Draft
Environmental Assessment
for the
Crossman Peak
Communications Facility Project

DOE/EA-2023




Prepared for

U.S. Department of Energy
Western Area Power Administration,
Desert Southwest Region

Cooperating Agency

Bureau of Land Management,
Lake Havasu Field Office

March 2017

DRAFT

Crossman Peak Communications Facility Project

ENVIRONMENTAL ASSESSMENT

Prepared for:

Western Area Power Administration

Desert Southwest Region

Cooperating Agency:

U.S. Bureau of Land Management
Lake Havasu Field Office

March 2017

Department of Energy
Western Area Power Administration
Desert Southwest Customer Service Region
P.O. Box 6457
Phoenix, AZ 85005-6457

March 24, 2017

SUBJECT: **Notice of Availability of a Draft Environmental Assessment for Public Comment, Notice of Floodplain and Wetland Action, and Historic Properties Review for WAPA's Crossman Peak Communications Facility, Mohave County, Arizona (DOE/EA-2023)**

Dear Interested Party:

Western Area Power Administration (WAPA) invites you to review and comment on the *Draft Environmental Assessment for the Crossman Peak Communications Facility Project*. The document tracking number is DOE/EA-2023. The Project is located near Lake Havasu City, Mohave County, Arizona. WAPA seeks comments from federal, state, and local agencies, tribal governments, and other individuals or organizations interested in or affected by this Project. WAPA prepared this document in compliance with the National Environmental Policy Act (NEPA), National Historic Preservation Act's Section 106 process, and Executive Orders 11988 – Floodplain Management and 11990 – Protection of Wetlands.

What is an Environmental Assessment (EA)?

An EA is concise public document that that discusses the need for a project, alternatives considered, and environmental impacts. It contains a description of a project and associated resource protection measures. A federal agency circulates a Draft EA to obtain public comment prior to preparing a Final EA.

Where Can Copies be Obtained?

You can access the Draft EA online at the following websites:

https://www.wapa.gov/regions/DSW/Environment/Pages/Crossman-Peak-Communications-Facility-Project.aspx

https://energy.gov/nepa/listings/environmental-assessments-ea

Review copies are available at the Mohave County Library located at 1770 McCulloch Blvd, Lake Havasu City, AZ 86403. They are open 9 am - 6 pm on Mondays and Wednesdays; 9 am - 8 pm on Tuesdays and Thursdays; and 9 am - 5 pm on Fridays and Saturdays. Their phone number is (928) 453-0718.

You can ask WAPA for a printed copy by using the contact information below.

How Can You Comment?

WAPA would like to know of any comments you have on the Draft EA. For example, do you have any comments on the National Register of Historic Places eligibility determinations, proposed finding of effect and resource protection measures presented in Chapter 3.7? Do you have any comments on the floodplain impacts and resource protection measures in Chapter 3.11?

Please make your comments as specific as possible. Comments that are solution-oriented and provide specific examples are effective. For more advice, see Page 27 in *A Citizen's Guide to the NEPA: Having*

Your Voice Heard, which is available at https://energy.gov/nepa/downloads/citizens-guide-nepa-having-your-voice-heard-ceq-2007.

Comments can be provided in writing, by phone, by fax, or via email. All comments received or post-marked on or before Monday, April 24, 2017 will be considered. WAPA will consider late comments to the extent practicable.

WAPA's NEPA Point of Contact			
Mail	Western Area Power Administration ATTN: Matthew Bilsbarrow, NEPA Document Manager P.O. Box 6457 Phoenix, AZ 85005-6457	Phone	(602) 605-2536
Email	DSW-EA2023PublicComment@wapa.gov	Fax	(602) 605-2630

Comments received, including names and addresses, could be subject to release under the Freedom of Information Act. Individuals may request that we withhold their name or home address, which we will honor to the extent allowable by law. If you wish us to withhold your name or home address, you must state this prominently at the beginning of your comments. WAPA will accept comments submitted anonymously.

Who is Involved in this Project?

WAPA is the lead federal agency for the Project and is working cooperatively with the Bureau of Land Management, Lake Havasu Field Office (BLM). WAPA would contract with Unisource Energy Services (UES) to provide electrical service to the communications facility.

What is Being Proposed, and Where is it Located?

WAPA's Project occurs northeast of Lake Havasu City, Arizona (Figure 1) and consists of three components:

Communications Facility. WAPA would construct a communications facility composed of a 100-foot-tall, self-supporting tower with attachments such as microwave dishes, a prefabricated equipment shelter, a backup generator, a propane tank, and associated concrete slab foundations on a 0.1-acre parcel on private land.

Access Road to Communications Facility. WAPA would use an existing six-mile-long dirt access road across land managed by Arizona State Land Department, BLM, and private owners on the west side of Crossman Peak. On private land, WAPA would widen the access road's switchback turns for safety.

Distribution Line and Access Road. UES would construct a 14.7-mile-long, 20.8-kV distribution line crossing private and BLM lands connecting WAPA's proposed communications facility to the existing Franconia Substation near Interstate 40. To construct the distribution line, UES would use mostly 45-foot-tall wood or steel poles, with several 55- to 80-foot-tall steel poles in the steep, 0.5-mile-long segment north of the communications facility. UES would use and improve an existing dirt road, and construct five miles of new road to access pole locations. UES would use a helicopter to construct three poles located in steep terrain, thus the distribution line's access road would not reach the communication site.

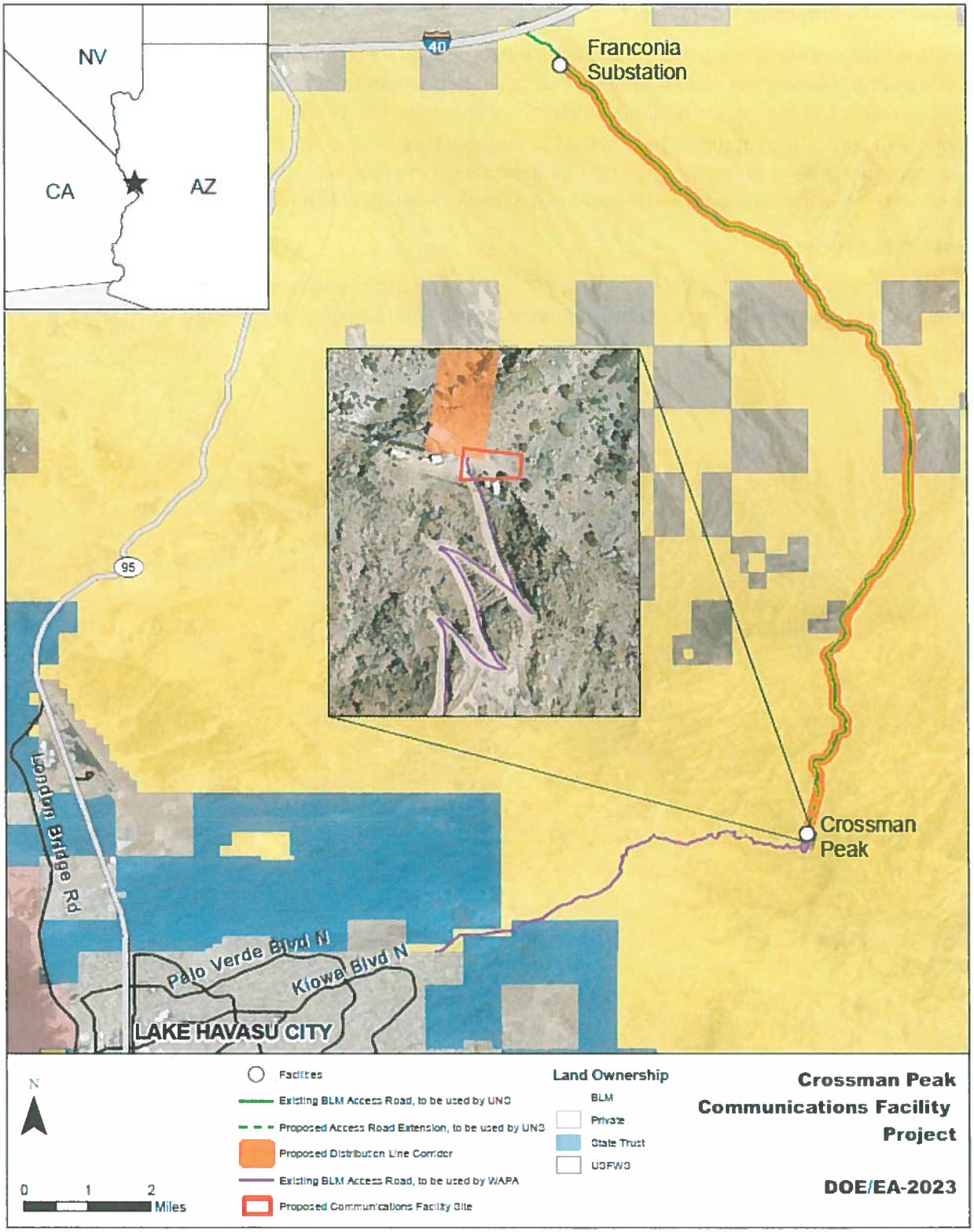

Figure 1. Project Location.

Why is WAPA Proposing this Project?

WAPA distributes electricity generated at federal hydropower dams located along the Colorado River in a safe and reliable manner. WAPA's microwave network provides the primary communication pathway between electrical generation facilities, substations, and operation centers. WAPA's microwave equipment currently operates in the 2320-2345 megahertz band, and we are shifting to the 7125-8025 megahertz band to free up spectrum for licensed commercial use. The Project is needed to bypass terrain that blocks microwaves in the new band between existing WAPA facilities.

What Happens Next?

Thank you for your interest in WAPA's work. We look forward to receiving your comments on this Project. WAPA will provide responses to comments in the Final EA, which is expected Friday, June 2, 2017.

Sincerely,

Linda Marianito
Environmental Manager

Contents

Tables

Figures

Appendices

List of Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
AFA	Acre-feet Annually
AGFD	Arizona Game and Fish Department
amsl	Above Mean Sea Level
APLIC	Avian Power Line Interaction Committee
APN	Assessor Parcel Number
APP	Avian Protection Plan
ASLD	Arizona State Land Department
ASM	Arizona State Museum
BGEPA	Bald and Golden Eagle Protection Act
bgs	Below Ground Surface
BLM	Bureau of Land Management
CCA	Candidate Conservation Agreement
CEQ	Council on Environmental Quality
CTTM	Comprehensive Travel and Transportation Management
DC	Direct Current
DOE	U.S. Department of Energy
DSW	Desert Southwest Region
EA	Environmental Assessment
EIS	Environmental Impact Statement
ERMA	Extensive Recreation Management Area
FAA	Federal Aviation Administration
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gas
gpm	Gallon Per Minute
HMA	Herd Management Area
IPaC	Information for Planning and Conservation
KOP	Key Observation Point
kV	Kilovolt
LHFO	Lake Havasu Field Office
maf	Million Acre-Feet
MB	Megabyte
MBTA	Migratory Bird Treaty Act
mG	Milliguass
MHz	Megahertz

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OHV	Off-highway Vehicles
OHWM	Ordinary High Water Mark
PM10	Particulate Matter (less than 10 microns in diameter)
PM2.5	Fine Particulate Matter (less than 2.5 microns in diameter)
PV	Photovoltaic
RMP	Resource Management Plan
RMZ	Recreation Management Zone
RPM	Resource Protection Measure
SHPO	State Historic Preservation Officer
SRMA	Special Recreation Management Area
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWTC	Southwestern Transmission Cooperative
TCP	Traditional Cultural Property
TMA	Travel Management Area
TMP	Travel Management Plan
UCPA	Upper Colorado Planning Area
UES	UniSource Energy Services
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WAPA	Western Area Power Administration
WECC	Western Electricity Coordinating Council

Executive Summary

Project Location

Western Area Power Administration (WAPA) proposes to build a new communications facility and improve portions of an existing access road. WAPA also proposes to contract with UniSource Energy Services (UES) to build a distribution line, improve portions of an existing access road, and construct new roads to provide reliable power to the communications facility. The Proposed Action is located northeast of Lake Havasu City in Mohave County, Arizona, on land managed by the U.S. Bureau of Land Management (BLM) Lake Havasu Field Office (LHFO), the Arizona State Land Department (ASLD), and private land near Crossman Peak in the Mohave Mountains.

