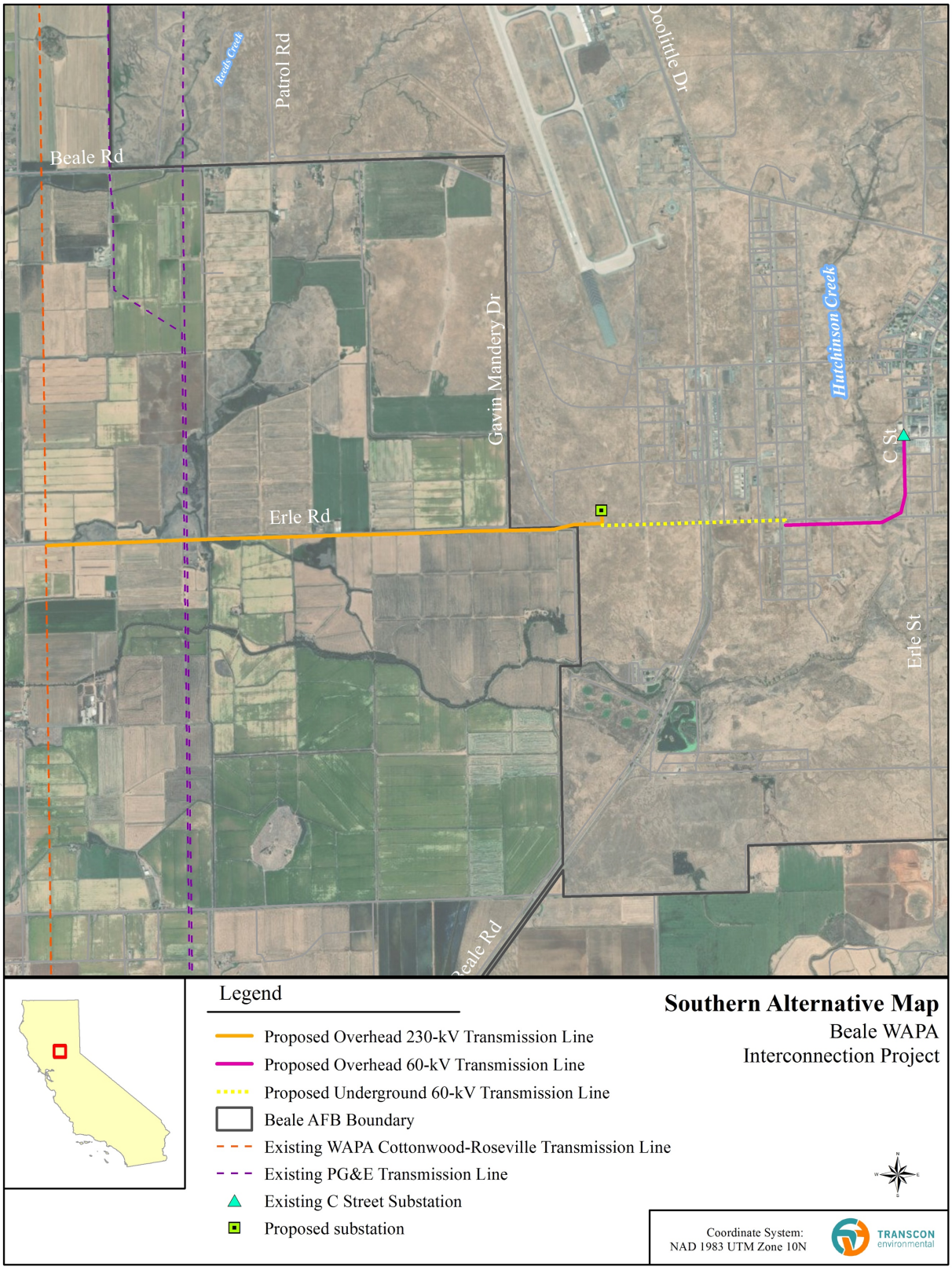

Figure 2-9. Southern Alternative Overview Map

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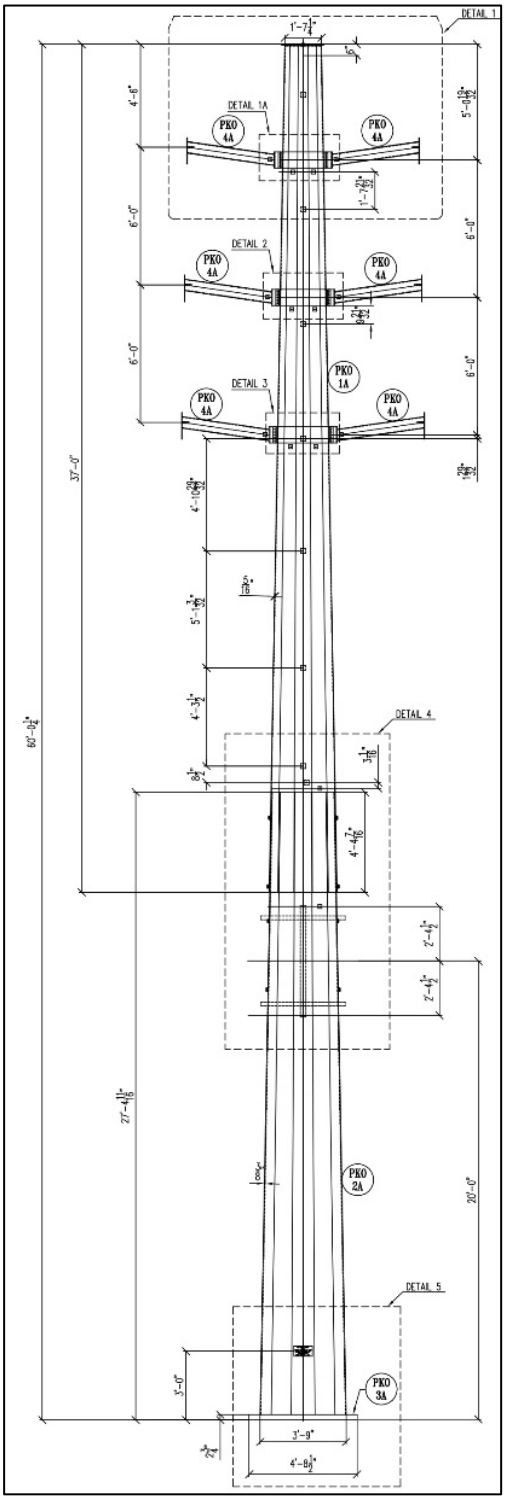

Figure 2-10. Typical 60-kV Monopole.

2.3.3.2 Substation Facilities and Construction

The Southern Alternative overhead portion would connect to a proposed new substation just after it crosses into Beale AFB. This substation would be built using the same materials and methods described under the Preferred Alternative. The Southern Alternative would terminate at the existing C Street Substation. No modifications or updates are required to the existing substation. At the eastern extent of the underground 60-kV line, two poles would be installed to transfer power aboveground into the existing C Street Substation.

2.3.3.3 Underground Facilities and Construction

The underground portion of the Southern Alternative would continue from the new substation east in a straight line along Gavin Mandry Drive for 1.5 miles. At this point the underground line would come back aboveground and connect to newly proposed 60-kV overhead distribution poles, as described above. The underground portion would be built using the same materials and methods described under the Preferred Alternative, including the conduit being built under an existing roadway.

2.3.3.4 Access Road and Culverts

Road access to the Southern Alternative area would be via Erle Road off Beale AFB and Gavin Mandry Drive on Beale AFB. Approximately 0.4 mile of new roads would need to be constructed for this alternative, and no existing roads would need to be improved. There would be 8 new culverts installed for the Southern Alternative.

Additionally, the Southern Alternative includes 2 waterways on Beale AFB that would be crossed using a dry horizontal direction bore method. The dry boring operation under the creek would begin at the north end of the bridge in an underground easement area. An area approximately 25 feet by 100 feet would be used at this location for laydown and boring, assumed to be within the existing disturbed roadway. Dry boring would begin by digging a bore pit at the sending end and a trench at the receiving end of the bore. The bore pit would be approximately 24 feet by 8 feet wide and would be approximately 20 feet deep. The elevation at the bottom of the bore pit and the receiving trench would be about the same. The horizontal bore equipment would then be installed in the bore pit. The steel casing would be welded in 10- to 15-foot sections and jacked into the bore as the boring operation proceeded. The volume of soil removed from the bore operation is estimated to be approximately 100 cubic yards. All spoils and asphalt would be loaded straight from the bore area onto trucks for removal. At no time would spoils be stored on-site. In addition to the boring machinery, a loader, backhoe, and dump truck would be used at both ends of the bore. The racked PVC conduit bundles would be arranged in a circular pattern. The conduit bundles would be assembled completely before being pulled through the steel casing. Once boring is complete, the trench would be extended to meet the exposed cable where the conduits would be joined together.

2.3.3.5 Other Project Activities

Ground disturbance would occur as described for the Preferred Alternative; specifically, a total of 7.64 acres of permanent disturbance and 38.47 acres of temporary disturbance are expected from the Southern Alternative. Specific calculations are shown in **Appendix E**.

Construction activities and O&M would occur as described under the Preferred Alternative, as well as geotechnical boring, obtaining environmental clearances, final engineering, safety,

fueling and cleanup, ROW restoration, and line abandonment/decommissioning. The only difference would be Beale AFB O&M activities for the 60-kV overhead lines, which would be performed to WAPA specifications, as described in Section 2.3.1.5, Operations and Maintenance.

2.3.3.6 ROW Needs

ROW needs would be similar, with WAPA entering an agreement with Beale AFB for Project operation on Beale AFB, and WAPA obtaining necessary land rights for the private land portion, as described for the Preferred Alternative (see Section 2.3.1.6, ROW Needs).

2.4 NO ACTION ALTERNATIVE

Under the No Action Alternative, WAPA would not construct the proposed interconnection line. Through this alternative, Beale AFB would not be delivered reliable, resilient, and redundant electrical power in adhering to the DoD directive for the EPR, leaving the USAF and Beale AFB vulnerable to increased electrical failures and unplanned power outages which could interrupt execution of USAF missions.

2.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

NEPA regulations mandate the consideration of reasonable alternatives for proposed projects. "Reasonable alternatives" are those that also could be utilized to meet the purpose of and need for the proposed Project. Per the requirements of 32 CFR §989, the USAF Environmental Impact Analysis Process regulations, selection standards are used to identify alternatives for meeting the purpose and need for the USAF action. This section describes the selection standards and goals of alternatives considered to satisfy the purposes and needs of the Project and summarizes the initial set of options that Beale AFB and/or WAPA considered but decided to drop from further analysis.

The Project's purpose and need is driven by DoD's EPR December 2013 memorandum regarding installation power resiliency goals. Specifically, alternatives must provide Beale AFB an alternate and redundant power supply to keep Beale AFB in operation during PG&E outages or other emergencies; the alternatives must also deliver enough energy to meet future Beale AFB energy needs, anticipated to be 33 MW by 2022.

In order to meet the DoD's energy resiliency policies, Beale AFB is in need of an increased and alternative source of energy. Considering limited space on Beale AFB available for development and the many wetlands across Beale AFB, at the Project outset Beale AFB was determined to find the least impactful solution for an off-Beale AFB source for power and to evaluate methods to interconnect and route existing power on Beale AFB. In early contacts, PG&E was unable to provide maintenance to a 230-kV to 60-kV transformer yard, provide additional energy over existing routes, or assure priority re-energization after a power outage. Since Beale AFB already contracts with WAPA to obtain WAPA power provided over PG&E infrastructure and considering the close proximity of WAPA's existing 230-kV Cottonwood-Roseville transmission line, Beale AFB requested an interconnection with existing WAPA lines and evaluated alternative routes for a new interconnection line.

2.5.1 Beale AFB Selection Standards

In accordance with the Integrated Resource Management Plan (Beale AFB 2019), Beale AFB directed the selection process to have preference to alternatives with lower environmental impacts to wetlands, threatened and endangered species/special status species, and overall disturbance. Routes were evaluated considering environmental impacts (e.g., proximity to wetlands/vernal pools and floodplains, level of trenching, or other disturbance); zoning and proximity or interference with Beale AFB infrastructure, flight lines, explosion arcs, etc.; security and accessibility of new infrastructure; private landowners, parcels, and clusters of residences affected; and excessive cost.

Routes were dropped from detailed consideration after GIS review and other inputs revealed complications around meeting the above considerations. After review of the potential routes, a small number emerged as more viable alternatives than others.

2.5.2 Beale AFB Initial Route Options

Beale AFB initially evaluated about 15 potential routes, many of which were slight variants. Generally, all 15 routes followed the same east-to-west trajectory from WAPA's Cottonwood-Roseville line, following various existing roads bordered by agricultural lands, connecting on Beale AFB, and eventually terminating in the vicinity of Doolittle Drive or Main Base depending on the route (**Figure 2-11**). While none of the 15 routes met every selection standard, after further screening, Beale AFB dismissed all but 2 routes as being in too much conflict with the goals of the selection standards:

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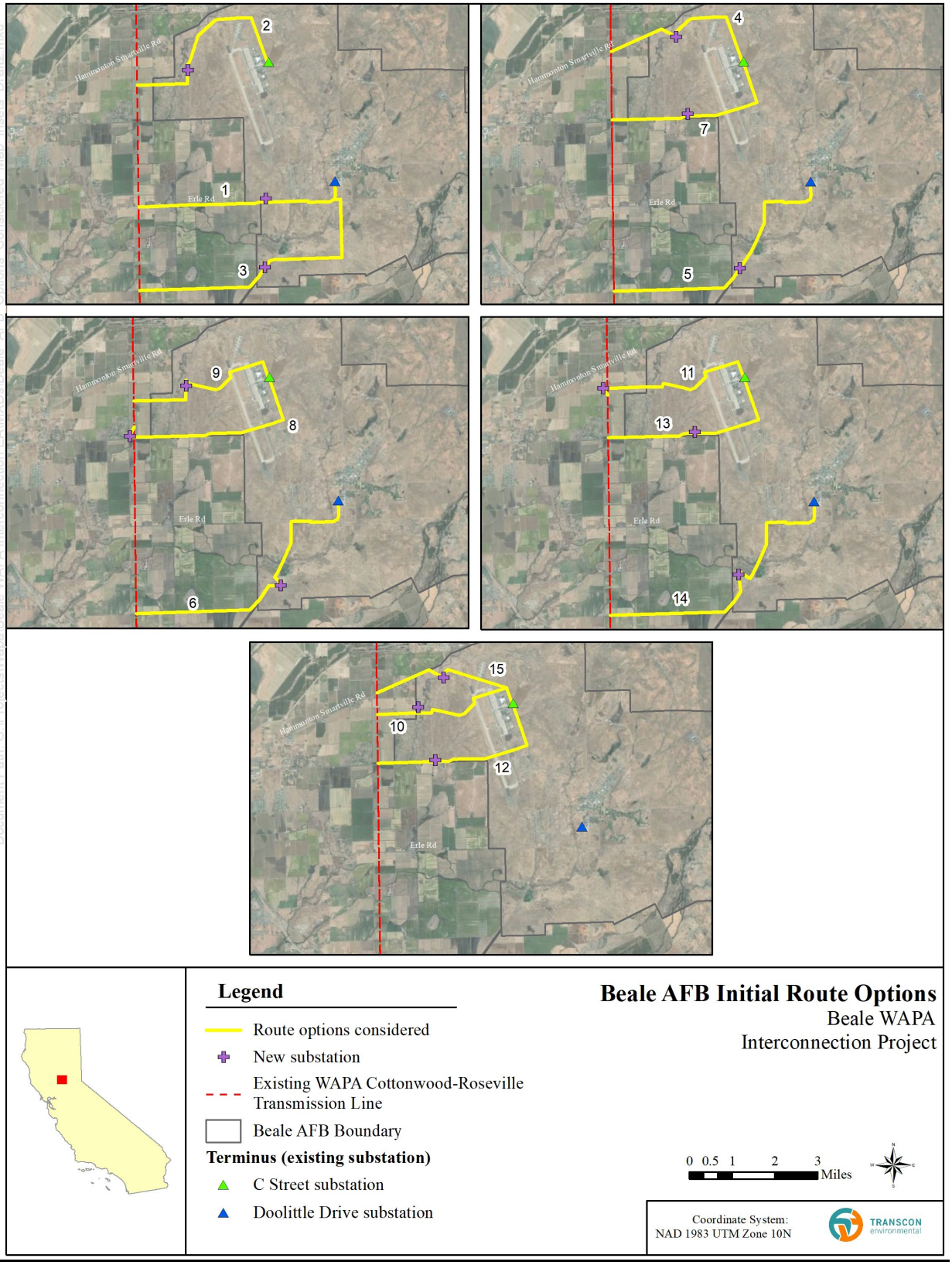

Figure 2-11. Beale AFB Initial Route Options Considered Map.

Route Option #1: **Became Southern Alternative** with route adjustments to minimize effects to landowners; moderate environmental impacts.

Route Option #2: **Became Northern A Alternative** with route adjustments to travel underground near flight line and minimize runway interference; low to moderate environmental impacts.

Route Option #3: Longer route length increased costs; greater potential for environmental impacts.

Route Option #4: High cost to install improved poles inside the ordinance explosion arc; route crosses multiple residences; lower environmental impacts.

Route Option #5: Longer route and undergrounding increased costs; high environmental impact/mitigation costs.

Route Option #6: Longer route and undergrounding increased costs; high environmental impact/mitigation costs.

Route Option #7: High cost from the need to tunnel under the runway and reroute roads; route crosses multiple residences; moderate environmental impacts.

Route Option #8: High cost from the need to tunnel under the runway and would require land purchase off Beale AFB; route crosses multiple residences; moderate environmental impacts.

Route Option #9: High cost from the need to tunnel under the runway; flood zone issues; high environmental impact/mitigation costs.

Route Option #10: High cost from the need to tunnel under the runway; flood zone issues; high environmental mitigation costs.

Route Option #11: High cost from the need to tunnel under the runway; would require land purchase off Beale AFB; high environmental impact/mitigation costs.

Route Option #12: High cost from the need to tunnel under the runway and reroute roads; route crosses multiple residences; moderate environmental impacts.

Route Option #13: High cost from the need to tunnel under the runway and reroute roads; route crosses multiple residences; moderate environmental impacts.

Route Option #14: Longer route and undergrounding increased costs; high environmental impact/mitigation costs.

Route Option #15: Route crosses multiple residences; would require expensive tunneling and undergrounding to clear runway and explosion arcs; low to moderate environmental impacts.

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Ultimately, Options 3 through 15 involved too many constraints due to legal reasons, excessive cost, and/or environmental impact reasons, and Beale AFB proceeded with Options 1 and 2 as the Southern and Northern A Alternative, respectively, as the most feasible and least impactful. At that time, a clear Preferred Alternative had not emerged, and Beale AFB requested WAPA consider both alternatives equally and work with Beale AFB to choose a Preferred Alternative. The alternatives proposed by Beale AFB sufficed for WAPA and WAPA did not consider additional alternatives.

2.5.3 Public Comments Regarding Project Alternatives

During public scoping, WAPA received input from a private landowner that requested the agency consider an alignment to run along North Beale Road. WAPA considered this alternative and found that the new proposed route would present an increased possibility of wetland impacts, and where the proposed route would enter Beale AFB does not meet the need to connect the incoming line to existing power infrastructure for distribution. This alternative was therefore, eliminated from further consideration.

During the Draft EA review period, WAPA received input from a private landowner who requested that the agency consider running the alignment along the north side of Hammonton-Smartville Road, following the road northeast, and crossing over onto Beale AFB near the northwest corner of Beale AFB. WAPA and Beale AFB reviewed this alternative and confirmed that the Three Rivers Levee Project has purchased properties and will vacate residences along the north side of Hammonton-Smartville Road. The residences along the south side of the levee will remain and would be impacted by the Project. Transmission poles placed along the new levee may not be feasible from an engineering standpoint; the poles would likely need to be taller to accommodate minimum clearance distances from the levee and which would likely impact flight clearance zones. For these reasons, the recommended alternative was not carried forward for detailed analysis.

Additional information can be found regarding public scoping in **Appendix B**, and information about the Draft EA review period can be found in **Appendix C**. All comments received during public review of the Draft EA as well as responses to those comments are itemized in **Appendix D**.

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3.0 AFFECTED ENVIRONMENT

In this EA, the term "Project vicinity" refers to the general area surrounding the "Project area," which collectively describes the area defined on and off Beale AFB where Project components could be located, depending on the final route. The Project area includes the "study area," which are those areas evaluated in this EA for sensitive resources.

3.1 SCOPE OF THE ANALYSIS

This chapter describes the current conditions of the environmental resources, either man-made or natural, that may be affected by implementing the Project. Resources considered in this EA include those required under NEPA and CEQA. **Table 3-1** describes all resources considered for the Project, including where a detailed analysis can be found for those carried forward for evaluation and rationale for why resources were dropped from further evaluation. The table also includes the recommended impacts findings resulting from analysis in **Chapter 4** of this EA.

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TABLE 3-1
RESOURCES CONSIDERED

Resource	Present and Potentially Affected	Present, Not Affected	Not Present	Rationale/Notes
Aesthetics/Visual Resources	✓			Evaluated in Sections 3.2 and 4.2
Agriculture and Forestry Resources	✓			Evaluated in Sections 3.3 and 4.3
Air Quality	✓			Evaluated in Sections 3.4 and 4.4
Greenhouse Gas (GHG) Emissions	✓			Evaluated in Sections 3.4 and 4.4 (Air Quality)
Climate Change	✓			Evaluated in Sections 3.4 and 4.4 (Air Quality)
Biological Resources	✓			Evaluated in Sections 3.5 and 4.5, including vegetation and wildlife, threatened and endangered species, and state-listed species
Cultural and Tribal Resources	✓			Evaluated in Sections 3.6 and 4.6
Geology/Soils	✓			Evaluated in Sections 3.7 and 4.7
Hydrology/Water Quality	✓			Evaluated in Sections 3.8 and 4.8, including floodplains, wetlands, surface water, groundwater
Land Use/Planning	✓			Evaluated in Sections 3.9 and 4.9
Recreation		✓		Evaluated in Sections 3.9 and 4.9 (Land Use)
AICUZ Compatibility	✓			Evaluated in Sections 3.9 and 4.9 (Land Use)
Mineral Resources			✓	The Project does not intersect any area identified by Yuba County as containing mineral resources or active mines (Yuba County 2011). Mineral resources are not further evaluated in this EA.
Noise	✓			Evaluated in Sections 3.10 and 4.10
Public Health and Safety	✓			Evaluated in Sections 3.11 and 4.11
Hazards and Hazardous Materials	✓			Evaluated in Sections 3.11 and 4.11 (Public Health and Safety)

TABLE 3-1
RESOURCES CONSIDERED

Resource	Present and Potentially Affected	Present, Not Affected	Not Present	Rationale/Notes
Public Services		✓		The Project would not result in population growth or associated changes in demand for public services. Public services are not evaluated further in this EA.
Socioeconomics and Environmental Justice, including Population/Housing		✓		The Project would not change population in the region or create permanent new jobs; therefore, it would have no effects on housing, community resources, or economic activity. It would not result in a substantial shift in population trends or notably affect regional employment, earnings, or community resources; therefore, it would have no effects on economic or demographic indicators in the region. Any impacts to agriculture harvest from construction would be compensated to the landowners/farmers, as described in Section 4.3. Socioeconomics is not evaluated further in this EA. Potential impacts affecting human populations (e.g., air quality, noise, public health and safety, transportation, etc.) are evaluated in detail in this EA. Protection measures will be employed during Project construction, operations, and maintenance (**Appendix F**) to avoid impacts to human populations. This Project would not cause impacts to human populations (low income, minority, or otherwise). Environmental Justice is not evaluated further in this EA. The closest residences to the Project area include one 80 feet from the Preferred Alternative, one 1,740 feet from the Northern A Alternative, and one 250 feet from the Southern Alternative. No displacement of any people or houses would occur as a result of the Project. Population and housing are not evaluated further in this EA. The Project would not impact population growth on the private land portion of the Project as the area is agricultural and the interconnection line would serve only Beale AFB. The power

TABLE 3-1
RESOURCES CONSIDERED

Resource	Present and Potentially Affected	Present, Not Affected	Not Present	Rationale/Notes
				being brought onto Beale AFB as part of this Project is redundant to the existing power supply and would not cause population growth on Beale AFB. Growth-inducing impacts are not further evaluated in this EA.
Transportation/Traffic	✓			Evaluated in Sections 3.12 and 4.12
Utilities/Service System	✓			Evaluated in Sections 3.13 and 4.13
Wild and Scenic Rivers			✓	The closest river listed under the Wild and Scenic Rivers Act is the Feather River, 25 miles north of the Project area (National Wild and Scenic Rivers Act of 1968 [Public Law 90-542; 16 U.S.C. 1271 et seq.]). Wild and Scenic Rivers are not evaluated further in this EA.

3.2 AESTHETICS/VISUAL RESOURCES

Visual resources are the opportunities to perceive the degree of harmony, contrast, and variety within a landscape. Landscapes of high visual quality may contain distinctive landforms, vegetation patterns, and/or water forms. The opportunities to perceive and appreciate the aesthetic quality of these visual features is generally higher in natural or unmodified landscapes. This section identifies and describes existing visual resources, including the features that contribute to the visual quality of the study area that could be affected by the Project, as well as whether or not designated scenic viewpoints or state scenic highways exist in the proximity of the Project.

The study area for visual resource related to this Project consists of lands located on the western portion of Beale AFB and extending west into neighboring private parcels including viewsheds where Project activities and facilities could potentially be seen from locations such as residences and recreation areas.

3.2.1 Private Lands Viewshed

The visual characteristics of the private lands within the western portion of the proposed Project area and the surrounding visual resources study area can be described as open, flat, agricultural, and lightly developed with a rural residential character. The private parcels within the proposed Project area and in the immediate surrounding area consist mostly of agricultural lands (irrigated cropland for rice, alfalfa, safflower, and corn) and lightly developed residential areas with an established rural road network.

There are existing electrical transmission and distribution lines in the visual environment, notably the existing pair of PG&E transmission lines running north to south through the proposed Project area and the existing WAPA Cottonwood-Roseville transmission line running north to south on the western boundary of the proposed Project area.

Designated scenic viewpoints are not located within a 10-mile radius on the private lands within the Project area. Sensitive viewing locations within this network of private lands would generally be residences in close proximity to the proposed development. The closest residences include one 80 feet from the Preferred Alternative, one 1,740 feet from the Northern A Alternative, and one 250 feet from the Southern Alternative.

3.2.2 Beale AFB Viewshed

The visual characteristics of the proposed Project area on Beale AFB and the surrounding visual resources study area can be described as open, flat grassland with adjacent military operational and residential development. The area consists of sparsely developed, open grasslands interspersed with vernal pools and adjacent to pre-existing roads and infrastructure.

3.2.3 Adjacent Recreation Area Viewshed

The Project vicinity contains several commonly used recreation areas, the nearest being the Yuba River, which at its closest point to the Project Area, is about 2.7 miles away. Boating, fishing, and waterfowl hunting are common usages of the river. Additionally, the Spenceville Wildlife Area borders Beale AFB on the east and is located between 8 and 10 miles from the

proposed Project area (Google Earth 2019). There are a variety of hiking trails and equestrian routes within the Spenceville Wildlife Area, with attractions such as ponds, creeks, waterfalls, woodlands, open meadows, and riparian zones among the features highlighted by these trails. Designated scenic overlooks or viewpoints are not present on the existing network of trails, roads, and routes within Spenceville Wildlife Area (CDFW 2019).

3.2.4 State Scenic Highway Viewshed

Highway 49, a designated scenic highway, traverses northeastern Yuba County. However, it is located about 25 miles from the Project area. The closest National Scenic Byway is the Yuba-Donner Scenic Byway**,** a 175-mile loop through sections of Highways 20, 49, and 89 and Interstate 80. At its closest point, a section of Highway 49, the byway is located about 20 miles from the Project area (Google Earth 2019).

3.3 AGRICULTURE AND FORESTRY RESOURCES

This section describes existing agriculture and forestry resources located in the Project area. The study area for agriculture and forestry resources related to this Project consists of the transmission line corridor where Project facilities or construction may potentially impact these resources.

3.3.1 Forestry Resources

Forestry resources are defined as forest land, including timberlands. Forest land is further defined as native tree cover greater than 10 percent that allows for management of timber, aesthetics, fish and wildlife, recreation, and other public benefits (California PRC Section 12220(g)). Timberland, a subset of forest land, is defined by state law as land that is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products (PRC Section 4526) and can produce an average annual volume of wood fiber of at least 20 cubic feet per acre per year at its maximum production (PRC Section 51104(g)).

None of the private lands in the Project area are zoned for forest or timber resources (Yuba County 2017). Beale AFB has not defined any of their land in the Project area as forest lands or forest resources (Beale AFB 2019), and GIS analysis and field assessment confirm that there are no forest resources in the Project area (Google Earth 2019; Transcon 2019b).

3.3.2 Agricultural Resources

Agricultural lands provide public benefits, including open space; wildlife habitat; the production of food and fiber; and contributions to local, regional, state, and national economies. For the purposes of this analysis, agriculture resources are lands defined as Important Farmland by the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (DOC), land planned or zoned for agricultural use by Yuba County or Beale AFB, as well as any California Land Conservation Act of 1965 (Williamson Act) lands under contract for agricultural use.

3.3.2.1 State and Beale AFB Designations

Important Farmland is classified by DOC as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. These classifications recognize the land's suitability for agricultural production by considering physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops (DOC 2019b).

According to the DOC's FMMP (DOC 2019b):

- *Prime Farmland* is "farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date."
- *Unique Farmland* is "farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date."
- *Farmland of Statewide Importance* is "farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date."
- *Farmland of Local Importance* is "land of importance to the local economy, as defined by each county's local advisory committee and adopted by its Board of Supervisors. Farmland of Local Importance is either currently producing, or has the capability of production; but does not meet the criteria of Prime, Statewide or Unique Farmland."

DOC estimates that California has approximately 31.6 million acres of agricultural land, of which approximately 12.2 million acres are classified as Important Farmland falling into the four categories defined above (DOC 2019b). Of California's total acreage of Important Farmland, DOC estimates that there are approximately 84,950 acres of Important Farmland in Yuba County (DOC 2019a).

Within the study area, all private land that is not within the developed footprint of existing roads, houses, or agricultural buildings is classified as either Unique Farmland or Farmland of Statewide Importance and is thus recognized as Important Farmland. There is no land designated as Prime Farmland within the study area (DOC 2019a).

Beale AFB does not classify any of its land within the study area as Important Farmland (DOC 2019a). Beale AFB has a Grazing Management Program, with 12,789 acres that Beale AFB currently manages for seasonal grazing, principally for cattle (Beale AFB 2019). The study area for the proposed Project overlaps with one of the grazing units in the Beale AFB Grazing Management Program (Beale AFB 2019).

No Williamson Act contracts exist within the study area, as Yuba County does not offer Williamson Act contracts (DOC 2016).

3.3.2.2 Local designations

Yuba County has not defined any of their lands as Farmland of Local Importance. However, all private parcels within the study area have been planned by Yuba County within its most recent General Plan as Natural Resources (NR), a land use designation that includes agricultural production as a principal activity while allowing for other uses, including conservation, public facilities, and infrastructure (Yuba County 2011). All private parcels within the study area have been zoned Agricultural Exclusive (AE-80), a zoning designation that defines agricultural production as a principal use (Yuba County 2015).

3.4 AIR QUALITY, GHG EMISSIONS, AND CLIMATE CHANGE

This section characterizes the existing conditions of the air quality environment in the Project area, specifically the current concentrations of criteria pollutants in the air basin. The relevant federal and state regulations are identified.

The study area for air quality related to this Project consists of the Feather River Air Quality Management District (FRAQMD) within the great Sacramento Valley Air Basin. Beale AFB and the Project area is entirely within this air basin and air quality management district.

3.4.1 Summary of Relevant Air Quality Regulations

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a region or area is measured by the concentration of criteria pollutants in the atmosphere. Air quality depends on both the types and quantities of atmospheric pollutants and pollutant sources in an area, as well as surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions.

The EPA developed standards under the CAA for a number of pollutants known to affect both the environment and human health. These numerical concentration-based standards are the National Ambient Air Quality Standard (NAAQS). The NAAQS set thresholds for the maximum allowable concentrations for six primary pollutants: particulate matter less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$), sulfur oxides (SO_x), ozone (O_3), carbon monoxide (CO), nitrogen oxides (NOx), and lead (Pb).

The EPA has delegated its authority for enforcing air quality compliance to the California Air Resources Board (CARB). CARB has delegated its authority to the local air pollution agencies that manage various air basins, which are further subdivided into air quality management districts (AQMDs).

The CAA also gives states authority to establish their own air quality standards, and California has developed their own California Ambient Air Quality Standards that are more rigorous than the NAAQS. In addition to the six primary pollutants regulated by the NAAQS, California has standards for a handful of other pollutants as well. **Table 3-2** presents the federal and state ambient air quality standards.

TABLE 3-2
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard	State Primary Standard	Secondary Federal Standard
CO	8 hours[1]	9 ppm	9 ppm	None
	1 hour[1]	35 ppm	20 ppm	None
Pb	3 month rolling[2]	0.15 µg/m^3	None	Same as primary
	30-day average	None	1.5 µg/m^3	None
Nitrogen dioxide (NO_2)	1 hour[3]	100 ppb	180 ppb	None
	1 year[4]	53 ppb	30 ppb	Same as primary
O_3	8 hours[5]	0.070 ppm	Same as federal	Same as primary
	1 hour	None	0.09 ppm	None
$PM_{2.5}$	24 hours[7]	35 µg/m^3	None	Same as primary
	1 year[6]	12 µg/m^3	Same as federal	15 µg/m^3
PM_{10}	24 hours[8]	150 µg/m^3	50 µg/m^3	Same as primary
	1 year[6]	None	20 µg/m^3	None
SO_2 (sulfur dioxide)	1 hour[9]	75 ppb	250 ppb	None
	3 hours[1]	None	None	0.5 ppm
	24 hours	140 ppb	40 ppb	None
Visibility Reducing Particles	8 hours	None	Extinction of 0.23/kilometers	None
Sulfates	24 hours	None	25 µg/m^3	None
Hydrogen Sulfide	1 hour	None	30 ppb	None
Vinyl Chloride	24 hours	None	10 ppm	None

[1] Not to be exceeded more than once per year
[2] Not to be exceeded
[3] 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
[4] Annual mean
[5] Annual 4th-highest daily maximum 8-hour concentration, averaged over 3 years
[6] Annual mean, averaged over 3 years
[7] 98th percentile, averaged over 3 years
[8] Not to be exceeded more than once per year on average over 3 years
[9] 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years

California has been divided into 15 distinct air basins. These are subdivided into AQMDs, typically along county lines. Air quality standards are used to determine if a given AQMD is in "attainment" or "nonattainment". If the criteria pollutant concentrations are below the ambient air quality standards, the AQMD is classified as being in attainment. If pollutant concentrations are above ambient air quality standards, the AQMD is considered to be in nonattainment for these pollutants. AQMDs may also be classified as either "maintenance" or "unclassified." "Maintenance" indicates that the district was previously in nonattainment, but pollutant concentrations have been reduced and the district is now in attainment. "Unclassified" indicates that there isn't enough information to assign an appropriate classification. The air basins and

AQMDs relevant to this Project, including their attainment levels, are described under Environment Consequences for Air Quality (Section 4.4, Air Quality Environmental Consequences).

Beale AFB is in Yuba County within the Sacramento Valley Air Basin. This basin is divided into several AQMDs. Both Beale AFB and the proposed Project area are located within the FRAQMD. The FRAQMD has published its indirect source review (ISR) guidelines for assessing air quality impacts of land use Projects under CEQA. These guidelines apply for determining significance of Project air quality impacts for both stationary and ongoing emissions (FRAQMD 2010).