Project Participants

WAPA, a federal power marketing administration under the U.S. Department of Energy, is the lead federal agency for the Proposed Action pursuant to the National Environmental Policy Act (NEPA). The BLM LHFO is a cooperating agency given their permitting responsibilities. UES is a gas and electric utility within its parent company, UNS Electric, Inc., which is regulated by the Arizona Corporation Commission (ACC). It holds a Certificate of Convenience and Necessity from the ACC and is authorized to provide electric services within Mohave County (Docket E-04204A).

Purpose and Need

The purpose of the Proposed Action is to maintain the safety and reliability of the bulk electric system and contribute to the President's goal of making 500 megahertz (MHz) of communications spectrum available for licensed commercial broadband use by 2020 (500 MHz Initiative; see 75 Federal Register 3837). The Proposed Action is needed to create an interference-free microwave path in the 7125-8025 MHz band between the existing Topock Substation and the Metal Mountain and Christmas Tree Pass communications facilities. The Proposed Action is also needed to free up portions of the 2320-2345 MHz band for the U.S. Department of Commerce's National Telecommunications and Information Administration, which is coordinating the President's 500 MHz Initiative.

UES's purpose is to construct and maintain a distribution line to supply power to the proposed communications facility. The distribution line is needed because WAPA requires two reliable sources of power at its communications facilities.

As the cooperating agency, BLM's purpose is to respond to the right-of-way applications associated with the Proposed Action.

Proposed Action

The Proposed Action is to construct an unfenced communications facility composed of a 100-foot-tall, self-supporting tower with attachments such as microwave dishes, a prefabricated equipment shelter, a backup generator, a propane tank, and associated concrete slab foundations on a 0.1-acre parcel on private land. WAPA would use an existing six-mile dirt access road across ASLD, BLM LHFO, and private lands on the west side of Crossman Peak. On private land, WAPA would widen the access road's switchback turns

for safety. At the other existing facilities, WAPA would change the directional dish configurations to transmit and receive data from the proposed communications facility.

WAPA would contract with UES to provide electrical service to the communications facility. UES would construct a 14.7-mile, 20.8-kilovolt (kV) distribution line crossing private and federal lands connecting WAPA's proposed communications facility to UES's existing Franconia Substation near Interstate 40. To construct the distribution line, UES would use mostly 45-foot wood and steel poles, with several 55- to 80-foot steel poles in the steep, two-mile segment north of the communications facility. UES would use an existing dirt road, extend it 0.24 miles, and construct approximately 4.6 miles of new dirt spur routes. UES would construct a turnaround at the southern end of the road extension, 0.5 miles north of the proposed communications facility. UES would not maintain the spur routes and would allow them to return to pre-construction condition.

Alternatives

The No Action Alternative provides a baseline against which the impacts of the other analyzed alternatives, including the Proposed Action, can be compared. Under the No Action Alterative, WAPA would not construct the communications facility or improve the access road; UES would not construct the distribution line, access road extension, spur routes, or improve the existing access road; and BLM would not issue any right-of-way grants. WAPA would not change operating bands, and would not change the dish configurations at Christmas Tree Pass, Metal Mountain, and Topock. WAPA would continue to operate and maintain its existing communications facilities. In 2020, when the Federal Communications Commission reallocates the spectrum per the National Broadband Plan presented to Congress in 2010, WAPA would lose its existing microwave connection between the Phoenix Operations Center and Hoover Dam, which would diminish the safety and reliability of the bulk electric system.

WAPA considered several alternatives including the American Tower Collocation Alternative, Solar Power Alternative, and Distribution Line Corridor Alternative. WAPA did not evaluate them further, however, because they would not meet the Proposed Action's purpose and need. The alternatives would decrease the reliability and safety of the bulk electric system and are therefore considered infeasible.

Summary of Environmental Consequences

WAPA considered the following resource areas, but did not further evaluate them because there would be no adverse impacts: agriculture, climate change, environmental justice, farmlands (prime or unique), hazardous materials and solid waste, intentional destructive acts, law enforcement, noise and sensitive receptors, rangelands, socioeconomics, wild horses and burros, and wilderness.

Following is a summary of the environmental consequences resulting from the Proposed Action and No Action Alternative for each resource area.

Land Use and Ownership

Direct, adverse, impacts to the Crossman Peak Scenic Area of Critical Environmental Concern (ACEC) would occur from the degradation of scenery due to the presence of a new communications facility and distribution line. These impacts would be minor. Impacts to recreation would be negligible to minor and limited to temporarily restricted access on existing roads and hazards to the health and safety of residents and recreationists during construction. To prevent access restrictions during construction and operation, no new fencing would be installed and no change in the locking of existing gates would occur.

Implementation of the Proposed Action would result in negligible, adverse impacts to land ownership. Easements would be granted, but only small amounts of land (0.1 acres), if any, would change ownership as a direct result of the Proposed Action. By providing a convenient power source via the proposed distribution line, prospective land owners may see increased value in available properties. However, it is anticipated any future changes to land ownership from increased access to electricity would be negligible given the remoteness of the Project area.

The Proposed Action would not result in cumulatively considerable impacts to land use and ownership when combined with other projects. Implementation of the No Action Alternative would not impact land use and ownership in the Project area.

Aesthetics and Visual Resources

Installation of the communications tower on Crossman Peak would represent a long-term, permanent change in the visual landscape. However, three similar towers are already located on Crossman Peak; installation of a new tower among this cluster of towers would result in a negligible change in the visual landscape. Installation of the distribution line between Franconia Substation and Crossman Peak and the associated improvements to the existing access road, extension of the existing road, and development of spur routes to some pole sites would also represent a long-term, permanent change in the visual landscape. As seen from the nearest public road (Interstate 40), the distribution line would be a negligible change owing to the distance between the road and the distribution line, and view blockage due to intervening topography. For recreationists using the eastern road, the distribution line and road improvements and extensions would be more prominent, as the line would generally follow the road. However, poles would be wood or dark colored steel so should not stand out too prominently. Installation of the poles and the associated road work would result in a minor to moderate change in the visual landscape. For viewers situated on Crossman Peak, the distribution line would be at a lower elevation and would tend to blend with the surrounding landscape as it falls away to the north. The presence of the distribution line would result in a minor change in the visual landscape and would not block or interfere with the panoramic views across the desert landscape from this location.

WAPA determined that the project meets the goals of the existing VRM classification and would not lead to a change in the VRM classification of the surrounding area.

The Proposed Action would not contribute to cumulative impacts to aesthetics and visual resources. Implementation of the No Action Alternative would not impact aesthetics and visual resources in the Project area.

Air Quality

Sources of air pollution that would occur during construction include combustion pollutants from equipment exhaust and fugitive dust from disturbed soils becoming airborne. Short-term air emissions from construction vehicles and equipment exhaust would be generated at each of the construction sites and along the access roads. Additionally, use of gasoline and diesel-powered water and concrete trucks would create emissions along the highways and access roads leading to work areas. Fugitive dust generated during construction and potential impacts to sensitive receptors would be minimal. The Proposed Action would result in a negligible and short-term, adverse impact on air quality.

A propane storage tank and backup generator would be installed with the communications facility. Although it would be used only occasionally, the propane-powered generator engine would be a stationary, albeit

short-term and rare, source of air pollutants. Operation and maintenance activities would be intermittent for periodic inspections or repairs and of short duration. Operational impacts would be negligible.

Adjacent to the proposed communications facility site, a privately owned (i.e., non-federal) communications facility uses a diesel generator as its power source and requires diesel deliveries twice a week. Diesel deliveries introduce potential air quality impacts through GHG and fugitive dust emissions. It is possible that the private communications facility would utilize the proposed electric power source to replace the current diesel source, reducing diesel deliveries and reducing potential impacts to air quality.

The Proposed Action's localized and temporary construction and operation emissions would be minor and would not contribute to a violation of air quality standards or other cumulative impacts to air quality. Implementation of the No Action Alternative would not impact air quality in the Project area.

Vegetation

Aspen biologists documented 100 plant species within the Project area including 96 native and four non-native. Construction of the Proposed Action would have direct, long-term impacts to vegetation from clearing vegetation prior to building the communications facility, installing distribution line poles, and grading access roads. This would result in approximately 13.9 acres of permanent impacts to vegetation. Vegetation clearing for staging areas, tensioning sites, conductor pulling sites, and some spur routes would be allowed to recover at the end of construction. Impacts to vegetation in these areas would be temporary and would include approximately 3.0 acres of impacts. However, these temporary impact areas may never provide the same habitat value as those areas that were removed because desert ecosystems take a very long time to recover from disturbance. Operation and maintenance of the Proposed Action would result in some short-term impacts to vegetation. These impacts would be limited to trimming of vegetation along access roads and would be negligible because of their small scale and extensive stands of similar vegetation in the surrounding areas. Mechanical disturbance in previously undisturbed areas would be limited, the likelihood of introducing or spreading invasive species would be minimal, and native vegetation recovery in temporarily impacted areas would be stimulated after construction.

The contribution of the Proposed Action to cumulative impacts would be negligible because of the small scale of these losses (16.9 acres) compared to the extensive intact vegetation in the surrounding area. Direct, long-term habitat loss of habitat from the construction of the new access roads and distribution line poles would fragment habitat that is currently intact. Any fragmentation of habitat would be negligible because of the narrow width (< 25 feet) of this habitat loss, the infrequent use of the access road, and the existing habitat fragmentation due to the existing access roads. Most wildlife will still utilize the habitat and will move between habitat patches via the access roads.

Cumulative impacts to vegetation may occur as a result of ground disturbing activities and vegetation removal (except federally listed plant species) and BLM sensitive plant species (on a case-by-case basis) during construction of the Proposed Action and to a lesser extent during future maintenance. The contribution of the Proposed Action to the cumulative impacts would be negligible because none of the cumulative projects are near the Project area and none are expected to result in loss of vegetation. Implementation of the No Action Alternative would not impact vegetation in the Project area.

Wildlife

The entire Project area provides habitat for common wildlife species. Construction of the Proposed Action would have direct, long-term impacts to wildlife and their habitats. Wildlife habitat (vegetation) would be cleared prior to building the communications facility, installing distribution line poles, and grading access

roads. These impacts would result in 13.9 acres of permanent impacts to wildlife habitat. Direct impacts to wildlife could occur during Project construction if individuals are accidentally injured or killed by colliding with vehicles, crushed during vegetation clearing, or by other similar activities. Wildlife habitat removed for staging areas, tensioning sites, conductor pulling sites, and spur routes would be allowed to recover at the end of the construction. Impacts to wildlife habitat in these areas would total 3.0 acres and would be temporary. However, these areas may never provide the same habitat value as that which was removed because desert ecosystems take a very long time to recover from disturbance. Construction of the Proposed Action could result in indirect impacts to wildlife as a result of noise, vehicles, and other activities. Any indirect impacts to wildlife species are expected to be negligible because of the wildlife's ability to leave the area.

Operation and maintenance of the Proposed Action would result in some short-term impacts to wildlife habitat. These impacts would include trimming of vegetation along access roads, wildlife-vehicle collisions, and wildlife-transmission line collisions; these impacts would be negligible because of their small scale, low probability of occurring, and extensive stands of similar wildlife habitat in the surrounding areas that would remain unimpacted. Direct, long-term habitat loss of habitat from the construction of the new access roads and distribution line poles would fragment habitat that is currently intact. Any fragmentation of the habitat would be negligible because of the narrow width (< 25 feet) of this habitat loss, the infrequent use of the access road, and the existing habitat fragmentation due to the existing access roads. Most wildlife would still utilize the habitat and would move between habitat patches via the access roads. Project activities would cause long-term adverse impacts to dispersal habitat and would result in minor habitat fragmentation.

The contribution of the Proposed Action to the cumulative impacts would be negligible because of the small scale of these losses (16.9 acres) compared to the extensive intact habitat in the surrounding area. Implementation of the No Action Alternative would not impact wildlife in the Project area.