In 2010, the CARB adopted the Regulation for Reducing Sulfur Hexafluoride (SF_6) Emissions from Gas-Insulated Switchgear. Electrical substations typically use SF_6 as the insulator in their switchgear. If SF_6 switchgear is used, the Project would be subject to the maximum annual SF_6 emission rates in § 95352 of the regulation (CARB 2010). WAPA and Beale AFB would both also be required to adhere to the SF_6 inventory, recordkeeping, and annual reporting requirements contained in the regulation. WAPA has already been performing mandatory GHG reporting under this regulation and 40 CFR 08 since 2011 for their other facilities in the Sierra Nevada Region. Proposed regulations would phase out the manufacture and sale of SF_6 gas-insulated equipment starting in 2025 (CARB 2019).

3.4.2 General Conformity

The General Conformity Rule ensures that federal agency actions do not hinder air quality state implementation plans. Under the rule, federal agencies must work with state, tribal, and local governments in nonattainment or maintenance areas to ensure that their actions conform to the applicable air quality implementation plan. General conformity does not apply for actions taken in attainment areas or where the emissions associated with the action are below specified de minimis levels. CAA conformity is ensured when a federal action does not result in a new violation of the NAAQS, result in an increase to any current violations of the NAAQS, or delay the attainment timeline or any progress milestones toward achieving compliance. The FRAQMD has not revised its General Conformity rule since the Federal rule was revised. The current rule is FRAQMD rule 10.4.

The minimum thresholds for General Conformity consideration are given in **Table 3-3**.

TABLE 3-3
MINIMUM GENERAL CONFORMITY AIR QUALITY THRESHOLDS

Criteria Pollutant	Status	Classification	De minimis limit (tpy)
O_3 (as VOCs or NO_x)	Nonattainment	Serious Severe Extreme Other (inside transport region) Other (outside transport region)	50 25 10 50 100
	Maintenance	Inside transport region All other	50 100
CO	Nonattainment or maintenance	All	100

TABLE 3-3
MINIMUM GENERAL CONFORMITY AIR QUALITY THRESHOLDS

Criteria Pollutant	Status	Classification	De minimis limit (tpy)
Sulfur dioxide (SO_2)	Nonattainment or maintenance	All	100
NO_2	Nonattainment or maintenance	All	100
PM_{10}	Nonattainment	Moderate Serious Other classification	100 70 100
	Maintenance	All	100
$PM_{2.5}$	Nonattainment or maintenance	Moderate Serious Other	100 70 100
Pb	Nonattainment or maintenance	All	25
40 CFR 93.153 as of 2016			

3.4.3 Stationary Source Permitting

Federal Prevention of Significant Deterioration (PSD) applies to any new stationary source of criteria pollutants or a significant modification to a stationary source that will result in greater emissions within attainment areas. PSD can also apply if it results in net emissions increases to an existing PSD major source, is within 10 kilometers of a national park or wilderness area (Class I area), and the stationary source emissions would result in an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of at least 1 milligram per cubic meter. PSD also limits the allowable increase of criteria pollutants above ambient baseline conditions.

Title V of the CAA is a second regulation that applies to stationary sources of air pollution. Title V requires state and local agencies to permit major stationary sources that have the potential to emit criteria pollutants and other hazardous air pollutants at levels greater than set thresholds. These major source thresholds are a function of the attainment status of an AQMD. Title V was enacted to provide regulatory control over major sources of air pollution and to be able to monitor their impact on air quality through reporting requirements. Neither WAPA nor Beale AFB are currently Title V permit holders.

3.4.4 GHG Emissions

GHGs are a specific type of emission that trap heat in the atmosphere. Both natural and anthropogenic sources of GHGs contribute to the overall concentration in the atmosphere. The most common GHGs include water vapor, carbon dioxide (CO_2), methane, NOx, and O_3. The reporting threshold for GHG emissions from a project is 25,000 metric tons per year (tpy) of CO_2 equivalent (CO_{2e}), excluding mobile source emissions. GHG emissions from stationary sources subject to PSD and Title V permitting have thresholds of significance of 75,000 tons and 100,000 CO_{2e} tpy, respectively (75 Federal Register 31514).

In 2010, the DoD released its Strategic Sustainability Performance Plan, which prioritizes agency actions based on the return on investment for each action's lifecycle under EO 13514, requiring agencies to set GHG reduction goals. The DoD reduction goals include reducing Scope 1 and 2 emissions (direct emissions and indirect emissions from purchased utility services) by 34 percent by 2020, and Scope 3 emissions (other indirect emissions from agency activities) by 13.5 percent by 2020.

3.4.5 Existing Ambient Air Quality

The FRAQMD is responsible for implementing and enforcing state and federal air quality regulations in Yuba and Sutter counties. The existing ambient air quality in both counties is shown in **Table 3-4**. The FRAQMD has designated sections of Sutter and Yuba counties as a nonattainment area for 8-hour O_3, 1-hour O_3, $PM_{2.5}$, and PM_{10} (FRAQMD 2019; SVAQEEP 2018). The County is designated as unclassified/attainment for all other state and federal criteria pollutants (FRAQMD 2010). Beale AFB is not within 10 kilometers (6.2 miles) of a Class I area, defined as national parks larger than 6,000 acres or all national wilderness areas.

The EPA's decision to adopt the 2008 NAAQS as the standard resulted in an "orphan area" for O_3 within the FRAQMD; however, this section does not contain Beale AFB. An "orphan area" is one of 82 air quality areas that were previously in nonattainment or maintenance under the 1997 O_3 standard but are in attainment under the 2008 O_3 standard. The anti-backsliding requirements do not apply to this zone, based on communication between the Air Force Legal Operations Agency and the FRAQMD.

TABLE 3-4
EXISTING PROJECT AREA AMBIENT AIR QUALITY

Pollutant	Standard	Yuba County Designation	Sutter County Designation
CO	All	Attainment	Attainment
Pb	All	Attainment	Attainment
NO_2	All	Attainment	Attainment
O_3	8-hour	Attainment	Nonattainment
	1-hour	Nonattainment	Nonattainment
$PM_{2.5}$	State	Attainment	Attainment
	Federal	Maintenance	Attainment
PM_{10}	State	Nonattainment	Nonattainment
	Federal	Attainment	Attainment
SO_2 (sulfur dioxide)	1-hour	Attainment	Attainment
Visibility-reducing particles	8-hour	Unclassified	Unclassified
Sulfates	24-hour	Attainment	Attainment
Hydrogen sulfide	1-hour	Unclassified	Unclassified

FRAQMD 2010, 2019; SVAQEEP 2018

3.5 BIOLOGICAL RESOURCES

Biological resources include the fish, wildlife, plants, and their respective habitats that occur within or adjacent to the Project area. The following sections summarize those biological resources that may be affected by the Project, including vegetation communities (including waters and wetlands), special-status plants, general wildlife, and special-status wildlife. A detailed Biological Resources Report for the Project can be found in **Appendix G**.

3.5.1 Study Area

The study area for biological resources extends between 325 and 400 feet from each alternative corridor (inclusive of poles/pole foundations, underground facilities, substations, and access roads) to capture any biological resources that may be directly or indirectly impacted by Project activities. The study area was fully surveyed in March and October of 2018 as part of the Biological Resources Report and Aquatic Resources Report; in addition, the on-Beale AFB area between where the Preferred Alternative and Northern A Alternative diverge was also surveyed to account for any potential adjustments to either alternative.

3.5.2 Vegetation Communities

A variety of vegetation communities occur within the Project area. These communities were categorized during biological resource surveys using WAPA's data dictionary and are based on habitat types described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and *A Manual of California Vegetation* (Sawyer et al. 2009). Other non-vegetation community types (i.e., lakes, rivers, and urban areas) are categorized based on *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988).

3.5.2.1 Upland Habitats

The following upland habitats occur in the study area:

- Agricultural Land—Agricultural cropland and pasture. Within the Project area, agricultural cropland typically consists of a monoculture of rice fields, row crops, or orchards. Most agricultural cropland in the Project area is rice fields, which are seasonally flooded and provide habitat for wildlife such as waterfowl and giant garter snakes (*Thamnophis gigas*). Cropland in the Project area is often bisected by man-made agricultural roadside ditches and irrigation canals, some of which contain wetland vegetation and provide habitat for wildlife.

  Pasture vegetation is a mix of annual and perennial grasses, forbs, and legumes that normally provide 100-percent ground cover. The mix of grasses and legumes varies according to management practices such as seed mixture, fertilization, soil type, irrigation methods, weed control, and livestock type.
- Barren—Bare ground lacking vegetative cover. This habitat type includes roads and other disturbed or developed areas devoid of vegetation and occur intermittently throughout the Project area.
- Annual Grasslands—Non-native annual/naturalized. This is the most commonly occurring vegetation community within the Project area and is primarily located in the portions of the Project area within Beale AFB and on a small off-Beale AFB portion of the Southern Alternative along Erle Road. Within the Project area, this community is

dominated by non-native grasses and forbs, including wild oat (*Avena* spp.), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium perenne*), soft chess (*Bromus hordaceous*), medusahead (*Elymus caput-medusae*), yellow star-thistle (*Centaurea solstitialis*), foxtail barley (*Hordeum jubatum*), filaree (*Erodium* spp.), black mustard (*Brassica nigra*), and common vetch (*Vicia sativa*). Interspersed with these non-native species are native grasses and forbs that include purple needlegrass (*Nassella pulchra*), California melic (*Melica californica*), fiddleneck (*Amsinckia* spp.), doveweed (*Eremocarpus setigerus*), various lupine (*Lupinus* spp.), mariposa lily (*Calochortus* spp.), and brodiaea species (*Brodiaea* spp.).

- Urban—Lawns, ornamental trees, backyards, and ruderal areas near urban environments. Urban habitat includes areas such as parking lots; city parks; schools; landscaped areas; and residential developments, lawns, and backyards. Vegetation is highly variable in these areas, including a broad array of trees and shrubs planted and maintained as landscaping.
- Elderberry–A single elderberry tree (*Sambucus nigra* ssp. *caerulea*) was identified within the floodplain of Reeds Creek on Beale AFB, occurring within the study area but not within the Project corridor.
- Eucalyptus—A small stand of non-native eucalyptus trees is present along the Southern Alternative on Beale AFB.

3.5.2.2 Wetland Habitats

The following wetland habitats occur in the study area:

- Wetlands, freshwater marsh—These wetlands are characterized by perennial, emergent hydrophytic vegetation occurring in sites that lack significant current and are permanently or nearly permanently flooded with fresh water. Within the Project area, these wetlands occur primarily adjacent to the intermittent waterways (i.e., Reeds Creek, Hutchinson Creek). Freshwater marshes near the Project area are usually dominated by cattails (*Typha latifolia or T. angustifolia*), bulrushes (*Schoenoplectus* spp.), nutsedges (*Cyperus* spp.), and rushes (*Juncus* spp.).
- Wetlands, seasonal—Seasonal wetlands are isolated depressions or swales characterized by seasonal ponding that provide habitat for wetland plant species such as Pacific rush (*J. effusus*), curly dock (*Rumex crispus*), rushes, and spikerushes (*Eleocharis* spp.). Seasonal wetlands may also include non-natives such as Himalayan blackberry (*Rubus armeniacus*), wild radish (*Raphanus sativus*), poison hemlock (*Conium maculatum*), and fennel (*Foeniculum vulgare*).
- Wetlands, vernal pool, and vernal swales—Numerous vernal pools are interspersed throughout the grassland communities of all Project alternatives on Beale AFB. Vernal pool habitat on Beale AFB occurs within the Beale Core Recovery Area (BCRA) Zone 2 of the Southeastern Sacramento Valley vernal pool region, as defined by the 2005 USFWS Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005). These small, shallow depressions are temporary seasonal wetlands that fill with water during the rainy season and dry during the spring and summer months. Vernal pools within the study areas are characterized as Northern Hardpan vernal pools, which have formed on alluvial terraces above impermeable soil surfaces created by an accumulation of clay particles.

- Many of the vernal pools within the Project area are hydrologically connected via swales that have similar characteristics as vernal pools, though they typically experience less extensive inundation. The majority of vernal pools and swales within the Project area were mapped previously using Lidar (USACE 2006), while several were also identified during the biological resource surveys (Transcon 2019b).
- Within the Project area, dominant plants within vernal pools (and swales to a lesser extent) include coyote thistle (*Eryngium vaseyi*), white head navarretia (*Navarretia leucocephala*), Fremont's goldfields (*Lasthenia fremontii*), smooth goldfields (*L. glaberrima*), Carter's buttercup (*Ranunuculus bonariensis*), field owl's-clover (*Castilleja campestris*), pale spike rush (*Eleocharis macrostachya*), and dwarf wooly marbles (*Psilocarphus brevissimus*).
- A number of sensitive plant and animal species rely on vernal pool habitats, resulting in special management consideration. Characteristic special-status plant species that may occur within the Project area include dwarf downingia (*Downingia pusilla*) and legenere (*Legenere limosa*). Federally threatened or endangered vernal pool invertebrate species with habitat in the Project area include vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*).

- Waters, man-made—Man-made water features such as stock ponds, roadside ditches, agricultural drainages, and irrigation (or water supply) canals often support wetland vegetation and flowing water that provide habitat for wildlife. Roadside ditches, drainages, and irrigation canals associated with agricultural irrigation operations occur on those portions of the Project area not located on Beale AFB.
- Waters, creeks/streams—Riverine habitats such as rivers and streams that have intermittent or continually running water. Within the Project area, riverine habitats include perennial creeks, which hold water most of the year, and intermittent streams and ephemeral drainages, which hold water seasonally. Reeds Creek, a perennial stream that runs along the northern and western boundaries of Beale AFB, would be crossed by the Preferred Alternative and the Northern A Alternative just west of Patrol Road.

3.5.3 Special-status Plants

Special-status plant species that have the potential to occur within the Project area were identified from several resources. Prior to Project field surveys, a California Natural Diversity Database (CNDDB) search was performed within 3 miles of each alternative to identify any known occurrences of special-status species within the region. Additional species occurrence data and lists were obtained from the USFWS iPac database (USFWS 2017a), California Native Plant Society (CNPS) (CNPS 2017), and Beale AFB Integrated Natural Resources Management Plan (Beale AFB 2019).

No federally listed plant species are known to occur within the Project area. Plants considered in this document are collectively referred to as special-status species, defined in this EA by the following criteria:

- Species listed as threatened or endangered or those proposed for listing under the federal ESA and/or California Endangered Species Act (CESA).
- Species that are listed as California Rare Plant Ranks (CRPR) 1 or 2 on the CNPS's Inventory of Rare and Endangered Plants.

3.5.3.1 Special-status Plants Eliminated from Consideration

Two special-status plants that were identified in background research have been dropped from further consideration for this Project: Hartweg's golden sunburst (*Pseudobahia bahiifolia:* FE) and veiny monardella (*Monardella venosa*; CRPR 1B.1). **Appendix H** lists these species and the reasons for their elimination from consideration.

3.5.3.2 Special-status Plants Retained for Consideration

Dwarf downingia (CRPR 2B.2) and legenere (CRPR 1B.1) are two special-status plants that may occur within the Project area. **Appendix G** includes habitat information for each species and potential for occurrence by Project alternative.

3.5.4 Wildlife

This section presents a description of general wildlife resources within the Project area. Within this section, general wildlife refers to all mammal, bird, invertebrate, reptile, and amphibian species that are not protected under applicable state or federal laws.

In order to gather information on potential effects of the Project to general wildlife, an extensive biological survey of the entire Project area, including habitat mapping and an incidental wildlife survey of the study area, was conducted. Additionally, data was gathered through literature review and Beale AFB natural resources personnel who are familiar with the Project area. The following section describes the environmental baseline conditions throughout the Project area, including identification of general wildlife species known to occur.

The following wildlife species are typical for the grassland habitats within the Project area:

- Bird species, including the rough-legged hawk (*Buteo lagopus*), western king bird (*Tyrannus verticalis*), western meadowlark (*Sturnella neglecta*), lark sparrow (*Chondestes grammacus*), savannah sparrow (*Passerculus sandwichensis*), horned lark (*Eremophila alpestris*), and Brewer's blackbird (*Euphagus cyanocephalus*) (Beale AFB 2019).
- A variety of mammals that include mule deer (*Odocoileus hemionus*), California ground squirrels (*Spermophilus beecheyi*), gray fox (*Urocyon cinereoargenteus*) and coyote (*Canis latrans*) (Beale AFB 2019).
- Reptiles such as gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus oreganus*), terrestrial and common garter snakes (*Thamnophis* spp.), western yellow-bellied racer (*Coluber constrictor*), common king snake (*Lampropeltis getula*), alligator lizard (*Elgaria coerulea*), and western fence lizard (*Sceloporus occidentalis*) (Beale AFB 2019).

The following wildlife species are typical for the wetland and vernal pool habitats within the Project area:

- Ducks and other wading birds can be abundant in these habitats during the wet season and migratory bird season.
- In the vernal pool habitats on Beale AFB, Pacific treefrogs (*Hyla regilla*), western toads (*Anaxyrus boreas*), and other amphibians can become particularly active during the wet season.
- Many predators, including common garter snakes and raccoons (*Procyon lotor*), are also drawn to these wetland areas during the wet season due to increased prey abundance.

3.5.5 Special-status Wildlife

Special-status wildlife species that have potential to occur within the Project area were identified from several resources. Prior to Project field surveys, a CNDDB search was performed within 3 miles of the Project area to identify any known occurrences of special-status wildlife species within the region. Additional species occurrence data and lists were obtained from the USFWS (USFWS 2017a), eBird online database (eBird 2017), and Beale AFB (Beale AFB 2019).

This section presents a description of special-status wildlife species that could occur within the Project area. Information presented in this section is based on the previously described study area for biological resources and an assessment of habitat suitability for special-status species and identification of any special-status species occurrences (if any) using a GPS unit with sub-meter accuracy. Additionally, data was gathered through literature review and consultation with local species experts.

For purposes of this document, special-status wildlife species are defined as those animals (invertebrates, amphibians, reptiles, birds, and mammals) whose geographic range and native habitats overlap with the Project area and that are:

- Species listed as threatened or endangered or those proposed for listing under the Federal ESA and CESA.
- Species that are fully protected by the State of California or are considered state species of special concern.

As a result of their own biological requirements as well as the effects of reduced and degraded habitats, isolation of metapopulations, and low population numbers, special-status species are characteristically less tolerant of environmental changes, such as those stemming from the all three Project Alternatives. Special-status species are especially vulnerable to habitat loss, modification, and fragmentation; human presence, disturbance, and noise; changes to the prey base; and introduction of environmental pollutants. Adverse impacts to special-status species are of greater concern because these species are imperiled.

3.5.5.1 Critical Habitat

Critical habitat is a formal term under the Federal ESA. When a species is listed as threatened or endangered, the USFWS may officially designate specific geographic areas for habitat protection. Critical habitat is defined as specific areas that are essential to the conservation of a federally-listed species and that may require special management consideration or protection. Critical habitat is determined using the best available scientific information about the physical and biological needs of the species. These needs, or "'physical or biological features," include space for individual and population growth and for normal behavior; food, water, light, air, minerals, or other nutritional or physiological needs; cover or shelter; sites for breeding,

reproduction, and rearing of offspring; and habitat that is protected from disturbance or is representative of the historical geographic and ecological distribution of a species. Designated critical habitat areas have all the essential elements required for survival of specific listed species (primary constituent elements).

Critical habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp exists in the study area along the Southern Alternative, as described below.

3.5.5.2 Special-status Species Considered

Background research identified 32 special-status wildlife species with potential to occur in the Project area. Ten of these species were dropped from further consideration, either because their range did not include the Project area or because their habitat types were not found within the Project area. **Appendix H** lists these species and the reasons for their elimination from consideration.

3.5.5.3 Special-status Wildlife Retained for Consideration

Twenty two special-status wildlife species may occur within the Project area. **Appendix G,** the Biological Resources Report, includes habitat information for each species and potential for occurrence by Project alternative. These species are further discussed below.

Amphibians

One special-status amphibian, western spadefoot toad (*Spea hammondii*), has potential to occur in the Project area. Western spadefoot toads are dependent on vernal pools and other seasonal ponds for breeding, laying their eggs in water in winter or early spring. However, they spend most of their lives in the nonbreeding season in underground burrows, dispersing as far as 1,200 feet from breeding pools. Suitable breeding and dispersal habitat for this species is present in all Project alternative areas.

Birds

Thirteen special-status birds have the potential to occur in all Project alternative areas, including American peregrine falcon (*Falco peregrinus*), bald eagle (*Haliaeetus leucocephalus*), California black rail (*Laterallus jamaicensis coturniculus*), golden eagle (*Aquila chrysaetos*), grasshopper sparrow (*Ammodramus savannarum*), loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus hudsonius*), prairie falcon (*F. mexicanus*), short-eared owl (*Asio flammeus*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), white-tailed kite (*Elanus leucurus*), and western burrowing owl (*Athene cunicularia*). In addition, numerous migratory birds have the potential to occur in and adjacent to all Project alternative areas.

Grasshopper sparrows, loggerhead shrikes, northern harriers, short-eared owls, Swainson's hawks, and western burrowing owls are open-country hunters that could nest in the grasslands and agricultural habitats in each of the Project alternative areas. Loggerhead shrikes and Swainson's hawks nest in trees or shrubs (several trees and shrubs are scattered throughout the Project area); northern harriers and short-eared owls on the ground in meadows, grasslands, wetlands, shrublands and fields; and burrowing owls in underground burrows in grasslands.

There is no preferred nesting habitat for bald eagles in the Project area, but bald eagles could transit the Project area in the early winter, and golden eagles could nest in large trees or on the ground. California black rails and tricolored blackbirds require wetlands for breeding. There is marginal suitable nesting habitat for these species in the Project area, and both could occur.

Invertebrates

Three special-status invertebrates have potential to occur in the Project area, including valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool fairy shrimp, and vernal pool tadpole shrimp (collectively, vernal pool crustaceans). The valley elderberry longhorn beetle is completely dependent on its host plant, the elderberry shrub. This beetle lays its eggs in the crevices of elderberry shrubs, and after hatching, the larvae tunnel through and feed on the stems, trunks, and roots of the plant, emerging in one to two years. Elderberry shrubs are found in the remaining riparian forests and adjacent uplands of the Central Valley (USFWS 2017b). During field surveys, only one elderberry shrub was located within the study area in the Reeds Creek floodplain (northern survey area) and no valley elderberry longhorn beetle exit holes were visible on the plant. No elderberry shrubs were identified in the off-Beale AFB portions of the Project. As such, it is very unlikely that valley elderberry longhorn beetle would occur in the Project area.

Vernal pool crustaceans are well documented within several vernal pools on Beale AFB (Beale AFB 2019). Vernal pools are usually shallow, natural depressions in level ground—with no permanent aboveground outlet—that hold water for variable periods of time during the winter and are typically dry all summer and fall. Vernal pool crustaceans live their entire lives in vernal pools, over-summering as cysts (USFWS 2007a, 2007b). Both species are expected to occur within vernal pools and swales within the Project area on Beale AFB, though they are not expected to occur off Beale AFB as no vernal pools were identified in those areas during field surveys. Critical habitat for both of these species occurs within the Project area along the Southern Alternative just north of Erle Road on the off-Beale AFB portion of the alignment.

Mammals

Three special-status mammals (all bats) have potential to occur in the Project area. Pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western red bat (*Lasiurus blossevillii*) may forage in the area but are not expected to roost in the Project area due to the lack of suitable roosting habitat (e.g., caves, rock outcrops, buildings).

Reptiles

Two special-status reptiles, giant garter snake and western pond turtle (*Actinemys marmorata*), have potential to occur in all Project alternative areas. The giant garter snake, a highly aquatic snake found exclusively in the Central Valley, is primarily found in marshes and sloughs but also in rice fields, roadside drainage and irrigation ditches, and occasionally in slow-moving creeks. It prefers open, marshy areas where it can bask. Potential suitable habitat for giant garter snake possessing the minimum habitat requirements necessary exists on Beale AFB adjacent to Reeds Creek. However, multiple protocol-level surveys from 2005 to 2018 have not detected any individuals, and it is assumed the species is not present within Beale AFB (Beale AFB 2019; Hansen 2019). Portions of the Project area on private lands include agricultural parcels where rice is being cultivated. Although there are no known occurrences of giant garter snake within 10 miles of the Project area, the rice fields and associated canals may provide suitable

habitat for the species (Halstead et al. 2015). It is assumed that giant garter snake may be present in low numbers within these areas.

Western pond turtles are found in many different aquatic habitats, from ponds to sloughs and roadside ditches, creeks and rivers, lakes, and reservoirs. They are active year-round and can travel overland at least 1,000 feet away from water to lay their eggs in open areas on dry slopes (Nafis 2018). There are several intermittent streams, associated emergent wetlands, a drainage pond, and drainage canals and roadside ditches present in the Project area that may provide suitable habitat for western pond turtle.

3.6 CULTURAL, TRIBAL, AND PALEONOTOLOGICAL RESOURCES

The consultant prepared two cultural resource reports for the Project, a Cultural Resources Background Research and Field Strategy Report (Loftus 2019) and a Cultural Resources Inventory Report (Bassett 2019). WAPA consulted with 13 local Native American tribes to determine if any sacred sites or traditional cultural properties (TCPs) are present within the Project area. **Appendix I-1** summarizes the outreach efforts to Native American tribes. Copies of consultation letters are included as **Appendix I-2** and Project update letters can be found in **Appendix I-3**. The 13 tribes consulted with were selected from lists provided by the Native America Heritage Commission and Beale AFB. Following tribal consultation and their review of the Cultural Resources Background Research and Field Strategy Report (Loftus 2019), WAPA initiated consultation with the California SHPO on March 20, 2019. The SHPO responded to this initial consultation on April 19, 2019, concurring with WAPA's initial consultations and proposed inventory methodology. SHPO concurrence with the *No Historic Properties Affected* determination was received in a letter dated February 3, 2020 (**Appendix J**).

Cultural resources include archaeological sites, historic structures, sacred sites, and TCPs, which are important to a community's practices and beliefs and are necessary to maintain a community's cultural identity. The NHPA (54 USC 300101) requires that all federal agencies take into account the effects of their actions on historic properties and provide the Advisory Council on Historic Preservation with an opportunity to comment on those actions. The term "historic properties" refers to cultural resources that contribute significantly to history and meet the specific criteria outlined in 36 CFR Part 60.4 for listing on the NRHP.

For purposes of NHPA analysis, the term "historical resources" shall include cultural properties:

a. That are associated with events that have made a significant contribution to the broad patterns of our history; or
b. That are associated with the lives of significant persons in or past; or
c. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d. That have yielded or may be likely to yield, information important in history or prehistory.

To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must possess several, and usually most, of seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association.

For the purpose of CEQA analysis, a historic property includes:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.
(2) A resource included in a local register of historical resources or identified as historically or culturally significant.
(3) Any object, building, structure, site, area, or place which a lead agency determines to be historically significant and which meets the criteria for listing on the California Register of Historical Resources, including the following:
    a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    b. Is associated with the lives of persons important in our past;
    c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
    d. Has yielded, or may be likely to yield, information important in prehistory or history.

The cultural setting of the Project area is discussed in detail in Thomas and West (1879), Bal (1993), Nilsson et al. (1995), Beale AFB (2016b), and Loftus (2019).

The prehistoric cultural sequence for the Project area can be divided into one cultural complex and three cultural patterns spanning the Late Pleistocene/Early Holocene period to the Late Prehistoric period (Moratto 1984). The complex and cultural patterns overlap with five temporal periods referred to as the Paleoindian period (ca 11,500 to 8550 B.C.), the Lower Archaic period (ca 8550 to 550 B.C.), Middle Archaic period (ca 5550 to 550 B.C.), Upper Archaic period (ca 550 B.C. to A.D. 1100), and the Emergent/Late-Prehistoric period (A.D. 1100 to Historic Contact) (Frederickson 1973; Rosenthal et al. 2007). Although some prehistoric sites have been identified as associated with oak groves and bedrock mortars on the eastern side of Beale AFB, few have been found in the vicinity of the Project (Beale AFB 2016b). This paucity of sites is typical of the Central Valley where identifiable prehistoric remains are rare.

The Project area is within the tribal territory of the Valley Nisenan, speakers of the Maiduan sub-group of the Penutian language family (Beals 1933; Golla 2011; Kroeber 1925, 1929). Nisenan villages were established on low rises above the streams and rivers of the Central Valley and on the south-facing slopes near water sources (Beale AFB 2016b). No villages or settlements have been identified near to the Project area or within Beale AFB boundaries, with the nearest village being *Chiemwie,* situated approximately 1.2 miles northwest (Wilson and Town 1978).

The post-contact period of California is divided into three periods: the Spanish period (1769 to 1822), the Mexican period (1822 to 1848), and the American period (1848 to present day). Very little European activity occurred in the Project vicinity during the Spanish and Mexican periods. However, the discovery of gold in 1848 triggered an influx of tens of thousands of fortune seekers (Bibby 1994; Wilson and Towne 1978). The first development included early roads connecting Marysville to Sacramento and the mining districts in the foothills. Farms in the region provided food to the mining camps, and hay for stock feed was a prime commodity (Neyens 1976). These farms raised livestock and grew wheat, barley, potatoes, hay, grapes, figs, oats, and olives (Bal 1993; Nilsson et al. 1995; Thompson and West 1879). Historic maps dating to between 1855 and 1947 indicate the location of major roads, secondary wagon roads, a railroad, small settlements, and isolated farmsteads (Beale AFB 2016b). When the U.S.

Army's Camp Beale was established in 1942, historic developments on Beale AFB were all demolished. By the 1970s, much of the agricultural land off Beale AFB was flooded for rice cultivation.

The 1942 to 1944 buildup of Camp Beale resulted in the construction of a large number of buildings, mostly near to the east end of the Project's Southern Alternative. Most of these structures, including many that had been converted into a prison camp for German prisoners of war (POWs), were demolished by 1952. Beginning in the mid-1950s, the former Camp Beale was converted into an USAF base with airfield. Most of this later military development is along the east end of the Northern Alternatives (Beale AFB 2016b).

For the purposes of this Project, the consultant studied an area of potential effects (APE) inclusive of an area of direct impacts and a much wider area of indirect impacts. The APE of direct impacts is all areas where physical construction has the potential to occur and includes approximately 1 mile of 300-foot-wide study corridor for the 230-kV line alternatives outside of Beale AFB (on private land), approximately 3.4 miles of 200-foot-wide study corridor for the 230-kV line within Beale AFB, approximately 1 mile of 80-foot-wide study corridor for the 60-kV overhead line (Southern Alternative only), approximately 2.5 miles of 40-foot-wide study corridor for the 60-kV underground line within Beale AFB, approximately 1 mile of 80-foot-wide study corridor for the 60-kV overhead line (Southern Alternative only), and approximately 2.5 miles of 40-foot-wide study corridor for the 60-kV underground line within Beale AFB. The APE of indirect (visual) impacts is all areas where visual impacts from the Project may occur and is defined by a 0.5-mile buffer on each side of the APEs of direct impacts for each of the 3 proposed alignments.

As a result of this inventory effort, seven cultural resources within or adjacent to the APE of direct impacts and four cultural resources within the APE of indirect impacts were evaluated (**Table 3-5**). No other cultural resources are known to be within the Project APEs. As a result of WAPA's consultation with the Native American Heritage Commission and local tribes, a determination was made that no TCPs are present in the vicinity of the Project. The United Auburn Indian Community requested further participation and consultation regarding this undertaking and WAPA has stated it will continue to consult throughout Project planning.

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TABLE 3-5
CULTURAL RESOURCES RESULTS SUMMARY

Resource Designation	Description	NRHP Eligibility	Alternative	Recommended Action
APE for Direct Impacts				
CA-YUB-1390H (P-58-001541)	Camp Beale POW camp	Determined Not Eligible (cellblock managed as Eligible)	Southern (on Beale AFB)	None
CA-YUB-1420H (P-58-001587	Historic farmstead	Determined Not Eligible	Preferred Alternative (on Beale AFB)	None
PL-15H	Camp Beale cantonment area	Recommended Not Eligible	Southern (on Beale AFB)	None
BWIP-1	Erle Road	Unevaluated	Southern (mostly off Beale AFB)	None
BWIP-2	Historic roadbed	Recommended Ineligible	Northern A; shared Northern alignments (on Beale AFB)	None
BWIP-IO-1	Cadastral benchmark	Recommended Ineligible	Shared Northern alignments western laydown area (on Beale AFB)	None
APE for Indirect Impacts				
VR-1	Boardman Ranch	Unevaluated	Southern (off Beale AFB)	None
VR-2	Farm complex	Unevaluated	Southern (off Beale AFB)	None
VR-3	POW cellblock	Recommended Eligible	Southern (on Beale AFB)	None
VR-4	1958-era Beale AFB communication facility	Recommended Ineligible	Shared Northern alignments (on Beale AFB)	None

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3.6.1 Paleontological Resources

Paleontological resources are non-renewable natural resources of vertebrate, non-vertebrate, marine, and plant type and are afforded protection under federal, state, and county regulations. The Project is located within the Laguna Formation of Pliocene-Pleistocene age and consists of a dissected alluvial fan. Evidence of historic river channels across the Project area is based on field observations and boring samples taken during a geotechnical report prepared for the Beale AFB 60-kV Underground Transmission Line in September of 2018 (URS 2018).

A review of online geologic maps of the United States at the Mineral Resources Database displaying geologic units for the Project vicinity show the bulk of the landform age is associated with Quaternary alluvium and marine deposits (MRDATA 2019a and 2019b). Inland, fossiliferous soils primarily contain non-marine localities (MRDATA 2019c). Non-marine fossils expected within Quaternary alluvium of the Pleistocene epoch and continuing into the Holocene include large land mammals or mega-fauna like mammoth, mastodon, bison, giant ground sloth, saber-tooth cat, horses, and smaller fossils representative of birds, insects, and vegetation, for example (UCMP 2019a). A review of fossil localities via in-house database and interactive Berkeley Mapper identified no known fossil localities within the Project vicinity or Yuba County. However, several recorded fossils are present in nearby Sutter County and include those from the Eocene and Miocene epochs and only two from the Pleistocene epochs (UCMP 2019b and 2019c). Massive faunal extinctions, common at the close of the Holocene, combined with the Quaternary alluvial setting and historic river channels, elevate the possibility for paleontological resources within the Project vicinity.

3.7 GEOLOGY/SOILS

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of geology, topography, soils, and geologic hazards. A geotechnical report for the underground portion of the Preferred Alternative alignment has been completed and helped inform this analysis (URS 2018).

The study area for geology and soils related to this Project is defined as the footprint of construction and operations activity.

3.7.1 Geology

The study area is located along the northeastern margins of the Central Valley of California, which is a sediment-filled structural depression classified as a forearc basin. The Central Valley is bounded by the Cascade Range to the north, the Sierra Nevada to the east, the Tehachapi Mountains to the south, and the Coast Ranges and San Francisco Bay to the west. More specifically, the study area is located between the foothills of the Sierra Nevada and the Feather River in the eastern part of the Sacramento Valley and west of the Sierra Nevada. The area is underlain with surficial alluvial fan and stream deposits of the Pliocene-Pleistocene and Holocene age and the Laguna Formation of Pliocene-Pleistocene age. Laguna Formation is a Sierran-derived dissected alluvial fan. To the east these broad alluvial fans merge with the gently rolling foothills of the Sierra Nevada and to the west with the low alluvial plains of the eastern Sacramento Valley.

Due to proximity of the site to the alluvial sediment source, local outcrops of the Laguna Formation generally consist of interbedded and heterogeneous mixture of alluvial gravel, fine sand, silt, and clay of granitic and metamorphic origin (URS 2018).

3.7.2 Topography

Topography pertains to the general shape and arrangement of a land surface, including its height and the position of its natural and man-made features. The western portion of Beale AFB as well as the adjacent farmland that includes the study area consists of relatively flat (less than 5 percent grade) grasslands comprised mostly of Riverbank Formation, as well as Modesto and Laguna Formation, low alluvial plains, and fans. This unit is generally flat to gently rolling, with elevations ranging from 90 feet to approximately 200 feet. Little or no deposition in this area is now occurring (Beale AFB 2019).

Private lands within the study area are similarly located on generally flat to gently rolling topography indicative of historic river floodplains; these lands have been converted to agricultural use (irrigated cropland for rice, alfalfa, safflower, and corn) and lightly developed with some physiographic alteration for both agricultural and sparse residential uses (Transcon 2019b).

3.7.3 Soils

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils are typically described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses as well as what impacts to soils might occur from proposed uses. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

3.7.3.1 Soil Types

Soil types on Beale AFB can be grouped into two main categories: Central Valley Terraces and Sierra Nevada Foothill. The study area for the proposed Project is located on the valley soils. The valley ground surface soils are generally high in clay content, underlain by a hardpan, have a slow permeability and a shallow rooting depth, and generally have a slope of 0 to 3 percent. These soils favor annual grasses and forbs. During the winter, soils at Beale AFB become extremely soft and limit any off-road activities (URS 2018). Construction on Beale AFB is limited to the dry season (typically May to November).

There are 145 soil map units of soil series, as defined by the Natural Resource Conservation Service on Beale AFB. These soil map units within the study area are predominantly San Joaquin loam with 0 to 1 percent slopes, Perkins loam with 0 to 2 percent slopes, Redding-Corning Complex with 0 to 3 percent slopes, and Redding-Corning Complex with 3 to 8 percent slopes (URS 2018). Soils off Beale AFB consist primarily of San Joaquin loam with 0 to 1 percent slopes and Redding-Corning Complex with 0 to 8 percent slopes (NRCS 2019).

The study area is underlain with surficial alluvial fan and stream deposits of the Pliocene-Pleistocene and Holocene age, including the Laguna Formation dissected alluvial fan. Local

outcrops of the Laguna Formation generally consist of interbedded and heterogeneous mixture of alluvial gravel, fine sand, silt, and clay of granitic and metamorphic origin (URS 2018).

3.7.3.2 Geotechnical Study

The geotechnical study conducted for a portion of the Project area explored subsurface soil conditions along Doolittle Drive within Laguna Formation soils. The subsurface soils encountered in the top 15 feet generally varied from stiff to very stiff clay and silt to medium-dense clayey or silty sand. Between 15 to 20 feet below ground surface (bgs), subsurface soils were generally composed of silty to poorly graded gravel, with some poorly graded sand and silty sand. Below 20 feet bgs, silty sand was encountered (URS 2018).

Along Patrol Road and within the proposed substation of the Preferred Alternative and Northern A Alternative, the study explored subsurface conditions within Riverbank Formation. The subsurface soils encountered in the top 8 feet were generally very stiff lean clay to sandy lean clay. Below 8 feet bgs, medium-dense to very dense silty and clayey gravel, medium-dense silt, sandy silt, and some lean clay was encountered. Groundwater was observed within the silt layers (URS 2018).

A complete geotechnical study for the final route would be completed prior to initiating the proposed Project.

3.7.3.3 Soil Investigations on Beale AFB

Beale AFB Environmental Restoration Program investigations have been conducted in the Preferred Alternative Project route. Refer to the 2012 Final Comprehensive Site Evaluation Phase II and the 2016 Final Remedial Investigation regarding Munitions Response Sites (MRSs) ML625, TA602, and TA603. The subject MRSs have been closed with California Department of Toxic Substances Control (CDTSC) and Department of Defense Explosives Safety Board concurrence. A Beale AFB-wide Preliminary Assessment (PA) was conducted in 1996; contamination sources were identified to the east and west of the Preferred Alternative Project route. No sources of soil contamination were identified within the Preferred Alternative Project route. The proposed Project area is well understood, and Beale AFB has aerial photography and other data sources from the pre-Military era to present. Based on these data sets, it is not assumed that contaminated soil would be present (e.g., no dump sites, ranges, industrial sites, or buildings with associated fuel heating oil tanks are known from the Project area). Site Inspections (SI) were conducted on 65 areas of concern between 1996 and 1997. The PA and SI received concurrence from CDTSC and the RWQCB. Additional investigations of soil contaminants in the Project area are not necessary because contaminants were not found in the vicinity of the Project during previous investigations. All final documents concerning the Environmental Restoration Program can be found on the U.S. Air Force Civil Engineer Center Public Administrative Record Database (USAFCEC 2020).

3.7.4 Geologic Hazards

Geologic hazards are defined as natural geologic events that can endanger human lives and threaten property. Examples of geologic hazards include earthquakes and seismic-related ground failure, including liquefaction, landslides, rock falls, ground subsidence, and avalanches.

The site is not within existing Alquist-Priolo earthquake fault zone maps as covered under the Alquist-Priolo Earthquake Fault Zoning Act. No active (Holocene time [rupture in about the last 11,000 years]) faults are mapped as crossing or running adjacent to the site. Two potentially active (Quaternary and Late Quaternary time) faults are mapped east of the site (California Geological Survey 2007). The Spenceville fault (Foothills Fault system) and Swain Ravine fault (Foothills Fault system) are mapped north-south, located approximately 5.5 miles east of Project site. The design peak ground acceleration (PGA) in the vicinity of the site, in accordance with Section 1803.5.11 of the 2016 California Building Code (CBC), is 0.186 g (California Geological Survey 2007). Additionally, seismic hazard zone maps indicating liquefaction potential have not been published by the California Geological Survey in the study area of the proposed Project.

Review of the data obtained during the geotechnical investigation indicates that the subsurface materials in which groundwater was encountered varied from stiff to very stiff silt with gravel and sand to dense to very dense silty gravel with sand. Groundwater was observed as shallow as 13 feet bgs in 3 borings. These characteristics indicate that the on-site soils are likely not susceptible to liquefaction (URS 2018).

Potentially expansive, high-plasticity clays were not encountered near the surface at the site. Based on the plasticity index test results, the upper 5 feet of soil underlying the site generally has a low to moderate potential for shrink-swell behavior (URS 2018).

3.8 HYDROLOGY/WATER QUALITY

Hydrology, in general, is the study of the water cycle and, more specifically for this document, the movement of water through the landscape including both surface water and groundwater.

The study area for hydrology and water quality resources includes the proposed area of disturbance and areas into which the disturbed area drains.

3.8.1 Regulatory Framework

Section 404 of the CWA gives the EPA and USACE regulatory and permitting authority regarding discharge of dredged or filled material into “navigable Waters of the United States” (WOTUS). Section 502(7) of the CWA defines navigable waters as “Waters of the United States, including territorial seas.” Section 328 of Chapter 33 in the CFR defines WOTUS as they apply to the jurisdictional limits of USACE authority under the CWA. A summary of this definition in 33 CFR 328.3 includes: 1) waters used for commerce; 2) interstate waters and wetlands; 3) “Other Waters of the United States” (other waters) such as intrastate lakes, rivers, streams, and wetlands; 4) impoundments of waters; 5) tributaries to the above waters; 6) territorial seas; and 7) wetlands adjacent to waters. For the purposes of determining USACE jurisdiction under the CWA, “navigable waters,” as defined in the CWA, are the same as “Waters of the United States” as defined in the CFR above.

The limits of USACE jurisdiction under Section 404 were updated effective June 22, 2020 under 40 CFR Section 120.2, The Navigable Waters Protection Rule, Step Two. They are as follows: (a) territorial seas and traditional navigable waters; (b) tributaries of jurisdictional waters; (c) lakes, ponds, and impoundments that contribute surface water flow to a jurisdictional water in a typical year; and (d) wetlands adjacent to non-wetland jurisdictional waters.

The RWQCB regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA (33 U.S.C. Section 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into WOTUS to obtain certification from the state in which the discharge originates.

As a result, fill proposed to be deposited in waters and wetlands requires coordination with the appropriate RWQCB that administers Section 401 and provides certification. The RWQCB also reviews water quality and wetland issues, including avoidance and minimization of impacts.

The State Water Resources Control Board (SWRCB) introduced new procedures for discharges of dredged or fill material to waters of the state that were added to Title 23 of the California Code of Regulations effective May 28, 2020. These procedures address potential gaps in federal regulatory coverage for certain wetlands and waters of the state resulting from federal changes that limit the reach of the Clean Water Act (40 CFR Section 120.2, described above).

It should be noted that the changes to USACE definitions and the SWRCB procedures described above were instituted after finalization of the Project Aquatic Resources Report (**Appendix K**). As a result, some of the aquatic resources described in the Aquatic Resources Report may no longer be categorized as WOTUS or may be regulated differently. Conferences with USACE and the RWQCB will ensure that 404 and 401 requirements are met.

EO 11988, Floodplain Management, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities" for federal actions.

EO 11990, Protection of Wetlands, requires federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Federal agencies must avoid undertaking or providing assistance for new construction located in wetlands unless there is no practicable alternative to such construction and the Preferred Alternative includes all feasible measures to minimize harm to wetlands that may result from such use.

3.8.2 Floodplains, Wetlands, Surface Water, and Groundwater

The Project area experiences a Mediterranean climate, which consists of cool, wet winters and hot, dry summers. The mean annual precipitation on Beale AFB is 21.9 inches, with about 95 percent coming between November through April. Precipitation can be highly variable from year to year; the record high at Beale AFB is 38.5 inches and the record low is 4.3 (Beale AFB 2019). May through October is typically dry and warm.

The hydrology of Beale AFB is complex due to both natural and man-made influences. Beale AFB is located northeast of confluence of the Bear River and Feather River. Hydrology on Beale AFB has been significantly altered by the creation of impoundments, channel re-direction, and groundwater pumping. Impoundments have been created historically for flood control, stock watering, and recreation areas. Drinking water is drawn from the aquifer underlying Beale AFB west of the flight line (Beale AFB 2018b).

3.8.2.1 Floodplains

Floodplains at Beale AFB occur adjacent to creeks and drainages; however, the Project Area is outside the 0.2% annual chance floodplain (FEMA 2011).

3.8.2.2 Surface Water and Wetlands

An Aquatic Resources Report (**Appendix K**) was prepared to determine the extent of potential jurisdictional waters that currently exist within and adjacent to the Project area. Based on the desktop review and field surveys, multiple potentially jurisdictional waters and freshwater emergent wetlands were identified within the study area (Transcon 2019a). Descriptions of these features can be found in Section 3.5.2.2, Wetland Habitats. The extent and periodicity of the surface waters within the Project are determined primarily by the local climate and rainfall, but interactions with groundwater may also affect these.

Streams, canals, wetlands, vernal pools, swales, and roadside ditches that potentially meet the criteria for jurisdictional WOTUS can be found within the Project area. Along the Preferred Alternative and Northern A Alternative, Reeds Creek is the only stream channel the alternatives cross, one location at each alternative. Along the Southern Alternative, there are four streams (Hutchinson Creek and three unnamed tributaries) that intersect the proposed Project area at one location each. Two agricultural canals, the Yuba County Water Agency South Canal and the Yuba-Wheatland Canal also intersect the study area. The Brophy Canal intersects both the northern and southern study areas, while the Yuba-Wheatland Canal parallels the Southern Alternative for approximately 2,000 feet. Waters identified in the survey that do not fall under the CWA are agricultural roadside ditches, stock ponds, settling basins, and rice fields (Transcon 2019a).

3.8.2.3 Groundwater

Groundwater extraction has altered the direction and depth of groundwater movement near Beale AFB. Before the widespread use of irrigation in the Sacramento Basin, groundwater moved westward from the Sierra Nevada foothills to discharge in the Feather and Sacramento rivers. Due to extensive groundwater extraction for agriculture, the main groundwater discharge is now through well withdrawals. Water from the Yuba River is primarily responsible for recharging the groundwater system. Groundwater at Beale AFB is generally encountered within 4 to 260 feet bgs at monitoring wells throughout Beale AFB (Beale AFB 2014a, 2019). In general, the groundwater table on Beale AFB is shallowest in the western portion of the base (42 to 53 feet in 2016) and deepest in the eastern portion (260 feet in 2016) (Beale AFB 2019). However, the actual level of the groundwater at any specific location can vary greatly depending on several factors including time of year, rainfall amount, water year type, and the timing and intensity of nearby agricultural groundwater withdrawals.

In August 2018, 11 exploratory borings were performed along the alignment of the proposed 60-kV underground transmission line. At 3 of those borings along Patrol Road, groundwater was measured at 13 feet, 17 feet, and 20.5 feet bgs, which is consistent across Beale AFB, generally. Groundwater levels can be highly variable between years and seasons, and depend on many different factors such as precipitation, irrigation, and land use (URS 2018).

3.9 LAND USE AND PLANNING, AICUZ COMPATIBILITY, AND RECREATION

Land use broadly means the use of land for various activities, including military, recreational, agricultural, and residential. Local land use policies and development regulations control the type of land use and the intensity of development or activities permitted. In many cases, land use descriptions are codified in master planning and local zoning laws; however, there is no nationally recognized land use naming convention or terminology. As such, land use descriptions, labels, and definitions often vary by jurisdiction. Land use planning in the Air Force is guided by AFI 32-1015, Integrated Installation Planning. Changes in land use patterns that result from development can affect the character of an area and result in physical impacts to the environment. Proposed developments should therefore be analyzed for compatibility with planned land uses. This section focuses on two areas in particular: land use designations in established plans including Beale AFB's Air Installation Compatible Use Zone (AICUZ) and recreation.

3.9.1 Land Use Designations in Established Plans

The term "land use" refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions. There are two jurisdictions in the study area for this Project: Yuba County has land use planning jurisdiction for the private lands, and the USAF has land use planning jurisdiction for the lands on Beale AFB. Each jurisdiction is discussed separately.

3.9.1.1 Private Land

Private parcels within the study area have been mapped by Yuba County within its most recent General Plan as NR, a land use designation that includes agricultural production as a principal activity, while allowing for other uses including conservation and public facilities and infrastructure. The intent of the NR designation is to "conserve and provide natural habitat, watersheds, scenic resources, cultural resources, recreational amenities, agricultural and forest resources, wetlands, woodlands, minerals, and other resources for sustainable use, enjoyment, extraction, and processing" (Yuba County 2011).

All private parcels within the study area have been zoned by Yuba County through the County's zoning ordinance as AE-80, a zoning designation that defines agricultural production as a principal use (Yuba County 2015).

3.9.1.2 Beale AFB Lands

USAF installation land use planning commonly uses 12 general land use classifications: Airfield, Aircraft O&M, Industrial, Administrative, Community (Commercial), Community (Service), Medical, Housing (Accompanied), Housing (Unaccompanied), Outdoor Recreation, Open Space, and Water (USAF 1998). Beale AFB currently utilizes the Installation Development Plan (IDP) as its primary document upon which to base future development and programming decisions (Beale AFB 2014b). It presents a summary and compilation of various resource plans, special plans, and studies and integrates these into a single planning document for Beale AFB. The IDP classifies the Project area as Airfield, Planning District 1 in the IDP. The IDP

describes the parameters for future development in this planning district as follows: "Future development of this district must provide a secure and functionally effective environment for airfield operations, while remaining accessible to pilots, as well as O&M personnel. Future facilities within this district should support the airfield and mission and not constrain air operations and the imaginary surfaces."

Because the study area for the proposed Project is within the Airfield Planning District, it must be compatible with the Beale AFB AICUZ. As described in Section 3.11, Public Health and Safety/Hazards and Hazardous Materials, the AICUZ is a land use planning tool that integrates an extensive analysis of the effects of noise, aircraft accident potential, land use, and proposed development upon the residents and workers of Beale AFB, as well as present and future neighbors of Beale AFB. The AICUZ is designed to aid in the development of local planning mechanisms that would protect public safety and health, as well as preserve the operational capabilities of Beale AFB. The AICUZ is based on an extensive study that incorporates regularly updated data about aircraft types and numbers of operations at Beale AFB, and it uses this data and an accompanying analysis to determine the compatibility of different types of development, including utilities.

3.9.2 Recreation

This section evaluates recreation areas and uses separately on private land and Beale AFB within the Project Area.

3.9.2.1 Private Land

Designated recreational facilities do not exist in the private lands of the study area. The nearest commonly used recreation area to the proposed Project is the Yuba River, located about 2.8 miles north of the Northern Alternatives' shared alignment. Boating, fishing, and waterfowl hunting are common usages of the river. Additionally, the Spenceville Wildlife Area borders Beale AFB on the east and is located between 8 and 10 miles from the proposed Project area. Some private land areas may be used and leased for duck hunting, although specific duck blind locations are not known or identified.

3.9.2.2 Beale AFB Land

Outdoor recreation on Beale AFB is guided by AFMAN 32-7003. There are three parks on Beale AFB and multiple picnic areas and play structures, a 1.5-mile nature trail near the housing area along Dry Creek (Beale AFB 2019), a 1-acre recreational vehicle campground, a golf course, a privately owned stable, and recreational fishing lakes (Beale AFB 2019), none of which are located in the study area for the Project.

The primary recreational activity on Beale AFB that overlaps with the study area is permitted hunting. Portions of the study area west of the airstrip are currently open to hunting with Beale AFB-specific restrictions. All individuals must obtain applicable licenses, permits, stamps, and Beale AFB training in order to hunt or fish on Beale AFB in addition to any permits required by the State of California. In years since 2010, between 80 and 165 hunting permits were sold annually for the entirety of Beale AFB (Beale AFB 2019).

3.10 NOISE

This section characterizes the existing conditions of the noise environment in the proposed Project area, specifically the ambient noise levels expected prior to the construction and operation of the proposed Project. The study area for noise impacts related to this Project consists of a quarter-mile buffer from Project facilities along all alternatives.

3.10.1 Noise Characteristics and Descriptors

Noise is generally defined as unwanted, disruptive, or potentially hazardous sound. Sound is defined as pressure variations in air which are interpreted by the human ear. The loudness of sound is measured using a logarithmic scale of the relative sound pressure, expressed in units of decibels (dB). Zero dB is the lowest sound pressure that a healthy human ear can detect. Each increase in 10 dB on the scale represents a 10-fold increase in the acoustic energy. A frequency weighting scale known as A-weighting (dBA) that best reflects the human ear's reduced sensitivity to low frequencies is often applied to noise measurements.

Human perception and response to noise does not directly correlate to the dB scale, but it has some general rules that are broadly accepted. A change in noise level of 3 dBA is considered to be barely noticeable, while a change of 5 dBA is more readily perceptible. A change of 10 dBA is perceived as being twice as loud. Human perception therefore differs from the absolute change in sound pressure, as a 10-dBA difference is actually a 10-fold increase in acoustic energy. Additionally, tonal noise is generally perceived by humans as more annoying.

Noise produced from most activities tends to vary widely over time. Noise levels are usually best represented by an equivalent level over a given time period (Leq) or by an average level (in dBA) occurring over a 24-hour day-night period (Ldn), which applies a 10-dBA penalty applied to nighttime noise occurring between 10:00 p.m. and 7:00 a.m., taking into the account that humans are generally more bothered by unwanted noise during nighttime hours. An alternative noise descriptor is the Community Noise Equivalent Level (CNEL), which is similar to the Ldn but applies a 4.77-dB penalty to evening noise (7:00 p.m. to 10:00 p.m.) and a 10-dB penalty to nighttime noise (10:00 p.m. to 7:00 a.m.). Noise standards for assessing impacts may use either of these descriptors.

3.10.2 Regulatory Framework

There are a number of applicable regulations from various organizations that are applicable to environmental noise impacts. The U.S. Department of Housing and Urban Development (HUD) published a guidebook of environmental noise standards that provides guidelines for various land use types. For residential uses, environmental noise between 65 and 75 dBA Ldn is considered "normally unacceptable" while noise less than 65 dBA Ldn is considered "normally acceptable". For agricultural uses, noise levels greater than 75 dBA may be considered "normally acceptable" (HUD 2009).

The Yuba County General Plan contains a noise element that contains noise goals based on land use type which are applicable to the Project. For residential areas, noise levels of less than 70 dBA Ldn are considered acceptable or conditionally acceptable. For agricultural areas, noise levels of up to 80 dBA Ldn are considered acceptable or conditionally acceptable (Yuba County 2011).

The Yuba County noise element also contains maximum levels for non-transportation noise based on the hours during which noise is generated. For noise-sensitive uses, which include school, hospitals, and residences, the maximum allowable hourly Leq is 60 dBA during daytime hours (7:00 a.m. to 10:00 p.m.). During the nighttime hours, the maximum allowable hourly Leq is reduced to 45 dBA. If the ambient noise level exceeds these standards, the standard applied shall be the current ambient noise level plus 5 dBA (Yuba County 2011).

3.10.3 Existing Ambient Noise Conditions

Ambient noise sources in the Project vicinity are primarily vehicle traffic, agricultural operations, and military operations at Beale AFB. Noise from Beale AFB operations has been measured and mapped through AICUZ planning studies. The most recent Beale AFB AICUZ study was conducted in 2005. Most areas within 0.85 mile of the Beale AFB airstrip have a CNEL of 60 dBA or greater (Beale AFB 2005; SACOG 2019). Considering that airport operations create a noise environment more consistent with an urban area rather than a rural agricultural area, the airfield and airspace noise environment are eliminated from consideration in the analysis.

Vehicle traffic in the Project vicinity is primarily within Beale AFB and along Hammonton-Smartville Road and North Beale Road. These roads have been the subject of past noise studies, and baseline traffic noise contours available from which Project impacts can be determined. Traffic noise along Hammonton-Smartville Road between Brophy Road and Doolittle Drive is estimated to be 60 dBA Ldn at a distance of 53 feet from the centerline of the roadway. Traffic noise along North Beale Road between Griffith Avenue and Beale AFB is estimated to be 60 dBA at a distance of 92 feet from the centerline of the roadway (Yuba County 1994).

Vibration is an additional concern that is associated with noise. Sources of ground-borne vibration include trains, heavy construction, road construction, large vehicles passing over a rough road, or subsurface excavation or drilling operations. No known sources of major vibration exist in the Project vicinity.

3.10.4 Sensitive Noise Receptors

The Yuba County General Plan defines sensitive noise receptors as people or things most susceptible to adverse effects, for instance schools, health care facilities, and day care centers. Private residences are considered “noise sensitive uses” (Yuba County 2011) and therefore discussed in this EA. There are a number of residences in the Project vicinity; the closest residence to the Preferred Alternative alignment is approximately 80 feet away. The closest residence to the Northern A Alternative alignment is approximately 1,740 feet away, while the closest residence to the Southern Alternative is approximately 250 feet away. Exact distances will be unknown until a final route is chosen and Project engineering is complete.

3.11 PUBLIC HEALTH AND SAFETY AND HAZARDOUS MATERIALS

This section outlines the existing environment and regulatory context of public health and safety associated with the Project. There are no schools or hospitals within 1/2 mile of the study area (Beale AFB 2014b; Yuba County 2011; Google Earth 2019). Therefore, general baseline conditions for assessing potential impacts to public health and safety are related to hazardous materials, fire hazards, location within Beale AFB’s AICUZ, and electric and magnetic fields (EMF). The study area for analysis of public health and safety includes the Project corridor

where facilities would be built (i.e., where hazardous materials could be introduced, where risks for fire exist during construction, where conflicts could exist with AICUZ planning, or where EMF risks are heightened). These potential impacts are discussed below per topic.

3.11.1 Hazardous Materials

Hazardous materials are defined by federal and state regulations to protect public health and the environment. Hazardous materials generally have certain chemical, physical, or infectious properties that cause them to be classified as hazardous. Hazardous materials are more specifically defined in the Comprehensive Environmental Response, Compensation, and Liability Act Section 101(14) and also in the CCR, Title 22, Chapter 11, Article 2, Section 66261, which provides the following definition:

> *A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.*

The Beale AFB Integrated Contingency Plan (ICP) includes prevention measures that govern management of hazardous materials throughout the USAF, including at Beale AFB. It applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials and to those who manage, monitor, or track any of those activities. Under the ICP, the USAF has established roles, responsibilities, and requirements for a hazardous materials management program. The purpose of the ICP is to control the procurement and use of hazardous materials to support USAF missions, ensure the safety and health of personnel and surrounding communities, minimize USAF dependence on hazardous materials, and maintain compliance with laws and regulations for hazardous material usage. The ICP includes the activities and infrastructure required for ongoing identification, management, tracking, and minimization of hazardous materials.

The hazardous materials that have been identified as potentially present in connection with the proposed Project include engine oil, gasoline, brake and transmission fluid, jet fuel, aviation-grade gasoline, diesel fuel, antifreeze, and chain lubricant; mineral oil, dielectric oil, sulfuric acid electrolyte, and SF_6 are also common materials used in substations. These hazardous materials would be routinely transported and used in conjunction with the operation of machinery associated with the all alternatives. Spill prevention control measures would be consistent with the Beale AFB ICP.

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary state agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. All Cal/OSHA standards would be implemented through the contractor for the Project.

The Project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to California State Government Code Section 65962.5 (CDTSC 2019).

3.11.2 Fire Hazards

Yuba County describes fire as one of the most significant natural hazards affecting Yuba County residents. The Project area outside of Beale AFB has been identified by the California Department of Forestry and Fire as having a moderate fire risk (Yuba County 2011).

Wildfires are a regular occurrence on Beale AFB, with most occurring between May and September. Records show that there were 131 wildfires on Beale AFB between 1998 and 2017. Nearly half (59) of the wildfires had an unknown cause. Of those with known causes, wildfires started by power lines (34) were most common (Beale AFB 2019). Wildfires started by Beale AFB power lines were commonly attributed to avian electrocution on distribution lines. In response to this, Beale AFB developed a new Avian Protection Plan that was adopted in 2017, with base-wide power pole retrofit starting the same year (Beale AFB 2019). Adherence to the Avian Protection Plan is anticipated to reduce the occurrence of fires due to electrocuted birds. The California Department of Forestry and Fire Protection identifies that there have been several instances of fires spreading out from Beale AFB to the Yuba County area. The cause of these fires is listed as birds flying into power lines, hazard reduction burns, and munitions work (Calfire 2018).

3.11.3 Air Installation Compatible Use Zone

AICUZ is a land use planning tool that integrates an extensive analysis of the effects of noise, aircraft accident potential, land use, and proposed development upon the residents and workers of Beale AFB, as well as present and future neighbors of Beale AFB. The AICUZ is designed to aid in the development of local planning mechanisms that would protect public safety and health, as well as preserve the operational capabilities of Beale AFB. The AICUZ is based on an extensive study that incorporates regularly updated data about aircraft types and numbers of operations at Beale AFB, and it uses this data and an accompanying analysis to determine the compatibility of different types of development, including utilities.

3.11.4 Electric and Magnetic Fields

Electric power consists of two components: voltage and current. Current, which is a flow of electrical charge measured in amperes, creates a magnetic field. Voltage, which is the force or pressure that causes the current to flow and is measured in units of volts or kV, creates an electric field. Electric fields and magnetic fields considered together are referred to as “EMF.” Both fields occur together whenever electricity flows, hence the general practice of considering both as EMF exposure.

Transmission lines, like all electrical devices and equipment, produce EMFs. Electric field strength is usually constant with a given voltage, while magnetic field strength can vary depending on the electrical load, design of the transmission line, and configuration and height of conductors. Both the magnetic field and the electric field decrease rapidly, or attenuate, with distance from the source.

Over the past 30 years, research has not proven that power frequency EMF exposure causes adverse health effects. However, some non-governmental organizations have set advisory limits as a precautionary measure, based on the knowledge that high field levels (more than 1,000 times the EMF found in typical environments) may induce currents in cells or nerve stimulation. The International Commission on Non-Ionizing Radiation Protection has

established a continuous, magnetic field exposure limit of 0.833 Gauss (or 833 milliGauss [mG]) and a continuous electric field exposure limit of 4.2 kilovolts per meter (kV/m) for members of the general public. The American Council of Governmental Industrial Hygienists publishes Threshold Limit Values (TLV) for various physical agents. The TLV for occupational exposure to 60 Hertz (Hz) magnetic fields has been set as 10 Gauss (10,000 mG) and 25 kV/m for electric fields. Transmission and distribution lines in the U.S. operate at a frequency of 60 Hz, as do household wiring and appliances.

In the home, EMF exposure comes from circuit breaker and meter boxes, electrical appliances, electric blankets, and any cord or wire that carries electricity. The fields are greatest closest to the surface of the cord or appliance and drop rapidly in just a short distance. **Table 3-6** shows typical magnetic fields from common household electrical devices.

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TABLE 3-6
TYPICAL 60 HERTZ MAGNETIC FIELD VALUES FROM COMMON ELECTRICAL DEVICES

Appliance	Magnetic Field 6 Inches from Device (mG)	Magnetic Field 2 Feet from Device (mG)
Washing machine	20	1
Vacuum cleaner	300	10
Electric oven	9	-
Dishwasher	20	4
Microwave oven	200	10
Hair dryer	300	-
Computer desktop	14	2
Computer laptop	5	-
Cell phone (very low frequency only)	5	2
Fluorescent light	40	2

Source: NIEHS 2002
mG: milliGauss

Sources of existing EMF in the vicinity of the study area include existing transmission lines, commercial and agricultural wiring and equipment, and common household wiring and appliances for residences and communities in the area. EMF levels in homes and businesses vary widely with wiring configurations, the types of equipment and appliances in use, and proximity to these sources.

3.11.4.1 *EMF Standards*

No federal regulations have established environmental limits on the strengths of fields from power lines. However, the federal government continues to conduct and encourage research on the issue of EMF.

The State of California Department of Education enacted regulations that require minimum distances between a new school and the edge of a transmission line ROW. The setback distances are 100 feet from the edge of the transmission line ROW for 50-kV to 133-kV lines, 150 feet from the edge of the transmission line ROW for 220-kV to 230-kV lines, and 350 feet from the edge of the transmission line ROW for 500-kV to 550-kV lines. These distances were not based on specific biological evidence, but on the known fact that fields from power lines drop to near background levels at those distances. WAPA follows field-reducing guidelines for designing new and upgraded transmission lines. California has no other rules governing EMF (WAPA 2017).

3.11.4.2 Corona Effects

The electrical effects of a transmission line can be characterized as “corona effects.” Corona is the electrical breakdown of air into charged particles. Corona can occur on the conductors, insulators, and hardware of an energized high-voltage transmission line. Corona on conductors occurs at locations where the field has been enhanced by protrusions, such as nicks, insects, dust, or drops of water. During fair weather, the number of these sources is small, and the corona effect is insignificant. However, during wet weather, the number of these sources

increases, and corona effects are much greater. Effects of corona are audible noise, radio, and television interference, visible light, and photochemical reactions:

- Audible Noise. Corona-generated audible noise from transmission lines is generally characterized as a crackling/hissing noise. The noise is most noticeable during wet weather conditions. Audible noise from transmission lines is often lost in the background noise locations beyond the edge of the ROW;
- Radio and Television Interference. Corona-generated radio interference is most likely to affect the amplitude modulation (AM) receivers located very near to transmission lines have the potential to be affected by radio interference. Television interference from corona effects occurs during bad weather, and is generally only of concern for receivers within about 600 ft of the line;
- Visible Light. Corona is visible as a bluish glow or as bluish plumes. On transmission lines in the area, the corona levels are so low that the corona on the conductors would be observable only under the darkest conditions with the aid of binoculars; and
- Photochemical Reactions. When corona is present, the air surrounding the conductors is ionized and many chemical reactions take place producing small amounts of ozone (O3), while the remaining 10 percent is composed principally of nitrogen oxides (NOx). The maximum incremental ozone levels at ground level produced by corona activity on the transmission lines during bad weather would be less than 1 part per billion (ppb). This level is insignificant when compared to natural levels and their fluctuations.

3.11.5 Worker Safety

Electrical hazards exist to residents, employees, and others within the Project area, including electrical burns or electrocutions. These electrical hazards could occur anywhere near energized conductors or facilities, although they are primarily a concern for construction and maintenance workers.

3.12 TRANSPORTATION/TRAFFIC

Transportation is defined as the system of roadways, highways, and all other transportation networks in the Project vicinity that may be affected by Project activities; this network comprises the study area for transportation and traffic related to the Project and are described below separately for Beale AFB roads and county or private roads.

Traffic relates to changes in the number of vehicles on roadways and highways. The most common way to describe roadway traffic volumes is through the “Level of Service” concept. Level of Service is a general measure of traffic conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. The grades represent the perceptions of drivers and are an indication of the comfort and convenience associated with driving, as well as speed, travel time, traffic interruptions, and freedom to maneuver. Although qualitative, this method of analysis provides a relative measure of traffic volumes in relation to roadway capacity.

3.12.1 Transportation Systems on/to Beale AFB

Regional access to Beale AFB is provided by State Routes (SR) 65, 70, and 20. Five roads provide access to Beale AFB via five gates (Main Gate, Doolittle Gate, Grass Valley Gate, Wheatland Gate, and Vassar Lake Gate). Roads providing access to Beale AFB include North

Beale Road, Hammonton-Smartville Road, Smartville Road, South Beale Road, and Hammonton-Spenceville Road.

The road network on Beale AFB consists of arterials, collectors, and local streets. The arterials that carry the majority of the traffic include Gavin Mandry Drive, Doolittle Drive, Grass Valley Road/Warren Shingle Road, Camp Beale Highway, and J Street. Collector streets connect local streets to arterials and include Arnold and Grumman avenues in the flight line area, A and C streets in the Main Base area, and East and West Garryana streets and Delta Drive in the housing area. The most recent traffic study for Beale AFB showed that all intersections were operating at either an "A" or "B" Level of Service (i.e., free-flow or reasonable free-flow operations) during peak traffic hours.

Other modes of transportation on Beale AFB include pedestrian routes (walkways), bicycle paths, Beale AFB shuttle buses, military passenger-cargo terminals, and Beale AFB railheads. Beale AFB's shuttle bus generally operates regularly during business days with stops in the flight line, Main Base, and housing areas. Beale AFB railheads are used for Beale AFB's locomotive, which is primarily used to move arriving fuel tank cars. There are railhead stations in the southern portion of the flight line area east of J Street and south of Warren Shingle Road. Public mass transportation service in Yuba County was provided by the Yuba/Sutter Transit Authority, which discontinued service to Beale AFB due to a lack of patronage and demand (Beale AFB 2014b).

3.12.2 Yuba County Transportation Systems

SRs 70, 65, and 20 comprise the backbone of Yuba County's regional roadway network and serve the majority of the County's population in Marysville, Wheatland, and unincorporated southern Yuba County. Arterials, collectors, and local roads form the remainder of the County's roadway system. The Yuba County Transportation and Circulation General Plan Update Background Report evaluated main routes, arterials, collectors, and local roads and assigned Level of Service grades for areas of high traffic flow (Yuba County 2007).

Depending on the final route, Hammonton-Smartville Road, North Beale Road, and Erle Roads are the main arterial roads that could be part of a construction vehicle route for the private parcel portions of the study area. All three of these roads have Level of Service grades ranging from "A" to "C" in the vicinity of Beale AFB and extending west from Beale AFB (Yuba County 2007).

The goals, plans, and policies establishing measures of effectiveness for Yuba County's circulation system are contained in the Yuba County General Plan (Yuba County 2011). The most applicable goal related to this Project's potential impact on transportation systems include CD.16, as follows:

> *Maintain a roadway system that provides adequate level of service, as funding allows, and that is consistent with the County's planning, environmental, and economic policies.*

The General Plan further establishes that the adequate Level of Service for County roadways is "D" (Yuba County 2011).

3.13 UTILITIES/SERVICE SYSTEMS

The infrastructure and utility information contained in this section provides an overview of each infrastructure component and a summary of its existing general condition on Beale AFB. This section describes existing utilities for water, sewer and wastewater, storm drainage, electrical, communications, and solid waste on Beale AFB. The study area of analysis for impacts to utilities includes the management processes and utility systems overall that construction or implementation of the Project may affect.

3.13.1 Water Supply

Beale AFB is completely independent from any outside water source. Water is supplied from seven on-Beale AFB wells and is pumped to a new treatment plant. All of the well pumps have been replaced with new submersible pumps. Beale AFB has a total water storage capacity of 5.2 million gallons, with an average demand of 1.28 million gallons per day (mgd) during the winter months and 3.5 mgd during summer months. Water mains consist of PVC, asbestos cement, cast iron, and steel. Beale AFB has funded more than 15 million dollars in upgrades to replace most of the original steel pipe that was causing deterioration in water quality from tuberculation (i.e., formation of small mounds of corrosion products) and iron and manganese deposits. Wells have been renovated and casings grouted to prevent water intrusion from a perched aquifer (Beale AFB 2014b). As of 2014, Beale AFB was using nearly all of the capacity of its water infrastructure.