Special-status Species

Project activities would potentially impact golden eagles, nesting birds, migratory birds, bats, desert bighorn sheep, Joshua tree, Parish's onion, Sonoran desert tortoise, and other special-status species in the Project vicinity. Project activities would destroy or degrade foraging habitat, but these impacts would be negligible because the habitat affected (16.9 acres) would be minimal compared with the extensive foraging habitat in the vicinity of the Project area. Impacts to foraging behavior, shelter sites, and water access would be negligible and short-term. Direct, long-term habitat loss from the construction of the new access roads and distribution line poles would fragment habitat that is currently intact. Any fragmentation of the habitat would be negligible because of the narrow width (< 25 feet) of this habitat loss, the infrequent use of the access road, and the existing habitat fragmentation due to the existing access roads. Most wildlife would still utilize the habitat and would move between habitat patches via the access roads. Project activities would cause long-term adverse impacts to dispersal habitat and would result in minor habitat fragmentation.

Temporary impacts to migratory bird habitat, BLM-sensitive birds, and bats would result from Project implementation. At each proposed distribution line pole, there would be a direct, long-term loss of habitat. Vegetation clearing for temporary work areas and access roads would also cause direct, short-term habitat loss. Impacts to migratory bird habitat, BLM-sensitive birds, and bats would be indirect, short-term, and negligible.

Project activities would avoid the most sensitive time of the lambing season for bighorn sheep, as well as the month before and after. Project activities are not expected to impact desert bighorn sheep lambing. Outside of the lambing season, any direct impacts to sheep would be minimal.

Direct impacts to Parish's onion would be minimal relative to the extensive suitable habitat in the adjacent lands that are likely to be occupied by Parish's onion and that would not be impacted by the Project.

Direct and indirect impacts to Sonoran desert tortoise would be minimal. Operation and maintenance of the Proposed Action would result in minimal to no adverse impacts to sensitive species.

Cumulative impacts to special-status species may occur as a result of habitat fragmentation and loss, and of some special-status species being displaced or disturbed during construction and maintenance activities. Most of the past, present, and future projects are not located in close proximity to the Project area or are not expected to result in adverse impacts to special-status species that would contribute to an adverse cumulative impact. T The contribution of the Proposed Action to the cumulative impacts would be negligible because none of the cumulative projects are located in close proximity to the Project area or expected to result in impacts to special-status species or their habitat.

Cultural Resources

Potential construction impacts to three National Register of Historic Places (NRHP)-eligible resources would be avoided or minimized. The visual analysis indicates that the new components would be indistinguishable from existing infrastructure from a distance, resulting in negligible impacts to the setting of a traditional cultural property (TCP). Operation and maintenance of the Proposed Action would have no adverse impact on NRHP-eligible resources or TCPs.

The contribution of the Proposed Action to cumulative impacts would be negligible because of the small scale of these losses (17 acres of total ground disturbance) compared to the relatively pristine setting of the surrounding environment. Implementation of the No Action Alternative would not impact cultural resources in the Project area.

Native American Religious Concerns

The Proposed Action would not lead to the loss, destruction, or inaccessibility of a TCP or a sacred site. Human remains would not be disturbed. Compliance with the BLM Resource Management Plan (RMP) would protect the traditional cultural values of the sacred mountain as well as sites eligible for inclusion on the NRHP. The action would not have an adverse impact to TCPs. WAPA will continue to address concerns of Indian tribes identified during the on-going consultation process.

The contribution of the Proposed Action to cumulative impacts would be negligible because of the small scale of these losses (17 acres of total ground disturbance) compared to the relatively pristine setting of the surrounding environment. Implementation of the No Action Alternative would not impact Native American religious concerns in the Project area.

Paleontological Resources

The Project area is underlain by geologic units ranging from very low to high sensitivity for the presence of paleontological resources. Impacts to paleontological resources during ground disturbance are possible as a result of the Project. Impacts would be avoided or minimized through resource identification, monitoring, and the implementation of a Paleontological Resources Identification and Mitigation Plan (PRIMP). Therefore, construction would result in either no impacts (no fossils encountered) or beneficial impacts (fossils encountered, preserved, and identified). Beneficial impacts include fossil discoveries which would enhance our understanding of the prehistoric climate, geology, and geographic setting of the region for the benefit of current and future generations.

While operation and maintenance of the Proposed Action is unlikely to result in impacts to paleontological resources, worker environmental awareness training and implementation of the PRIMP would ensure either no impacts (no fossils encountered) or beneficial impacts (fossils encountered, preserved, and identified) would occur.

The Proposed Action would not result in cumulatively considerable impacts if combined with other projects. Implementation of the No Action Alternative would not impact paleontological resources in the Project area.

Geology, Soils, and Mineral Resources

Direct adverse impacts to geology would be minor. Construction activities and vegetation removal would disturb the soils, elevating soil erosion and sediment transport rates. However, these impacts would be short-term and minor. Due to the nature of the Project, which is comprised of short-term construction and limited maintenance of a communications facility and distribution line, potential impacts to mineral resources would be short-term and negligible, limited to potential temporary mine access restrictions associated with the presence of construction vehicles and equipment on access roads.

None of the cumulative projects would require use of these same mine access roads or impact geology and soils in the Project area during construction, and therefore, would not combine to result in cumulative impact. Implementation of the No Action Alternative would not impact geology, soils, and minerals in the Project area.

Public Health and Safety

Adverse impacts to worker health and safety would be short-term and negligible. The Proposed Action would create potential fire hazards if the distribution line came in contact with vegetation or other structures, or if the structure was struck by lightning. To reduce or avoid fire hazards, the Project would be designed, constructed, and maintained in accordance with National Electrical Safety Code requirements. If a fire were to occur, local public services would be available to extinguish the fire. The proposed distribution line would have a negligible impact to public health and safety because it would not expose the public or workers to unusual or higher than usual levels of electric and magnetic fields. Similarly, the proposed communications facility would not expose the public or workers to elevated radio frequencies. Maintenance and repair work would be localized, minimizing the potential for serious injuries to workers or the public. Any excavations would be properly covered, filled, or fenced and construction vehicles and equipment would be properly stored when not in use. Direct impacts to the public safety would be negligible.

Diesel deliveries to the existing, privately owned communications facility introduce potential risks to driver and public safety in the event of a vehicle accident. It is possible that the private communications facility would utilize the proposed electric power source to replace the current diesel source, reducing diesel deliveries and reducing potential risks to public and worker safety.

The Proposed Action would not result in cumulatively considerable impacts to public health and safety when combined with other projects. Implementation of the No Action Alternative would not impact public health and safety in the Project area.

Travel Management and Transportation

Construction equipment might occasionally slow traffic on the access roads, but these adverse direct impacts would be short-term and minor. Temporary road closures would require notification to the public of the use of the access road such that they can incorporate any delays into their planning. The Proposed

Action would improve four degraded switchback curves located on the west access road on private land. These improvements could temporarily block access of the road but this portion of the access road is not open to the public; therefore, the improvement would not result in a direct impact.

Temporary access road closures would be a direct, adverse impact to the public, but is likely to be limited in nature as it would potentially occur only at some of the pole and stringing locations and during limited periods. Impacts would be expected to be short-term and minor.

None of the cumulative projects would require use of these same unpaved access roads during the construction timeframe of the Project, and therefore, would not combine to result in cumulative impact. Implementation of the No Action Alternative would not impact travel management and transportation in the Project area.

Water Quality

Construction of the Proposed Action would result in water quality impacts from soil erosion and as a result of material spills such as fuel, engine oil, and lubricants. Ground disturbance and erosion would be minimal and disturbed areas would be allowed to return to pre-construction conditions. Implementation of with a Stormwater Pollution Prevention Plan or similar measures would avoid spills and leaks as well as prevent erosion and sedimentation. Adverse impacts to surface water quality due to construction activities would be short-term and minor.

Operation of the Project would consist mainly of roadway maintenance and occasional repairs to the distribution line and communications facility. Occasional roadway maintenance may be required due to flooding, especially along the braided washes. Operational impacts to surface water quality would be negligible.

The Proposed Action would not result in cumulatively considerable impacts to water resources when combined with other projects. Implementation of the No Action Alternative would not impact water resources in the Project area.

Jurisdictional Waters

Project construction would result in 11.9 acres of temporary impacts and 1.8 acres of permanent impacts to jurisdictional waters. Direct impacts to jurisdictional waters would include the removal of native vegetation, the discharge of fill, degradation of water quality, and increased erosion and sediment transport. Potential indirect impacts could include alterations to the existing topographical and hydrological conditions. UES would obtain Section 401 and 404 permits prior to construction and would adhere to the conditions of approval.

Operation and maintenance would result in direct and indirect, adverse impacts to jurisdictional waters resulting from vehicular traffic in washes and occasional repairs to drainage crossings. These impacts are the same as described for construction impacts, albeit for a shorter duration but long-term. Operational impacts to jurisdictional waters would be minor.

The Proposed Action would contribute to cumulative impacts to jurisdictional waters, however, these impacts are considered negligible. Implementation of the No Action Alternative would not impact jurisdictional waters.

Chapter 1
Introduction: Purpose and Need for Action

1.1 Project Background

Western Area Power Administration (WAPA) is one of four power marketing administrations within the U.S. Department of Energy (DOE). WAPA operates within a 15-state region of the central and western United States, and delivers power from 57 power plants to a service area that covers approximately 1.3 million square miles and is divided into four regions. WAPA's Desert Southwest region (DSW) is based in Phoenix, Arizona, and operates transmission lines and facilities in Arizona, California, and Nevada. WAPA's mission is to market and deliver clean, renewable, reliable, cost-based, Federal hydro-electric power and related services pursuant to its statutory authority under the Energy Reorganization Act (§7152(a)) and the Federal Power Act (§824j).

WAPA operates and maintains a microwave, radio, and fiber optic network that it shares with the Bureau of Reclamation and other electrical utilities. This network provides secure, redundant communication among facilities, such as switchyards, control centers, and hydroelectric power plants. WAPA's microwave system is the primary communication pathway for supervisory control and data acquisition between WAPA's DSW office and the Hoover Dam near Boulder City, Nevada. This microwave system is responsible for linking five power plants and 22 substations together. WAPA's microwave system operates within a specific frequency band assigned by the U.S. Department of Commerce's National Telecommunications and Information Administration.

In July 2010, the President issued a memorandum stating a goal of making 500 megahertz (MHz) of spectrum available for licensed commercial broadband use by 2020 (75 Federal Register 3837). To this end, and to increase bandwidth necessary to maintain the safety and reliability of the bulk electric system, WAPA is transitioning from equipment that operates in the 2320-2345 MHz band to equipment in the 7125-8025 MHz band.

WAPA owns and operates communications facilities at Christmas Tree Pass in Clark County, Nevada, Metal Mountain in San Bernardino County, California, and Topock Substation in Mohave County, Arizona (Figure 1-1). WAPA conducted an analysis that showed mountainous terrain would interrupt the signal between these facilities when they are upgraded to a higher bandwidth. WAPA proposes to own, construct, operate, and maintain a new communication facility located adjacent to an existing, privately owned one near Crossman Peak, east of Lake Havasu City in Mohave County, Arizona. This would create an interference-free microwave path in the 7125-8025 MHz band between the Christmas Tree Pass and Metal Mountain communications facilities (WAPA, 2013) via the proposed Crossman Peak communications facility and the existing Topock facility (Figure 1-1).

WAPA also proposes to use, improve, and maintain an existing access road as needed to reach the new communications facility and contract with UniSource Energy Services (UES) to construct an electrical distribution line to provide power to the new communications facility.

UES is a gas and electric utility within its parent company, UNS Electric, Inc., which is regulated by the Arizona Corporation Commission (ACC). It holds a Certificate of Convenience and Necessity from the ACC and is authorized to provide electric services within Mohave County (Docket E-04204A).

Figure 1-1. Existing and Proposed Communications Facilities and Microwave Paths

The proposed Crossman Peak communications site is on private land, but the electrical distribution line and access roads needed to construct and maintain the line would be on land administered by the Bureau of Land Management (BLM) Lake Havasu Field Office (LHFO) (Figure 2-1). WAPA submitted an Application for Transportation and Utility Systems and Facilities on Federal Lands (Standard Form 299 and Plan of Development) to BLM for a right-of-way across public land for use of the existing access road. While WAPA's Proposed Action fits Categorical Exclusion B1.19 "Microwave, meteorological and radio towers," BLM determined its action, responding to right-of-way applications, does not fit one of its categorical exclusions. BLM determined that it needs an Environmental Assessment (EA) to support its decisions associated with the Proposed Action. The DOE's National Environmental Policy Act (NEPA) regulations state that "DOE may prepare an EA on any action at any time to assist agency planning and decision making" (§1021.321). WAPA and BLM agreed that WAPA would be the lead federal agency and BLM would be a cooperating agency. BLM will use the information in this EA to make a decision regarding issuance of rights-of-way for the Crossman Peak Communications Facility Project (Project or Proposed Action).