3.13.2 Sanitary Sewer and Wastewater System

The Beale AFB sanitary sewer system consists of a gravity and force main collection system and a wastewater treatment plant. The collection system consists of approximately 47 miles of sewer main from 6 to 24 inches in diameter. Elevations at Beale AFB are 400 to 500 feet higher on the eastern region of Beale AFB than on the western region. Thus, the majority of the sanitary sewer system is gravity fed. A number of ejector stations serve various facilities on Beale AFB. A wastewater treatment plant was constructed in 1940 and has a rated capacity of 5 mgd (Beale AFB 2018c). The plant treats 0.26 mgd on average, with a peak flow of 2.06 mgd in winter, leaving a residual capacity of 60 percent (Beale AFB 2018c). Effluent from the plant is pumped to the golf course pond or discharged to the 40-acre irrigation fields and is regulated by NPDES Permit Number CA01 10299 (Beale AFB 2018c).

3.13.3 Storm Drainage System

The surface drainage systems for Beale AFB within the Project area are Hutchinson and Reeds creeks. The Northern Alternatives are drained primarily by Reeds Creek, while the Southern Alternative is drained by both Reeds and Hutchinson creeks. The western parameters of these creeks are surrounded by a wide floodplain area. Stormwater runoff is discharged through a system of open roadside ditches, storm sewers, culverts, and pipes. The system includes approximately 49 miles of curbs and gutters, most of which are located in the flight line and military family housing. Stormwater flow is directed to roadside drainage ditches and is discharged into the creeks (Beale AFB 2018b).

Beale AFB stormwater discharges are regulated by a current California Statewide General Industrial Activities Stormwater Discharge Permit (General Permit); the most recently revised General Permit was adopted on April 1, 2014 and is effective as of July 1, 2015 (Beale AFB

2018b). Beale AFB has developed a regularly updated Stormwater Pollution Prevention Plan (SWPPP) to meet the requirements of the General Permit; ensure compliance with federal, state, and local regulations; and reduce the actual and potential releases of pollutants to the stormwater runoff from the Beale AFB installation (Beale AFB 2018b).

3.13.4 Electrical System

PG&E is currently the primary supplier of electrical power to Beale AFB. Power is delivered by three transmission lines to two metering points. These lines enter Beale AFB at the Grass Valley Substation. All substations, with the exception of the Doolittle Drive Substation, have two transformers each which are individually capable of supporting the full load of the substation. The purpose of this Project for Beale AFB is to create a redundant source of electrical power in order to increase reliability of Beale AFB's electrical system and its capability to meet its missions.

In the private lands of the study area, there are two existing PG&E transmission lines running north to south between the existing WAPA transmission line and Beale AFB, meaning that the PG&E transmission lines would need to be crossed by the proposed interconnection line.

3.13.5 Communications Systems

The Beale AFB communications system consists of aerial and underground copper and fiber optic cables. A government-owned, contractor-maintained, buried copper cable plant services the entirety of Beale AFB, except for military family housing units, where the cable plant is exclusively owned and maintained by AT&T. The government-owned copper cable plant was installed in 1989 as part of the Installation Information Digital Distribution System upgrade, which included the acquisition in 1994 of the Pacific Bell plant. Government cabling runs parallel to the previously used Pacific Bell plant, which has not been removed or torn down.

The Beale AFB fiber optic backbone cable system joins local area networks together across Beale AFB and carries the heaviest information transfer traffic. This system is installed in conduits with three spare innerducts (Beale AFB 2014b). The proposed Project includes the installation of additional fiber cables to increase capacity and reliability of the communication system on Beale AFB.

3.13.6 Solid Waste

Beale AFB manages its solid waste in compliance with all federal, state, and local statutes relating to solid waste; the USAF has developed an installation-specific Integrated Solid Waste Management Plan (ISWMP) for Beale AFB that addresses compliance with all applicable statutes (Beale AFB 2018c). For construction activities, the ISWMP states that construction debris and other waste shall be sorted into recyclable and non-recyclable waste streams and that contractors shall transport all solid waste off Beale AFB to an approved landfill or recycling facility (Beale AFB 2018c).

Currently, the USAF has contracted with Recology Yuba Sutter, Inc. for the storage, collection, handling, and disposal of solid waste. The contractor collects and disposes of refuse, yard waste, and wood waste and handles office paper and cardboard recycling for Beale AFB. Once collected, solid waste is transported to the Ostrom Road Landfill, an off-Beale AFB landfill in Wheatland, California (Beale AFB 2018c).

The Ostrom Road Landfill is the anticipated site for the disposal of all solid waste generated during construction activities of the action alternatives. The Ostrom Road Landfill's current plans indicate that the landfill is not at capacity and would not reach capacity until the year 2102 (California RWQCB 2016)[1]. Ostrom Road Landfill's site life calculations are based on a remaining refuse capacity as of 2016 of approximately 24,395,000 tons, which assumes a compacted effective refuse density of 1,395 pounds per cubic yard and accounts for settlement (RWQCB 2016).

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[1] [1] The Ostrom Road Landfill is the primary landfill being used for debris from the Camp Fire. The website was checked in December 2019; no updates or capacity change have been posted.

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter describes potential environmental consequences that may to occur as a result of Project implementation. For the purposes of this EA, the term "impacts" and "effects" are synonymous. Environmental effects described in this chapter are evaluated in terms of duration and intensity:

- *Negligible Effect*—A localized degradation to a resource condition, use, or value that is not measurable or perceptible.
- *Minor Effect*—A measurable or perceptible and localized degradation of a resource's condition, use, or value that is of little consequence or significance.
- *Moderate Effect*—A localized degradation of a resource condition, use, or value that is measurable and has consequences.
- *High Effect*—A measurable degradation of a resource condition, use, or value that is large and/or widespread and could have permanent consequences for the resource.
- *Short-term or Temporary Effect*—An effect that would result in the change of a resource condition, use, or value lasting less than one year.
- *Long-term Effect*—An effect that would result in the change of a resource condition, use, or value lasting more than one year and probably much longer.
- *Direct Effect*—An effect that is caused by the action and occurs at the same time and place as the action.
- *Indirect Effect*—An effect that is caused by the action but occurs later in time or at a different location but is still reasonably foreseeable.
- *Beneficial Effect*—A change that would improve the resource condition, use, or value compared to its current condition, use, or value.

Resource protection measures have been developed to lessen or minimize potential effects to resources. These are inclusive of Applicant Proposed Measure, Project Conservation Measures (PCMs), Standard Operating Procedures (SOPs), Best Management Practices (BMPs), and Avoidance and Minimization Measures (AMMs), collectively referred to as resource protection measures. These measures intend to achieve a common goal of minimizing effects from the Project and the terms are generally used synonymously (PCMs and SOPs are WAPA-specific terms commonly referenced in the biological analysis and when referring to WAPA programs). Resource protection measures are listed at the end of every Chapter 4 section and are collected in **Appendix F**.

4.1.1 Impact Finding Summary

The intent of this EA and subsequent Chapter 4 sections is to provide WAPA and Beale AFB sufficient data and analysis to decide if the Project will have significant impacts. The result of each section describes recommended impact findings using the terms described above; WAPA and Beale AFB will make formal determinations of findings and significance level upon completion of the Final EA.

4.2 AESTHETICS/VISUAL RESOURCES

Impacts to aesthetics and visual resources could be considered significant if any of the following occur as a result of the proposed Project:

- The Project has a substantial adverse effect on a scenic vista.
- The Project substantially damages scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.
- The Project substantially degrades the existing visual character or quality of the site and its surroundings.
- There is the creation of a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.2.1 Preferred Alternative (Northern B Alternative)

Since there are no designated scenic viewpoints or vistas within 10 miles of the Project area, nor are there scenic highways or byways within 20 miles of the Project area, or recreation areas within line of sight of the Project area (see Section 3.2, Aesthetics/Visual Resources Affected Environment), the Preferred Alternative would have no impact on the aesthetic resources associated with scenic viewpoints, vistas, highways, or byways, including trees, rock outcroppings, and historic buildings.

Because several power lines are already present in the Project area, the construction activities and facilities of the proposed Project are not expected to substantially degrade the visual character or quality of the Project area. Visual resources impacts would primarily affect those residents closest to the alignment (see Section 3.2, Aesthetics/Visual Resources Affected Environment) and would be long term and minor.

Within Beale AFB, the transmission lines are generally consistent with the developed context of Beale AFB, and therefore, impacts of the Preferred Alternative to visual resources on Beale AFB would be negligible. Additionally, the Preferred Alternative would not produce any new source of substantial light or glare which could adversely affect day or nighttime views in the area.

There would be no impacts to aesthetics and visual resources from O&M activities, as the facilities would already be in place and visible to observers and protection measures require facility replacement to be in kind.

These impact findings do not exceed the significance thresholds listed above for aesthetics and visual resources.

4.2.2 Northern A Alternative

The Northern A Alternative is comprised of the same facility types as the Preferred Alternative and is sited only one-half mile from the Preferred Alternative; therefore, impacts from the Northern A Alternative would be nearly identical to the Preferred Alternative. That is, no impacts to scenic viewpoints, vistas, highways, and byways; long-term, minor impacts to nearby residents off Beale AFB; negligible impacts to visual resources on Beale AFB; and no impacts from O&M activities.

4.2.3 Southern Alternative

The Southern Alternative is comprised of the same facility types as the Preferred Alternative and is sited only 3.25 miles from the Preferred Alternative; therefore, impacts from the Southern Alternative would be nearly identical to the Preferred Alternative. The only exception is that, since a larger portion of the Southern Alterative follows private land than the other action alternatives, there would be slightly more sensitive viewing locations. The Southern Alternative would have no impacts to scenic viewpoints, vistas, highways, and byways; long-term, minor impacts to nearby residents off Beale AFB; negligible impacts to visual resources on Beale AFB; and no impacts from O&M activities.

4.2.4 Aesthetics/Visual Resources Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts to aesthetics/visual resources:

VR-1	Material storage and staging areas will be selected to minimize views from public roads, trails, and nearby residences to the extent feasible. During O&M, the work site will be kept clean of debris and construction waste. For areas where excavated materials will be visible from sensitive viewing locations, excavated materials will be disposed of in a manner that is not visually evident in coordination with the landowner (as appropriate) and in compliance with applicable regulations.
VR-2	Replacement structures and hardware (e.g., conductors and insulators) will be replaced in kind, to the extent feasible, while ensuring that structures and hardware that are visible from sensitive viewing locations will have appropriate colors, finishes, and textures to most effectively blend into the visible landscape. If structures are visible from more than one sensitive viewing location and backdrops are substantially different from different vantage points, the darker color, which tends to blend better into landscape backdrops, will be selected.
VR-3	Maintenance operations will be conducted in a manner that limits unnecessary scarring or defacing of the natural surroundings to preserve the natural landscape to the extent possible.

4.2.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to aesthetic or visual resources.

4.3 AGRICULTURE AND FORESTRY RESOURCES

Impacts to agriculture and forestry resources could be considered significant if any of the following occur as a result of the proposed Project:

- The Project converts Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use.
- There is conflict between the Project and existing zoning for agricultural use or a Williamson Act contract.
- The Project conflicts with existing zoning for, or causes rezoning of, forest land (as defined in PRC section 12220(g)), timberland (as defined by PRC section 4526), or

timberland zoned Timberland Production (as defined by Government Code section 51104(g)).

- The Project results in the loss of forest land or conversion of forest land to non-forest use.
- There are other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

4.3.1 Preferred Alternative (Northern B Alternative)

4.3.1.1 Forestry Resources

Since forest land, timberland, or timberland zoned Timber Production areas are not located in or adjacent to the Preferred Alternative (see Section 3.3, Agriculture and Forestry Resources Affected Environment), no impacts to forestland are anticipated.

4.3.1.2 Agriculture

All private land along the Project area that is not within the developed footprint of existing roads, houses, or agricultural buildings is classified as either Unique Farmland or Farmland of Statewide Importance and thus, is recognized as Important Farmland by the California DOC (see Section 3.3, Agriculture and Forestry Resources Affected Environment).

Zoning and Non-use of Agricultural Land

All private parcels within the study area have been zoned by Yuba County as NRA, which is consistent with the allowed use of "public facilities and infrastructure." Consistent with the NR designation, the surrounding land would continue to be used primarily for agriculture. All private parcels within the study area have also been zoned AE-80; contingent on the issuance of a Yuba County Conditional Use Permit, the Project would not conflict with existing plan designations or zoning for agriculture.

The Preferred Alternative's long-term impacts to Important Farmland would result from the permanent conversion of 0.061 acre of Important Farmland that would be dedicated to the footings for either the monopoles or the H-frame structures. There are 84,950 acres of Important Farmland in Yuba County (DOC 2019a); the permanent conversion of Important Farmland that would occur under the Preferred Alternative amounts to a long-term disturbance of 0.000071 percent of the Important Farmland that remains in Yuba County.

For the construction period, WAPA would negotiate compensated non-planting agreements with affected farmers for their lands so that construction could proceed without creating safety risks. Per the negotiated non-planting agreements, agricultural fields adjacent to the alignment would need to be drained for the duration of construction; therefore, the Preferred Alternative would include the temporary non-use of approximately 260 acres of Important Farmland for a period of 16 months, assuming the 5-acre staging and laydown area would be temporarily located on Important Farmland.

With the exception of permanent infrastructure locations, all areas affected by construction activities would be rehabilitated and returned to agricultural production subsequent to construction by agreements with private landowners. Therefore, impacts to agriculture are

expected to be long term and negligible (conversion of 0.061 acre of Important Farmland) and short term and moderate non-use of approximately 260 acres of Important Farmland during construction). Construction impacts to Important Farmland would be considered short term and moderate. Project O&M activities would be performed from existing access roads and disturbance is not expected to agricultural lands; any impacts would be discussed and conditioned during WAPA's easement negotiations with landowners; no impacts from O&M activities are expected.

Farming Operations

In agricultural areas, the aerial application of seeds and pesticides via aircraft is conducted regularly. The Preferred Alternative would be located an area where aerial application is conducted over rice and alfalfa fields. Crop dusters would need to make additional passes around transmission lines and structures to achieve the same coverage as fields without structures and transmission lines. Rice fields often require 5 aerial applications during planting.

Impacts on the ground would include additional passes for tilling, planting, and harvesting to maneuver around structures. Many landowners have described the nuisance to farming practices due to increased weed control around towers, inefficient aerial spraying, difficulty setting up and tearing down irrigation lines to go around towers, additional pruning under transmission lines, and lack of opportunity for planning future orchards under ROWs.

Leasing duck blinds during the hunting season is another source of revenue for farmers; compensation varies based on a location. Desirable locations for duck blinds may be impacted by the presence of new transmission lines and towers, which may impact the viability of this revenue source for the landowner.

All these concerns, aerial seeding, harvesting practicing, and duck hunting, would be considered and compensated by WAPA during negotiations landowners for the purchase of easements. Impacts to farming operations are expected to be long term and minor.

Grazing

The Preferred Alternative area overlaps with one grazing unit in the Beale AFB Grazing Management Program (Beale AFB 2019); a portion of this area would be closed to grazing during the construction period, reopening to grazing again after construction is complete. The Preferred Alternative would have a short-term, negligible impact to agricultural grazing on Beale AFB.

These impact findings do not exceed the significance thresholds listed above for forestry and agricultural resources.

4.3.2 Northern A Alternative

The Northern A Alternative is comprised of the same facility types as the Preferred Alternative and is sited only one-half mile from the Preferred Alternative; therefore, impacts to forestry and agriculture from the Northern A Alternative would be nearly identical to the Preferred Alternative. That is, no impacts to forestry resources; long-term, minor to negligible impacts (conversion of 0.065 acre of Important Farmland [the Northern A Alternative may require one addition structure than the Preferred Alternative]) and short term and moderate (temporary non-use of 260 acres

during construction) to agricultural land; long-term, minor impacts to farming operations; and short-term, negligible impacts to grazing.

4.3.3 Southern Alternative

The Southern Alternative is comprised of the same facility types as the Preferred Alternative and is sited only 3.25 miles from the Preferred Alternative; therefore, impacts from the Southern Alternative would be nearly identical to the Preferred Alternative. The only exception is that, since a larger portion of the Southern Alterative follows private land than the other action alternatives, there would be slightly more temporary disturbance related to draining fields during construction. That is, no impacts to forestry resources; long-term minor to negligible impacts (conversion of 0.061 acre of Important Farmland) and short term and moderate (temporary non-use of 284 acres during construction) to agricultural land; long-term, minor impacts to farming operations; and short-term, negligible impacts to grazing.

4.3.4 Agricultural and Forestry Resources Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts to forestry and agricultural resources:

AG-1	WAPA will negotiate compensated non-planting agreements with farmers for parcels affected by Project construction.
AG-2	With the exception of permanent infrastructure locations, all areas affected by construction activities will be rehabilitated and returned to agricultural production subsequent to construction.
AG-3	WAPA will consider and compensate farmers for impacts to farming operations (e.g., aerial seeding) during negotiations with the landowners for the purpose for the ROW easement.

4.3.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to forestry or agriculture.

4.4 AIR QUALITY, GHG EMISSIONS, AND CLIMATE CHANGE

Impacts to air quality, GHG emissions, and climate change could be considered significant if any of the following occur as a result of the proposed Project:

- Implementation of the preferred alternative or any of the alternatives conflicts with or obstructs an applicable air quality plan.
- There is a cumulatively considerable net increase of any criteria pollutant for which the Project region is at non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O_3 precursors).
- Sensitive receptors are exposed to substantial pollutant concentrations.
- Objectionable odors affecting a substantial number of people are created.
- GHG emissions, either directly or indirectly, are generated that may have a significant impact on the environment.

- There is a conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions.

Impacts from the implementation of the Preferred Alternative were modeled using the Air Conformity Applicability Model (ACAM), which is the standard model used for assessing air quality impacts from actions taken at USAF bases. Based on discussions with WAPA and Beale AFB, it was decided that the Project should use the model preferred by the USAF rather than the California Emissions Estimator Model, the current model adopted by FRAQMD policy for emissions estimation (personal communication Saare 2019).

The model was used to run a single scenario for construction that assumed the "worst case," i.e., the longest length of transmission line to be installed and longest construction time among the alternatives, including all phases of Project construction. This approach was used to simplify the modeling efforts and because the approach used for all three alternatives is similar enough to warrant a single analysis for the purpose of assessing air quality impacts. The full ACAM report is included as **Appendix L**.

Impacts from ongoing O&M activities are not assessed by the ACAM model, as there is not an easy way to incorporate these impacts directly into the model. However, these emissions are relatively inconsequential. Air quality impacts from ongoing O&M of the transmission line are assessed separately for all alternatives.

4.4.1 Preferred Alternative (Northern B Alternative)

Yuba County is in a federal maintenance area for $PM_{2.5}$. The County is in a state nonattainment area for PM_{10} and O_3 (see Section 3.4, Air Quality Affected Environment). Effects could be considered significant if the Project results in a cumulatively considerable net increase to any of these three criteria pollutants. The subsequent sections separately assess impacts from the construction phase, operational phase of the Project, and to overall GHG emissions and climate change.

Neither WAPA nor Beale AFB are current Title V permit holders. If impacts to air quality, as described below, exceed Title V thresholds, a Title V permit would be obtained.

4.4.1.1 Construction Air Quality Impacts

Fugitive dust emissions would be generated by the activities under the Preferred Alternative. Project activities would also create air pollutant emissions from grading, excavation, and trenching activities and from the use of construction equipment and generators. Additional emissions would result from vehicle trips for laborers, local vendors, and hauling of materials to the Project site. Labor and local vendors are assumed to come from the local area, while other materials for the construction of the Project are assumed to be transported in by semi-truck. The construction duration for each Project phase, daily work schedule, and equipment usage from the Project description were used as the inputs for the ACAM model.

ACAM modeling was performed for all three alternatives. The results show that General Conformity thresholds are not exceeded for any of the criteria pollutants for the Preferred Alternative (see **Appendix L**). The results on an annual basis are given in **Table 4-1**.

TABLE 4-1
ACAM AIR QUALITY RESULTS—PREFERRED ALTERNATIVE

Criteria Pollutant	2021 Emissions (tons)	2022 Emissions (tons)	2023 Emissions (tons)	Exceedance (without mitigation)
VOC	0.223	0.516	0.817	No[1]
NO_x	1.429	3.265	4.964	No[1]
CO	1.509	3.474	4.966	No
SO_x	0.005	0.010	0.014	No
PM_{10}	4.001	9.716	84.170	Yes[2]
$PM_{2.5}$	0.057	0.131	0.196	No
Pb	0.000	0.000	0.000	No
Ammonia	0.002	0.003	0.003	No
CO_{2e}	432.8	914.3	1403.8	No

[1]VOC and NO_x impacts may be averaged over the Project lifetime according to the FRAQMD ISR.
[2]Impacts are considered less than significant once applicable FRAQMD mitigation is applied.

Based on the ACAM modeling results obtained, emissions from construction activities do exceed the annual limits of 4.5 tpy for NO_x for the Preferred Alternative for at least one year; however, based on the FRAQMD ISR guidelines, construction impacts for NO_x and VOC can be averaged out over the life of the Project when determining the average annual emissions. Assuming a Project lifespan of 30 years, the Preferred Alternative would generate 0.32 ton of NO_x and 0.05 ton of VOC annually. This is below annual significance thresholds for both criteria pollutants based on the FRAQMD guidelines. These guidelines are based on the General Conformity thresholds of rule 10.4 adopted by the FRAQMD in 1994.

The annual limit of 14.6 tpy (annual equivalent of the daily limit of 80 pounds per day) for PM_{10} is exceeded for model year 2023 during the construction phase of the Project.

The daily threshold of 80 pounds of PM_{10} is exceeded during the construction phase of the Project. Unlike with VOC and NO_x, the FRAQMD ISR guidelines do not allow these impacts to be averaged out over the lifetime of the Project. Without mitigation, Project construction activities would exceed the FRAQMD standard of 14.6 tpy (as 80 pounds per day of PM_{10}). This would be considered a significant impact unless FRAQMD best management practices (BMPs) are applied. The measures listed in Section 4.4.4 will minimize the potential for PM_{10} emissions to reach significance.

The FRAQMD ISR guidelines state that if the operational emissions of a project do not exceed the operational thresholds but the construction phase emissions exceed the construction thresholds of 25 pounds per day of NO_x or ROG (averaged over the length of the Project) or 80 pounds per day of PM_{10}, additional Best Available Mitigation Measures are to be incorporated. These are listed in Section 4.4.5, Air Quality Protection Measures, in addition to the FRAQMD standard mitigation measures that apply to projects that do not exceed any operational thresholds.

The listed measures include the acknowledgement and application of the fugitive dust control plan during Project activities. The plan requires that "every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates" (FRAQMD 2020). The measures also include the requirement that the construction sites will be watered as directed by the Department of Public Works or Air Quality Management District, that an operational water truck be available at all times, and that on-site soil piles be covered or stabilized. Wheel washers are required where Project vehicles exit onto paved streets, and paved streets used by the Project are required to be swept frequently. If winds exceed 20 miles per hour or fugitive dust is still carried beyond the property line with all feasible dust control measures applied, Project activities are to be suspended.

The best available mitigation measures developed for the construction phase are based on strategies that have been studied for decades that are quite stringent due to the fact that the FRAQMD is a state nonattainment area for PM_{10}. The standard measures of using existing power sources, limiting idling times to 5 minutes, and CARB registration is to ensure that PM_{10} emissions from construction equipment are limited to the greatest extent feasible.

The effectiveness of applying soil stabilizers to unpaved roads and surfaces has been studied extensively. A report prepared for the California Regional Particulate Air Quality Study (CRPAQS) in the 1990s demonstrated that some polymer and petroleum-based suppressants had an 80 to 93 percent effectiveness at reducing fugitive dust emissions (DRI 1996). The Western Regional Air Partnership Fugitive Dust Handbook estimates this control efficiency at 84 percent (WRAP 2006).

Although not directly addressed in the CRPAQS, the analysis also shows a 44 percent reduction in the amount of dust generated on untreated roads when speeds were reduced from 35 miles per hour to 25 miles per hour (DRI 1996). The Project mitigation measures require that vehicle speeds on unpaved surfaces be limited to 15 miles per hour, which will provide significant reduction in particulate emissions. The 15-mile-per-hour limit on its own has been shown to result in a 57 percent control efficiency of PM_{10} emissions (WRAP 2006). The efficacy of water application to unpaved surfaces varies substantially with a control efficiency between 10 and 74 percent. Eliminating track out using the wheel washers and sweeping up remaining deposits is highly effective as well (WRAP 2006).

For the purposes of ensuring all BMPs and mitigation measures are properly implemented, the Project requires the presence of an environmental monitor on the Project site. The construction contractor will be required to implement all BMPs and mitigation measures as part of the terms of their contract. The on-site monitor provides enforcement of these required measures. Additionally, the FRAQMD will be allowed to monitor the Project work sites to ensure that their required air quality measures are being effectively implemented. The environmental monitor will have stop work authority if measures are not effectively implemented. The FRAQMD representative would have the ability to issue air quality violations if they observe the standards not being met.

Based on the results of the ACAM and the comparison to the General Conformity requirements, the Preferred Alternative could potentially result in a significant increase of PM_{10} based on the thresholds set by the FRAQMD. However, with the BMPs and best available mitigation measures that have been developed for addressing particulate matter pollution properly applied, the Project is unlikely to conflict with either of these applicable air plans and is not anticipated to

result in a cumulatively considerable net increase in criteria pollutants or contribute substantially to any current air quality violation.

The local effects of construction air pollutant emissions, whether these would result in sensitive receptors being exposed to substantial pollutant concentrations or objectionable odors, must also be considered. Given the location of the Project in an agricultural area, at least 0.25 mile from any concentrated residential housing, schools, hospitals, or other sensitive receptors, the emissions generated are not in close enough vicinity to cause these impacts.

Based on the air quality modeling, the General Conformity analysis, and the implementation of the standard minimization measures recommended by the FRAQMD, impacts to air quality are considered short term and less than significant with mitigation.

4.4.1.2 Operational Air Quality Impacts

While O&M activities were not incorporated into the ACAM model, it is not anticipated that O&M of the transmission line would have any appreciable impacts on air quality. To assess the maintenance impacts, data from 2017 maintenance efforts across all WAPA SNR transmission lines was analyzed to determine the average maintenance the Project may require. The average usage in hours per mile for each piece of equipment was used to estimate the total number of hours for off-road equipment maintenance usage. On-road vehicle mileage was used to estimate the number of miles per year that would be driven by on-road vehicles as a part of maintenance activities. These were used to estimate O&M emissions using available reference data for g/mile and g/hour of each pollutant for on-road and off-road equipment, respectively.

The result of this effort concluded that on an average year, the Project would require approximately 88 miles of on-road vehicle usage and less than an hour of off-road vehicle usage. The emissions generated over the course of 1 year from this minimal usage is less than 1/10th of a ton of CO_2 and an insignificant amount of other pollutants. Operational air quality impacts from the Project are considered long term and negligible to none.

4.4.1.3 GHG and Climate Change Impacts

GHG emissions are a known contributor to climate change. Climate change is an inherent cumulative global effect that cannot be attributed to a single, discrete project. All projects that produce GHGs result in incremental effects. The only appreciable amount of CO_2 generated by the Preferred Alternative occurs during the construction phase of the Project. From project years 2021 to 2023, a total of approximately 2,781 tons (2,522 metric tons) of CO_{2e} are anticipated to be released into the environment from the Preferred Alternative. CO_{2e} emissions for all Project alternatives are similar. To put this figure in context, 2,781 tons of CO_{2e} is the equivalent to the annual emissions of 550 average passenger vehicles.

If operated under the required sulfur hexafluoride CARB reporting requirements (see Section 3.4, Air Quality Affected Environment), a requirement that WAPA already adheres to for their substations, the Preferred Alternative would have short-term negligible to no impacts on GHG emissions and climate change.

These impact findings do not exceed the significance thresholds listed above for air quality, GHG emissions, and climate change.

4.4.2 Northern A Alternative

The ACAM modeling results show that General Conformity thresholds are not exceeded for any of the criteria pollutants for the Northern A Alternative (see **Appendix L**). The results on an annual basis are given in **Table 4-2**.

TABLE 4-
ACAM AIR QUALITY RESULTS—NORTHERN A ALTERNATIVE

Criteria Pollutant	2021 Emissions (tons)	2022 Emissions (tons)	2023 Emissions (tons)	Exceedance (without mitigation)
VOC	0.223	0.533	0.817	No[1]
NO_x	1.429	3.365	4.965	No[1]
CO	1.509	3.634	4.966	No
SO_x	0.005	0.010	0.014	No
PM_{10}	4.001	15.621	94.108	Yes[2]
$PM_{2.5}$	0.057	0.135	0.196	No
Pb	0.000	0.000	0.000	No
Ammonia	0.002	0.003	0.003	No
CO_{2e}	432.8	944.1	1404.1	No

[1]VOC and NO_x impacts may be averaged over the Project lifetime according to the FRAQMD ISR.
[2]Impacts are considered less than significant once applicable FRAQMD mitigation is applied.

The thresholds are exceeded for PM_{10}, NO_x, and VOC, similar to the Preferred Alternative; however, the NO_x and VOC thresholds are acceptable based on FRAQMD analysis methodology. The ability to average construction impacts over the Project life cycle is described in the analysis of the Preferred Alternative impacts in Section 4.4.1.1. The PM_{10} impacts are greater for the Northern A Alternative than for the Preferred Alternative; however, these can also be mitigated the same way as described for the Preferred Alternative, using the FRAQMD BMPs described in their ISR guidelines.

Given the similar length of transmission line, similar construction techniques and timeline, the construction and operational air quality impacts of the Northern A Alternative are not estimated to differ substantially from the Preferred Alternative. That is, short-term and negligible to no impacts from the construction phase, long-term negligible to no impacts from the O&M phase, and short-term negligible to no impacts overall to GHG emissions and climate change.

4.4.3 Southern Alternative

The ACAM modeling results show that General Conformity thresholds are not exceeded for any of the criteria pollutants for the Southern Alternative (see **Appendix L**). The results on an annual basis are given in **Table 4-3**.

**TABLE 4-
ACAM AIR QUALITY RESULTS—SOUTHERN ALTERNATIVE**

Criteria Pollutant	2021 Emissions (tons)	2022 Emissions (tons)	2023 Emissions (tons)	Exceedance (without mitigation)
VOC	0.223	0.480	0.730	No[1]
NO_x	1.429	3.036	4.334	No[1]
CO	1.509	3.248	3.761	No
SO_x	0.005	0.009	0.013	No
PM_{10}	2.389	3.447	87.047	Yes[2]
$PM_{2.5}$	0.057	0.122	0.170	No
Pb	0.000	0.000	0.000	No
Ammonia	0.002	0.003	0.003	No
CO_{2e}	432.8	860.9	1285.5	No

[1]VOC and NO_x impacts may be averaged over the Project lifetime according to the FRAQMD ISR.
[2]Impacts are considered less than significant once applicable FRAQMD mitigation is applied.

The thresholds are exceeded for PM_{10}, similar to the Preferred Alternative and Northern A Alternative; however, the PM_{10} threshold exceedance can be mitigated the same way as described for the Preferred Alternative, by applying the BMP detailed in the ISR guidelines. Unlike the other alternatives, the Southern Alternative does not result in an annual exceedance of NO_x and VOC, even during construction.

Given the similar length of transmission line, similar construction techniques, and timeline, the construction and operational air quality impacts of the Southern Alternative are not estimated to differ substantially from the Preferred Alternative. That is, short-term and negligible to no impacts from the construction phase, long-term negligible to no impacts from the O&M phase, and short-term negligible to no impacts overall to GHG emissions and climate change.

4.4.4 Air Quality, GHG Emissions, and Climate Change Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts to air quality, GHG emissions, and climate change.

AQ-1	Implement the Fugitive Dust Control Plan from the FRAQMD ISR Guidelines.
AQ-2	Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions limitations (40 percent opacity or Ringelmann 2.0). On-road and off-road equipment shall meet the mobile source strategy requirements of the California State Implementation Plan.
AQ-3	The contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of on-site operation.
AQ-4	Limit idling time to 5 minutes—saves fuel and reduces emissions (state idling rule: commercial diesel vehicles—13 CCR Chapter 10, Section 2485, effective 02/01/2005; off-road diesel vehicles—13 CCR Chapter 9, Article 4.8, Section 2449, effective 05/01/2008).

AQ-5	Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.
AQ-6	Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
AQ-7	Portable engines and portable engine-driven equipment units used at the Project work site, with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment Registration with the state or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with the CARB or the district to determine registrations and permitting requirements prior to equipment operation at the site.
AQ-8	WAPA will adhere to all requirements of those agencies having jurisdiction over air quality matters, and any necessary permits for O&M will be obtained.
AQ-9	Machinery and vehicles will be kept in good operating condition, and older equipment will be replaced with equipment meeting more stringent California emission standards; appropriate emissions-control equipment will be maintained for vehicles and equipment, per California, EPA, and WAPA air-emission requirements.
AQ-10	Idle equipment will be shut down when not in active use; visible emissions from stationary generators will be controlled.
AQ-11	Dust-control measures will be implemented in road construction and maintenance as needed. Lose material will be covered when being transported in trucks, or the trucks will maintain at least 2 feet of freeboard and will not create any visible dust emissions.
AQ-12	There will be no open burning of construction trash.
AQ-13	Grading activities will cease during periods of high winds (as determined by local AQMDs).
AQ-14	Major operations will be avoided on days when the local Air Quality Index is expected to exceed 150.
AQ-15	The mitigation measures that apply to PM_{10}, as the threshold of 80 pounds per day is exceeded, shall be implemented: • All grading operations on a Project should be suspended when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures • Construction sites shall be watered as directed by the Department of Public Works or AQMD and as necessary to prevent fugitive dust violations • An operational water truck should be available at all times. Apply water to control dust as needed to prevent visible emissions violations and off-site dust impacts • On-site dirt piles or other stockpiled particulate matter should be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce windblown dust emissions. Incorporate the use of approved non-toxic soil stabilizers according to manufacturer's specifications to all inactive construction areas • All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions • Apply approved chemical soil stabilizers according to the manufacturers' specifications to all-inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/ equipment parking areas

	• To prevent track-out, wheel washers should be installed where Project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out • Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved public thoroughfares from the Project site • Reduce traffic speeds on all unpaved surfaces to 15 miles per hour or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, on-site enforcement, and signage • Reestablish ground cover on the construction site as soon as possible and prior to final occupancy through seeding and watering • Disposal by burning: Open burning is yet another source of fugitive gas and particulate emissions and shall be prohibited at the Project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (trash, demolition debris, etc.) may be conducted at the Project site. Vegetative wastes should be chipped or delivered to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off-site for disposal by open burning

4.4.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to air quality. However, without the construction of the WAPA interconnection line to Beale AFB, in the event of a power outage or emergency, electrical service at Beale AFB would only be achievable by the use of on-site generators. Use of these generators within the permitted time allotment would result in an increase in localized, short-term emissions.

4.5 BIOLOGICAL RESOURCES

This section evaluates potential effects from the proposed Project to biological resources in the Project area, as described in Section 3.5, Biological Resources Affected Environment. The study area for biological resources extends between 325 and 400 feet from each alternative corridor (inclusive of poles/pole foundations, underground facilities, substations, and access roads) to capture any biological resources that may be directly or indirectly impacted by Project activities. Biological resources within these corridors are analyzed below.

4.5.1 Vegetation Communities (Including Wetlands)

Several vegetation and wetland community types occur within the Project area (see Section 3.5.2, Vegetation Communities Affected Environment). The following sections evaluate potential impacts to vegetation communities and wetlands resulting from the Project and lists established AMMs and BMPs intended to prevent adverse impacts to these resources.