1.2 Purpose and Need

1.2.1 WAPA's Purpose and Need Statement

WAPA's purpose is to maintain the safety and reliability of the bulk electric system and contribute to the President's goal of making 500 MHz of communications spectrum available for licensed commercial broadband use by 2020 (500 MHz Initiative; see 75 Federal Register 3837). To meet these goals, WAPA is transitioning from equipment that operates in the 2320-2345 MHz band to equipment in the 7125-8025 MHz band, creating more bandwidth in WAPA's communications network and freeing up bandwidth for the President's 500 MHz initiative.

The Proposed Action is needed to create an interference-free microwave path in the 7125-8025 MHz band between the existing Metal Mountain and Christmas Tree Pass communications facilities. The Proposed Action is also needed to free up portions of the 2320-2345 MHz band for the U.S. Department of Commerce's National Telecommunications and Information Administration, which is coordinating the President's 500 MHz initiative. In addition, the proposed equipment change is needed to increase the amount of data (bandwidth) that WAPA can send between facilities by 20 megabytes (MB), in turn increasing the safety and reliability of the bulk electric system.

The proposed distribution line is needed because WAPA needs two reliable sources of power at its communications facilities per the Western Electricity Coordinating Council's (WECC) Guidelines for the Design of Critical Communications Circuits, stating critical traffic must be designed with redundant power to avoid outages on critical communications. Lastly, WAPA needs to control access to its communications equipment in accordance with WAPA Order 470.1H, Safeguards and Security Program.

1.2.2 BLM's Purpose and Need Statement

BLM's purpose is to respond to two right-of-way applications associated with the Proposed Action. These are:

- WAPA's application for use of an existing, previously unapproved, six-mile-long access road between the new communications facility and Lake Havasu City.
- UES's application for the construction and use of a 14-mile-long distribution line and access road improvements to supply electrical power to WAPA's communications facility and nearby in-holdings.

The need for action arises from Title V of the Federal Land Policy and Management Act (FLPMA) (43 U.S. Code 1701), which requires BLM to respond to right-of-way applications.

1.3 Cooperating Agencies

The BLM LHFO is a cooperating agency in preparing this EA. BLM has jurisdiction by law because it manages the land where the new distribution line and associated access roads are proposed as well as the land where the existing access road to the communications facility is located. BLM is responsible for all land management actions, such as granting rights-of-way and permits for the Proposed Action. This document serves as the NEPA analytical review for these actions.

In support of these actions, BLM participated as a cooperating agency by meeting with WAPA, reviewing technical reports, and providing input regarding the scope and content of the environmental analysis.

1.4 Conformance with Land Use Plan

The Proposed Action is subject to, and has been reviewed for conformance with, the BLM's *Lake Havasu Field Office Record of Decision and Approved Resource Management Plan* (RMP), which was approved on May 10, 2007. The Lake Havasu Field Office may issue rights-of-way for uses pursuant to Title 5 FLPMA that include "access roads, power lines, telephone lines, fiber optic systems, communications facilities, and so forth." The Proposed Action is not specifically provided for in the RMP; however, BLM determined that the Proposed Action is in conformance with the RMP, because it is consistent with the following RMP objectives, terms, and conditions:

- WF-20, page 19: Construction sites for wind turbines, power lines, telecommunication, towers, solar power sites, and any other new technology, etc., will conform with guidelines developed by the U.S. Fish and Wildlife Service (USFWS) to minimize impacts to wildlife species, particularly migratory birds and bats.
- CL-10, page 28: Under Special Designations, Crossman Peak will be managed as an Area of Critical Environmental Concern (ACEC), in part due to associated Native American values.
- LR-7, page 39: Within the boundaries of Special Designations (such as but not limited to: ACEC, Wilderness Study Area, proposed Wild and Scenic Rivers, etc.) as identified in this approved RMP, no new utility and road right-of-way grants will be authorized, with the exception of utilities and access roads that provide service to nonfederal land within these areas. One additional right-of-way will be issued in the proposed Crossman Peak Scenic ACEC to authorize an existing building and two towers on public land in Township 14 North, Range 19 West, section 13, lot 1.
- Havasu Urban Recreation Management Zone (RMZ) 2 – Crossman Peak, page 88: Manage this zone to provide visitors and residents with a scenic backdrop to Lake Havasu City and associated Lake Havasu Special Recreation Management Area (SRMA) and provided access to those targeted activities. Further, manage this zone to provide opportunities for community residents to engage in sustainable personal discovery, while protecting critical resources located in the area. This area serves as open space for the residents of Lake Havasu City. Partnerships will be sought to help improve this RMZ so that within the life of this plan most responsible visitors will attain a greater appreciation for their public lands and the natural and cultural resources found therein.
- AC-5, page 107 and 108: Crossman Peak Scenic ACEC will be managed to protect and prevent irreparable damage to the relevant characteristics or important values.

1.5 Public Involvement

1.5.1 Scoping

WAPA notified stakeholders of the Project and solicited their comments through a scoping letter, dated October 13, 2016, and a newspaper advertisement (refer to Appendix D) published in the Lake Havasu News on October 17, 2016. Stakeholders notified included federal, tribal, state, and local governments, other interested organizations, and landowners near the Proposed Action area. Additionally, WAPA issued a press release on October 24, 2016. A public scoping meeting was held on November 1, 2016, in Lake Havasu City, Arizona. A total of 10 comment correspondences were received, including from federal agencies (Federal Emergency Management Agency, U.S. Army Corps of Engineers, and Environmental Protection Agency), state agencies (Arizona Game and Fish Department), organizations, and individuals. Primary topics addressed included:

- Impacts to sensitive species and habitats in the Project vicinity
- Impacts to "waters of the U.S."
- Impacts to floodplains
- Impacts to off-road recreational resources in the Project vicinity
- Impacts to aircraft due to the proposed communications tower
- Impacts to ancestral and archeological sites
- Beneficial impacts associated with the proposed distribution line

Refer to Chapter 4 for information on tribal consultation and Appendix E for copies of agency correspondence.

1.6 Decisions Needed

This EA, which is the responsibility of WAPA, is a concise public document that serves to:

- provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI);
- aid WAPA's compliance with NEPA when no EIS is necessary; and
- facilitate preparation of an EIS if one is necessary (40 CFR § 1508.9).

Based on the analysis contained in this EA, weighing how each alternative meets the purpose and need, WAPA will determine whether the proposed Crossman Peak Communications Facility Project requires an EIS, or if a FONSI can be prepared. The EA will also be used by BLM to make a decision regarding whether to issue right-of-way grants to WAPA and UES.

Chapter 2
Proposed Action and Alternatives

The Proposed Action consists of actions by the Lead Agency (WAPA), the Cooperating Agency (BLM), and UES. The following describes the actions of each of these entities. Additionally, this section describes the No Action Alternative, and alternatives considered but not further evaluated. It also identifies projects that would occur concurrently and foreseeable future projects located near the Proposed Action area.

2.1 Proposed Action Description

2.1.1 Proposed Action

WAPA's Proposed Action

WAPA's Proposed Action consists of three components (refer to Figure 2-1):

Communications Facility. WAPA would construct an unfenced communications facility composed of a 100-foot-tall, self-supporting tower with attachments such as microwave dishes, a prefabricated equipment shelter, a backup generator, a propane tank, and associated concrete slab foundations on a 0.1-acre parcel on private land.

Access Road to Communications Facility. WAPA would use an existing six-mile dirt access road across land managed by Arizona State Land Department (ASLD), BLM LHFO, and private lands on the west side of Crossman Peak. On private land, WAPA would widen the access road's switchback turns for safety.

Distribution Line and Access Road. WAPA would contract with UES to provide electrical service to the communications facility.

UES's Proposed Action

UES would construct a 14.7-mile, 20.8-kV distribution line crossing private and federal lands connecting WAPA's proposed communications facility to UES's existing Franconia Substation near Interstate 40. To construct the distribution line, UES would use mostly 45-foot wood and steel poles, with several 55- to 80-foot steel poles in the steep, two-mile segment north of the communications facility. The distribution line would include installation of conductor and fiber optic line, which functions as an overhead ground wire. UES would use and improve an existing dirt road, extend it for 0.24 miles, and spur routes to access pole locations. These routes are considered temporary because they would not be maintained and would be allowed to return to pre-construction condition. The proposed road extension ends 0.5 miles north of the communications facility, but would include a turnaround.

BLM's Proposed Action

BLM's proposed action is to respond to two right-of-way applications associated with WAPA's Proposed Action. These are:

- WAPA's application for use of an existing, previously unapproved, six-mile access road between the new communications facility and Lake Havasu City.
- UES'S application for the construction and use of a 14.7-mile distribution line and access road improvements to supply electrical power to WAPA's communications facility and nearby inholdings.

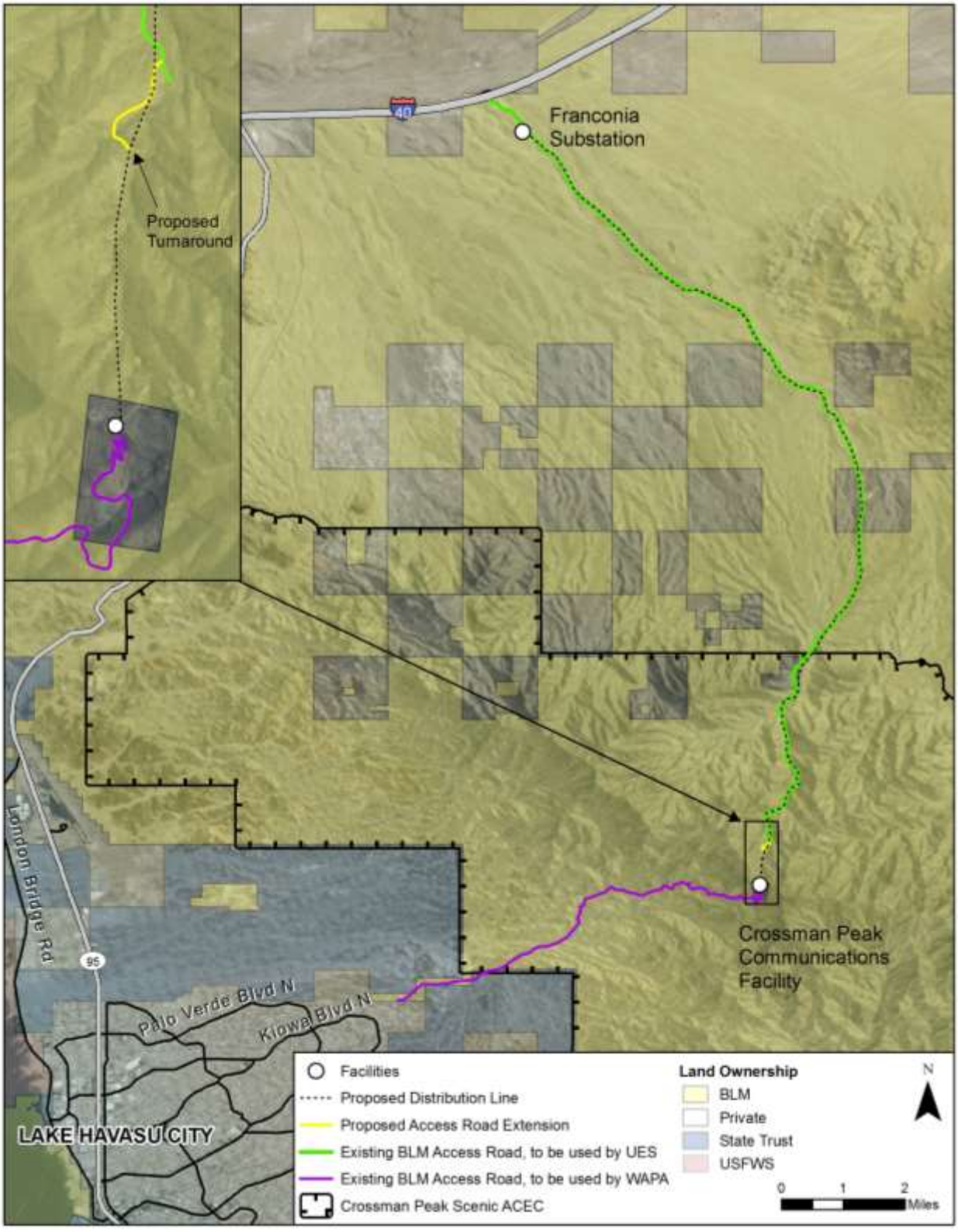

Figure 2-1. Proposed Crossman Peak Communications Facility Project

2.1.2 Project Location

Crossman Peak is in the Mohave Mountains northeast of Lake Havasu City in Mohave County, Arizona (Figure 2-1). The proposed communications site would be located at approximately 4,700 feet in elevation (400 feet below the summit of Crossman Peak), about 9 miles east of Highway 95, and 13 miles south of Interstate 40. The proposed facility would be located adjacent to an existing American Tower communications facility.[1] The previously disturbed private land is 18.33 acres on Assessor Parcel Number (APN) 113-02-003 of Township 14 North, Range 19 West, Section 13, NE¼SE¼, Gila and Salt River Baseline and Meridian. The communications facility site and access road would encompass 0.1 and 1.8 acres of this private land, respectively. BLM administers land surrounding this private inholding, which contains most the Proposed Action's linear facilities (distribution line and access roads). The six-mile dirt access road to the proposed communications facility begins at the northeast corner of Lake Havasu City and continues northeast to the communications facility site. The proposed distribution line would travel south and east from the Franconia Substation near Interstate 40 in Franconia to the proposed communications facility site, while the associated access road would travel south from the Franconia Substation and stop 0.5 miles short of reaching the communications facility.