Impacts to vegetation or wetlands could be considered significant if any of the following occur as a result of the proposed Project:

Vegetation Communities

- The Project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or USFWS.
- The Project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or USFWS.
- The Project would have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, or coastal wetlands) through direct removal, filing, hydrological interruption, or other means. A substantial adverse effect, as it relates to federally protected wetlands, is considered permanent impacts to greater than 0.5 acre of wetlands. This threshold level was chosen because it is defined by USACE to classify utility line impacts as "substantial" under Nationwide Permit 12 guidelines.
- The Project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- The Project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- The Project would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.
- Loss of rare plants, native plant communities, and other sensitive features identified by a federal resource agency.
- Loss of any population of plants that would result in a species being listed or proposed for listing as threatened or endangered under federal or applicable state law (impacts to threatened and endangered species are analyzed in Section 4.5.4, Special-Status Wildlife).
- Introduction or increase in the spread of noxious weeds.
- Noxious weed infestations replacing native plant communities that harbor sensitive plants and/or plants protected under applicable state law.

Wetlands

- Degradation or loss of any federal or state protected wetland(s), as defined by Section 404 of the CWA or other applicable regulations.
- Indirect loss of wetlands or riparian areas caused by degradation of water quality, diversion of water sources, or erosion and sedimentation resulting from altered drainage patterns.

4.5.1.1 Preferred Alternative (Northern B Alternative)

Upland Vegetation Communities

Impacts to vegetation would include permanent removal due to structure foundations and temporary disturbance during Project construction. The Preferred Alternative would include the permanent removal of 10.07 acres of upland vegetation habitats (annual grasslands, agriculture,

barren, and urban) for proposed structures and new access roads, and temporary disturbance of 46.23 acres of upland habitats from Project construction activities.

Temporary impacts may also occur during subsequent O&M activities. Introduction of noxious weed species is not anticipated since weed-free construction and erosion materials and seeds would be utilized. Non-native plant species already on-site may recolonize newly disturbed areas.

Impacts to upland vegetation from the Preferred Alternative would be minor and would include both long-term (permanent removal) and short-term (temporary disturbance) impacts.

Wetland Vegetation Communities

Impacts to seasonal wetland habitats (potentially jurisdictional roadside ditches) would result from the installation of 6 new culverts for new access roads and the replacement of 8 culverts on existing roads. Disturbance to wetland habitat as a result of culvert work would include 0.05 acre of permanent impacts and 0.02 acre of temporary impacts to ditches.

Impacts to wetlands from the Preferred Alternative would be minor and include both long-term (permanent removal) and short-term (temporary disturbance) impacts. Permanent wetland losses are far less than the 0.5 acre significance threshold defined above and would equate to less than 0.01 percent of all wetland habitats on Beale.

4.5.1.2 Northern A Alternative

Impacts to vegetation and wetlands from the Northern A Alternative would be very similar to the Preferred Alternative.

Upland Vegetation Communities

Impacts to upland vegetation from the Northern A Alternative would be minor and include long-term (permanent removal of 10.05 acres) and short-term (temporary disturbance of 46.17 acres) impacts.

Wetland Vegetation Communities

Impacts to seasonal wetland habitats would be due to culvert work and would include 0.05 acre of permanent impacts and 0.02 acre of temporary impacts to ditches. Noxious weeds would be managed as described under the Preferred Alternative.

Impacts to wetlands from the Northern A Alternative would also be minor, with both long-term (permanent removal) and short-term (temporary disturbance) impacts. Permanent wetland losses are far less than the 0.5 acre significance threshold defined above and would equate to less than 0.01 percent of all wetland habitats on Beale.

4.5.1.3 Southern Alternative

Upland Vegetation Communities

Impacts to vegetation from the Southern Alternative would be very similar to the Preferred Alternative, with the only difference the acreages of permanent and temporary disturbance. The Southern Alternative would include the permanent removal of 7.64 acres of upland vegetation

habitats and the temporary disturbance of 38.47 acres of upland habitats. Noxious weeds would be managed as described under the Preferred Alternative.

Impacts to upland vegetation from the Southern Alternative would be minor and include both long-term (permanent removal) and short-term (temporary disturbance) impacts.

Wetland Vegetation Communities

Impacts to seasonal wetland habitats would also occur with 0.03 acre of permanent impacts to vernal pools, 0.01 acre of permanent impacts to ditches from new culverts, and 0.03 acre of temporary impacts to ditches from new culvert installation.

Impacts to wetlands from the Southern Alternative would also be minor, with both long-term (permanent removal) and short-term (temporary disturbance) impacts. Permanent wetland losses are far less than the 0.5 acre significance threshold defined above and would equate to less than 0.01 percent of all wetland habitats on Beale.

4.5.1.4 Habitat and Vegetation Protection Measures

The following resource protection measures, which are comprised of BMPs, SOPs, AMMs, and PCMs that have been renumbered specific to this EA, will be implemented to avoid or lessen impacts to vegetation:

BIO-1	**Vernal Pools, Vernal Pool Grasslands, and Seasonal Wetlands** Vehicle access will be permitted only on well-established roads unless soils are dry. Soils will be considered sufficiently dry for vehicle access when they resist compaction and after annual plants have set seed (generally May 1 to October 31, or as determined by qualified personnel based on personal observation of the soils). For patrolling the ROW off of established roads in a pickup truck or for inspecting hardware on structures with a bucket truck, vernal pools, vernal pool grasslands, and seasonal wetlands will be avoided by 50 feet. All equipment will be stored, fueled, and maintained in a designated vehicle staging area with appropriate spill containment. These designated areas will be established on previously developed areas whenever possible. Undeveloped staging areas, if any, will be the maximum distance possible from any vernal pool, vernal pool grassland, or seasonal wetland. Prior to the onset of work, workers will ensure a plan to allow a prompt and effective response to any accidental spills is in place. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. When feasible, all maintenance activities will be routed around wet areas while ensuring that the route does not cross sensitive resource areas. A 50-foot buffer zone from the edge of the vernal pool or wetland will be maintained and the vernal pool or wetland will be protected from siltation and contaminant runoff by use of erosion control. Where hydrological continuity exists between wetlands, work can occur within 25 feet of a wetland/drainage/vernal pool as long as erosion control measures (e.g., straw wattles, silt fencing) are installed. A USFWS-approved biologist or natural resources monitor will determine whether erosion control measures should be utilized, weighing the potential for impacts to other species. Construction boundaries

	within the buffer will be designated with fencing or other suitable means to ensure no equipment and/or construction workers access protected wetland resources. If vegetation-management activities are proposed within 250 feet of a vernal pool, vernal pool grassland, or seasonal wetland, a qualified biologist will be present at all times to ensure the protection of the work-area limits in the below bullets OR qualified personnel will clearly fence the limits of the work area, according to limits presented in the following, prior to the maintenance activity (the herbicide restriction measures generated by the PRESCRIBE database supersede those below where they are different.). • Mixing or application of pesticides, herbicides, or other potentially toxic chemicals will be prohibited • Herbicide application to target vegetation by direct application methods (e.g., injection or cut-stump treatment) will be prohibited within 50 feet in the wet season (generally October 1 to May 31) and allowed up to the edge of the pool or seasonal wetland in the dry season (generally June 1 to September 30) • Herbicide application by basal spray and foliage spray methods will be prohibited within 100 feet in any season • Herbicide use will conform to Beale AFB's Weed Management Plan and allowed weed treatment methods • Manual clearing of vegetation (chainsaw, axe, clippers) will be allowed up to the edge of the pool or seasonal wetland in the wet season (generally October 1 to May 31); a buffer will not be necessary in the dry season (generally June 1 to September 30) • Mechanical clearing of vegetation (heavy-duty mowers, crawler tractors, or chippers) will be prohibited within 100 feet in the wet season (generally October 1 to May 31); a buffer will not necessary in the dry season (generally June 1 to September 30)
BIO-2	**<u>Seep, Spring, Pond, Lake, River, Stream, and Marsh</u>** The following activities will be prohibited at all times within 100 feet of a seep, spring, pond, lake, river, stream, marsh, or their associated habitats: • Vehicle access, except on existing access and maintenance roads • Mixing of pesticides, herbicides, or other potentially toxic chemicals • Open petroleum products All equipment will be stored, fueled, and maintained in a designated vehicle staging area with appropriate spill containment. These designated areas will be previously developed areas whenever possible. Undeveloped staging areas, if any, will be the maximum distance possible from any seep, spring, pond, lake, river, stream, marsh, or their associated habitats. All maintenance activities will be routed around wet areas while ensuring that the route does not cross sensitive resource areas. For vegetation management or maintenance within 100 feet of any seep, spring, pond, lake, river, stream, marsh, or any of their associated habitats, the following work-area limits will be provided: • Only manual clearing of vegetation will be permitted • Basal and foliar application of herbicides will be prohibited. Only direct application treatments (e.g., injection and cut-stump) of target vegetation will be

	allowed using herbicide approved for aquatic use by the EPA and in coordination with the appropriate federal land manager All instream work, such as culvert replacement or installation, bank recontouring, or placement of bank protection below the high-water line, will be conducted during no-flow or low-flow conditions, in a manner to avoid impacts to water flow, and will be restricted to the minimum area necessary for completion of the work. All equipment used below the ordinary high watermark will be free of exterior contamination. Erosion control measures (straw wattles, silt fencing) will be installed where work is within 25 feet of a drainage. A USFWS-approved biologist or natural resources monitor will determine whether erosion control measures should be utilized, weighing the potential for impacts to other species. Construction boundaries within the buffer will be designated with fencing or other suitable means to ensure no equipment and/or construction workers access protected wetland resources. Seed mixtures applied for erosion control and restoration will be certified as free of noxious weed seed and will be composed of native species or sterile non-native species. Seed mixtures used on Beale AFB will be approved by Beale AFB 9 CES/CEIEC and in accord with the Integrated Natural Resources Management Plan. WAPA will obtain appropriate 404 discharge and 401 water-quality permits prior to any maintenance activities that must take place within jurisdictional wetlands or other WOTUS. These will be coordinated with USACE and RWQCB as needed. Dewatering work for maintenance operations adjacent to or encroaching on seeps, springs, ponds, lakes, rivers, streams, or marshes will be conducted to prevent muddy water and eroded materials from entering the water or marsh. All potentially affected aquatic habitats will be dewatered prior to any ground disturbance. Dewatered areas will remain dry with no puddled water remaining for at least 15 consecutive days prior to excavation or filling of that habitat. If a site cannot be completely dewatered, prey items will be netted or otherwise salvaged if present. All stream crossings will be constructed such that they permit fish to pass and reduce the potential for stream flows to result in increased scour, washout, or disruption of water flow. Wherever possible, stream crossings will be located in stream segments without riparian vegetation, and structure footings will be installed outside of stream banks. Should WAPA need to modify existing access roads or install new access roads, they will be built at right angles to streams and washes to the extent practicable. Trees providing shade to water bodies will be trimmed only to the extent necessary and will not be removed unless they present a specific safety concern. Trees that must be removed will be felled out of and away from the stream maintenance zone and riparian habitat, including springs, seeps, bogs, and any other wet or saturated areas, to avoid damaging riparian habitat. Trees will not be felled into streams in a way that will obstruct or impair the flow of water, unless instructed otherwise. Tree removal that could cause stream-bank erosion or result in increased water temperatures will not be conducted in and around streams. Tree removal in riparian or wetland areas will be done only by manual methods.
BIO-3	All contract crews will complete biological pre-maintenance awareness training to ensure they are familiar with sensitive biological resources and associated BMPs and AMMs. All supervisors and field personnel will have on-file a signed agreement that they have completed the training and understood and agreed to the terms. BMPs and

	applicable AMMs will be written into the contract for O&M work, and contractors will be held responsible for compliance.
BIO-4	WAPA crews will complete annual awareness training to ensure they are familiar with sensitive biological resources and associated AMMs and BMPs. All supervisors and field personnel will have on-file a signed agreement that they have completed the training and understood and agreed to the terms. Further, WAPA crews will have access to the O&M GIS database in the field to be able to identify sensitive resources and associated AMMs.
BIO-5	O&M excavations greater than 3 feet deep will be fenced, covered, or filled at the end of each working day or have escape ramps provided to prevent the entrapment of wildlife. Trenches and holes will be inspected for entrapped wildlife before being filled. Any entrapped animals will be allowed to escape voluntarily before O&M activities resume, or they may be removed by qualified personnel with an appropriate handling permit if necessary.
BIO-6	Vehicle traffic will be restricted to designated access routes and the immediate vicinity of construction/O&M sites. Vehicle speeds will not exceed 15 miles per hour on access and maintenance roads and 10 miles per hour on unimproved access routes. Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the maximum extent feasible. Off-road travel outside of the demarcated construction boundaries will be prohibited. Per the Fugitive Dust Emissions Rule, a person shall take every reasonable precaution to not cause or allow the emissions of fugitive dust from being airborne past the action area, especially near threatened or endangered species or their habitats.
BIO-7	No pets or firearms will be permitted at Project sites.
BIO-8	During construction activities, all trash that may attract animals will be properly contained, removed from the work site daily, and disposed of properly. Following construction, all refuse and construction debris will be removed from work areas. All garbage and Project construction-related materials in construction areas will be removed immediately following Project completion. At the end of each work day, O&M workers will leave work areas and adjacent habitats to minimize disturbance to actively foraging animals and remove food-related trash from the work site in closed containers for disposal. Workers will not deliberately or inadvertently feed wildlife.
BIO-9	Nighttime O&M activities will be minimized to emergency situations. If nighttime O&M work is required, lights will be directed to the minimum area needed to illuminate Project work areas.
BIO-10	Where feasible and appropriate, tall dead trees will be topped and left in place as snags or as downed logs to support wildlife dependent on these important features. This BMP will be performed in coordination with the landowner.
BIO-11	Mortalities or injuries to any wildlife that occur as a result of Project- or maintenance-related actions will be reported immediately to the WAPA Natural Resources Department or other designated point of contact, who will instruct O&M personnel on the appropriate action and who will contact the appropriate agency if the species is listed. The phone number for the Western Natural Resources Department or designated point of contact will be provided to maintenance supervisors and the appropriate agencies.
BIO-12	Caves, mine tunnels, and rock outcrops will never be entered, climbed upon, or otherwise disturbed.
BIO-13	If a pesticide label stipulates a buffer zone width for protection of natural resources that differs from that specified in an AMM, the buffer zone width that offers the greatest protection will be applied.
BIO-14	To protect nesting birds (birds not specifically protected by AMMs but protected by the Migratory Bird Treaty Act) whose nests could occur within the ROW, WAPA and its subcontractors will perform construction activities outside the nesting season, which

	runs from March 1 through August 15. Alternatively, a qualified biologist will conduct nesting bird surveys prior to Project activities. For special-status birds, see specific AMMs: • An additional survey may be required if gaps between the survey and the Project activity exceed three weeks • Should an active nest be discovered, the qualified biologist will establish an appropriate buffer zone (in which O&M activity is not allowed) to avoid disturbance in the vicinity of the nest. Maintenance activities will not take place until the biologist has determined that the nestlings have fledged or that maintenance activities will not adversely affect adults or newly fledged young • Alternatively, the qualified biologist will develop a monitoring/mitigation plan that permits the maintenance activity to continue in the vicinity of the nest while monitoring nesting activities to ensure that the nesting birds are not disturbed The Project will adhere to the guidance in the Avian Protection Plan for Beale Air Force Base (2017) and WAPA's Avian Protection Plan (2016).
BIO-15	Measures described in the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* and *Mitigation Bird Collisions with Power Lines: The State the Art in 1994* will be implemented during O&M activities to minimize bird mortality and injury. The Project will adhere to the guidance in the Avian Protection Plan for Beale Air Force Base (2017) and WAPA's Avian Protection Plan (2016).
BIO-16	At completion of work or according to erosion control plans and at the request of the landowner/manager, all work areas except permanent access roads will be scarified or left in a condition that will facilitate natural or appropriate vegetation, provide for proper drainage, and prevent erosion. All areas of upland ground disturbance or exposed soil from construction will be reseeded with a native "weed-free" seed mix. Seed mixtures used on Beale AFB will be approved by Beale AFB 9 CES/CEIEC and in accordance with the Integrated Natural Resources Management Plan.
BIO-17	Prior to any application of herbicide, WAPA will query the California Department of Pesticide Regulation PRESCRIBE database, entering location information by county, township, range, and section and entering both the commercial name and the formulation of the desired pesticide, and WAPA will follow all use limitations provided to ensure compliance with applicable pesticide standards. This database is currently located at http://www.cdpr.ca.gov/docs/endspec/prescint.htm. The measures generated by the PRESCRIBE database will supersede those in the AMMs where they are different. On Beale AFB, the application of any pesticide, including herbicides, will be conducted in accordance with approved Integrated Pest Management Plan, Invasive Plant Species Management Guidelines, and Integrated Natural Resources Management Plan.
BIO-18	The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the Project goal. Routes and boundaries will be clearly demarcated, and these areas will avoid wetlands/drainage areas whenever feasible.
BIO-19	A USFWS-approved biologist will conduct preconstruction surveys of all ground disturbance areas within sensitive habitats to determine if any federally-listed species may be present during the start of construction. These surveys will be conducted prior to the start of construction activities in and around any sensitive habitat.
BIO-20	A natural resources monitor will monitor construction activities in or adjacent to sensitive habitats. The natural resources monitor will ensure compliance with all applicable AMMs required to protect federally-listed species and their habitats.
BIO-21	If federally-listed species are found that are likely to be affected by work activities, the USFWS-approved biologist will have the authority to stop any aspect of the Project that

	could result in take of a federally-listed species in coordination from Beale AFB and/or the contracting officer. If the USFWS-approved biologist exercises this authority, they must coordinate with the Environmental Office of Beale AFB and/or WAPA.
BIO-22	Any worker that inadvertently kills or injures a federally-listed species or finds one injured or trapped will immediately report the incident to the on-site biologist. The biologist will inform the appropriate Natural Resources Office (WAPA off Beale AFB or Beale AFB natural resources manager [NRM] on Beale AFB) immediately. The Natural Resources Office will verbally notify the Sacramento USFWS Office within one day and will provide written notification of the incident within five days.
BIO-23	Unless otherwise designated as part of a habitat restoration plan, all excess soil excavated during construction in the vicinity of vernal pools and other wetlands will be removed and disposed of outside the Project area. Coordination with the Beale AFB Environmental Office and appropriate regulatory agencies is required prior to disposal of the excavated soil.
BIO-24	To avoid and minimize the spread of invasive plant species equipment used for all proposed project activities will be washed before being used on Beale AFB and before being moved from one location to another. Earth-moving equipment brought onto Beale AFB should be washed before use and before being moved from one location to another (i.e. from one construction site to another). Water or compressed air will be used to remove any visible plant material, soil or compacted mud, gravel, sand, etc. Wash sites must be located in upland locations so wash water does not flow into a stream channel or adjacent wetlands.
BIO-25	Prior to initiation of construction activities, sensitive areas such as vernal pools, wetlands, riparian areas, and potential habitat for federally-listed species (i.e., vernal pool fairy shrimp/vernal pool tadpole shrimp or giant garter snake) will be staked and flagged as exclusion zones where construction activities cannot take place. Orange construction barrier fencing (or an appropriate alternative method) will designate exclusion zones where construction activities cannot occur. The flagging and fencing will be clearly marked as an environmentally sensitive area. The contractor will remove all fencing, stakes, and flagging within 60 days of construction completion.
BIO-26	For areas on Beale AFB, ground disturbance within vernal pools will require a restoration plan and two years of follow-up monitoring by a USFWS-approved biologist. Direct impacts to wetlands (in all areas) may require a CWA Section 404 permit issued by the USACE and a Section 401 Water Quality Certification from the State RWQCB.

4.5.1.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to vegetation.

4.5.2 Special-status Plants

The Project area supports suitable habitat for two special-status plant species: dwarf downingia and legenere. The following sections evaluate potential impacts to special-status plants resulting from the Project and lists established AMMs and BMPs intended to prevent adverse impacts to these resources.

Impacts to special-status plant species could be considered significant if any of the following occur as a result of the proposed Project:

- The Project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status

species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or USFWS.

- The Project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or USFWS.
- The Project would have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filing, hydrological interruption, or other means.
- The Project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- The Project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- The Project would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.
- The continued existence of a federally- or state-listed species was jeopardized.
- Temporary or long-term disturbance of individuals or a population of species would result in a change in species status.
- Violation of any federal or other applicable statutes and regulations pertaining to special-status species.

4.5.2.1 Preferred Alternative (Northern B Alternative)

Legenere and dwarf downingia may occur within vernal pool habitats on Beale AFB within the Preferred Alternative area; any effects to these habitats in the Project area could affect these species. While culvert work on Beale AFB would temporarily impact seasonal wetland habitats across roadside ditches (see Section 4.5.1.1, Preferred Alternative Impacts to Vegetation Communities), the ditches are not suitable habitat for legenere and dwarf downingia, and direct impacts due to these activities are not expected.

While potential is low, indirect impacts to legenere and dwarf downingia and their habitat due to Project construction and subsequent O&M activities may occur, including:

- Changes to surficial and subsurface hydrology of adjacent uplands that may cause changes in the rate, extent, and duration of inundation of nearby vernal pools.
- Contamination of vernal pool habitats due to unintended sediment, fuel, or lubricant spills during construction.

Impacts to special-status plants from the Preferred Alternative would be considered short term and negligible. These impact findings do not exceed the significance thresholds listed above for special-status plants. These impact findings do not exceed the significance thresholds listed above for special-status plants.

4.5.2.2 Northern A Alternative

Legenere and dwarf downingia may occur within vernal pool habitats on Beale AFB within the Northern A Alternative area. Direct and indirect impacts would be equivalent to those

addressed for the Preferred Alternative area. That is, impacts to special-status plants from the Northern A Alternative would be considered short term and negligible.

4.5.2.3 Southern Alternative

Legenere and dwarf downingia may occur within vernal pool habitats on Beale AFB within the Southern Alternative area. There are two vernal pools where the new substation is proposed to be located. The permanent removal of these two vernal pools would result in direct impacts to these species. Although legenere and dwarf downingia have not been identified within these two pools during frequent Beale AFB-wide surveys, both pools are suitable habitat for the species. The direct impacts to the two vernal pools would result in permanent impacts to 0.03 acre (1,306 square feet) of suitable legenere and dwarf downingia habitat. However, the removal of the two small pools would not impact the viability of the local population and species as a whole.

Impacts to special-status plants from the Southern Alternative would be considered long term and negligible.

4.5.2.4 Special-status Plants and Plant Communities Protection Measures

The following resource protection measures, which are comprised of BMPs, SOPs, AMMs, and PCMs that have been renumbered specific to this EA, will be implemented to avoid or lessen impacts to special-status plants and plant communities:

BIO-27	**Vernal Pool Species** On Beale AFB, the following measures will apply within 250 feet of potential vernal pool habitat to avoid or minimize disturbances and adverse effects to the species: • Mowing in and around vernal pool habitat after seed set during the dry season (May 1st to October 15th) may help reduce thatch in the vernal pool. Mowing conducted earlier in the season may be desirable to maintain appropriate conditions for vernal pool species. If mowing occurs in or near vernal pools, it will occur only when the soil is no longer saturated to ensure tracks are not left in or near wetlands. The mower height must be set to avoid the flowering heads of sensitive vernal pool plant species • Projects that occur on road surfaces and along road shoulders will avoid direct impacts to wetland habitats, including roadside ditches that act as seasonal wetlands • If access routes crossing vernal pool habitats cannot be avoided, ground protection mats will be used to disperse the weight of vehicles and equipment so as to not harm any existing cysts. These can be used in both dry and wet seasons A USFWS-approved biologist will flag vernal pool species' habitat and a reasonable buffer of at least 50 feet to be avoided. The area will be protected by placing construction fencing or other appropriate protective fencing around the pools, including a buffer. Fencing will be used in locations where Project equipment and/or personnel will be situated adjacent to or in the near vicinity of suitable vernal pool species' habitat • Dust control measures will be utilized during Project construction to prevent excessive dust from silting nearby vernal pools. Types of dust control measure will take into account the potential to impact the proximal vernal pool landscape and thus, will not impact nearby pools • If herbicide spraying is required within and near vernal pool species' habitat, only herbicide without toxic surfactants that is approved for use in aquatic

	environments will be used • All equipment used in Projects requiring access to sites within vernal pool species' habitat will be staged outside of vernal pool habitat and will be on paved or gravel surfaces wherever possible. If paved or gravel surfaces are not available, construction mats and/or drip pans will be placed under vehicles to minimize impacts. To further minimize adverse effects, the following measures will be implemented at these Project sites near vernal pools: a. No work shall occur within vernal pool habitat when water is present b. Ground disturbances, such as trenching, and permanent disturbances, such as pole installation, will avoid hydrologically connected areas c. A USFWS-approved biologist will be present as necessary during access and Project work within vernal pool habitat to monitor activities d. For Projects adjacent to (within about 33 feet) vernal pool species' habitat or hydrologically connected to the habitat, silt fencing or other appropriate BMPs to prevent siltation shall be implemented prior to work within that area. A USFWS-approved biologist will flag areas where silt fencing or BMPs shall be implemented. BMPs may include sand bags and weed-free straw bales or straw wattles e. Spill containment kits will be present at all sites where petroleum-fueled equipment is used • If Project activities encroach within the perimeter of a pool, the following measures will be implemented: a. Protective mats should be used as first resort; if not possible, equipment with pneumatic tires should be used rather than tracked equipment b. Non-wetlands present within adjacent habitat will be used as an equipment parking platform. Alternately, ground protection mats, boards, or plates will be used to distribute the weight of construction equipment for access. Drip pans will also be placed under vehicles parked on non-wetland vegetation c. The Project will be implemented during the dry season only, when the pool is dry Pre- and post-Project surveys will be conducted to record habitat condition before the start of a Project and after completion of the Project for tracking purposes. This may include photos and/or species surveys and will be used to better manage for the species

4.5.2.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to special-status plants.

4.5.3 Wildlife

Several wildlife species occur within the Project area (see Section 3.5.4, Wildlife Affected Environment). The following sections evaluate potential impacts to wildlife species resulting from the Project and lists established AMMs and BMPs intended to prevent adverse impacts to these resources.

Impacts to wildlife could occur when habitats or individuals are disturbed or lost during Project activities. The significance of the impact depends, in part, on the sensitivity of the population.

Impacts to wildlife could be considered significant if any of the following occur as a result of the proposed Project:

- The Project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or USFWS.
- The Project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or USFWS.
- The Project would have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filing, hydrological interruption, or other means.
- The Project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- The Project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- The Project would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.
- Temporary or long-term impacts to individuals of a population of wildlife that would result in the species being listed or proposed for listing as threatened or endangered.
- Violation of any federal statutes and regulations pertaining to wildlife.
- Introduction of constituents in any water body in concentrations that cause adverse effects on wildlife.
- Substantial interference with the movement of any native, resident, or migratory wildlife species.
- Substantial local impacts to wildlife habitat (as compared to total available resources within the area) or habitat productivity.
- Nest or reproductive failure (e.g., nest destruction or abandonment or death of chicks or adults) in any migratory bird species.
- Range reduction for any wildlife species.

Additionally, direct effects may be permanent (loss of habitat) or temporary (construction noise), and indirect effects may be permanent (wildlife mortality along a new road) or temporary.

4.5.3.1 Preferred Alternative (Northern B Alternative)

General wildlife may be adversely affected by the implementation of the Preferred Alternative and subsequent O&M activities in a variety of ways. Adverse impacts may occur indirectly through habitat fragmentation or degradation (e.g., new structures and access roads); or directly through disruption of breeding and consequent loss of eggs, chicks, or fledglings; through collision mortality on roads; or through collision with power lines (i.e., birds).

Most of the Project area is low-vegetation grasslands or highly modified agricultural lands, with only a few scattered, isolated trees (see Section 3.5, Biological Resources Affected Environment). Relative to the size of the Project area, a large amount of habitat has already

been lost or altered over the years through agricultural conversion, development, and various land use practices. In addition, relative to the amount and type of habitats available, future habitat disturbance is unlikely to be significant, given the current commitment of WAPA and Beale AFB to regulatory compliance.

Wildlife in the immediate vicinity of the Project area has already adapted to modified habitat conditions and associated human activities. Animals that are highly sensitive to human disturbance have moved farther away from the vicinity of the development existing in the Project area. Noise from construction may have a temporary impact on animals (primarily birds) within the immediate vicinity of the Project area through either disruption of breeding or foraging behavior; however, these impacts will be short term and will be minimized by conducting work outside of the sensitive nesting bird season and/or through the implementation of nesting bird surveys for work conducted during the nesting bird season.

Impacts to wildlife from the Preferred Alternative would be considered short term and minor. Resource protection measures are listed below to further limit impacts. These impact findings do not exceed the significance thresholds listed above for wildlife.

4.5.3.2 Northern A Alternative

Direct and indirect impacts to wildlife under the Northern A Alternative would be equivalent to those addressed for the Preferred Alternative area. That is, impacts to wildlife from the Northern A Alternative would be considered short term and minor.

4.5.3.3 Southern Alternative

Direct and indirect impacts to wildlife under the Southern Alternative would be equivalent to those addressed for the Preferred Alternative area. That is, impacts to wildlife from the Southern Alternative would be considered short term and minor.

4.5.3.4 Wildlife Protection Measures

The following resource protection measures, which are comprised of BMPs, SOPs, AMMs, and PCMs that have been renumbered specific to this EA, will be implemented to avoid or lessen impacts to wildlife:

BIO-28	O&M excavations greater than 3 feet deep will be fenced, covered, or filled at the end of each working day or have escape ramps provided to prevent the entrapment of wildlife. Trenches and holes will be inspected for entrapped wildlife before being filled. Any entrapped animals will be allowed to escape voluntarily before O&M activities resume, or they may be removed by qualified personnel, with an appropriate handling permit if necessary.
BIO-29	During construction activities, all trash that may attract animals will be properly contained, removed from the work site daily, and disposed of properly. Following construction, all refuse and construction debris will be removed from work areas. All garbage and Project construction-related materials in construction areas will be removed immediately following Project completion. At the end of each work day, O&M workers will leave work areas and adjacent habitats to minimize disturbance to actively foraging animals and remove food-related trash from the work site in closed containers for disposal. Workers will not deliberately or inadvertently feed wildlife.

BIO-30	Where feasible and appropriate, tall dead trees will be topped and left in place as snags or as downed logs to support wildlife dependent on these important features, in coordination with the landowner.
BIO-31	Mortalities or injuries to any wildlife that occur as a result of Project- or maintenance-related actions will be reported immediately to the WAPA Environmental Department or other designated point of contact, who will instruct O&M personnel on the appropriate action and who will contact the appropriate agency if the species is listed. The phone number for the WAPA Environmental Department or designated point of contact will be provided to maintenance supervisors and to the appropriate agencies.

4.5.3.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to wildlife species.

4.5.4 Special-Status Wildlife

Special-status wildlife species occur within the Project area are described in Section 3.5.5, Special-Status Wildlife Affected Environment. The following sections evaluate potential impacts to special-status wildlife species resulting from the Project and lists established AMMs and BMPs intended to prevent adverse impacts to these species.

Possible adverse impacts to special-status wildlife have been considered within the context of the federal ESA (16 U.S.C. §§ 1531-1544) as well as the CESA (Fish and Game Code §§ 2050, et seq.). Adverse impacts may be direct or indirect as well as temporary or permanent. These are defined as follows:

- *Direct:* Alteration, disturbance, or removal of biological resources that would result directly from Project-related activities on the landscape is considered a direct impact. Examples of direct impacts include the removal of habitat for a new road or building, loss of shading along a river through removal of riparian vegetation, lowered water quality in a creek from erosion, and noise or vibration that affect wildlife behavior at the time of construction.
- *Indirect:* Unintentional consequences of Project-related activities are called indirect effects. Indirect effects are the result of a Project but generally occur later in time. Examples of indirect effects include wildlife mortality along a new road, bird collisions with power lines, increased nest parasitism through habitat fragmentation, or the introduction of non-native plants from seed found in the hay bales used for erosion control.
- *Permanent:* Impacts that result in the irreversible removal of or change in biological resources are considered permanent. Examples include the loss of vegetation and wildlife habitat due to development. Permanent impacts would be limited to the footprints of the developed area. Building construction would be a permanent effect.
- *Temporary*: Impacts considered to have reversible effects on biological resources can be viewed as temporary. A temporary impact would be the use of an equipment storage area that would recover to natural habitat after completion of the Project.

Additionally, direct effects may be permanent (loss of habitat) or temporary (construction noise), and indirect effects may be permanent (wildlife mortality along a new road) or temporary.

Impacts to special-status wildlife could be considered significant if Project-related activities directly or indirectly resulted in:

- The take of species (the term "take," as defined in the federal ESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct).
- The temporary or long-term impact to substantial habitat for species that are listed, proposed for listing, or candidates for listing under the Federal ESA or CESA.
- The permanent or temporary impact to critical habitat identified by the USFWS for species listed under the Federal ESA.
- The reduction or change in natural vegetation communities or wildlife habitat such that populations of state and locally recognized sensitive species would be reduced to such an extent that they would become listed or candidates for listing under the Federal ESA.

4.5.4.1 Preferred Alternative (Northern B Alternative)

Subsequent sections describe potential impacts to special-status wildlife species, grouped by amphibians, birds, invertebrates, mammals, and reptiles.

Amphibians

Implementation of the Preferred Alternative and subsequent O&M activities may impact western spadefoot toad. Impacts may include direct impacts in the form of harm or harassment to individuals during construction activities or long-term impacts to upland habitat (i.e., non-breeding habitat) from the installation of permanent infrastructure and temporary impacts during construction and subsequent O&M activities. Indirect impacts to the western spadefoot toad habitat (i.e., vernal pools) may include:

- Changes to surficial and subsurface hydrology of adjacent uplands that may cause changes in the rate, extent, and duration of inundation of nearby vernal pools.
- Contamination of vernal pool habitats due to unintended sediment, fuel, or lubricant spills during construction.
- Introduction of noxious weed species, which is not anticipated since weed-free construction and erosion materials and seeds would be utilized.

Implementation of the Preferred Alternative would result in short-term, negligible impacts to western spadefoot toad.

Birds

Impacts to special-status birds may occur with the implementation of the Preferred Alternative and subsequent O&M activities. Direct, short-term impacts to individuals may occur if they are displaced during construction activities, while permanent and temporary impacts to their foraging habitats may occur from the installation of infrastructure and access roads. Temporary impacts may also occur during construction and subsequent O&M activities.

Direct impacts due to the disturbance of potential nesting habitat for grasshopper sparrows, loggerhead shrikes, northern harriers, short-eared owls, Swainson's hawks, and western burrowing owls may occur as a result of the installation of permanent infrastructure (i.e., pole foundations, substation, and access roads) and temporary construction impacts (i.e., laydown

areas, temporary construction areas). Direct impacts to nesting habitat (wetlands and marshes) for California black rail and tricolored blackbirds are not expected. Indirect impacts may also occur as a result of avian collisions with power lines. Implementation of the Preferred Alternative would result in short-term and long-term minor impacts to special-status birds.

Invertebrates

Impacts to special-status invertebrates may occur with the implementation of the Preferred Alternative and subsequent O&M activities on Beale AFB. Direct impacts (incidental take of individuals/cysts) to vernal pool fairy shrimp and vernal pool tadpole shrimp may occur from the construction of Project access routes through habitats (swales and roadside ditches) that support these species. Specifically, construction of new access roads and improvements to existing access roads would require the installation of new horseshoe culverts or the replacement of old culverts with horseshoe culverts (see Section 2.3.1.4, Culvert Replacement and Construction) where the roads would intersect roadside drainage ditches or swales where individuals or cysts may be present. The installation of these culverts may result in the take of individuals or cysts but would not permanently alter the function of the swales or ditches. The replacement of old culverts with new horseshoe culverts may improve passage for these species.