2.1.3 Schedule

WAPA would begin construction no later than February 15, 2018. WAPA's construction activity would occur over three to four months. All construction would occur during daylight hours, and night lighting would not be required. WAPA would begin operation of the proposed communications facility no later than December 2018.

UES would begin construction no sooner than October 1, 2017. UES's construction activities would occur for up to 10 months, dependent on seasonal timing restrictions. All construction would occur during daylight hours, and night lighting would not be required. UES would energize the distribution line in time to meet WAPA's operational target date of December 2018.

BLM would issue the right-of-way grants to WAPA and UES within the 30 days following BLM's approval of this Environmental Assessment, which, if approved, is expected to occur in the Summer of 2017.

2.1.4 Project Implementation

2.1.4.1 Pre-Construction

WAPA

In advance of construction activities, WAPA would acquire access road rights-of-way from the ASLD, BLM, and any private landowners for use of an existing road to access the new communications site. WAPA would also acquire necessary land rights from the private landowner for the construction, operation, and maintenance of the new communications facility. It is estimated it would take six months to acquire the access road rights-of-way and land rights from ASLD, BLM, and private landowners.

WAPA would notify the Federal Aviation Administration (FAA) about the proposed tower location and height during the design stage. WAPA would negotiate with BLM and the local governmental users of BLM's radio facility at Crossman Peak on relocating their equipment to WAPA's new facility. BLM's existing

[1] The existing American Tower Corporation communications facility includes equipment with site numbers 370257, 370262, and 370258.

facility occurs within the footprint of WAPA's proposed facility. WAPA would bring a trailer or prefabricated building to temporarily house the equipment during WAPA's construction.

UES

WAPA would negotiate a contract with UES to provide power to WAPA's communications site. UES would acquire a right-of-way from BLM for the proposed distribution line and access road construction and improvements on BLM lands. UES would also need to acquire easements from private land owners for construction and operation of the distribution line on private lands.

BLM

BLM would issue right-of-way grants to WAPA for use of the existing, previously unapproved, six-mile access road between the new communications facility and Lake Havasu City, and to UES for the construction and use of the distribution line and associated access road improvements and construction to supply electrical power to WAPA's communications facility.

2.1.4.2 Construction

Staging Areas

WAPA. WAPA would stage and temporarily store equipment within a 50-foot by 70-foot area adjacent to the communications facility site. If necessary, WAPA would store additional equipment or materials in nearby previously disturbed areas, such as along the shoulder of the existing access road on private land.

UES. UES would stage and temporarily store equipment within a 300-foot by 300-foot lease area located at the Franconia Substation; which was previously authorized for such use by BLM. They may also use the ROW adjacent to the pole locations. If an additional staging area is needed, it would occur within the project area and permission from private land owners would be obtained.

Construction Work Areas and Site Preparation

WAPA. WAPA would limit work areas for construction of the communications facility to the 50-foot by 70-foot site. WAPA would access work areas by construction vehicles via the existing unpaved access road. WAPA would prepare the site for construction, including removal of any vegetation (mainly shrubs) from the communications site and access road switchbacks. WAPA would also level the immediate work zone around the communications site for safety.

UES. UES would mostly limit construction work areas to within the proposed 50-foot-wide distribution line right-of-way and 20-foot-wide access road right-of-way. UES would require up to 24 temporary 50-foot by 100-foot pulling/stringing areas at turning structures along the distribution line. UES would access work areas by construction vehicles via existing unpaved access roads, new spur routes, the new 0.24-mile road extension. UES would also require three 75-foot by 75-foot temporary work pads at the southernmost pole locations that would not be accessible by existing or proposed roads. UES would use a helicopter to reach these, and various other, pole locations in mountainous terrain. UES would prepare the site for construction, including removal of vegetation (mainly shrubs) and rock at proposed pole locations, improvement locations along the existing access road, and within the right-of-way of any new spur routes or road extension. UES would also level, at most, a 25-foot radius area in the immediate work zone around the distribution poles for safety.

Construction Equipment and Workforce

WAPA. WAPA would use the following construction equipment during communications facility construction and access road improvements. Construction would require four workers.

- 1 Crane (4 hours/day)
- 2 Forklifts (6 hours/day)
- 1 Tractor/Loader/Backhoe (8 hours/day)
- 1 Auger (6 hours/day)
- 1 Helicopter (100 hours)
- 1 Concrete Truck – up to 9 trips (42 cubic yards total)
- 1 Grader (6 hours/day)
- 1 Water Truck (8 hours/day)

UES. UES would use the following construction equipment during distribution line construction and access road construction and improvements. Construction would require 10 to 15 workers.

- 1 Rubber-Tired Dozer (6 hours/day)
- 1 Tractor/Loader/Backhoe (7 hours/day)
- 1 Water Truck (8 hours/day)
- 2 Digger/Derrick Trucks (8 hours/day)
- 2 Bucket Trucks (6 hours/day)
- 1 Crane Truck (Limited use)
- 1 Concrete Truck – up to 15 trips (70 cubic yards total)
- 1 Helicopter (100 hours)

Access Road Construction and Improvements

WAPA. WAPA would improve, for safety, the four switchback curves located on private land nearest the existing communications facility so that a maintenance vehicle would be able make each turn without backing up. To complete this, WAPA would clear brush, cut back the existing slope, place fill on the downslope side of the road, perform grading, and compact the area. Water trucks would be used on the access road to control dust and to retain fine surface rock. No new fencing would be built along the access roads and no change in the locking of existing gates would occur.

UES. UES would improve and construct the access road for the distribution line, which would require brush clearing, grading, compaction, and the installation of corrugated metal pipes to maintain stormwater flows within ephemeral washes. UES would improve portions of the southern 4.7 miles of existing access road as needed. UES would construct approximately 4.6 miles of new, spur routes off the existing access road, and the existing road would be extended at the south end of the distribution line for about 0.24 miles. The road extension would end 0.5 miles north of the communications facility and UES would build a natural physical barrier and turnaround at the end of the road extensions to permit vehicles to safely turn around (refer to Figure 2-1). UES would use water trucks on the access road to control dust and to retain fine surface rock. UES would implement a Stormwater Pollution Prevention Plan (SWPPP) during construction per Arizona Department of Environmental Quality (ADEQ) guidelines to prevent sediment flow into the washes. UES would confine all access road construction activities and staging areas to within the UES right-of-way or obtain a temporary construction easement from BLM. No new fencing would be built along the access roads.

Communications Facility Construction

WAPA would disturb the ground for the installation of concrete slab foundations for the communications tower, equipment shelter, generator, and propane tank. WAPA would dig a trench and bury connections between the propane tank and the generator, requiring additional ground disturbance. Lastly, WAPA would install a grounding grid around the perimeter of the communications tower. WAPA estimates the maximum extent of the grounding grid and total permanent ground disturbance is the area of land that would be acquired from the private land owner (3,500 square feet).

Structure Foundations Installation

WAPA would level the structure location for the installation of foundations. WAPA would use an auger to excavate three foundations, one for each leg of the tower, each leg would be 4 feet in diameter and 10 to 20 feet deep. WAPA would pour three concrete slab foundations for the equipment shelter (240 square feet), generator (48 square feet), and propane tank (60 square feet). Installation of the tower, shelter, propane tank, and generator would require a total of approximately 42 cubic yards of concrete, or between eight and nine truckloads. WAPA would park a concrete truck as close to the structures as feasible to provide concrete for foundations. WAPA would use any excess excavated material as backfill to refill holes or spread onsite.

WAPA would use a crane to transfer the prefabricated building from the delivery truck to the foundation. Once secured to the foundation, WAPA would paint and furnish the building. The building would contain heating and cooling equipment capable of maintaining a constant temperature as specified by the manufacturer of the communications equipment. WAPA would install long-range OC-3 microwave radio equipment that can transmit and receive data at a bandwidth of 30 MB. WAPA would install a 48 Volt direct current (DC) (100 ampere-hour) battery system with two battery chargers in a dedicated room within the equipment shelter. WAPA would mount the batteries on a rack over a spill containment device. WAPA would install underground connections between the equipment shelter, generator, and propane tank.

New Structure Assembly and Erection

WAPA would deliver the communications tower, prefabricated equipment shelter, building materials, propane tank, generator, and other hardware by truck to the communications facility site or staging area. Starting at the base, WAPA would assemble and erect the communications tower in sections. A crane or helicopter would set the tower supports in the excavated holes while concrete is placed around the base. Then, a crane or guy wire would hold each structure in place for 72 hours as the concrete foundation cures. WAPA would install a waveguide structure to support cables running between the tower and the equipment shelter.

Installation and Alignment of Dishes and Antennae

WAPA would install three, 10-foot-diameter microwave dishes on the tower at Crossman Peak. One would point to WAPA's Christmas Tree Pass microwave site, one to WAPA's Topock Substation, and one to WAPA's Metal Mountain microwave site. At Christmas Tree Pass, WAPA would replace an existing eight-foot-diameter microwave dish with a 10-foot-diameter one, and align it with Crossman Peak. At Metal Mountain and Topock, WAPA would reorient existing 10-foot-diameter dishes to point at Crossman Peak.

At Crossman Peak, WAPA would also install BLM's and local government's radio antennae on the tower. This equipment is currently present at the site.

Distribution Line Construction

Structure Installation

UES would deliver the distribution poles, conductors, insulators, construction materials, and other hardware by truck to the UES right-of-way or staging area. UES would utilize mostly 45-foot wood and steel poles, with several 55- to 80-foot steel poles in the steep two-mile stretch leading up to the communications facility. UES would transfer components necessary for hilly terrain to crawlers, and transport up the steeper slopes as necessary.

Installation of approximately 250 distribution line poles and installation of conductor and fiber optic line, which also functions as an overhead ground wire, would disturb the ground. Installation of each structure would temporarily disturb up to 2,500 square feet and permanently disturb two square feet. UES would also require 5,000 square feet of temporary disturbance area outside of rights-of-way for each wire pulling and tensioning site; 22 of these sites are proposed but likely less than half would be needed.

UES would install poles by leveling the pole location with tracked or rubber-tire equipment. UES would then excavate the pole foundations with an earth auger up to 9 feet deep for the 45-foot poles and up to 20 feet deep for the taller (55- to 80-foot) poles. UES would use any excess excavated material as backfill or spread it along access roads. UES would install concrete foundations to several distribution poles in the steep, mountainous terrain at the southern portion of the distribution line. UES would park a concrete truck as close to the structures as feasible to provide concrete for foundations, or use a helicopter. UES would hold each foundation structure in place with a crane or guy wire overnight. UES may frame the distribution poles on the ground before erection, but may install the cross arms, insulators, and other hardware as part of the stabilization process after the pole structures have been permanently installed.