Additionally, temporary Project access roads may intersect these habitats and result in the take of individuals or cysts. However, these impacts would be avoided and minimized by 1) routing access roads around wetland features to the greatest extent practicable and 2) utilizing weight dispersion mats. These ditches provide sub-optimal habitat for the species. Impacts to the viability of the local population and species as a whole would be negligible.

Indirect impacts to any vernal pool habitats on which these species rely are comparable to those addressed for western spadefoot toad. Temporary impacts may also occur as a result of subsequent O&M activities. Implementation of the Preferred Alternative would result in short-term, moderate impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp (WAPA 2019).

Formal consultation with the USFWS under Section 7 of the ESA resulted in concurrence with the determination that that the Preferred Alternative *may affect, and is likely to adversely affect* the vernal pool fairy shrimp and vernal pool tadpole shrimp due to an estimated 0.016 acre of temporary disturbance and 0.046 acre of permanent habitat loss, a total of 0.062 acre of direct wetland impacts. The total 0.062 acre of direct impacts, which will occur within the BCRA, will be compensated at a 4:1 compensation ratio. Within the existing Beale AFB vernal pool crustacean habitat preservation area, a total of 0.248 acre of habitat will be preserved to compensate for the impacts of the activities described above.

Impacts to valley elderberry longhorn beetle are not expected. The sole elderberry shrub identified during field surveys would not be impacted by Project-related activities. Implementation of the Preferred Alternative would result in no impacts to valley elderberry longhorn beetle (WAPA 2019).

Mammals

Impacts to pallid bat, Townsend's big-eared bat, and western red bat may occur due to implementation of the Preferred Alternative and subsequent O&M activities. Direct, short-term impacts to individuals may occur if they are displaced during construction activities, and

permanent and temporary impacts to their foraging habitat would occur from the installation of infrastructure, and access roads. Temporary impacts may also occur during construction and subsequent O&M activities. Direct impacts to bat roosting habitat are not expected. Implementation of the Preferred Alternative would result in short-term, negligible impacts to special-status bats.

Reptiles

Impacts to special-status reptiles may occur due to the implementation of the Preferred Alternative and subsequent O&M activities. The giant garter snake is not known to be present or expected to occur on Beale AFB (Hansen 2019), and any Project-related effects to the species would be limited to the off-Beale AFB portions of the Preferred Alternative area. These impacts may include direct impacts to individuals during construction activities or direct disturbance of habitat due to the installation of towers. Indirect impacts may occur in the form of temporary habitat disturbance due to the dewatering of rice fields during construction activities (Shuford 2017). The USFWS concurs that implementation of the Preferred Alternative would result in a *may affect, not likely to adversely affect* determination for giant garter snake (WAPA 2019).

Impacts to western pond turtles would be limited to those activities occurring within 650 feet of suitable turtle habitat, as western pond turtles are known to occur up to 650 feet from aquatic habitats (Nafis 2018). Direct impacts to individuals may occur if western pond turtles are present on the ground surface during construction activities, specifically in any of the areas where pole foundations and substations are being installed and at temporary staging and laydown areas. Permanent impacts to potential upland aestivation/overwintering habitat may occur from the installation of permanent infrastructure (i.e., pole foundations, substation, and access roads), and temporary impacts may also occur during construction and subsequent O&M activities. Direct impacts to western pond turtle aquatic habitat are not expected.

Implementation of the Preferred Alternative would result in short-term, negligible impacts to western pond turtle.

4.5.4.2 Northern A Alternative

Direct and indirect impacts to special-status wildlife under the Northern A Alternative would be equivalent to those addressed for the Preferred Alternative area. That is, the Northern A Alternative *may affect, and is likely to adversely affect* the vernal pool fairy shrimp and vernal pool tadpole shrimp. The Northern A Alternative *may affect, but is not likely to adversely affect* the giant garter snake and may have short-term, negligible impacts to western spadefoot toad; short-term, minor impacts to special-status birds; no impact to valley elderberry longhorn beetle; short-term, negligible impacts to special-status bats; and short-term, negligible impacts to western pond turtle.

4.5.4.3 Southern Alternative

Direct and indirect impacts to special-status wildlife under the Southern Alternative would be comparable to those addressed under the Preferred Alternative. However, additional direct impacts to special-status species dependent on vernal pools (vernal pool fairy shrimp, vernal pool tadpole shrimp, and western spadefoot toad) would occur with the implementation of the Southern Alternative due to the anticipated removal of two vernal pools at the new substation location. As a result, the Southern Alternative *may affect, and is likely to adversely affect* the

vernal pool fairy shrimp and vernal pool tadpole shrimp. Although these species have not been positively identified within these two pools during frequent Beale AFB-wide surveys, both pools are suitable habitat for these species. The direct impacts to the two vernal pools would result in permanent impacts to 0.03 acre (1,306 square feet) of suitable habitat for these vernal pool-dependent species. However, the removal of the two small pools would not significantly impact the viability of the local populations and species as a whole.

Additionally, vernal pool fairy shrimp and vernal pool tadpole shrimp critical habitat is located on the western end of the Southern Alternative, north of Erle Road off Beale AFB (units VERFS 11 and VERTS 7). However, permanent infrastructure (i.e., towers and access roads) and temporary impacts from construction would occur on the southern side of Erle Road, and any direct impacts to the primary constituent elements of vernal pool fairy shrimp and vernal pool tadpole shrimp critical habitat is not expected. Implementation of the Southern Alternative would have the same potential impacts to giant garter snake as the Preferred Alternative, which warrants a determination of *may affect, not likely to adversely affect* for the giant garter snake.

Impacts from the Southern Alternative would be the same as the Preferred Alternative. That is, short-term, negligible impacts to western spadefoot toad; short-term, minor impacts to special-status birds; no impact to valley elderberry longhorn beetle; short-term, negligible impacts to special-status bats; and short-term, negligible impacts to western pond turtle. The implementation of protection measures listed below would further minimize adverse impacts to special-status wildlife species.

4.5.4.4 Special-status Wildlife Protection Measures

The following resource protection measures, which are comprised of BMPs, SOPs, AMMs, and PCMs that have been renumbered specific to this EA, will be implemented to avoid or lessen impacts to special-status wildlife:

BIO-32	**Vernal Pool Species** See Section 4.5.1.4, Vegetation Communities Protection Measures for full text
BIO-33	**Bald Eagle (Nesting and Wintering)** From February 1 to August 15 herbicide application or noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be prohibited anywhere that bald eagles are known to nest OR a qualified biologist will conduct nesting surveys using methods described in Jackman and Jenkins (2004). If a nest is detected, all herbicide application and O&M activities will be prohibited at a distance determined by the qualified biologist based on topography and/or other environmental considerations.
BIO-34	**Western Burrowing Owl (Burrow Sites Winter and Summer)** From February 1 to August 31 herbicide application (with the exception of direct application) and other O&M activity will be prohibited within 250 feet of potential burrowing owl nesting dens (ground squirrel burrows, culverts, concrete slabs, debris piles that could support nesting burrowing owls). From September 1 through January 31, disturbance will be prohibited within 160 feet of potential burrowing owl dens. OR A qualified biologist will conduct nesting and wintering surveys using methods described in California Burrowing Owl Consortium 1993. If nesting or wintering activity is detected,

	a qualified biologist will mark and monitor an appropriate non-disturbance buffer in the vicinity of burrows that have been active within the last three years. Within the buffer zone, all O&M activities and herbicide applications will be prohibited from February 1 to August 31.
BIO-35	**California Black Rail** From February 15 to July 31 surface disturbances, including noise or changes to the hydrological regime, will be prohibited in potential black rail habitat (shallowly flooded wetlands or irrigated pasture) OR a qualified biologist will conduct nesting surveys to verify absence. If nesting activity is detected or likely, a qualified biologist will mark and monitor an appropriate buffer zone around the nest within which all O&M activities will be prohibited from February 15 to July 31.
BIO-36	**Swainson's Hawk (Nesting)** From April 1 to July 31 herbicide application and tree removal will be prohibited within 0.25 mile of Swainson's hawk nest trees. A 0.25-mile buffer zone will be established and maintained around potential Swainson's hawk nest trees, within which there will be no intensive disturbance (e.g., use of heavy equipment, power saws, chippers, cranes, or draglines). This buffer may be adjusted as assessed by a qualified biologist based on changes in sensitivity exhibited by birds over the course of the nesting season and the type of O&M activity performed (e.g., high noise or human activity such as mechanical vegetation maintenance versus low noise or human activity such as semi-annual patrols). Within 0.25 mile of an active nest (as confirmed by a qualified biologist), routine O&M activities will be deferred until after the young have fledged or until it was determined by a qualified biologist that the activities will not adversely affect adults or young. OR A qualified biologist will conduct nest surveys using methods described in SHTAC 2000 (or the most recent survey protocol) to determine absence.
BIO-37	**Tricolored Blackbird (Nesting Colony)** From March 15 to August 15 herbicide application (with the exception of direct application) and vegetation clearing/disturbance will be prohibited in marshes, willows, and blackberry thickets OR a qualified biologist will conduct a nesting survey prior to O&M activities. If nesting activity is detected, a qualified biologist will mark and monitor an appropriate buffer zone around the nesting colony within which all O&M activities and herbicide applications will be prohibited from March 15 to August 15.
BIO-38	**Valley Elderberry Longhorn Beetle** Prior to initiating Project-related construction activities, qualified personnel will clearly flag or fence each elderberry plant that has a stem measuring 1 inch or greater in diameter at ground level. If an elderberry plant meeting this criterion is present, a minimum buffer zone of 20 feet outside of the dripline of each elderberry plant will be provided during all Project-related construction activities**.**
BIO-39	**Pallid Bat** Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of tunnels and rock outcrops. Snags and live trees will be left standing to the maximum extent possible.
BIO-40	**Townsend's Big-Eared Bat** Noisy or disturbing O&M activities (e.g., power saws, mechanical chippers) will be minimized in the vicinity of tunnels.
BIO-41	**Western Red Bat**

	Live broadleaf trees will be left standing to the maximum extent possible.
BIO-42	**Giant Garter Snake** Follow BMPs and PCM-W002 in aquatic giant garter snake habitat. PCM-W002 will supersede those below where they are different. Movement of heavy equipment will be confined to existing roadways to minimize habitat disturbance. Vegetation management will be confined to the minimum area necessary to facilitate O&M activities. Giant garter snake aquatic and upland habitats (200 feet from aquatic edge) will be flagged as environmentally sensitive areas by a USFWS-approved biologist within or adjacent to the disturbance footprint. Only manual vegetation removal will be allowed within the flagged area. A USFWS-approved monitor will be present for construction and O&M activities within the flagged area. To the extent possible, disturbance to hibernacula and aestivation areas (i.e., rocks, burrows, logs, brush piles, etc.), will be avoided during cold and cool-weather periods (October 1 to May 1) when the giant garter snake would be using these areas. Ground disturbance will be confined to the minimum area necessary to facilitate construction and O&M activities. All construction-related holes will be covered to prevent entrapment of individual giant garter snakes. Within the construction area, silt fencing can be used to keep snakes from entering the Project site and being harmed. All construction equipment shall be checked daily prior to starting work for the presence of snakes. Pre- and post-Project surveys will be conducted to record habitat condition before the start of a Project and after completion of the Project for tracking purposes. This may include photos and/or species surveys. Any temporary fill and debris will be removed. Restoration work could include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel. If herbicide spraying is required within and near giant garter snake habitat, only herbicide without toxic surfactants that is approved for use in aquatic environments will be used.
BIO-43	**Western Pond Turtle** *Follow BMPs and PCM-W002.* From April 15 to July 15 any ground disturbing activity within 400 feet of a permanent pond, lake, creek, river, or slough that could affect the bed, bank, or water quality of any of these features will be prohibited OR a qualified biologist will inspect the Project area. If adult or juvenile pond turtles are present, a qualified biologist will monitor Project activities to ensure that no turtles are harmed. If a qualified biologist determined that nests could be adversely affected, potential nesting areas will be avoided between June 1 and October 31.

4.5.4.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to special-status wildlife species.

4.6 CULTURAL AND TRIBAL RESOURCES AND PALEONTOLOGICAL RESOURCES

4.6.1 Impact Thresholds

4.6.1.1 Federal Thresholds

Project implementation affects a historic property if it alters any characteristic that qualifies it for NRHP inclusion. As outlined in 36 CFR 800.5, factors considered in determining whether the Project would have adverse cultural resource impacts include the extent or degree to which its implementation would result in:

1) Damage to, or loss of, a site of archaeological, tribal, or historical value that is listed, or eligible for listing, on the NRHP.
2) Loss or degradation of a TCP or sacred site, or if the property or site is made inaccessible for future use.
3) Disturbance to any human remains, including those interred outside formal cemeteries.
4) Isolation of cultural resources from the context considered significant.
5) An effect to Project elements that would be out of character with the property or site and its setting.

4.6.1.2 State Thresholds

For CEQA analysis, (§ 15064.5), determining the significance of impacts to archaeological and historical resources occurs:

1) When a Project will impact an archaeological site that a lead agency has determined is an historical resource, as defined in subdivision (a).
2) If a lead agency determines that the archaeological site is an historical resource, it shall refer to the provisions of Section 21084.1 of the PRC, and this section, Section 15126.4 of the Guidelines, and the limits contained in Section 21083.2 of the PRC do not apply.
3) If an archaeological site does not meet the criteria defined in subdivision (a) but does meet the definition of a unique archeological resource in Section 21083.2 of the PRC, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in PRC Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the Project location contains unique archaeological resources.
4) If an archaeological resource is neither a unique archaeological nor an historical resource, the effects of the Project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or Environmental Impact Report (EIR) if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

4.6.1.3 Paleontological Thresholds

The Project would have adverse paleontological impacts if its implementation would result in directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.6.2 Preferred Alternative (Northern B Alternative)

If the Preferred Alternative is selected, the Cultural Resources Inventory Report (Bassett 2019) indicates there would be no historic properties or TCPs present under either the NHPA or CEQA within either the APE of direct impacts or of indirect impacts. In addition, as described in Section 3.6.1, no paleontological resources have been identified.

If any previously undetected or unreported cultural features, deposits, or human remains, or if any paleontological resources are encountered during Project-related activities, these activities must be discontinued in the immediate area of the feature(s), and the WAPA or Beale AFB archaeologist, as appropriate, must be consulted to evaluate their nature and significance. These recommendations are summarized in **Table 4-4**, and BMPs that will be implemented during construction and O&M activities are listed in Section 4.6.5, Cultural Resources Protection Measures.

4.6.3 Northern A Alternative

If the Northern A Alternative is selected, the Cultural Resources Inventory Report (Bassett 2019) indicates there would be no historic properties or TCPs present under either the NHPA or CEQA within either the APE of direct impacts or of indirect impacts. In addition, no paleontological resources have been identified. Recommendations for Northern A Alternative are shown in **Table 4-2**, and the same BMPs would implemented as under the Preferred Alternative.

4.6.4 Southern Alternative

If the Southern Alternative is selected, the Cultural Resources Inventory Report (Bassett 2019) indicates there would be no historic properties or TCPs present under either the NHPA or CEQA within the APE of direct impacts. The Project would result in No Adverse Effects to cultural resources within the APE of indirect impacts. In addition, no paleontological resources have been identified. Recommendations for Southern Alternative are shown in **Table 4-3**, and the same BMPs would implemented as under the Preferred Alternative.

TABLE 4-4
CULTURAL RESOURCES EFFECT ASSESSMENT RECOMMENDATIONS

Proposed Alternative	Resources within APE (direct)	Resources within APE (indirect)	Effect Recommendation (direct)	Effect Recommendation (indirect)
Northern A Alternative	BWIP-2; BWIP-3; BWIP-IO-1	VR-4	No Historic Properties Present	No Historic Properties Present
Northern B Alternative	CA-YUB-1420H (P-58-001587); BWIP-2;	VR-4	No Historic Properties Present	No Historic Properties Present

TABLE 4-4
CULTURAL RESOURCES EFFECT ASSESSMENT RECOMMENDATIONS

Proposed Alternative	Resources within APE (direct)	Resources within APE (indirect)	Effect Recommendation (direct)	Effect Recommendation (indirect)
	BWIP-3; BWIP-IO-1			
Southern Alternative	PL-15H; BWIP-1	VR-1; VR-2; VR-3	No Historic Properties Present or No Adverse Effect[1]	No Adverse Effect

[1] No historic properties present if BWIP-1 is Ineligible; No Adverse Effect if BWIP-1 is Eligible.

4.6.5 Cultural and Tribal Resources Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts to cultural, tribal, and paleontological resources:

CR-1	All contract crews will complete cultural resources pre-maintenance awareness training to ensure they are aware of the locations of cultural resource sites and paleontological resources; maintenance methods to be used in areas with sensitive cultural resources; and restrictions required in cultural resources areas (i.e., SOPs and PCMs). Crews will be educated on the Archaeological Resources Protection Act, which makes it a federal offense to willfully damage or remove any artifacts or materials from an archaeological site. All supervisors and field personnel will have on-file a signed agreement that they have completed the training and understood and agreed to the terms. SOPs and applicable PCMs will be written into the contract for O&M work, and contractors will be held responsible for compliance.
CR-2	WAPA crews will complete annual awareness training to ensure they are familiar with sensitive cultural and paleontological resources and associated SOPs and PCMs. All supervisors and field personnel will have on-file a signed agreement that they have completed the training and understood and agreed to the terms. Further, WAPA crews will have access to the O&M GIS database in the field to be able to identify sensitive resources and associated PCMs.
CR-3	A cultural resource monitor will be present during all initial ground disturbance activities (grading, trenching, excavation) that occur on Beale AFB.
CR-4	Operation of vehicles or heavy construction equipment will be avoided in areas that are not designated transmission line and legal access road ROWs or other established transportation routes. This measure will minimize the possibility of disturbing unmapped cultural resources.
CR-5	Upon discovery of potential buried cultural or paleontological resources, work within 50 feet of the find will be halted and the discovery will be reported immediately to the WAPA Natural Resources Department or other designated point of contact or else to Beale AFB, depending on land jurisdiction. WAPA and/or Beale AFB will comply with provisions in the NHPA and consult with the California SHPO and appropriate tribes to determine measures to avoid the resource or mitigate during maintenance activities.

4.6.6 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to cultural, tribal, or paleontological resources.

4.7 GEOLOGY/SOILS

Impacts to geology and soils could be considered significant if any of the following occur as a result of the proposed Project:

- People or structures are exposed to substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquuist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault
  - Strong seismic ground shaking
  - Seismic-related ground failure, including liquefaction
  - Landslides
- There is substantial soil erosion or loss of topsoil.
- The Project would be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- The Project would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
- Soils in the Project area are incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

An exploratory geotechnical study was performed along the underground 60-kV portion of the Preferred Alternative (see Section 3.7, Geology/Soils Affected Environment) (URS 2018). Data from this study was used to inform the subsequent analysis. Once WAPA and Beale AFB choose a final route, a complete geotechnical assessment will be performed to aid in siting structures.

4.7.1 Preferred Alternative (Northern B Alternative)

4.7.1.1 Soil Disturbance

The Preferred Alternative presents a number of sources of short-term and long-term direct impacts on soils resulting from the use of heavy equipment, excavation, and grading on targeted sites in the Project area. These disturbances are described below per facility:

- *New Substation.* The proposed substation would be the largest area of impact, with 7 acres permanently disturbed for the substation footprint, and an additional 4.8 acres of temporary construction equipment-related disturbance as a result of surface soils being graded, leveled, cleared of vegetation, and compacted to accommodate the footprint of the substation structure as well as to achieve proper drainage around the facility.
- *Road Improvement and Construction.* For new road construction, approximately 0.95 acre of soils would be graded, permanently cleared of vegetation, compacted, and covered with road base, gravel, or other non-native material in order to build new roadway. Temporary areas needed to construct new roads total 2.36 acres.

For improving existing roads, approximately 2.05 acres of soils would be permanently disturbed. Improving existing access roads would involve brush clearing, grading, erosion control, and the installation of three-sided culverts to maintain stormwater flows within ephemeral wash areas. Temporary areas needed for road improvement construction total 0.52 acre.

A temporary access road may be required parallel to the underground portion of the Project. These would not entail any permanent disturbance, and up to 1.85 acres would be temporarily disturbed.

- *Structure Sites.* There would be a total of 12.35 acres of temporary, construction-related disturbance from the use of heavy equipment and staging areas around transmission structure insertion sites and a total of 0.062 acre permanently disturbed by the footings for the transmission structures (including H-frames and monopoles). For monopoles, one foundation is required; for H-frames, two foundations are needed. Regardless of structure type, each foundation would require up to a 7-foot-diameter area, which would be permanently disturbed to a maximum depth of 40 feet.

  Up to 17 H-frame structure locations would be utilized in the Preferred Alternative, meaning that up to 3,923 cubic yards of surface and subsurface soils could be excavated and replaced with concrete foundation to support overhead structures.
- *Pull Sites and Staging/Laydown.* Construction pull and tensioning sites would temporarily disturb up to 16.3 acres of surface soils through compaction by heavy equipment. There would be up to 5 acres of temporary disturbance from an off-Beale AFB helicopter landing zone and construction equipment laydown area. WAPA would attempt to identify areas that are already disturbed and compensate private landowners for their use during construction.
- *Underground Facilities.* Underground facilities would be installed within and under existing roadways. There would be no new permanent aboveground disturbance for these portions of the Project area; temporary aboveground areas needed for construction and vault placement total 0.96 acre. Underground, the buried portion of the Preferred Alternative would include the installation of a 32-inch wide by 18-inch tall duct bank buried 48 to 60 inches below the roadway for a distance of 2.5 miles, and 13 buried vaults measuring 15 feet wide by 8 feet deep and 40 feet long. Soils in this area are Redding-Corning Complex with 3- to 8-percent slopes (Beale AFB 2019).
- *Existing Substation.* Disturbance is not expected at the existing substation beyond the exiting disturbed footprint.

In total, 10.07 acres of permanent disturbance and 46.23 acres of temporary disturbance would occur by implementing the Preferred Alternative. Some temporary disturbance to soil may also occur during O&M activities. This represents a short-term, minor impact on soils. Impacts to soils will be further minimized by implementing the BMPs listed in Section 4.7.4, Geology/Soils Resource Protection Measures.

4.7.1.2 Potential for Soil Contaminants

Beale AFB's Soils Management Plan (SMP; Beale AFB 2011), which provides guidance, procedures, and policies regarding soil removal, sampling, and disposal for projects would be carried as a contract requirement. The SMP ensures that contractors and organizations are aware of the SMP, its policies and procedures, and the potential consequences of non-compliance. Contractor-generated soils are inspected during construction by both contractor

and governmental personnel, inspection results are documented to show compliance with the SMP. The Beale AFB SMP gives specific instruction on procedures to follow regarding discovery of soils that may be contaminated to ensure compliance with safety and environmental regulations. Contractors must immediately bring any soils that are known or suspected to be contaminated with hazardous material to the attention of supervision and governmental personnel. If contaminated soils are discovered, work to remove soils shall be halted until a plan to manage and dispose of the contaminated soils is developed and implemented. Any soils contaminated with hazardous waste, or soils assumed to be hazardous waste, shall be managed in accordance with the Beale AFB Hazardous Waste Management Plan and state and federal laws.

Erosion and Spoil Management

Site grading and vegetation clearing associated with the Preferred Alternative would temporarily expose underlying soils and generally increase erosion and sedimentation potential. Exposed soils along with any fill materials being stockpiled on the site (i.e., on the existing roadway) may be subject to erosion during rainfall or high winds. Beale AFB has developed a SMP to address management and disposal of soil from construction projects (Beale AFB 2018d), and standard BMPs for managing these soils (e.g., covering to prevent potential runoff, appropriate slopes of storage piles, schedule and appropriate location for disposal) would be enforced for this Project.

Implementation of BMPs such as stabilizing fill slopes from erosion and the use of erosion-control measures to filter sediment from stormwater runoff would be followed during construction and O&M activities to reduce the potential for soil erosion. Standard erosion-control measures (e.g., silt fencing, sediment traps, application of water sprays, revegetation) would reduce adverse soil-related impacts associated with those activities.

In areas on Beale AFB, installation-specific policies require that areas that need re-vegetation for soil stabilization be seeded using the Beale AFB-approved seed mix (Beale AFB 2019). Private agricultural lands would be restored subsequent to construction per conditions of agreements developed with private landowners.

All temporarily disturbed areas would be re-graded so that surfaces drain naturally, blend with the natural terrain, and are left in a condition that would facilitate revegetation or reseeding, provide for proper drainage, and prevent erosion. Potential impacts to soils would be long term (permanent placement of facilities) and short term (temporary disturbance during construction) and minor. With the implementation of BMPs, no impacts are expected due to erosion.

4.7.1.3 Geologic Hazards

Review of the data obtained from the study indicates that the subsurface materials in which groundwater was encountered varied from stiff to very stiff silt with gravel and sand to dense to very dense silty gravel with sand. Groundwater was observed as shallow as 13 feet bgs in three borings. These characteristics indicate that the on-site soils are likely not susceptible to liquefaction (Beale AFB 2018b).

Based on the plasticity index test results, the upper 5 feet of soil underlying the site generally has a low to moderate potential for shrink-swell behavior (URS 2018). The topography of the study area and surrounding region is flat (0- to 3-percent slopes), and thus, the study area would not be subject to landslides.

Based on the findings of the geotechnical study (URS 2018), it is anticipated that there would be no impact as a result of geologic hazards. As a result of implementing the Preferred Alternative and O&M activities, neither people nor structures would be exposed to any adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, liquefaction, landslides, expansive soils, lateral spreading, subsidence, or collapse.

Based on current data, no impacts to geologic hazards are expected as a result of the Preferred Alternative.

These impact findings, including to soils, from erosion, and to geologic hazards, do not exceed the significance thresholds listed above for geology and soils.

4.7.2 Northern A Alternative

Impacts to geology and soils under the Northern A Alternative would be very similar to those addressed for the Preferred Alternative area. Disturbance associated with the new substation, structure foundations, pull sites, underground facilities, and existing substation would be nearly identical to the Preferred Alternative. Only the amount of road construction or improvement would change. For new road construction, approximately 1.32 acres of soils would be permanently impacted, and 3.31 acres would be temporarily impacted. For improving existing roads, approximately 2.2 acres of soils would be permanently impacted, and 2.73 acres would be temporarily impacted. Also, one additional structure may be required for the Northern A Alternative; the increase from that structure contributes negligibly to the acreage totals.

Erosion would be managed under the Northern A Alternative the same as under the Preferred Alternative. Potential impacts to soils would be long term (permanent placement of facilities) and short term (temporary disturbance during construction) and minor. With the implementation of BMPs, no impacts are expected due to erosion.

Impacts to geologic hazards would be the same as the Preferred Alternative: based on current data no impacts to geologic hazards are expected.

4.7.3 Southern Alternative

The Southern Alternative is very similar to the other action alternatives in terms of its sources of short- and long-term impacts on soils; however, the Southern Alternative has more proposed poles (including overhead 60-kV monopoles) and less road construction or improvement. Thus, the Southern Alternative presents slightly differing levels of impacts to soils than the other two action alternatives. These impacts would still result primarily from the use of heavy equipment, excavation, and grading on targeted sites in its Project area. Disturbances are described below per facility:

- *New Substation.* The proposed substation would include 7 acres of permanent disturbance for the substation footprint, and an additional 4.8 acres of temporary construction equipment-related impacts.
- *Road Improvement and Construction.* For new road construction, approximately 0.57 acre of soils would be permanently impacted, and 1.41 acres would be temporarily disturbed. No road improvements or temporary access roads would be needed for the Southern Alternative.

- *Structure Sites.* Disturbance related to all overhead structure, including H-frame, TSP, and 60-kV monopoles equate to 0.067 acre of permanent disturbance and 11.48 acres of temporary disturbance. Two foundations are needed for H-frame structures, each up to a 7-foot-diameter area, which would be permanently disturbed to a maximum depth of 24 feet. Up to 17 H-frame structure locations would be utilized in the Southern Alternative, meaning that up to 3,877 cubic yards of surface and subsurface soils could be excavated and replaced with concrete foundation to support the H-frames.

  Up to a 5-foot-diameter area would be permanently disturbed per 60-kV monopole structure, with a direct imbed or reinforced concrete foundations to a depth of up to 20 feet. An estimated 13 monopoles would be needed for the 60-kV overhead transmission line, meaning that up to 189 cubic yards of surface and subsurface soils could be excavated and replaced with concrete foundations to support the monopoles.
- *Pull Sites.* Construction pull and tensioning sites for the Southern Alternative would include impacts as described under the Preferred Alternative.
- *Underground Facilities.* Similar to the Preferred Alternative, underground facilities would be installed within and under existing roadways; no new aboveground disturbance is expected for these portions of the Project area. The underground portion of the Southern Alternative extends for 1.5 miles.
- *Existing Substation.* Disturbance is not expected at the existing substation beyond the exiting disturbed footprint.

Erosion would be managed under the Southern Alternative the same as under the Preferred Alternative. Potential impacts to soils would be long term (permanent placement of facilities) and short term (temporary disturbance during construction) and minor. With the implementation of BMPs, no impacts are expected due to erosion.

Impacts to geologic hazards would be the same as the Preferred Alternative: based on current data no impacts to geologic hazards are expected.

4.7.4 Geology/Soils Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts to geology/soils:

GEO-1	Should WAPA need to modify or relocate a structure, WAPA will have a certified professional geotechnical engineer evaluate the potential for geotechnical hazards and unstable slopes.
GEO-2	Upon completing ground disturbing work, all work areas will be left in a condition that facilitates natural and appropriate vegetation regrowth, provides for proper drainage, and prevents erosion.
GEO-3	Wet areas will be avoided to the extent practicable and all activity will be minimized during winter and other wet periods to prevent damage (e.g., rutting, erosion, soil compaction). If wet areas cannot be avoided, WAPA will use wide-track or balloon tire vehicles and equipment or timber mats.
GEO-4	All excavated soil will be backfilled and tamped at the location of excavation and used to provide positive drainage, or it will be hauled off-site to an area appropriate for disposal of excavated material in accordance with federal, state, and local regulations and in cooperation with the land owner.

GEO-5	Use of ground disturbing mechanical equipment to remove vegetation will be avoided on continuous slopes over 35 percent, unless the threat of erosion is minimal because of bedrock or reseeding will be performed.
GEO-6	Where soil has been severely disturbed and the establishment of vegetation will be needed to minimize erosion, appropriate measures, as approved by the federal land manager, will be implemented to establish an adequate cover of native grass or other native vegetation as needed. Perennial vegetation is preferred to annual vegetation. All mulch and seed will be of high purity to prevent the spread of noxious weeds. Soil preparation, seeding, mulching, and fertilizing will be repeated as necessary to insure soil stabilization and revegetation acceptable to the federal land manager.
GEO-7	Disturbance and removal of soils and vegetation will be limited to the minimum area necessary for access and O&M activities. Grading will be minimized to the extent possible. When required, grading will be conducted such that runoff waters flow predominantly away from watercourses/washes to reduce the potential for material to enter the watercourse/wash
GEO-8	Within Beale AFB, all vegetated areas disturbed by construction shall be revegetated with a Beale AFB Environmental Office-approved seed and "certified weed-free" straw mulch upon completion. Exposed soil must be hydroseeded or covered with a geotextile to prevent sediments from entering waterways.
GEO-9	The Beale AFB Soils Management Plan (Beale 2011) and Hazardous Materials Management Plan will be followed during Project construction.

4.7.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to geology or soils, and would not introduce any geological hazards.

4.8 HYDROLOGY/WATER QUALITY

Impacts to water resources could be considered significant if any of the following occur as a result of the proposed Project:

- Water quality standards or waste discharge requirements are violated or otherwise substantially degrade the surface or ground water quality substantially decreases.
- Groundwater supplies are substantially decreased groundwater recharge is substantially interfered with such that the Project may impede sustainable groundwater management of the basin.
- The existing drainage pattern of the site or area is substantially altered, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - result in a substantial erosion or siltation on- or off-site;
    - substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
    - create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    - impede or redirect flood flows
- A flood hazard, tsunami, or seiche zones would risk release of pollutants due to Project inundation.

- Implementation of a water quality control plan or sustainable groundwater management plan is conflicted or obstructed.

4.8.1 Preferred Alternative (Northern B Alternative)

4.8.1.1 Floodplains

Implementation of the Preferred Alternative would have no impact to floodplains or flood zones, since the Project area is outside the 0.2% annual chance floodplain (FEMA 2011).

4.8.1.2 Surface Water and Wetlands

The Project has been designed and its alignment situated to avoid surface waters and minimize impacts to aquatic resources (see Section 2.2, Project Design Features). Short-term impacts on wetlands and vernal pools within the Project area would be expected from culvert construction. See Section 4.5.1, Vegetation Communities Environmental Consequences, for more information on vernal pool impacts from culverts. Channel topography and underlying substrates would not be modified with the installation of horseshoe culverts and no net loss in drainage would occur. Replacement of the eight existing culverts may improve the drainage at those locations.

During construction and O&M activities, runoff from site improvements could result in a slight increase in turbidity in surface waters within the Project area. Potential impacts from an increase in turbidity would be minimized with implementation of BMPs (e.g., wetting of soils, silt fencing, and detention basins) and adherence to erosion and stormwater management practices to contain soil and runoff on the Project area. In addition, erosion-control BMPs in accordance with the Beale AFB SWPPP (Beale AFB 2018b) would be implemented as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils (for soil stability), and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB stormwater manager.

Impacts to surface water and wetlands in the Preferred Alternative area would be short term and negligible.

4.8.1.3 Groundwater

The Preferred Alternative would not remove groundwater or affect groundwater recharge. No impacts on groundwater or water quality would be expected from the Preferred Alternative construction or O&M activities.

These impact findings, including to floodplains, surface water and wetlands, and groundwater, do not exceed the significance thresholds listed above for hydrology and water quality.

4.8.2 Northern A Alternative

Potential impacts to hydrology and water quality under the Northern A Alternative would be equivalent to those addressed for the Preferred Alternative, including to floodplains, surface water, wetlands, and groundwater. The same number of culverts and temporary impacts to wetlands would occur.

The Northern A Alternative would have no impact to floodplains, short-term, negligible impacts to surface water and wetlands, and no impacts to groundwater.

4.8.3 Southern Alternative

Potential impacts to hydrology and water quality under the Southern Alternative would be similar to those addressed for the Preferred Alternative, including to floodplains, surface water, wetlands, and groundwater. Differences include that two vernal pools would be permanently removed with the placement of the proposed new substation at the Southern Alternative. See Section 4.5.1, Vegetation Communities Environmental Consequences, for more information on vernal pool impacts. Of the four waterways crossed by the Southern Alternative, two would be spanned by overhead structures on the western side, and two on Beale AFB would be bored under; both construction methods would avoid impacts to the waterways.

The Southern Alternative would have no impact to floodplains, short-term, minor impacts to surface waters and wetlands, and no impacts to groundwater.

4.8.4 Hydrology/Water Quality Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts to hydrology/water quality:

WR-1	Non-biodegradable debris will not be deposited in the ROW.
WR-2	Runoff from the maintenance site will be controlled and will meet the State Water Resources Control Board stormwater requirements in the SWPPP.
WR-3	Runoff control structures, roadside diversion ditches, erosion-control structures, and energy dissipaters will be cleaned, maintained, repaired, and replaced to meet the standards set by applicable permits and the SWPPP or, where such a plan is inapplicable, similar standards set by WAPA or Beale AFB.
WR-4	All contaminated discharge water created by O&M activities (e.g., concrete washout, pumping for work-area isolation, vehicle wash water, drilling fluids) will be contained and disposed of in accordance with applicable federal, state, and local regulations.
WR-5	Vehicles will be inspected daily for fluid leaks before leaving the staging area.
WR-6	Impacts to areas under the jurisdiction of the USACE and RWQCB will be avoided to the extent feasible. Where avoidance of jurisdictional areas is not feasible and the action is not covered under nationwide or other permits, WAPA will obtain 404/401 permits applicable to the action, as necessary. WAPA will perform an impact assessment for each O&M activity, which will identify and quantify the acreage of each jurisdictional area (wetland, riparian, etc.) that may be affected.