Conductor Stringing

UES would attach stringing sheaves or pulleys to the insulator attached to each pole. UES would pull or string a small sock line from pole to pole through the stringing sheaves. UES would complete this task by using man lift equipment, climbing the structure, or by helicopter. Once the light weight rope has been strung through all structures, UES would use the lighter weight rope to pull in a larger diameter line for pulling in the non-specular conductor wire. The fiber optic line would be strung in a similar manner.

UES would use power line pulling equipment at one end of the pole, and power braking or tensioning equipment at the other end to pull in conductor at tension and avoid contact with the ground during the pulling process. UES would then pull the conductors to their appropriate tension and secure at each of the end points by using mechanical or compression dead-end devices. UES would move the conductors on the tangent or intermediate structures from the pulling sheave and secure to the insulator. As standard practice, UES would design the distribution line to provide adequate spacing to prevent raptor electrocution and if there are changes to the distribution line configuration, equipment covers would be placed to reduce risk of raptor electrocution at each pole. UES would install distribution line anti-vibration materials, as needed. UES would install a fiber optic cable on the distribution line to function as an overhead protection ground wire. WAPA and UES would use the fibers for utility communication purposes.

2.1.4.3 Operation and Maintenance

WAPA would operate the communications facility remotely from WAPA's DSW office and would require only occasional visits by WAPA personnel. WAPA would not install lighting on the communications tower,

because such lights are not required by the FAA,[2] WAPA would install security lighting at the communications facility and activate remotely in the case of a security concern. WAPA would also install down-shielded maintenance lighting that would be controlled by an on-site switch or remotely.

WAPA would conduct routine maintenance of the access road and communications equipment to assure the safe and reliable operation of the proposed communications site. WAPA typically inspects its facilities one or two times per year to identify any maintenance needs. WAPA would follow the Standard Operating Procedures and Best Management Practices listed in the Parker Davis Programmatic EA (DOE/EA-1982) during maintenance. WAPA would conduct the following maintenance activities at the communications site:

- Generator maintenance;
- Maintenance and inspection of communications towers, antennae, and appurtenant equipment;
- Panel additions and removals, wiring changes, and controls modifications;
- Refilling of propane tanks, and maintenance of associated gauges and switches;
- Application of herbicides (including pesticides) within the property boundary of a communications site;
- Foundations or footings maintenance;
- Installation of underground and/or overhead power, communication, ground electrical line, or control line (between propane tank, generator, and building) (less than 100 feet);
- Installation or replacement of antennas to existing structures;
- Maintenance and repair of access road;
- Remediation of small spill of oil and hazardous materials (up to 10 gallons);
- Maintenance of wall-mounted air conditioner; and
- Maintenance and repair of gates.

UES would conduct routine inspection of the distribution line to assure the safe and reliable operation of the proposed facilities. UES would conduct inspections using vehicles or may use a helicopter, as needed. The spur routes would not be maintained. UES typically inspects its linear facilities annually to identify maintenance needs. UES would conduct maintenance activities, as needed; however, this is typically very rare for the first 20 years of a new distribution line.

2.1.4.4 Decommissioning

WAPA would re-evaluate the need for the communications facility in 50 to 60 years. If WAPA determined that it was no longer needed, WAPA would dismantle and remove the tower, building, propane tank and generator. WAPA would remove the concrete foundations unless that landowner agrees that they can remain. WAPA would restore disturbed areas to preconstruction condition where feasible. WAPA would release all the land rights by quitclaim deed to the underlying landowners.

Prior to termination of the BLM right-of-way grant, UES would have to assess the effect of the loss of electrical service to private landowners. If the BLM grant was terminated UES would have to remove all improvements within the right-of-way area and disturbed areas would be recontoured to depth of 2 inches to promote natural seeding.

[2] FAA Advisory Circular 70/7460-1L, effective December 4, 2015, requires lighting on structures that exceed an overall height of 200 feet.

2.2 Resource Protection Measures

Resource protection measures specific to the Proposed Action and alternatives are presented in Table 2-1 and are considered part of the Proposed Action. WAPA's *Construction Standard 1 – General Requirements, Standard 2 – Sitework, Standard 13 – Environmental Quality Protection,* and *Standard 14 – Communications Facilities* would also be implemented as part of the Proposed Action. These standards are presented in Appendix A. Table 2-1 identifies the party(ies) responsible for implementing the measures in the field, the party(ies) responsible for overseeing compliance with measures, the portion of the Proposed Action the resource protection measure would be applied to, and the timing in which the measures would be implemented.

Table 2-1. Resource Protection Measures

ID	Measure	Project Component	Responsible Party(ies)	Timing
GEN-1	Prior to construction, WAPA or UES will conduct employee training to ensure that all workers (including contractors) are aware of all applicable resource conservation measures. Workers will be informed on the protection of sensitive resources (e.g., biological resources, cultural resources, paleontological resources), the types of resources present in the Project area, and avoidance of areas marked as environmentally sensitive. Workers will also be informed of protocols and appropriate contact information in event of resources being encountered outside of marked avoidance areas. In addition, all workers will be informed of applicable laws and penalties under the law. Following training, workers will be required to sign an acknowledgement form to indicate training has been completed.	All Project components	WAPA (implementation and oversight) UES (implementation)	Pre-construction
GEN-2	A construction map set will be distributed to crew leaders prior to Project construction that clearly delineates avoidance areas for sensitive resources. Maps will also display land ownership and provide appropriate contact information.	All Project components	WAPA (implementation and oversight) UES (implementation)	Pre-construction
AES-1	WAPA will treat galvanized steel surfaces on the communication tower such that surfaces have a reflectance of 20% or less.	Communications facility	WAPA (implementation and oversight)	Construction
AES-2	Distribution line poles will blend with the natural environment by using rusticated (brown) metal and wood poles. Conductors will be non-specular so as not to catch and reflect the sun.	Distribution line	WAPA (oversight) UES (implementation)	Construction
AQ-1	All soil excavated or graded will be sufficiently watered or treated with non-toxic soil stabilizers to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed soil areas. Watering will occur a minimum of twice daily on unpaved/untreated roads and on disturbed soil areas with active operations. Safety Data Sheets (SDS) for non-toxic soil stabilizers will be provided to BLM for approval prior to application on BLM land.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
AQ-2	Limit speeds to 25 miles per hour on stabilized (wetted) unpaved roads within construction sites. Limit speeds to 10 miles per hour on un-stabilized (un-wetted) unpaved roads within construction sites. Travel speeds on all roads will be reduced below these levels if dust emissions are visible.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction maintenance, and operation
AQ-3	Soil piles or unused soil will be redistributed along access roads.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
AQ-4	If operating on soils that cling to the wheels of the vehicles, minimize soil track-out by washing or otherwise cleaning truck wheels to remove all the soil material from the vehicle's tires before leaving the construction site. Streets adjacent to the Project site will be kept clean and accumulated silt removed.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction

Table 2-1. Resource Protection Measures

ID	Measure	Project Component	Responsible Party(ies)	Timing
AQ-5	All clearing, grading, earth moving, and excavation activities will cease when dust plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property. Stockpiles of soil or other fine loose material will be stabilized by watering or covering to prevent wind-blown fugitive dust. Windbreaks will be made in areas highly susceptible to fugitive dust.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
AQ-6	Once initial leveling has ceased all inactive soil areas within the construction site will either be seeded and watered until plant growth is evident, treated with a non-toxic dust palliative, or watered twice daily until soil has sufficiently crusted to prevent fugitive dust emission. Recontour any disturbed land not used.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
BIO-1	At all proposed work areas, limit the mechanical disturbance of previously undisturbed habitats (including soils) to staked areas. Limit vehicle use to existing or designated Project routes. Flag or mark the extent of all disturbance areas on the ground prior to construction and ensure that work remains within these areas. Avoid or crush, rather than remove, non-special-status plants within impact areas where it doesn't compromise the safety or workability of the site.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
BIO-2	Due to the possibility that special-status species and nesting birds may be found in the Project area, a biologist will conduct pre-activity clearance surveys a maximum of 300 feet around the Project area. A smaller area may be surveyed if determined appropriate by the biologist in coordination with BLM, UES, and/or WAPA. The biologist will survey for: a. Sonoran desert tortoise and their burrows. b. Burrowing owls and their burrows (year-round). c. Nesting birds: Project activities that may disturb the ground or vegetation, from February 15 to July 31, will take place only after the work area has been surveyed for active bird nests. Pre-activity surveys will be conducted no more than seven days in advance of any ground- or vegetation-disturbing activities in any location. If active bird nests are found within the survey area, the biologist will establish a no-disturbance buffer around the active nests; buffer size will be determined in coordination with the BLM and/or WAPA biologist Project activities conducted outside of the breeding season would not require nesting bird surveys. d. Golden eagle: Project activities in the vicinity of the suitable golden eagle nesting habitat (approximately 400 feet east of Crossman Peak) will take place only after the biologist has determined that golden eagles are absent. If nesting is observed then no work will be permitted during the nesting season (January 15 to May 31). e. Other special-status species such as Joshua tree and Parish's onion.	All Project components	WAPA (implementation and oversight) UES (implementation)	Pre-construction and construction: year-round (burrowing owl, desert tortoise, and other special-status species), Feb 15 – Jul 31 (nesting birds), Jan 1 – May 31 (golden eagle)

Table 2-1. Resource Protection Measures

ID	Measure	Project Component	Responsible Party(ies)	Timing
BIO-3	A Biological Monitor will be present during all vegetation clearing of non-special status plants and soil disturbance throughout the Project area. Once initial vegetation clearing and soil disturbance has been completed the Biological Monitor will be present at least one day per work week to inspect work areas and ensure conservation measures are being implemented. Frequency of monitoring will be determined in coordination with BLM and WAPA biologists, as appropriate. WAPA and UES will authorize the Biological Monitor to halt, temporarily, Project activities if needed to prevent potential harm to special-status species. The WAPA or UES work supervisor will coordinate with the Biological Monitor on planned or ongoing Project activities and the execution of any specific pre-activity surveys or monitoring requirements for each activity in work areas. The Biological Monitor will perform the following: a. Sonoran desert tortoise: The Biological Monitor will be the designated desert tortoise coordinator and will have appropriate education, training, and experience to conduct pre-activity clearance surveys, provide worker education programs, and supervise or implement other actions. The Biological Monitor will watch for tortoises wandering into construction areas, check under vehicles and equipment before they are moved, and inspect any excavations that might trap tortoises. If a Sonoran desert tortoise is observed, the Biological Monitor will facilitate modifying Project activities to avoid injuring or harming it. If a tortoise must be moved out of harm's way, relocation will adhere to BLM's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" and Arizona Game and Fish Department guidelines (AGFD, 2014). b. Birds protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act: If an active bird nest is located on or within the pre-construction survey area, a Biological Monitor will designate and flag an appropriate buffer area around the nest where Project activities will not be permitted. Buffer areas will be determined in consultation with WAPA and BLM biologists and will be based on the bird species' tolerance to disturbance, status of nesting, and nature of the Project activity. If a golden eagle nest is present near the Project area, BLM wildlife biologist and AGFD raptor biologists will be coordinated with to determine an appropriate buffer distance for Project activities in the vicinity of the nest. Active burrowing owl burrows will be flagged for avoidance by the Biological Monitor and Project activities will not be permitted within this flagged area. Buffer areas will be determined in consultation with WAPA and BLM biologists and will be based on the status of nesting and the nature of the Project activity. The Biological Monitor will be responsible for monitoring the bird nests, owl burrows, and Project activities, and for removing the flagging after the nest has become inactive or after the Project construction is complete. c. Special-status plants: The Biological Monitor will flag all species-status plants identified during the pre-activity clearance survey. These special-status plants will be avoided during all Project activities. If a plant recognized as a BLM sensitive species must be removed or relocated the BLM will be notified. If a state or federally listed plant is identified it will not be allowed to removed. Plants that are classified as highly safeguarded species by the Arizona Department of Agriculture will be avoided or transplanted or on private land, made available for salvage. The Biological Monitor will be responsible for monitoring the special-status plants throughout the Project and for removing the flagging after the Project construction is complete.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction

Table 2-1. Resource Protection Measures

ID	Measure	Project Component	Responsible Party(ies)	Timing
BIO-4	Project activities conducted during the most sensitive portion of the bighorn sheep lambing season (February 1 through March 31) within designated sensitive areas will be limited to the following: a. Existing access roads identified by the BLM in its Travel Management Plan will be used for access only during Project construction and future operations and maintenance (no work will be permitted); b. New access roads will not be used for access, construction, or future operations and maintenance; c. No additional Project activities will be allowed; and d. The use of helicopter will be prohibited. Project activities from January 1 to January 31 and from April 1 to April 30 within these designated sensitive areas will take place only after coordination and consultation with BLM and AGFD has taken place. If no coordination or consultation takes place, then the work restriction above applies to these periods.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction: Jan 1 – Apr 30
BIO-5	Because special-status bats may roost in abandoned mines and rock outcrops in the Project area, the Biological Monitor will identify and mark (i.e., flag) mines, rocky outcrops, and crevices. WAPA and UES will work with the Biological Monitor to avoid and minimize impacts at these areas.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
BIO-6	WAPA and UES will conduct employee training to ensure that all workers on the Project site (including contractors) are aware of all applicable Conservation Measures for environmental resources. Specifically, workers will: (1) limit all activities to approved work areas; (2) report any desert tortoise, burrowing owl, or other special-status species or bird nest observation in the work areas and spur routes to the supervisor or Biological Monitor (if present on the site) and BLM wildlife biologist; (3) avoid contact with any wildlife that approach a work area and be aware of venomous reptiles and poisonous invertebrates; (4) pick up and properly dispose of any food, trash or construction refuse; and (5) report any spilled materials (oil, fuel, solvent, engine coolant, raw concrete, or other material potentially hazardous to wildlife) to the supervisor or on-site Biological Monitor and BLM hazmat specialist. During the training, the instructor will briefly discuss special-status species that may occur in the work areas, their habitats, and requirements to avoid or minimize impacts. In addition, all workers will be informed of civil and criminal penalties for violations of the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Any take that occurs on BLM land with migratory birds and BLM sensitive species must be reported to the BLM wildlife biologist within 48 hours.	All Project components	WAPA (implementation and oversight) UES (implementation)	Pre-construction and construction
BIO-7	No pets will be permitted on the work site. Workers will not be permitted to feed, harm, approach, harass, or handle wildlife at any time, except to remove animals safely from work areas, as described above.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction, maintenance and operation

Table 2-1. Resource Protection Measures

ID	Measure	Project Component	Responsible Party(ies)	Timing
BIO-8	All trash and food materials will be properly contained within vehicles or closed refuse bins while on the site, and will be regularly removed from the site (at least on a daily basis) for proper disposal. All refuse from Project activities will be removed from each work site upon completion of maintenance work. No raw cement, concrete or washings thereof, asphalt, paint, oil, solvents, or other petroleum products, or any other substances that would be hazardous to vegetation or wildlife resources, will be disposed of on-site or allowed to spill onto soil. Cleanup of spilled material will begin immediately and if on BLM land, BLM's hazmat coordinator will be contacted immediately to ensure cleanup methods are approved.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
BIO-9	Within the Project area, apply the minimum amount of water to dirt roads and construction areas needed for dust abatement, safety standards, and air quality standards; applying excess water may form puddles which would attract wildlife to construction sites.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
BIO-10	Open trenches, foundation excavations, open pipes, etc., will be covered or modified to prevent entrapment of animals at the end of each day. After completion of the Project any trenches, pits, and other features in which wildlife would be entrapped or entangled, will be checked for wildlife then filled in, covered, or otherwise modified so they are no longer a hazard for wildlife. All water containers (i.e., tanks or trailers) will be securely covered to prevent wildlife from entering the containers and becoming trapped. All straw waddles used during the Project as erosion control will be weed free and will not create sites for possible wildlife entrapments.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
BIO-11	Project construction will follow recommendations in WAPA's Avian Protection Plan (May 2016) and the Avian Power Line Interaction Committee's Reducing Avian Collisions with Power Lines (2012). In order to reduce the risk of electrocuting golden eagles or other large birds, energized and ground conductors and hardware will be separated by 60 inches or more, or will be covered.	Distribution line	WAPA (oversight) UES (implementation)	Construction
BIO-12	Construction equipment will be cleaned prior to arrival in the Project area to reduce spread of invasive plant species.	All Project components	WAPA (implementation and oversight) UES (implementation)	Pre-construction and construction
BIO-13	To improve access through a wash, native material will be pulled back, up, and out of the wash, rather than pushed into a wash. Within drainages, flow will not be altered and final elevations will not lead to advanced erosion. If grading is required at any sites, then 6 inches of topsoil will first be removed and stockpiled at the site. Once construction is complete the topsoil will be spread out over the graded area. Large rocks or boulders that were moved as part of Project activities will be strategically placed to replace wildlife habitat. Flow lines of all stream channels will be reconnected to ensure that water flows onto and off of impact areas as it did before the area was disturbed.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction

Table 2-1. Resource Protection Measures

ID	Measure	Project Component	Responsible Party(ies)	Timing
CUL-1	Project related road improvements within the boundaries of historic properties will be restricted to the previously disturbed roadway.	All access roads	WAPA (implementation and oversight) UES (implementation)	Construction
CUL-2	Construction, maintenance, and operation vehicles are restricted to the existing road while within the boundaries of historic properties.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction, maintenance, and operation
CUL-3	To minimize impacts on historic properties during the installation of new Project components, a permitted archaeologist will monitor the affected historic properties, flag the significant features within historic properties for avoidance, and collect any data discovered during the Project's ground-disturbing activities.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
CUL-4	In the event that new discoveries or human remains are encountered during ground-disturbing activities on BLM land, these activities must cease in the immediate vicinity of the discovery and the BLM Lake Havasu Field Office cultural resources specialist must be notified. Work will continue after the BLM reviews the discovery in consultation with the applicable parties under the National Historic Preservation Act, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation act, and/or state regulations.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction, maintenance, and operation
CUL-5	In the event that new discoveries or human remains are encountered during ground-disturbing activities on private land, these activities must cease in the immediate vicinity of the discovery and the WAPA Federal Preservation Officer must be notified. Work will continue after WAPA reviews the discovery in consultation with the applicable parties under the National Historic Preservation Act, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation act, and/or state regulations.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction, maintenance, and operation
PALEO-1	Prior to the commencement of ground-disturbing activities, a qualified and professional paleontologist will be retained. This individual will be qualified to retain a BLM paleontological resource use permit as outlined in BLM Manual 8270-1.	All Project components	WAPA (implementation and oversight) UES (implementation)	Pre-construction
PALEO-2	Prior to the commencement of ground-disturbing activities, the qualified paleontologist (PALEO-1) will prepare and implement a Paleontological Resource Identification and Mitigation Plan (PRIMP) for the Project. The plan will be based on Society of Vertebrate Paleontology (SVP) assessment and mitigation guidelines and meet all current BLM and Arizona state regulatory requirements.	All Project components	WAPA (implementation and oversight) UES (implementation)	Pre-construction

Table 2-1. Resource Protection Measures

ID	Measure	Project Component	Responsible Party(ies)	Timing
PALEO-3	A qualified paleontologist will survey all portions of the Project Area that are High (geologic strata Qo, Tsv, and Tsv) sensitivity for paleontological resources and those that range in paleontological sensitivity from Low to High (geologic strata Q). The PRIMP required in PALEO-2 will provide additional detail regarding survey methods.	Communications facility access road, distribution line and associated access road	WAPA (implementation and oversight) UES (implementation)	Construction, maintenance, and operation
PALEO-4	The results of the pedestrian survey required in PALEO-3 will be used to develop a monitoring strategy for the Project. The strategy will be outlined in the PRIMP required in PALEO-2. The PRIMP will identify the locations where monitoring is required, the intensity (full or part time) needed, and the kinds of ground disturbance which will require monitoring.	Communications facility access road, distribution line and associated access road	WAPA (implementation and oversight) UES (implementation)	Construction, maintenance, and operation
PALEO-5	A report will be prepared describing the results of the paleontological identification and mitigation monitoring efforts associated with the Project. The report will be prepared in accordance with BLM requirements and SVP guidelines, and state regulatory agency requirements.	All Project components	WAPA (implementation and oversight) UES (implementation)	Post-construction
PALEO-6	Prior to issuing a Notice to Proceed, as specified by BLM Manual 8270-1, WAPA and/or UES will submit written certification from a repository willing to accept the collections and other materials resulting from work done for the Project. Upon completion of field-work, all scientifically significant fossils collected will be prepared for curation and delivered to the accredited museum repository.	All Project components	WAPA (implementation and oversight) UES (implementation)	Pre- and post-construction
PHS-1	Excavations greater than one foot 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.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
PHS-2	All vehicles and equipment will be properly secured during nighttime hours.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction
WATER-1	No vehicles or equipment will be refueled within 100 feet of an ephemeral drainage unless a bermed and lined refueling area is constructed. Spill kits will be maintained on site in sufficient quantity to accommodate at least three complete vehicle tank failures of 50 gallons each. Any vehicles driven and/or operated within or adjacent to drainages will be checked and maintained daily to prevent leaks of materials.	All Project components	WAPA (implementation and oversight) UES (implementation)	Construction, maintenance, and operation
REC-1	WAPA or UES will post a notice at the BLM Field Office headquarters and at the entrance to the routes regarding temporary access restrictions and construction work anticipated to result in a wait period of more than one hour to public users of the BLM roads. These temporary access restrictions will be coordinated with the BLM. Most temporary access restrictions will be limited to short portions of the Project area are would entail temporarily moving equipment to permit passing, lasting several minutes. Through access will be coordinated amongst workers via radio communications.	All access roads	WAPA (implementation and oversight) UES (implementation)	Pre-construction

2.3 No Action Alternative

The No Action Alternative provides a baseline against which the impacts of the other analyzed alternatives, including the Proposed Action, can be compared. Under the No Action Alterative, WAPA would not construct the communications facility or improve the access road, UES would not construct the distribution line, improve the access road, construct the road extension, or construct any spur routes, and BLM would not issue any rights-of-way. WAPA would not change operating bands, and would not change the dish configurations at Christmas Tree Pass, Metal Mountain, and Topock. WAPA would continue to operate and maintain its existing communications facilities. In 2020, when the Federal Communications Commission reallocates the spectrum per the National Broadband Plan presented to Congress in 2010, WAPA would lose its existing microwave connection between the Phoenix Operations Center and Hoover Dam, which would diminish the safety and reliability of the bulk electric system. American Tower would continue to operate its diesel-powered communications facilities on Crossman Peak.

2.4 Alternatives Considered but Not Further Evaluated

American Tower Collocation Alternative

Under this alternative, WAPA would collocate its communications equipment at the existing, privately owned American Tower communications site on Crossman Peak. While American Tower has space available on their 140-foot tower at Crossman Peak, this alternative is not feasible because the current tower lacks space for multiple microwave dishes at the height and direction WAPA needs to connect with its facilities. Additionally, WAPA's communications equipment cannot operate near radio and broadcast equipment due to conflicts with varying power consumption. American Tower's shelter does not contain a separate, secure section to house WAPA's equipment. The North American Electric Reliability Corporation requires that WAPA house its communications equipment separately from private entities to ensure site security and prevent unauthorized access to the network. The site's primary power source, a diesel-powered generator that receives twice weekly fuel deliveries by truck, does not meet WAPA's reliability standards. The existing equipment building does not meet WAPA's construction standards. This alternative would not meet the Project's purpose and need because it would decrease the reliability and safety of the bulk electric system.

Solar Power Alternative

Under this alternative, WAPA would install photovoltaic (PV) solar panels to supply electrical power to the proposed communications facility. UES would not construct the electrical distribution line, improve the eastern access road, construct the road extension, or construct. WAPA would need a PV system, including arrays, batteries, and infrastructure, sufficient to power the facility 24/7 to maintain the safety and reliability of the bulk electric system. In addition to the battery system needing to be sufficient to power the facility through the night, per the WECC Guidelines for the Design of Critical Communications Circuits, critical facilities must be designed with reliable, redundant power to avoid outages on critical communications. Furthermore, the footprint required for a PV array sufficient to power the facility is infeasible for the small, private parcel and is susceptible to damage in the event of a lightning strike on the communications tower (WAPA, 2016). For these reasons, this alternative is infeasible.