4.8.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to hydrology or water quality.

4.9 LAND USE AND PLANNING, AICUZ COMPATIBILITY, AND RECREATION

Impacts to land use and planning could be considered significant if any of the following occur as a result of the proposed Project:

- A significant environmental impact results due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

- Proposed land use associated with the Project is incompatible with land uses for adjacent parcels.
- The Project includes recreational facilities or requires the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.
- There is an irreconcilable conflict between the Project and applicable land use plans, policies, or regulations of an agency with jurisdiction over the Project.
- Project activities or infrastructure physically divide an established community.
- There is a Project-related conflict with an applicable habitat conservation plan or natural community conservation plan.
- Recreational opportunities are substantially diminished as a result of the Project, existing recreational facilities are substantially damaged by the Project, or new recreational facilities that would create substantial damage to the environment need to be built as a result of the Project.

4.9.1 Preferred Alternative (Northern B Alternative)

The Project would conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

4.9.1.1 Land Use and AICUZ Compatibility

Private parcels within the study area have been mapped by Yuba County as NR and AE-80 (see Section 3.9, Land Use, AICUZ Compatibility, and Recreation Affected Environment). The proposed Project would comply with the Yuba County General Plan, as the list of allowable uses in the NR designation includes public facilities and infrastructure (Yuba County 2011), and major utility infrastructure is allowable in AE-80 zoned areas with the issuance of a Conditional Use Permit (Yuba County 2015).

The Preferred Alternative area within Beale AFB is within the Airfield Planning District. Beale AFB currently utilizes an IDP as its primary document guiding development and programming decisions, as described in Section 3.9, Land Use, AICUZ Compatibility, and Recreation Affected Environment. The IDP does not state that utility development is incompatible with the Airfield Planning District (Beale AFB 2014b).

Because utility infrastructure is an allowable use of private land as currently zoned off of Beale AFB and because Beale AFB's IDP allows utility development in the Airfield Planning District, the Preferred Alternative would be compatible with adjacent land uses. The Project has been preliminarily screened to determine that the Project is compatible with the Beale AFB AICUZ. The Preferred Alternative, if selected, would undergo additional screening for compatibility before a contract with the contractor is finalized to ensure that details such as noise generation and helicopter trips are consistent with the AICUZ.

Because of the Preferred Alternative's compatibility with local land use plans and land designations on Beale AFB, including the IDP and the AICUZ, the Project is anticipated to have no impacts to land use.

4.9.1.2 Recreation

The closest recreation areas to the Preferred Alternative are the Yuba River and Spenceville Wildlife Area, both of which are 2 or more miles away; therefore, the Preferred Alternative would have no impact to designated recreation areas.

Hunting is the most comment recreation activity along the Preferred Alternative, both on Beale AFB and private lands. On private land, construction and O&M of the Preferred Alternative may disrupt duck hunting activities. WAPA would negotiate with landowners during easement purchase to compensate for the loss of duck blinds. However, impacts to private property used for duck hunting and the lease of duck blinds in this area may still be impacted. Impacts on private land to duck hunting are expected to be short term and negligible to none.

Hunting on Beale AFB requires relevant permits (see Section 3.9, Land Use, AICUZ Compatibility, and Recreation Affected Environment). The Project area would be off-limits to hunting during construction and possibly during O&M activities. Hunters would be informed of closures through the existing mandatory permit system for the Beale AFB hunting program. Hunting would resume as currently permitted in all areas subsequent to the completion of construction. Based on current levels of use and the availability of alternative sites for recreational activities, it is anticipated that there would be short-term, negligible to no impacts to existing recreational opportunities on Beale AFB.

In addition, the Preferred Alternative would not create direct or indirect damage to any existing recreational facilities nor would the provision of a redundant electrical power source create a need to build any additional recreational facilities. The Project would not increase demand for recreation activities and would not cause an influx of people to a given area. Therefore, no long-term impacts to recreation are anticipated.

These impact findings, including land use and recreation, do not exceed the significance thresholds listed above for land use and planning, AICUZ compatibility, and recreation.

4.9.2 Northern A Alternative

The Northern A Alternative alignment traverse the same land use areas (agriculture on private land, developed areas on Beale AFB), would have the same impacts and would manage recreation resources as described under the Preferred Alternative. Therefore, potential impacts under the Northern A Alternative would be identical to those addressed for the Preferred Alternative—that is, no impact to land use and short-term negligible to no impacts to recreation.

4.9.3 Southern Alternative

The Southern Alternative alignment traverse the same land use areas (agriculture on private land, developed areas on Beale AFB), would have the same impacts and would manage recreation resources as described under the Preferred Alternative. Therefore, potential impacts under the Southern Alternative would be identical to those addressed for the Preferred Alternative—that is, no impact to land use and short-term negligible to no impacts to recreation.

4.9.4 Land Use and Planning, Recreation, and AICUZ Compatibility Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts to land use and recreation:

LU-1	WAPA will direct members of the public to alternate pedestrian routes if access is blocked by machinery or for safety purposes.
LU-2	WAPA would negotiate with landowners during easement purchase to compensate for the loss of duck blinds.

4.9.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to land use and planning or recreation.

4.10 NOISE

Noise impacts are based on an evaluation of the estimated Project-generated noise that would result from implementation of the proposed Project in comparison to existing ambient noise levels. Noise impacts can be categorized into two types: temporary, short-term impacts and permanent, long-term impacts.

Impacts from noise could be considered significant if any of the following occur as a result of the proposed Project:

- Generation of substantial temporary or permanent increases ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Generation of excessive ground borne vibration or ground borne noise levels.
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the project exposes people residing or working in the project area to excessive noise levels.

Permanent noise impacts could be considered significant if implementation of the proposed Project results in long-term, ongoing noise routinely in excess of the 60 dBA Ldn based on the Yuba County General Plan. This is equivalent to a 63 dBA Leq, assuming an ambient background noise level of 50 dBA between 7:00 p.m. and 7:00 a.m. Construction noise impacts would be considered adverse if they result in noise greater than 70 dBA Ldn at any receptors (equivalent to 73 dBA Leq during construction hours) using the “conditionally acceptable” noise range from the Yuba County General Plan, as the standard is intended for permanent noise impacts and construction activities are temporary in nature and restricted to daytime hours. This is in excess of the HUD standard; however, the HUD standard is intended for permanent noise impacts. Temporary construction lasting a matter of weeks at each pole location is not considered a permanent impact.

4.10.1 Preferred Alternative (Northern B Alternative)

Implementation of the Preferred Alternative would result in short-term construction noise impacts and long-term noise impacts from operation of the transmission line. Each type of impact is addressed separately and in the context of the current existing environment.

4.10.1.1 Construction Noise Impacts

Implementation of the proposed Project would require large equipment for construction. A list of the necessary equipment is provided in Section 2.3.1.5, General Construction Activities. **Table 4-5** contains estimated construction equipment noise levels for a variety of typical heavy equipment types. Construction is proposed to occur between the hours of 7:00 a.m. and 7:00 p.m. six days per week. Tasks would be conducted in stages, and equipment would not be working on all tasks simultaneously at each location.

TABLE 4-5
ESTIMATED CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment Description	Typical Acoustical Usage Factor (%)	Specified L_{max} at 50 feet (dBA)	Actual Measured L_{max} at 50 feet (dBA)
All other equipment greater than 5 horsepower	50	85	Not applicable
Auger drill rig	20	85	84
Backhoe	40	80	78
Compressor (air)	40	80	78
Concrete mixer truck	40	85	79
Concrete pump truck	20	82	81
Crane	16	85	81
Dozer	40	85	82
Dump truck	40	84	76
Excavator	40	85	81
Flat-bed truck	40	84	74
Front-end loader	40	80	79
Generator	50	82	81
Grader	40	85	N/A
Paver	50	85	90
Pickup truck	40	55	75
Tractor	40	84	74
Welder/Torch	40	73	74

TABLE 4-5 ESTIMATED CONSTRUCTION EQUIPMENT NOISE LEVELS			
Equipment Description	**Typical Acoustical Usage Factor (%)**	**Specified L_{max} at 50 feet (dBA)**	**Actual Measured L_{max} at 50 feet (dBA)**
Source: FHWA 2017 L_{max} = maximum dB noise level			

Because construction will be loudest at discrete work sites (i.e., pole locations and substation location), noise modeling was performed considering the nearest residence would be at approximately mid-span and that the nearest pole would be no closer than 435 feet from the residence. The model used typical usage factors for the equipment, which should be reflective of both intermittent use and sequential use for portions of construction. **Table 4-6** shows the predicted construction noise impacts in Leq.

TABLE 4-6 ESTIMATED CONSTRUCTION NOISE IMPACTS				
Activity Description	**Modeled Noise Impact (L_{eq})— Preferred Alternative**	**Modeled Noise Impact (L_{eq})— Northern A Alternative**	**Modeled Noise Impact (L_{eq})— Southern Alternative**	**Adverse Impact (L_{eq})**
Vegetation clearing and roads	66.8	57.1	64.9	73
Foundation excavation	65.5	55.1	63.2	73
Foundation installation	66.1	56.4	64.2	73
Structure assembly and erection	65.6	56.0	63.7	73
Conductor stringing	68.5	59.7	67.7	73
Disturbance area restoration	66.5	54.9	62.7	73
Substation construction	54.3	54.3	54.3	73
Source: Roadway Construction Noise Model				

The results of the modeling show that none of the construction activities would result in noise levels that exceed the adverse impact threshold.

The closest residence to the alignment is approximately 80 feet away. This residence could experience daytime noise up to a maximum L_{eq} of 83.2 dBA. Since the line would be designed so that the residence is not situated near a pole location, this disturbance would be very short term, only occurring when conductors are strung to erected poles, and minimal noise from construction equipment traveling to and from work sites. Construction activities within 400 feet of a residence will be limited to daytime hours between 7:00 a.m. and 7:00 p.m.

The distance of the remaining residences from the Project is enough for the noise generated from construction activities to attenuate substantially, resulting in noise levels near typical ambient levels around Beale AFB. Agricultural activities with equipment noise from tractors and

aerial spraying routinely result in elevated noise levels in the Project area. A tractor at 300 feet would typically result in noise levels of 65 dBA, which is comparable to the noise generated by Project activities. Airfield activities also result in elevated noise levels in the vicinity of Beale AFB. With the exception of the nearby residences, the Project would not result in temporary or periodic increase in ambient noise levels in the Project vicinity above current ambient levels existing without the Project.

Construction of the proposed Project would also not require any blasting, rock hammering, drilling, or pile driving, which would be major sources of vibration. The distance of the Project from any sensitive receptors would be sufficient to allow any small amount of vibration generated to attenuate. The Project would not expose persons to the generation of excessive ground-borne vibration or ground-borne noise levels.

Noise impacts due to implementation of the Preferred Alternative would be short term and negligible. BMPs are provided below (see Section 4.10.4, Noise Protection Measures) to further limit impacts from noise.

4.10.1.2 Long-term Operational Noise Impacts

Although electrical infrastructure is generally not perceived as noise-generating, there are a few aspects that must be considered, including noise from transmission line corona effects, substation noise, and noise from personnel maintaining and monitoring the facilities.

The corona effect is a phenomenon that occurs around high-voltage transmission lines. It is a partial breakdown of the insulating properties of air in the vicinity of the conductors that ionizes the air in the immediate vicinity. This creates an audible noise generally characterized as a hissing or crackling sound. Typically, the audible noise generated by transmission lines of less than 230-kV is minimal and usually not noticeable (CPUC 1999). During wet weather conditions when the corona effect is more noticeable, the noise generated would be less than 35 dbA at the edge of a transmission line ROW, much less than the ambient noise of wind and rain.

Electric transformers and other equipment in electrical substations generate a noise perceived as a low humming sound. This noise is generally tonal and related to the frequency of the alternating electric current. In addition, fans and other cooling equipment add to the overall noise. Specifics on the transformer units to be installed are not available. However, using data from a similar substation installation rated for 448 Mega Volt Amp load, the overall humming noise from the substation can be reasonably assumed to not exceed 45 dBA at 500 feet (Central Maine Power 2018). The proposed substation locations are over 3,000 feet from the nearest sensitive receptor. A noise level of 45 dBA at 500 feet is already difficult to hear for the average observer. A distance of 3,000 feet is sufficient for any potential substation noise to attenuate and become indistinguishable from background noise.

Patrolling and maintenance of the transmission line is expected to result in negligible noise impacts. Routine inspections of the transmission line would occur annually using the agreed upon access roads and would be performed by a small crew in a single vehicle during daylight hours. Due to the transient nature of these activities and the surrounding setting, they would not contribute appreciably to the overall noise environment.

CEQA requires an assessment of excessive noise exposure for Projects within an airport land use plan area or within 2 miles of a public or private airstrip. The proposed Project is partially

within an airport land use plan and is within 2 miles of an airstrip (on Beale AFB); however, the proposed Project would not have an adverse effect on operations at Beale AFB and would not directly contribute to aircraft- or airfield-related noise impacts.

Implementation of the Preferred Alternative would not result in exposure of persons to the generation of noise levels in excess of standards established in the local general plan or noise ordinance or other applicable agency standards, nor would it result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.

Impacts from noise due to operation of the Preferred Alternative would be long term and negligible to none. BMPs are provided below (see Section 4.10.4, Noise Protection Measures) to further limit impacts from noise.

These impact findings, including during construction and operation of the Project, do not exceed the significance thresholds listed above for noise.

4.10.2 Northern A Alternative

The existing noise environment and impacts of the Northern A Alternative would be very similar to the Preferred Alternative. In general, the Northern A Alternative is farther from surrounding residences, with the closest being 1,740 feet away. Construction activities within 400 feet of a residence will be limited to daytime hours between 7:00 a.m. and 7:00 p.m.

The noise modeling performed for the Preferred Alternative is applicable to the Northern A Alternative, as there is not a residence and potential pole location expected to be closer than 435 feet (see **Table 4-6)**. There would be no substantial sources of vibration, and the construction length would also be similar for this alternative. Long-term operational noise impacts would be the same for the Northern A Alternative as the Preferred Alternative.

Impacts from noise due to construction and operation of the Northern A Alternative would be long term and negligible to none.

4.10.3 Southern Alternative

The existing noise environment and impacts of the Southern Alternative would be very similar to the Preferred Alternative. The Southern Alternative passes near one rural residence at a distance of 250 feet. Construction activities within 400 feet of a residence will be limited to daytime hours between 7:00 a.m. and 7:00 p.m.

The noise modeling performed for the Preferred Alternative is applicable to the Southern Alternative, as there is not a residence and potential pole location expected to be closer than 435 feet (see **Table 4-6)**. As with the Preferred Alternative, there would also be no substantial sources of vibration. The construction length would also be similar for this alternative. Long-term operational noise impacts would be the same for the Southern Alternative as the Preferred Alternative.

Impacts from noise due to construction and operation of the Southern Alternative would be long term and negligible to none.

4.10.4 Noise Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts from noise:

NS-1	All vehicles and equipment will be equipped with required exhaust-noise-abatement devices.
NS-2	For long-term O&M activities confined to a specific area, WAPA's Environmental Department will be contacted to evaluate local thresholds and all requirements of those agencies having jurisdiction over noise matters.
NS-3	Construction activities within 400 feet of a residence must be limited to the hours between 7:00 AM and 7:00 PM.

4.10.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur from noise.

4.11 PUBLIC HEALTH AND SAFETY AND HAZARDOUS MATERIALS

Impacts to public health and safety and hazardous materials could be considered significant if any of the following occur as a result of the proposed Project:

- A significant hazard to the public/environment is created through routine transport/use/disposal of hazardous materials.
- A significant hazard to the public or the environment is created through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- The Project causes the emission of hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.
- The Project is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the project results in a safety hazard or excessive noise for people residing or working in the project area.
- Impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan.
- Exposure of people or structures, either directly or indirectly, to a significant risk, loss, injury, or death involving wildland fires.
- There is a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- There is a substantial hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- The Project would emit hazardous emissions or bring hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

- The Project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
- For a project within the vicinity of a private airstrip, the project would result in a safety hazard for people residing or working in the project area.
- Impaired implementation of or physical interference with an adopted emergency hazardous materials spill response plan or emergency evacuation plan.
- The Project would expose people or structures to a significant risk of loss, injury, or death resulting from wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Baseline conditions for assessing potential impacts to public health and safety are related to hazardous materials, fire hazards, location within Beale AFB's AICUZ, and electric and magnetic fields (see Section 3.11, Public Health and Safety and Hazardous Material Affected Environment). Potential impacts are described below per topic.

4.11.1 Preferred Alternative (Northern B Alternative)

4.11.1.1 Hazardous Materials

Hazardous materials that may be present in connection with construction and O&M of the Preferred Alternative are identified in Section 3.11, Public Health and Safety and Hazardous Material Affected Environment. Any project on Beale AFB, including the proposed Project, would be subject to and consistent with those plans and directives in the Beale AFB ICP. Additional hazardous materials spill prevention and control measures would be implemented, consistent with the plans contained within the ICP. With the hazardous materials spill prevention and control measures from the ICP in place, the Preferred Alternative is anticipated to have no impact to public health and safety resulting from the routine use or transportation of hazardous materials. BMPs are listed in Section 4.11.4, Public Health and Safety and Hazardous Material Protection Measures, that dictate management of hazardous materials.

Potential subsurface hazardous materials that could be found in soils during Project construction are addressed under Section 4.7.1.2.

4.11.1.2 Fire Hazards

Both construction workers and the general public could be exposed to risk from fire hazards during construction and O&M of the Preferred Alternative. Construction activities could start a fire by igniting nearby fuel sources, such as dry grasses, as a result of sparks from a maintenance vehicle or tool or a discarded burning cigarette. To prevent the risk of fire during construction activities, the contractor for the proposed Project would be required to implement a comprehensive fire prevention and safety program for the job site, which would include spark arrestors for equipment and proper cigarette disposal for employees among other fire suppression tools and equipment. The contractor for the proposed Project would also be required to develop an evacuation plan, as part of this fire safety program, in the event of fire from other sources. These plans would reduce the risk of fire from construction activities to a negligible level.

Trees falling on electrical distribution lines and the electrocution of birds are the most common causes of fires generated by power lines. These risks would be very low for the Preferred

Alternative due to the absence of trees in the Project corridor (the 2.5 miles of overhead transmission line would traverse over agricultural fields and relatively flat grasslands) and, since it is a transmission line as opposed to a distribution line, the width of the span between conductors would be too far for birds to span and cause electrocution (personal communication Saare 2019). All new lines or replaced lines on Beale AFB meet modern avian hazard/protection standards.

Maintenance and inspection to include risk from wildfire and all other required inspections would be performed by WAPA on the transmission lines and substation via ground patrol at least annually and via air patrol quarterly (depending on Beale AFB flight restrictions). Risk from the underground portion buried under a road is expected to be negligible. Risk from the transmission line and substation would not add appreciably to the overall risk from the three adjacent transmission lines (one owned by WAPA at the point of proposed interconnection, and two owned by PG&E). None of these transmission lines in this area have a history of failure or starts from fires, nor do any of the substations on Beale AFB.

The Project would also reduce potential fire risk and damage through the use of steel utility poles. The 60-kV distribution line associated with the Preferred Alternative would be encased in concrete and buried underground. Consequently, there would be no risk of fire from the ongoing operation of the underground infrastructure.

Overall, construction and operation of the Preferred Alternative would present short-term negligible risk to public health from wildfire. BMPs are listed in Section 4.11.4, Public Health and Safety and Hazardous Material Protection Measures, that dictate management of fire hazards.

4.11.1.3 Air Installation Compatible Use Zones

The Preferred Alternative has been preliminarily screened to determine that it is compatible with the Beale AFB AICUZ. It has been determined that the Project in concept would result in a safety hazard for people residing or working on Beale AFB or on adjacent private lands as a result of aircraft accident potential or noise. The Preferred Alternative, if selected, would undergo additional screening for compatibility to ensure that details such as noise generation and helicopter trips are consistent with the AICUZ. Because of these measures to ensure compatibility of the Project with the AICUZ, the Preferred Alternative would present no impacts to public health and safety resulting from the ongoing use of Beale AFB airstrips and airspace for USAF missions.

4.11.1.4 Electric and Magnetic Fields

No existing schools, hospitals or public facilities are closer than 1,000 feet from the Preferred Alternative alignment. One home is within 1,000 feet of the alignment; however, it would not be within WAPA's ROW, which is designed to minimize EMF at the edge of the ROW. No documented adverse public health and safety effects from EMF exposure has occurred from the existing transmission lines in the Project area.

EMFs at the edge of easements are anticipated to be well below the recommended guidelines of the International Commission on Non-Ionizing Radiation and the American Conference of Governmental Industrial Hygienists. The Preferred Alternative would not expose the public or workers to unusual or higher than usual levels of EMF. Therefore, the Preferred Alternative is

anticipated to have long-term negligible to no impacts to public health and safety resulting from EMF.

These impact findings, including from hazardous material, fire hazards, air installation compatibility, and EMFs, do not exceed the significance thresholds listed above for public health and safety and hazardous materials.

4.11.1.5 Worker Safety

During construction, standard health and safety practices would be implemented in accordance with the Occupational Safety and Health Administration's policies and procedures and safety standards established by WAPA and Beale AFB. These practices would reduce worker safety risks. Project implementation would not affect any local or regional emergency response plan or evacuation plan. No impacts to the safety of workers would be anticipated.

4.11.2 Northern A Alternative

Potential impacts to public health and safety under the Northern A Alternative would be identical to those addressed for the Preferred Alternative. The same hazardous materials would be used and managed as described for the Preferred Alternative, the same fire hazards would be present and managed, the Northern A Alternative would be in compliance with the AICUZ, and no residences would be within WAPA's ROW, which is designed to minimize EMF at the edge of the ROW.

The Northern A Alternative would have no impact from hazardous material, short-term, negligible impacts from fire hazards, no impacts related to AICUZ compatibility, no impacts from EMF exposure, and no impacts to worker safety.

4.11.3 Southern Alternative

Potential impacts to public health and safety under the Southern Alternative would be similar to those addressed for the Preferred Alternative. The same hazardous materials would be used and managed as described for the Preferred Alternative, the same fire hazards would be present and managed, the Southern Alternative would be in compliance with the AICUZ, and , and no residences would be within WAPA's ROW, which is designed to minimize EMF at the edge of the ROW.

The Southern Alternative would have no impact from hazardous material; short-term, negligible impacts from fire hazards; no impacts related to AICUZ compatibility; no impacts from EMF exposure; and no impacts to worker safety.

4.11.4 Public Health and Safety and Hazardous Materials Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts to public health and safety and hazardous materials:

PH-1	Signs and/or flags will be erected in areas of public access to indicate maintenance activities are taking place; workers will be conspicuous by wearing high-visibility vests and hardhats.

PH-2	O&M excavations greater than 3 feet deep will be fenced, covered, or filled at the end of each working day, or have escape ramps provided to prevent injury of the public and workers.
PH-3	With regard to herbicide use: • All herbicide applicators will have received training and be licensed in appropriate application categories • Herbicide-free buffer zones will be maintained per label instructions • All herbicide label and material safety data sheet instructions will be followed regarding mixing and application standards and equipment-cleaning standards to reduce potential exposure to the public through drift and misapplication • WAPA will ensure that areas treated with herbicides will be posted and re-entry intervals specified and enforced in accordance with label instructions. Herbicides and equipment will never be left unattended in areas with unrestricted access • Climate, geology, and soil types will be considered (including rainfall, wind, depth of aquifer, and soil permeability) in selecting the herbicide with lowest relative risk of migrating to water resources • There will be no aerial application of herbicides • All herbicide spill requirements will be followed in the rare case of an herbicide spill, including containment, cleanup, and notification procedures
PH-4	With regard to hazardous materials: • Hazardous materials will not be drained onto the ground, into streams, or into drainage areas • Any release, threat of release, or discharge of hazardous materials within the Project area in connection with Project activities will be cleaned up and/or remediated in accordance with applicable federal, state, and local regulations • All construction waste, including trash and litter, other solid waste, petroleum products, and other potentially hazardous material will be removed in accordance with applicable federal, state, and local regulations • Discovery of, or the accidental discharge of, a significant amount of hazardous materials will be immediately reported to WAPA's dispatch and Environmental Department • There will be no storage of hazardous materials in the Project area without approval from the authorized officer • Upon termination of the permit, a report will be submitted to determine whether there had been site contamination and if so, that the remediation met compliance with applicable laws
PH-5	All contract crews will complete hazardous materials pre-maintenance awareness training to ensure they are aware of BMPs and AMMs as wells as pertinent regulations and the consequences for non-compliance. All supervisors and field personnel will have on-file a signed agreement that they have completed the training and understood and agreed to the terms. BMPs and applicable AMMs will be written into the contract for O&M work, and contractors will be held responsible for compliance.
PH-6	Contractors must submit a spill response plan that is approved by WAPA. Clean-up actions and costs resulting from contractor misconduct will be the responsibility of the contractor and approved by WAPA's Environmental Department.
PH-7	WAPA crews will complete annual awareness training to ensure they are familiar with BMPs and AMMs related to hazardous materials. All supervisors and field personnel will have on-file proof that they have completed the training.

PH-8	All incompatible/non-desirable vegetation will be removed a minimum of 30 feet from tower center and conductors or as required by federal requirements and to ensure access to towers.
PH-9	WAPA and its contractors will comply with all applicable federal and state regulations regarding fire suppression, including but not limited to having all equipment be equipped with a shovel, water pump, and fire extinguisher; the use of spark arrestors on all internal and external combustion engines; verification of daily fire levels during fire season; and a minimum of a 300-gallon water tank with a minimum of 250 feet of hose.
PH-10	Hazardous material BMPs: • Ensure all hazardous substances are properly labeled • Store, dispense, and/or use hazardous substances in a way that prevents releases • Provide secondary containment when storing hazardous substances in bulk quantities (greater than 55 gallons) • Maintain good housekeeping practices for all chemical materials at the work site • Conduct routine/daily checks in the hazardous substance storage area to check for leaks and spills • Maintain adequate spill response supplies and equipment on trucks and equipment at the jobsite to manage and clean up leaks and spills as required • Clean up small spills according to the Spill Prevention Plan required in the submittals portion of the contract • Report spills exceeding 10 gallons of material or if any has been released to surface water or storm drains to WAPA Environmental and the on-site inspector Refueling of construction equipment would be allowed on-site during construction in each of the alternatives, for which the following measures would be implemented consistent with the Beale AFB ICP: • The contractor must monitor fuel transfer operations closely until they are complete. This means that a trained employee must keep watch over fuel transfers and must be within 10 feet of the fuel hose during refueling operations • The contractor must provide secondary containment when storing hazardous substances in bulk quantities Disposal of any hazardous waste generated by the proposed Project or its alternatives would be subject to the following conditions: • Disposal of hazardous wastes generated as a result of spills or other activities on the jobsite would be the financial responsibility of the contractor. The contractor would provide a licensed hazardous waste hauler and licensed transfer, storage, and disposal facility for the disposal of hazardous wastes • In the event that such hazardous waste is generated, the contractor would coordinate disposals with the WAPA representative and WAPA Environmental staff to acquire appropriate EPA identification numbers and to coordinate signing of the manifest in those cases
PH-11	Project construction will have an environmental monitor on-site to ensure all AMMs and BMPs prescribed in the EA are enforced on-site. This will be required and written into the terms for the contractor being paid for the work.

PH-12	All construction crews will follow standard OSHA safety practices and any other best safety practices implemented by WAPA or Beale AFB.

4.11.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to public health and safety nor would it introduce hazardous materials.

4.12 TRANSPORTATION/TRAFFIC

Impacts to transportation and traffic could be considered significant if any of the following occur as a result of the proposed Project:

- The Project conflicts with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- The Project conflicts or is inconsistent with CEQA Guidelines § 15064.3, subdivision (b).
- There is a substantially increase in hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- The Project results in inadequate emergency access.

4.12.1 Preferred Alternative (Northern B Alternative)

The Preferred Alternative is expected to contribute approximately 13,740 total vehicle trips to and from construction sites associated with the Project for the duration of the construction period, or approximately 16 months. While the construction route for the Project area has not been fully established or confirmed, the most practical and likely path for construction traffic associated with the alternatives would generally be from the west, both to access the Wheatland Gate and to access the private property portions. O&M of the Project is not expected to contribute to transportation and traffic, as those activities are typically performed by a small crew in a single vehicle. Due to the transient nature of these activities and the surrounding setting, they would not contribute appreciably to traffic in the area.

There are two anticipated construction sites that would generate different construction traffic patterns: the construction taking place on private lands and the construction taking place on Beale AFB. These impacts are described below separately.

4.12.1.1 Yuba County Transportation Systems

The Hammonton-Smartville Road is the likely main arterial road that would be part of a construction vehicle route for the private parcel portions of the study area. This road has a Level of Service grade ranging from “A” to “C” in the vicinity of Beale AFB and extending west from Beale AFB (Yuba County 2007). An average of 41 daily vehicle trips to and from the private land’s construction site would be made during the 16-month construction period. Based on the schedule and the volume of traffic, it is anticipated that Project-related traffic would not cause the Level of Service on Hammonton-Smartville Road to decrease by more than one letter grade at any time, meaning that the Preferred Alternative is compatible with the goals, plans, and policies establishing measures of effectiveness for Yuba County’s circulation system for the private lands construction traffic route as well.

There would be localized traffic impact on the rural roads directly adjacent to the Preferred Alternative area. The current projected schedule of construction, which is 7:00 a.m. to 7:00 p.m. daily Monday through Saturday, may impact Yuba County traffic during peak traffic times of 7:00 a.m. to 9:00 a.m. and 5:00 p.m. to 7:00 p.m. (Yuba County 2007). This extra congestion would occur at the very beginning or very end of peak times and would not appreciably impact traffic overall.

Overall, the impact to transportation and traffic on private land from the Preferred Alternative would be short term and minor.

4.12.1.2 Transportation Systems on/to Beale AFB

For the construction taking place on Beale AFB, all contractor vehicles would be required to enter Beale AFB through the Wheatland Gate to undergo vehicle inspections (personal communication Kemp 2019). This could lead to an increase in wait times at the Wheatland Gate. However, the impact to wait times would be managed by Beale AFB informing those who normally access the base in this way to seek alternative gates for travel to and from Beale AFB, such as the Main Gate, Doolittle Gate, Grass Valley Gate, or Vassar Lake Gate (personal communication Kemp 2019). With this existing network of gates and the Beale AFB communication system for managing traffic flow, it is not expected that the Level of Service at Wheatland Gate or anywhere else on Beale AFB would drop below a "C" level for the duration of construction. There would be no impact to emergency access on Beale AFB and no impact to other means of circulation on Beale AFB, including pedestrian walkways or bicycle access.

The impact to transportation and traffic on Beale AFB from the Preferred Alternative would be short term and minor.

These impact findings, including to transportation and traffic on private and on Beale AFB, do not exceed the significance thresholds listed above for transportation and traffic.

4.12.2 Northern A Alternative

Because the Northern A Alternative is only 0.5 mile from the Preferred Alternative, potential impacts to transportation and traffic under the Northern A Alternative would be equivalent to those addressed for the Preferred Alternative area. That is, impacts to transportation and traffic from the Northern A Alternative would be short term and minor.

4.12.3 Southern Alternative

Because the Southern Alternative is only 3.5 miles from the Preferred Alternative, the same local road network would be used, plus Erle Road off Beale AFB, and construction vehicles would still access Beale AFB via Wheatland Gate. Therefore, potential impacts to transportation and traffic under the Southern Alternative would be equivalent to those addressed for the Preferred Alternative area. That is, impacts to transportation and traffic from the Southern Alternative would be short term and minor.

4.12.4 Transportation/Traffic Protection Measures

The following resource protection measures will be implemented to avoid or lessen impacts to transportation/traffic:

TR-1	All lane closures or obstructions on major roadways associated with maintenance activities will be restricted to off-peak periods to minimize traffic congestion and delays and will be coordinated with appropriate authorities.

4.12.5 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to transportation or traffic.

4.13 UTILITIES/SERVICE SYSTEMS

Impacts to utilities and service systems could be considered significant if any of the following occur as a result of the proposed Project:

- The Project requires or results in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
- The Project would reduce water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years.
- The Project results in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments.
- The Project would result in solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
- The Project could not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

4.13.1 Preferred Alternative (Northern B Alternative)

This section describes potential impacts from the Preferred Alternative to water supply, sewer and wastewater, storm drainage, electrical, communications, and solid waste.

4.13.1.1 Water Supply

Water required for the Preferred Alternative would be for dust control associated with construction. Water would also be used to wash O&M equipment. The contractor would be required to obtain water for dust control and equipment washing from an existing water supply with an adequate entitlement to serve these relatively low-volume and short-term water needs.

The proposed new substation would be unmanned and would not require the construction of plumbing or sewage facilities. Runoff from any water used at the substation would be contained within secondary substation containment. Any water releases at the substation would be monitored according to a Spill Prevention Control Countermeasures plan for the substation.

The long-term operation of the Project is not anticipated to have any ongoing need for water, and neither the construction nor the operation associated with the Preferred Alternative is anticipated to produce an impact on local or regional water supplies or facilities. A pressurized

water truck attached to a pressure washer or similar system would be used for O&M equipment washing needs.

The Preferred Alternative is expected to have no impact to water supply in the area. Water supply protection measures are not necessary or proposed.

4.13.1.2 Sanitary Sewer and Wastewater System

The Preferred Alternative would not require new or expanded wastewater treatment facilities. For the construction period and for the use of construction staff, on-site waste management would be accomplished with portable toilets sufficient to meet the Project's construction staffing needs for each designated construction site. Portable toilet facilities would be required to be supplied by a licensed and permitted vendor. All wastewater treatment requirements of the California RWQCB, Central Valley Region would continue to be met on Beale AFB and on surrounding private lands.

The Preferred Alternative would have no impact on existing wastewater treatment facilities on or off Beale AFB and no impact on Beale AFB's ongoing compliance with wastewater treatment requirements of the California RWQCB, Central Valley Region. Sanitary sewer and wastewater protection measures are not necessary or proposed.

4.13.1.3 Storm Drainage System

The Preferred Alternative would build new and replace existing culverts on an existing access road. These culverts would be sized appropriately for managing stormwater runoff and they represent an upgrade of current drainage structures installed in the existing road. The long-term impacts of the upgraded culverts to stormwater runoff is anticipated to be long term and beneficial.

Beale AFB has developed a SWPPP to comply with federal, state, and local regulations and reduce the actual and potential releases of pollutants to the stormwater runoff from the Beale AFB installation (Beale AFB 2018b). The SWPPP includes BMPs to reduce pollution and the potential release of pollutants to stormwater runoff. The Preferred Alternative includes compliance with all BMPs in the SWPPP, both for on- and off-Beale AFB construction work associated with this alternative. Implementation of BMPs would reduce and minimize any adverse construction-related impacts to stormwater runoff to short-term and negligible levels. Storm drainage system AMMs or BMPs are not necessary or proposed.

4.13.1.4 Electrical System

The main area of impact with regard to utilities and service systems from the Preferred Alternative is the existing electrical infrastructure of Beale AFB. PG&E is currently the primary supplier of electrical power to Beale AFB. The purpose of this Project for Beale AFB is to create a redundant source of electrical power in order to increase reliability of their electrical system and ensure its capability to meet its missions. The Preferred Alternative would provide Beale AFB a redundant source of power. PG&E accesses their facilities on Beale AFB via the Grass Valley Gate; construction of the Preferred Alternative would not interfere with PG&E operations or maintenance of their existing lines.

Impacts to the electrical system on Beale AFB would be long term and beneficial. Electrical system protection measures are not necessary or proposed.

4.13.1.5 Communication Systems

The Preferred Alternative includes the installation of aerial and buried fiber cables to increase capacity and reliability of the communication system on Beale AFB. Impacts to the communications system on Beale AFB would be long term and beneficial. Communication system protection measures are not necessary or proposed.

4.13.1.6 Solid Waste

Beale AFB manages solid waste in compliance with all federal, state, and local statutes relating to solid waste; the USAF has developed an installation-specific ISWMP for Beale AFB that addresses compliance with all applicable statutes (Beale AFB 2018c). For construction activities, the ISWMP states that construction debris and other waste shall be sorted into recyclable and non-recyclable waste streams and that contractors shall transport all solid waste off Beale AFB to an approved landfill or recycling facility (Beale AFB 2018c).

The Ostrom Road Landfill is the anticipated site for the disposal of all solid waste generated during construction activities of the Preferred Alternative. The Ostrom Road Landfill's current plans indicate that the landfill is not at capacity and would not reach capacity until the year 2102 (RWQCB 2016[2]). The solid waste generated by the Preferred Alternative is anticipated to contribute a negligible amount of waste in the context of the capacity of this landfill and not appreciably hasten the Ostrom Road Landfill toward capacity.

Impacts from solid waste management would be short term and negligible to none. Solid waste protection measures are not necessary or proposed.

4.13.2 Northern A Alternative

The Northern A Alternative would have the same uses and management of water, wastewater, storm drainage, electrical and communication systems, and solid waste. Therefore, impacts from the Northern A Alternative would be identical to that of the Preferred Alternative. That is, no impact to water supply; no impact on existing wastewater treatment facilities; long-term and beneficial impacts to storm drainage systems; short-term and negligible impacts from stormwater runoff; long-term and beneficial impacts to electric and communication systems; and short-term and negligible to no impacts from solid waste management.

4.13.3 Southern Alternative

The Southern Alternative would have the same uses and management of water, wastewater, storm drainage, electrical and communication systems, and solid waste. Therefore, impacts from the Southern Alternative would be identical to that of the Preferred Alternative. That is, no impact to water supply; no impact on existing wastewater treatment facilities; long-term and beneficial impacts to storm drainage systems; short-term and negligible impacts from stormwater runoff; long-term and beneficial impacts to electric and communication systems; and short-term and negligible to no impacts from solid waste management.

[2] The Ostrom Road Landfill is the primary landfill being used for debris from the Camp Fire. The website was checked in December 2019; no updates or capacity change have been posted.

4.13.4 No Action Alternative

The No Action Alternative would not result in any changes to the existing setting, and no impacts would occur to existing utilities or systems. However, adopting the No Action Alternative could lead to long-term uncertainty about the electrical capacity and communications capacity of Beale AFB. In particular, Beale AFB would be operating without a sustainable redundant power supply of power, which could lead to increasing reliance on diesel generators or even an inability to meet the mandate of its missions. The impact of adopting the No Action Alternative to Beale AFB's electrical and communications systems is anticipated to be long term and moderate.

4.14 OTHER NEPA CONSIDERATIONS

4.14.1 Intentional Acts of Destruction

The Department of Energy requires that NEPA documents explicitly address potential environmental consequences of intentional destructive acts (DOE 2006). The purpose is to inform the decision-maker and the public about the chances that reasonably foreseeable accidents and intentional destructive acts associated with the Project area could occur and their potential adverse consequences.

In order to evaluate the consequences of accidents and intentional destructive acts to human health, three categories of people are considered: involved workers, noninvolved workers, and the general public (DOE 2002). Consequences of accident to the environment include evaluating the effects on biota and environmental media (DOE 2002). NEPA guidance recommends that maximum reasonably foreseeable accidents with the most severe consequences be analyzed, although these usually have a low probability of occurrence.

In general, the electricity infrastructure proposed could potentially be the target of vandalism, an act of sabotage, or terrorism. If targeted, potential threats to the Project could include bombs, aircraft collisions, sabotage of electrical systems by gunshot or other methods, attacks on personnel, or cyber-attacks on the facilities' control systems. If these types of intentional destructive acts occurred, the general public would not feel any effects. The effects would be mostly felt by Beale AFB, which would experience a temporary disturbance to their redundant power. This would have a limited and temporary effect on workers and residents of Beale AFB as the end users of the electricity. At the time of this type of event, few local involved and noninvolved workers would be affected at the job sites; however, local emergency utility workers and local fire departments would immediately respond.

The effects to biota and media (land and water) during an act of destruction would be minimal. Resulting fires may be the most likely effect from an accident and would mostly impact farmland outside of Beale AFB and open space within Beale AFB; these areas would be quickly extinguished by the local and regional fire departments and Beale AFB's internal fire suppression network. WAPA vegetation management practices are designed to minimize exacerbating wildfires around electrical substations and transmission line ROWs.

The addition of transmission lines and associated facilities as part of the Project's purpose and need (and siting criteria) would strengthen the reliability of delivering electricity to Beale AFB, because if one line is affected by an intentional act of destruction or other disruption, redundant lines would be available to continue the delivery of electricity.

Intentional acts of destruction of facility structures or conductors are unpredictable events. The chances of such acts occurring would be reduced by the remote access to the Project area outside of Beale AFB and restricted access within Beale AFB. In addition, WAPA inspects their transmission lines and substations on a regular O&M schedule for any signs of sabotage or vandalism and acts immediately if a potential hazard is found.

The potential for serious injury resulting from accidents and intentional acts of destruction is low.

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5.0 CUMULATIVE EFFECTS

5.1 INTRODUCTION

This EA 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 Council of Environmental Quality (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."

Agencies included during Project scoping were asked to provide input on present or future projects in the area that they were aware of. Agencies did not identify any such projects (see **Appendix B** for the Scoping Summary Report). Beale AFB has a number of projects ongoing and in the planning phases to achieve their missions and energy goals. For the purposes of this Project, past, present, and reasonably foreseeable future actions are those where Beale AFB has begun environmental review, engineering design, and/or has approved funding *and* are located within 3 miles of the Project area. Beale AFB is also limited in the amount and type of Project information that can be shared publicly in this EA.

5.2 PROJECTS CONSIDERED CUMULATIVELY

WAPA and/or Beale AFB provided information on the following projects that should be considered cumulatively:

- **Three Rivers Levee Improvement Authority (TRLIA), Yuba Goldfields 200-Year Flood Protection Project**

  TRLIA, as lead CEQA Agency, issued an EIR in 2015 and a Supplemented EIR in September 2018 to analyze impacts from the Yuba Goldfields 200-year Flood Protection Project. The project goals are to optimize flood risk reduction, further minimize environmental impacts on mineral resources and wetlands, and maximum public benefits.

  The project involves construction of a levee south of the Yuba Goldfields, which is located 6 to 12 miles upstream of the town of Marysville. The levee would prevent Yuba River flood flows during a 200-year flood event from flowing through the Goldfields and flanking the State Plan of Flood Control. The levee would meet California Department of Water Resources urban levee design criteria for 200-year flood risk reduction.

  As proposed in the 2018 Supplemental EIR, the levee and berm footprint would come closest to the Project area at the intersection of Hammonton-Smartville Road and Brophy Road, which is approximately 0.1 mile northwest of the Preferred Alternative's interconnection point with WAPA's Cottonwood-Roseville line. The TRLIA project follows Hammonton-Smartville Road northeast, while the Preferred Alternative alignment follows directly east toward Beale AFB.

  Construction of the levee is proposed to begin in spring 2020 and require approximately 8 months to complete. Construction of the levee is scheduled to be complete before the construction of the Preferred Alternative.

- **Beale AFB, 2-MW Solar Array and Microgrid Installation with Battery Storage Project**

  Beale AFB plans to install a new 6-acre solar array field to produce 2 MW of power, including a microgrid control structure with battery storage. The project is proposed to support Beale AFB achieve DoD's energy redundancy policies.

  The solar array is proposed to be located on the northeast corner of the Doolittle Drive and Grumman Avenue; in proximity to the Project area, it would be south-southeast of the terminus at the Doolittle Drive Substation.

  Construction for the solar array is planned to begin in 2020. Construction may overlap with the Beale WAPA Interconnection Project.

- **Beale AFB, Global Hawk Campus / MCE PAD Power Distribution Upgrade Project**

  Beale AFB is currently installing a new Automatic Transfer Switch to distribute redundant power to existing buildings, transformers, and distribution boards already existing on Beale AFB. Existing generators as well as HVAC facilities will need to be replaced. All facilities being replaced as part of this update are located approximately 0.3 mile west of where the Beale WAPA Interconnection Project would follow Doolittle Drive. Construction for this project is in progress as of the writing of this EA and is expected to be complete prior to the Beale WAPA Interconnection Project beginning construction.

- **Beale AFB, Construct Munitions Warehouse and Office Project**

  Beale AFB will be demolishing two buildings and constructing one new consolidated building with parking lot. The total footprint for the new building would be approximately 6,300 square feet. No new roads are proposed as part of this project, although some underground facilities such as water and sewer lines may need to be replaced/repaired.

  The project location is approximately 0.2 mile east of Doolittle Drive, where the Beale WAPA Interconnection Project proposes to install the underground portion of the transmission line. The water and sewer lines that may need to be repaired intersect the Project alignment where the Project line intersects and turns south to follow Doolittle Drive.

  Building demolition and construction is expected to take place in 2021 and last approximately 18 months. Construction may overlap with the Beale WAPA Interconnection Project.

- **Beale AFB, Doolittle Drive Substation and Switch Yard Upgrade Project**

  Beale AFB plans to rebuild and upgrade their existing Doolittle Drive Substation and include a new switch yard. The upgrade will apply power to be supplied to the flight line and other facilities on Beale AFB. This substation rebuild would occur whether or not the Beale WAPA Interconnection Project is built. The footprint of the new substation will be directly north and nearly adjacent to the existing substation. Construction for the rebuild is expected to begin in 2021 and last approximately 24 months. Construction may overlap with the Beale WAPA Interconnection Project.

5.3 CUMULATIVE EFFECTS ANALYSIS

5.3.1 Introduction

Generally, the most likely cumulative impacts would arise from overlapping construction periods among these projects. Since most projects being considered cumulatively are located on Beale AFB, much of these construction-related impacts would be avoided by close coordination among Beale AFB departments. Specific cumulative impacts are addressed below, organized by resource area analyzed in detail in this EA. All resources dismissed from close analysis in this EA (see **Table 3-1**) are expected to not sustain impacts and thus, would not contribute cumulatively to impacts from other proposed projects in the area. Cumulative impacts are assessed as best as possible given the limited information available on the above projects.

5.3.2 Aesthetics/Visual Resources

The development of the cumulatively considered projects would slightly alter the visual character of the Project's surrounding area. For example, the construction of the munitions warehouse project would change the visual landscape through the addition of solar generating equipment and its associated infrastructure. However, the addition of these new and upgraded facilities would not be incongruous with Beale AFB's existing facilities or the land use of the surrounding area, which is developed and contains electrical infrastructure.

The addition of buildings and solar and electrical facilities on Beale AFB would also be consistent with Yuba County's land use designation of Public/Quasi-Public. The construction of the proposed Project in combination with the other projects considered cumulatively would result long-term negligible to no impacts to aesthetics/visual resources.

5.3.3 Agriculture and Forestry Resources

The construction of the cumulatively considered projects would primarily create structures and facilities within the already-developed Beale AFB. No designated forest or timber lands are present in the area. Agricultural lands would not be at risk of conversion from actions taking place on Beale AFB.

The Yuba Goldfields 200-Year Flood Protection Project would be located near to portions of the Preferred Alternative and would entail the conversion of around 91 acres of important farmland to nonagricultural use (TRLIA 2018). The Preferred Alternative for the Project would convert 0.061 acre to nonagricultural uses. The construction and farmland conversions of the proposed Project in combination with the other projects considered cumulatively would result long-term negligible to no impacts to agricultural lands.

5.3.4 Air Quality, GHG Emissions, and Climate Change

Construction of multiple projects within the same general timeframe could have short-term cumulative adverse effects on air quality. These overlapping construction schedules would contribute to temporary increases in NO_x, O_3, and PM_{10} as well as GHGs during construction.

Based on the best currently available information for the other cumulatively considerable projects, three of the five projects will have overlapping construction timelines. The Global Hawk Campus/MCE PAD Power Distribution Upgrade Project and the TRLIA Project are

anticipated to be completed before the BWIP Project commences. Due to the fact that these projects will not overlap the proposed Project construction timeframe, they are not regarded to be cumulatively considerable along with the Proposed Project impacts. All potentially significant air quality impacts from the proposed Project are restricted to the construction phase.

The other three projects have the potential to emit criteria air pollutants. Given the scale of the proposed Project compared to the other projects, it is highly unlikely that all the projects will result in cumulatively considerable net increases of either NO_x or O_3. The proposed Project is anticipated to result in less than 0.94 ton of NO_x and 0.14 ton of O_3 (as VOC). The annual significance threshold is 4.5 tons per year, and it is highly unlikely that the other projects will add enough emissions of either of these pollutants to exceed these thresholds.

Without mitigation, the proposed Project by itself would result in net increase in PM_{10} over the construction phase of the Project in excess of the FRAQMD threshold of 80 pounds per day. It is acknowledged that the other projects will cumulatively contribute PM_{10} emissions as well, resulting in a significant impact if not mitigated. Each project will be subject to applicable measures and potentially mitigation from the same FRAQMD guidelines that are designed to reduce PM_{10} emissions. The best available mitigation measures adopted by the FRAQMD for construction projects are intended to reduce its PM_{10} impacts to the greatest extent feasible. When applied to the proposed Project, they will reduce potential impacts to less than significant levels.

BMPs presented in **Appendix F** would reduce impacts to temporary regional air quality from the proposed Project. No facilities of the proposed Project or projects considered cumulatively would produce air emissions in the long term; thus, there would be no long-term or significant effects from projects in the area cumulatively.

In the long term, the Preferred Alternative being implemented would preclude the need for Beale AFB to use back-up generators, thus lessening overall contribution to air quality emissions cumulatively.

The construction of the proposed Project in combination with the other projects considered cumulatively would result in short-term, less than significant impacts to air quality, GHG emissions, and climate change with mitigation incorporated.

5.3.5 Biological Resources

Analysis of habitats, vegetation, special-status plants, plant communities, wildlife, and special-status wildlife for the Beale WAPA Interconnection Project can be found in Section 4.5, Biological Resources Environmental Consequences. The long-term effects on biological resources from the proposed Project in combination with the projects listed in Section 5.2, Projects Considered Cumulatively, are unlikely to result in cumulative impacts to biological resources but has potential to impact biological resources sensitive to ground disturbance. However, cumulative effects on biological resources would be considered negligible with the implementation of AMMs or BMPs similar to those listed in **Appendix F**. The construction of the proposed Project in combination with the other projects considered cumulatively would result in short-term minor to negligible impacts to biological resources.

5.3.6 Cultural and Tribal Resources

The construction of the Beale WAPA Interconnection Project would not impact any known historic properties or tribal resources that are eligible for NRHP. Because no eligible historic properties are present, the Preferred Alternative would not contribute to cumulative impacts when considered alongside the projects listed in Section 5.2, Projects Considered Cumulatively. However, unlisted and undiscovered cultural, tribal, and archaeological resources always have the potential to be discovered and disturbed during ground disturbing construction but would not result in significant impacts with the implementation of BMPs.

This Project and the cumulatively considered projects all have the potential to disturb these unknown resources. Impacts to unknown resources are unpredictable and would be reported and evaluated as much as is possible in the construction of the Beale WAPA Interconnection Project.

5.3.7 Geology/Soils

The construction of the Beale WAPA Interconnection Project and the cumulatively considered projects could have a short-term, negligible effect on soils. The proposed Project would disturb soils during the construction phase of the Project and could cause long-term soil disturbance through the clearing of vegetation and short-term disturbances related to the proposed construction.

Soil disturbed during the construction phase of the Project would contribute to the cumulative modification of soils from ground disturbing activities conducted for the projects listed in Section 5.2, Projects Considered Cumulatively. However, with the implementation of the BMPs listed in Section 4.7, Geology/Soils Environmental Consequences, the Project's cumulative impacts to geology and soils are expected to be reduced.

5.3.8 Hydrology/Water Quality

The Beale WAPA Interconnection Project has been designed to preserve existing hydrology, and groundwater would not be affected by the Project; however, the construction of the Project as well as the cumulatively considered projects within the same general timeframe does have potential to cause cumulative impacts to hydrology and water quality. Ground disturbing activities associated with construction can cause the erosion of topsoil and increases in turbidity. Construction-related impacts to hydrology and water quality would be short term. Implementation of the BPMs listed in Section 4.8, Hydrology/Water Quality Environmental Consequences would minimize the Project's contribution to cumulative impacts. The construction of the proposed Project in combination with the other projects would be short term and negligible.

5.3.9 Land Use and Planning, Recreation, and AICUZ Compatibility

The Beale WAPA Interconnection Project is consistent with the land use and zoning designations outlined in Yuba County's General Plan. The Project is also consistent with the requirements of the Beale AFB AICUZ. Analysis of land use, planning, recreation, and AICUZ compatibility can be found in Section 4.9, Land Use and Planning, Recreation, and AICUZ Compatibility Environmental Consequences. Because the proposed Project is expected to have

no long-term or significant impacts to the categories mentioned, it would have no impact considered cumulatively with other projects.

5.3.10 Noise

The construction of the Beale WAPA Interconnection Project in the same general timeframe as the cumulatively considered projects could result in a short-term cumulative noise impact. Noise from heavy machinery, power tools, and trucks could contribute to cumulative noise impacts. Noise from construction would primarily be generated around Beale AFB.

Construction-related noise would be short term, only existing through the construction phase of the Project. Construction noise would not exceed Yuba County thresholds and would be comparable to agricultural equipment frequently used in the surrounding area. The Project's contribution to noise-related cumulative impacts would be reduced through the implementation of the BMPs listed in Section 4.10, Noise Environmental Consequences. The construction of the proposed Project in combination with the other projects considered cumulatively would result in short-term negligible impacts.

5.3.11 Public Health and Safety and Hazardous Materials

The construction of the Beale WAPA Interconnection Project in the same general timeframe as the cumulatively considered projects listed in Section 5.2, Projects Considered Cumulatively, could result in a short-term increase in the presence of hazardous materials related to construction activities. Because hazardous materials present in the long-term operation of the proposed Project would be confined to the fenced substation, the Project would not contribute to long-term cumulative risks related to hazardous materials.

Hazardous materials used in the proposed Project and the cumulatively considered projects on Beale AFB would be managed under Beale AFB's ICP and through the BMPs listed in Section 4.11, Public Health and Safety and Hazardous Materials Environmental Consequences, and would be expected to have their potential to contribute to a cumulative impact reduced greatly. The construction of the proposed Project in combination with the other projects considered cumulatively would result in short-term, negligible impacts.

5.3.12 Transportation/Traffic

The construction of the Beale WAPA Interconnection Project in the same general timeframe as the cumulatively considered projects listed in Section 5.2, Projects Considered Cumulatively, could result in cumulative impacts to transportation in the vicinity of Beale AFB. Impacts would be related to construction and short term. No long-term impacts from the proposed Project or the projects considered cumulatively would occur.

Implementation of the BMPs listed in Section 4.12, Transportation/Traffic Environmental Consequences, would reduce the potential of the proposed Project to contribute to a cumulative impact. The construction of the proposed Project in combination with the other projects considered cumulatively would result in short-term, negligible impacts.

5.3.13 Utilities/Service Systems

The construction of the Beale WAPA Interconnection Project and the cumulatively considered projects listed in Section 5.2, Projects Considered Cumulatively, would have a long-term, beneficial cumulative effect on utilities and service systems. The proposed Project and the cumulatively considered projects within Beale AFB would improve the electrical infrastructure on Beale AFB in the long term and have no adverse effects cumulatively.

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6.0 LIST OF PREPARERS

Individuals who contributed to the preparation of this EA are listed below.

TABLE 6-1
LIST OF PREPARERS

Name/Organization	Resource Area
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Tish Saare/WAPA	Management; Project description for WAPA Project components
Mike Prowatzke/WAPA	Biological and aquatic resources
Kathy Edwards/WAPA	Air quality
Cherie Waldear-Johnston/WAPA	Cultural resources
Susan Neilson/WAPA	Lands
Ray Wogec/Beale AFB	Management; Project description for Beale AFB Project components
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Tamara Gallentine/Beale AFB	Biological, aquatic, and cultural resources
Nicole Dunlap/Transcon Environmental (Consultant)	Management; Chapters 1, 2, 6, 7, and 8
Molly Dodge/Transcon Environmental (Consultant)	Management; Chapters 1, 2, 3 and 4
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Penny Eckert/Transcon Environmental (Consultant)	Planning; overall quality assurance/quality control
Nick Bateman/Transcon Environmental (Consultant)	Planning; overall quality assurance/quality control

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7.0 REFERENCES

Aircraft Owners and Pilots Association (AOPA). 2015. 27th Joseph T. Nall Report General Aviation Accidents in 2015. *www.aopa.org*, Aircraft Owners and Pilots Association, https://www.aopa.org/-/media/files/aopa/home/training-and-safety/nall-report/27thnall report2018.pdf?la=en&hash=C52F88B38FD95CB7C0A43F3B587A12E2692A8502.

Bal, Peggy. 1993. *Pebbles in the Stream, A History of Beale Air Force Base and Neighboring Areas* (Revised Edition). Nevada County Historical Society, Nevada City, California.

Bassett, Everett. 2019. Cultural Resources Inventory Report for Beale Air Force Base/Western Area Power Administration Interconnection Project. Prepared for Western Area Power Administration, Sierra Nevada Region.

Beale Air Force Base (Beale AFB). 2005. Air Installation Compatible Land Use Zone Citizen's Brochure.

_____. 2011. Beale AFB Soils Management Plan.

_____. 2014a. Final Environmental Assessment Addressing New Construction and Demolition at Beale Air Force Base.

_____. 2014b. Installation Development Plan for Beale Air Force Base.

_____. 2016a. Hazardous Materials Management Plan Supplement for Beale AFB, Supplement to AF 32-7086.

_____. 2016b. 9th Reconnaissance Wing, Beale AFB, CA. Integrated Cultural Resources Management Plan. This document is on-file with the Beale AFB Cultural Resources Management Section of the 9 CES/CEIEC, Beale AFB, Yuba County, California.

_____. 2018b. Stormwater Pollution Prevention Plan (SWPPP).

_____. 2018c. U.S. Air Force Integrated Solid Waste Management Plan, Beale Air Force Base, 9th Reconnaissance Wing.

_____. 2019. U.S. Air Force Integrated Natural Resource Management Plan, Beale Air Force Base, Lincoln Receiver Site.

Beals, Ralph L. 1933. Ethnology of the Nisenan. In: *University of California Publications in American Archaeology and Ethnology* 31 (6):335-414. Berkeley, California.

Bibby, Brian. 1994. Maidu. In: *Native American and the Twentieth Century, an Encyclopedia*. M. Davis (Editor). Pages 325-326. Garland Publishing Company, New York, New York.

California Air Resources Board (CARB). 2010. Discussion Draft of Potential Changes to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear.

_____. 2019. Regulation for the Mandatory Reporting of Greenhouse Gas Emissions.

California Department of Conservation (DOC). 2016. State of California Williamson Act Contract Land. ftp://ftp.consrv.ca.gov/pub/dlrp/wa/2016%20Statewide%20Map/WA_2016_11X17.pdf.'

_____. 2019a. California Important Farmland Mapping Program. https://maps.conservation.ca.gov/DLRP/CIFF/.

_____. 2019b. Important Farmland Categories. Accessed August 8, 2019 from https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx.

California Department of Forestry and Fire Protection (Calfire). 2018. Unit Strategic Fire Plan Nevada-Yuba-Placer Unit. https://osfm.fire.ca.gov/media/3124/fpppdf1623.pdf.

California Department of Fish and Wildlife (CDFW). 2019. Spenceville Wildlife Area (website). https://www.wildlife.ca.gov/Lands/Places-to-Visit/Spenceville-WA.

California Department of Toxic Substances Control (CDTSC). 2019. Hazardous Waste and Substances Site List (Cortese). EnviroStor Online Database. https://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm.

California Geological Survey. 2007. Regional Geological Maps of California.

California Native Plant Society, Rare Plant Program (CNPS). 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Accessed December 20, 2017 from http://www.rareplants.cnps.org.

California Public Utilities Commission (CPUC). 1999. Tri-Valley Project Environmental Assessment. http://www.cpuc.ca.gov/Environment/info/aspen/tri-valley/17%20-%20Corona%20and%20Induced%20Current%20Effects.pdf.

California Regional Water Quality Control Board, Central Valley Region (RWQCB). 2016. Order R5-2018-0007, Waste Discharge Requirements for Recology Ostrom Road Landfill, Class II Landfill, Yuba County.

Central Maine Power. 2018. Raven Farm Substation Sound Study. https://www.maine.gov/dep/ftp/Projects/necec/response-comments/Raven%20Farm%20Substation%20Sound%20Study%2005-17-18.pdf.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79-31. USDI Fish and Wildlife Service, Washington, D.C. 103 pp.

Desert Research Institute (DRI). 1996. Effectiveness Demonstration of Fugitive Dust Control Measures for Public Unpaved Roads and Unpaved Shoulders on Paved Roads. Prepared for the California Regional Particulate Air Quality Study. Available at: https://www.arb.ca.gov/airways/Documents/reports/dri_dustcontrol.pdf.

eBird. 2017. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Accessed December 20, 2017. http://www.ebird.org.

Environmental Protection Agency (EPA) 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. https://nepis.epa.gov/Exe/ZyNET.exe/2000L3LN.txt?ZyActionD=ZyDocument&Client=EPA&Index=Prior%20to%201976&Docs=&Query=%28Activity%20Interference%29%20OR%20FNAME%3D%222000L3LN.txt%22%20AND%20FNAME%3D%222000L3LN.txt%22&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C70THRU75%5CTXT%5C00000001%5C2000L3LN.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=45&SeekPage=f.

Feather River Air Quality Management District (FRAQMD). 2020. Regulation 3.16 Fugitive Dust Emissions. Available at: https://ww3.arb.ca.gov/drdb/fr/curhtml/r3-16.htm.

_____. 2010. A Technical Guide to Assess the Air Quality Impact of Land Use Projects Under the California Environmental Quality Act.

_____. 2019. Area Designations. www.Fraqmd.org/files/7d9804672/Area+Designations.pdf.

Federal Highway Administration (FHWA). 2017. Construction Noise Handbook. https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm.

Federal Emergency Management Agency (FEMA). 2011. National Flood Insurance Program, Flood Insurance Rate Map, Yuba County, California. Accessed December 2019 from: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd.

Frederickson, David A. 1973. Early Cultures of the North Coast Ranges, California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.

Golla, Victor. 2011. *California Indian Languages*. University of California Press, Berkeley, California.

Google Earth. 2019. Geospatial and viewshed analysis of Beale AFB and surrounding areas.

Halstead, B.J., G.D. Wylie, and M.L. Casazza. 2015. Literature review of giant gartersnake (*Thamnophis gigas*) biology and conservation: U.S. Geological Survey Open-File Report 2015–1150, 38 p., http://dx.doi.org/10.3133/ofr20151150.

Hansen, E.C. 2019. Year 2018 giant garter snake (*Thamnophis gigas*) environmental DNA surveys at Beale Air Force Base. January 2019.

Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural plant communities of California. Natural Heritage Division, California Department of Fish and Game, Sacramento, California.

Kemp, Michael. 2019. Personal communication with Beale AFB's project manager.

Kroeber, Alfred E. 1925. The Maidu: Land and Society, Arts and Implements, and Religion and Knowledge. In: *Handbook of Indians of California*, Bureau of American Ethnology Bulletin 78. Washington, D.C. Reprinted by: Dover Publications, New York (1976).

_____. 1929. The Valley Nisenan. In: *University of California Publications in American Archaeology and Ethnology* 24(4):253-290. Berkeley, California.

Landscope America. 2017. Accessed September 8, 2017. http://www.landscope.org/explore/natural_geographies/ecoregions/Colorado%20Plateau/.

Loftus, Shannon. 2019. Cultural Resources Background Research and Field Strategy Report for the Beale Air Force Base/Western Area Power Administration Interconnection Project. Produced for Western Area Power Administration.

Mayer, K.E., and W.F. Laudenslayer. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry, Sacramento. 166 pp.

Mineral Resources Online Spatial Data (MRDATA). 2019a. Accessed April 11, 2019.

_____. 2019b. Interactive Geological Units of the Conterminous United States. Accessed April 11, 2019.

_____. 2019c. Geologic Units Containing Alluvium. Accessed April 11, 2019.

Moratto, M.J. 1984. *California Archaeology*. Academic Press, New York.

Nafis, G. 2018. "Emys marmorata—Western pond turtle." Accessed October 2018 from http://www.californiaherps.com/turtles/pages/a.marmorata.html.

Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey. Accessed December 30, 2019.

National Institute of Environmental Health Sciences (NIEHS). 2002. EMF Electric and Magnetic Fields Associated with the Use of Electric Power, Questions & Answers. Accessed 8 August 2014 from http://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf.

Neyens, J. 1976. Wheatland. In: *History of Yuba County*. Yuba County Historical Commission, Marysville, California.

Nilsson, Elena, Russell Bevill, Jerald J. Johnson, Amy Huberland, Michael S. Kelly, and Peggy E. Scully. 1995. Cultural Resources Inventory and Evaluation of 14,700 Acres on Beale Air Force Base, Yuba County, California. Volume I—Technical Report. Prepared by Dames & Moore, Inc., Chico, under contract administered by the National Park Service, Inter-agency Archaeological Branch, San Francisco. Study S-07663 is on-file at the North Central Information Center in Sacramento, California.

Rosenthal, Jeffrey S., Gregory G. White, and Mark Q. Sutton. 2007. The Central Valley: A View from the Catbird's Seat. In: *California Prehistory: Colonization, Culture, and Complexity*. Edited by: Terry L. Jones and Kathryn A. Klar. Pages 14-163. Alta Mira Press. Lanham, Maryland.

Saare, LaTisha. 2019. Personal communication with Western Area Power Administration's project manager.

Sacramento Area Council of Governments (SACOG). 2011. Beale AFB Noise Contours GIS Data. Accessed December 11, 2019.

Sacramento Valley Air Quality Engineering and Enforcement Professionals (SVAQEEP). 2018. Northern Sacramento Valley Planning Area 2018 Triennial Air Quality Attainment Plan.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, California.

Shuford, W. D. 2017. Giant Garter Snake: The Role of Rice and Effects of Water Transfers. Report of Point Blue Conservation Science, 3820 Cypress Drive #11, Petaluma, California 94954. Point Blue Contribution No. 2133.

Thompson and West. 1879. History of Yuba County, California. Thompson and West, Oakland, California.

Three Rivers Levee Improvement Authority (TRLIA). 2018. Yuba Goldfields 200-Year Flood Protection Project Draft Supplemental Environmental Impact Report. http://www.trlia.org/docs/DOCUMENTS/Environmental Docs/Yuba Goldfields/CEQA/Draft Supplemental Environmental Impact Report/Goldfields 200 Yr Draft SEIR Sept 2018.pdf.

Transcon Environmental, Inc. (Transcon). 2019a. Aquatic Resources Delineation Report: Beale Western Area Power Administration Interconnection Project. Prepared for: Western Area Power Administration Sierra Nevada Region.

_____. 2019b. Biological Resources Report, Beale Western Area Power Administration Interconnection Project. Prepared for Western Area Power Administration, February 2019.

University California Museum of Paleontology (UCMP). 2019a. The Pleistocene Epoch. Accessed April 11, 2019.

_____. 2019b. Databases. Accessed April 11, 2019.

_____. 2019c. Localities. Interactive GIS. Accessed April 11, 2019.

URS Corporation (URS). 2018. Geotechnical Report. Beale AFB 60-kV Underground Transmission Line. On-file at Beale AFB, Yuba County, California.

U.S. Air Force (USAF). 1998. Land Use Planning. Air Force Pamphlet 32-1010 (AFPAM32-1010). November 1, 1998.

USAF Civil Engineer Center (USAFCEC). 2020. USAF Public Administrative Record Database. Available at: http://afcec.publicadmin-record.us.af.mil/Search.aspx.

U.S. Army Corps of Engineers (USACE). 2006. Delineating and Evaluating Vegetation Conditions of Vernal Pools Using Spaceborne and Airborne Remote Sensing Techniques, Beale Air Force Base, California. ERDC/CRREL TN-06-03. July 2006.

U.S. Census Bureau. 2010. 2010 Census Interactive Population Search: CA—Beale AFB CDP.

_____. 2019. QuickFacts for Yuba County, California. https://www.census.gov/quickfacts/fact/table/yubacountycalifornia,US.

U.S. Department of Energy (DOE). 2002. DOE Office of NEPA Policy and Compliance, Recommendations for Analyzing Accidents Under the National Environmental Policy Act. Accessed March 6, 2019 from https://www.energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-DOE-AccidentAnalysis.pdf.

_____. 2006. DOE Memorandum. https://www.energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-DOE-intentdestructacts.pdf.

U.S. Department of Housing and Urban Development. 2009. The Noise Guidebook. https://www.hudexchange.info/onecpd/assets/File/Noise-Guidebook-Chapter-1.pdf.

U.S. Fish and Wildlife Service (USFWS). 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon. xxvi + 606 pages. Accessed May 1, 2020 from https://www.fws.gov/oregonfwo/documents/RecoveryPlans/Vernal_Pool_Fairy_Shrimp_RP.pdf.

_____. 2007a. Vernal pool fairy shrimp (*Branchinecta lynchi*) Species Account. Sacramento Fish and Wildlife Office. Updated October 11, 2007. Accessed April 20, 2015 from http://www.fws.gov/sacramento/es_species/es_speciesaccounts_invertebrates.htm.

_____. 2007b. Vernal pool tadpole shrimp (*Lepidurus packardi*) Species Account. Sacramento Fish and Wildlife Office. Updated October 15, 2007. Accessed April 20, 2015 at http://www.fws.gov/sacramento/es_species/es_speciesaccounts_invertebrates.htm.

_____. 2017a. Trust Resource Report, Information for Planning and Consultation. U.S. Fish and Wildlife Service. Accessed December 20, 2017.

_____. 2017b. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28 pp.

Vergara, Ximena P.; Kavet, Robert; Crespi, Catherine M.; Hooper, Chris; Silva, Michael J.; Kheifets, Leeka. 2015. Estimating Magnetic Fields of Homes Near Transmission Lines in the California Power Line Study. Published May 22, 2015. Accessed December 2019 from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4492855/.

Western Area Power Administration (WAPA). 2010. Final Environmental Assessment for the North Area Right-of-Way Maintenance Program. Prepared by Aspen Environmental Group, June 2010.

_____. 2017. Electric and Magnetic Fields Facts. Lakewood, Colorado.

_____. 2019. Draft Biological Assessment for the Beale WAPA Interconnection Project.

Western Regional Air Partnership. 2006. Fugitive Dust Handbook. Accessed February 2020 from https://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf.

Wilson, Norman L., and Arlean H. Towne. 1978. Nisenan. In *Handbook of North American Indians*, *Volume 8: California*. Robert F. Heizer, ed. Smithsonian Institution, Washington, D.C.

Yuba County. 1994. Yuba County General Plan—Noise Element. In files, Land Use and Planning.

_____. 2007. Transportation and Circulation General Plan Update Background Report. http://www.co.yuba.ca.us/Departments/Community%20Development/Planning/documents/General%20Plan%20Update%202007-08/Reports/Transportation%20Working%20Paper%20Final.pdf.

_____. 2011. Yuba County 2030 General Plan. http://www.co.yuba.ca.us/Departments/Community%20Development/Planning/documents/2030%20General%20Plan%20Docs/Complete%20Docs/2030%20GP%20Final%20-%20Complete.pdf.

_____. 2015 (updated 2017). Yuba County Development Code, Adopted July 21, 2015 and Amended June 27, 2017. http://www.co.yuba.ca.us/Departments/Community%20Development/Planning/Default%20Pages/Development%20Code.aspx.

_____. 2017. Yuba County Zoning Map, Adopted by Ordinance 1567 on June 27, 2017. http://www.co.yuba.ca.us/Departments/Community%20Development/Planning/documents/Development%20Code/DevCode_Map%207-27-17.pdf.

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