Distribution Line Corridor Alternative

Under this alternative, UES would construct the distribution line on the west side of the mountain connecting to a substation closer to the communications facility. Per BLM's Lake Havasu RMP, widening

the existing right-of-way or granting a new right-of way on the west side of the peak is not allowed. Therefore, this alternative is infeasible.

2.5 Past, Present, and Reasonably Foreseeable Future Actions

Council on Environmental Quality (CEQ) defines cumulative impacts (40 CFR §1508.7) as:

> *"…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 what agency (Federal or non-Federal) or person undertakes such actions."*

To determine the cumulative effects in the analysis area, WAPA completed a review of known past, present, and reasonably foreseeable future proposed projects in the vicinity of the Project area and considered their short- and long-term incremental effects on the local environment. The geographic area considered varies by issue area or resource. For instance, the geographic extent for cumulative air quality impacts was considered Mohave County, while the geographic extent for cumulative noise impacts was considered only in close proximity to the Project where combined effects would be produced. Because planned projects are not always carried to completion, the window for future reasonably foreseeable projects was projected only for those projects anticipated to have on-site impacts within five years.

Table 2-2 lists the past, present, and reasonably foreseeable future actions that would have impacts that would be combined with the impacts of the Proposed Action to result in cumulative effects.

Table 2-2. Past, Present, and Reasonably Foreseeable Future Actions that Occur in the Project Area

Project Name	Project Description	Status/Schedule	Project Location
Crossman Peak Communications Facility Geotechnical Study Western Area Power Administration	Conduct a geotechnical study to identify existing rock and soil characteristics	February or March 2017	Crossman Peak, within the area of the Proposed Action
Expand and Improve Dispatch Radio Coverage Western Area Power Administration	Install radio dispatch communications antenna and equipment	Expected in the next five years	Crossman Peak and other WAPA communications facilities
Statewide Arizona Department of Transportation (ADOT)/BLM Herbicide Treatment Arizona Department of Transportation	Treat all ADOT rights-of-way on BLM lands across Arizona with herbicide weed treatment	Approved in October 2015	Highway 95 and Interstate 40, east and north of the Proposed Action, respectively
Statewide Herbicide Treatments within Power Line Corridors Bureau of Land Management	Treat all BLM transmission corridors in Arizona with herbicide weed treatment	Proposed in 2015, EA being prepared	One corridor 4 miles west and another 11 miles east of the Proposed Action
Contact Point Plan of Development Arizona State Parks	40-acre development for boating and camping recreation	Proposed in 2013, EA being prepared	Edge of Lake Havasu, south Lake Havasu City, 10 miles southwest of the Proposed Action
Havasu Travel Management Plan Bureau of Land Management	Designate over 500 miles of roads open to off-highway vehicles (OHV), 49 miles to non-motorized use, and 69 miles to authorized vehicle/users	Approved in November 2013	Proposed Action is within the Havasu Travel Management Area

Table 2-2. Past, Present, and Reasonably Foreseeable Future Actions that Occur in the Project Area

Project Name	Project Description	Status/Schedule	Project Location
Sundance Resort Installation of 100 RV sites and supporting infrastructure at Empire Landing Sundance Resort LLC	Expansion of existing campground by approximately 4 acres	Completed in 2014	Two miles south of the Proposed Action on the Colorado River
Crossman Peak Road Right-of-Way GTP Acquisition Partners II, LLC	Road right-of-way for six-mile access road to Sunrise Mine	Completed in 2013	Same access road to be used in the Proposed Action
Misery Loves Company Mine Plan of Operations and Occupancy Mary and Vernon Voss	Provides for the exploration of placer gold deposits	Approved in 2013	Northeast side of Crossman Peak
U.S. Route 93 Corridor Projects Arizona Department of Transportation	Various widening and improvement projects on U.S. 93 from Wickenburg to Hoover Dam	31 total projects since 1999, one current project and three future projects	Approximately 35 miles east of the Proposed Action
Interstate 40 Corridor Paving Projects Arizona Department of Transportation	Various paving projects on I-40 from Kingman to New Mexico	12 total projects since 2014, six current project and two future projects	Approximately 36 miles north of the Proposed Action
Pesticide Use Permit for right-of-way AZA 14908 Southwestern Transmission Cooperative, Inc. (SWTC) Southwestern Transmission Cooperative, Inc.	Allows SWTC to apply chemical herbicides along a transmission corridor and substation	Completed in 2014	Approximately 27 miles northwest of the Proposed Action
Golden Valley Cable Communications Site Golden Valley Cable and Communications Inc.	Construction of a communications facility with 40-foot self-supporting tower	Proposed in 2015, environmental documents in preparation	Approximately 9.5 miles northwest of the Proposed Action
Stagecoach Trails Guest Ranch Commercial Hiking, Horseback Riding, OHV, and Mountain Bike Operations Stagecoach Trails Guest Ranch	Renewal of permit to allow commercial OHV, mountain bike, and horseback riding on private lands adjacent to privately owned ranch	Currently operating, renewal proposed in 2015, documents in preparation	Approximately 9 miles east of the Proposed Action
Arizona Desert Outfitters Arizona Desert Outfitters	Hunting permit including use of trucks and trailers and camping year-round	Approved in 2014	Approximately 15 miles east of the Proposed Action
Uinkaret Mountains Landscape Restoration Project Bureau of Land Management	Restoration of approximately 128,535 acres of public land	EA out for public review	Approximately 130 miles north of the Proposed Action, within the Mohave Air Basin
American Tower Corporation Communications Facility American Tower Corporation	Continued operation and maintenance of existing communications facility	Currently operating	Adjacent to the Proposed Action

Chapter 3
Affected Environment and Environmental Consequences

The Affected Environment and Environmental Consequences chapter describes the existing conditions and analyzes potential impacts to the natural, human, and cultural environment resulting from the Proposed Action and No Action Alternative. Certain issue areas were not further evaluated because they are not present in the Project area or no measurable impacts would occur; these are addressed in Section 3.2. Through internal and external scoping, WAPA and BLM identified several issues of concern, which are evaluated in detail in sections 3.3 through 3.11.

The term "Project area" refers to the proposed communications facility site and rights-of-way for the distribution line, access roads, and temporary construction and staging areas.

3.1 Approach to Impact Analysis

The potential impacts of the Proposed Action and No Action Alternative are described in terms of their type, context, duration, and intensity. These terms are defined as follows:

- Type describes the impact as beneficial or adverse, direct or indirect.
  - Beneficial: A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
  - Adverse: A change that moves the resource away from a desired condition or detracts from its appearance or condition.
  - Direct: An effect on a resource by an action at the same place and time. For example, soil compaction from construction traffic is a direct impact on soils.
  - Indirect: An effect from an action that occurs later or perhaps at a different place and often to a different resource, but is still reasonably foreseeable.
  - Cumulative: Impacts to resources that are added to existing impacts from other actions.
- Context describes the area (site-specific) or location (local or regional) in which the impact would occur.
- Duration is the length of time an effect would occur.
  - Short-term impacts generally occur during construction or for a limited time thereafter, generally less than two years, by the end of which the resources recover their pre-construction conditions.
  - Long-term impacts last beyond the construction period, and the resources may not regain their pre-construction conditions for a longer period of time.

Intensity reflects the amount of impact on each resource as a result of the Proposed Action. The levels of intensity are defined as follows:

- Negligible: Impact at the lowest levels of detection with barely measurable consequences.
- Minor: Impact is measurable or perceptible, with little loss of resource integrity and changes are small, localized, and of little consequence.
- Moderate: Impact is measurable and perceptible and would alter the resource but not modify overall resource integrity, or the impact could be mitigated successfully in the short-term.
- Major: Impacts would be substantial, highly noticeable, and long-term.

3.2 Resources Considered but not Further Evaluated

WAPA did not further evaluate the following resources because they are not present in the Project area or no measurable impacts would occur as described briefly below.

3.2.1 Agriculture

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage. No active farmlands are in the Project area. No soils in the Project area are designated as prime (NRCS, 2016b) and the nearest active farmland is approximately 7 miles east of the Franconia Substation in Yucca, Arizona.

The Project area is within the allocated 1,359,765 acres for livestock grazing designated by BLM Lake Havasu Field Office (LHFO) RMP (BLM, 2007a). This is to provide forage for livestock, to maintain healthy, sustainable rangeland ecosystems, and provide wildlife habitat, recreation opportunities, and functional watersheds (BLM, 2007a). While the Proposed Action is within designated grazing areas, impacts would be limited to the temporary and minimal permanent ground disturbance associated with construction activities. No fencing is proposed along the distribution line. Operation and maintenance activities would be limited to occasional maintenance of the distribution line, which would not affect grazing.

The Proposed Action would not result in impacts to agricultural uses or resources; therefore, WAPA did not further evaluate this resource.

3.2.2 Climate Change

The southwest United States is the hottest and driest region in the country and is being affected by climate change, seeing an increase in temperature of almost 2°F in the last century. Average annual temperatures are projected to rise an additional 3.5 to 9.5°F by the end of this century, with the greatest temperature increases expected in the summer and fall. Drought conditions are expected to become more frequent, intense, and longer, affecting the Colorado River Basin. Snowpack is essential to the southwest water demands and reduces the occurrence and severity of wildfires. Snowpack has been decreasing over the last 50 years, resulting in a similar decrease in total yearly streamflow. Combined with increasing temperatures causing higher evaporation rates, the southwest is seeing reduced river flows, reservoir storage, and groundwater recharge. With an expected population growth of 70 percent by mid-century, climate change will exacerbate existing strains on the southwest (EPA, 2017).

Excessive emissions of greenhouse gases (GHG), including carbon dioxide (CO_2), methane, nitrous oxide, and fluorinated gases have been linked to the causes of climate change. In 2012, CO_2 emissions represented approximately 82 percent of all GHG emissions in the U.S. (EPA, 2014a). CO_2 is generated whenever a carbon-based fuel, such as coal, wood, natural gas, or fuel oil is burned. Sources of anthropogenic emissions include automobile and truck exhaust, industrial combustion sources, and residential heating sources. In 2012, transportation (including cars, trucks, ships, trains, and planes) accounted for 28 percent of the GHG emissions (EPA, 2014b). In 2011, passenger cars alone were estimated to travel more than 2,000,000 million miles and represented 43 percent of the transportation emissions (EPA, 2013). Certain facilities that are sources of GHG are subject to mandatory reporting requirements that are designed to allow U.S. Environmental Protection Agency (USEPA) to track and manage the nationwide inventory.

By comparison, the Proposed Action includes no notable sources of GHGs. During Project construction, less than 15 trucks or pieces of industrial equipment would be operated per day on discreet portions of the Project, and the construction workforce using passenger cars to travel to the Project area would be fewer than 20 workers. Providing electricity to the proposed communications would not require any new generation facilities. Construction of the Project would result in short-term activity and minor levels of GHG emissions that would cease after the communications facility begins operation. During operation, the Project would generate GHGs if the communications facility was powered by the secondary backup source, a propane tank and generator. Operation of the propane tank and generator would be necessitated by unanticipated failure of the proposed electrical distribution line, which would result in short-term impacts; however, this would be rare.

Overall emissions from construction and operation of the Proposed Action would be well below the level (25,000 MTCO2e[1] per year) listed under the USEPA GHG Mandatory Reporting Program (40 CFR Part 98); therefore, WAPA did not further evaluate this resource.

Potential Air Quality impacts and the quantification of Project emissions are presented in Section 3.5, Air Quality, and Appendix F, Air Quality Emissions Calculations and Supporting Information.

3.2.3 Hazardous Materials and Solid Waste

Project construction would not release any hazardous materials, hazardous substances, or oil at or above reportable quantities. Approved non-toxic soil stabilizers may be used in limited quantities for dust abatement during construction. These stabilizers would not contain materials classified as hazardous to the public or the environment. No hazardous wastes would be generated except for a small volume of rags contaminated with oil or grease, which WAPA or UES would transport off-site for disposal at an approved waste management facility. Therefore, WAPA did not further evaluate this resource.

3.2.4 Intentional Destructive Acts

The Proposed Action presents an unlikely target for an act of terrorism or sabotage, with an extremely low probability of attack. The proposed communications facility would be adjacent to similar existing infrastructure that has not previously been the subject of an intentional destructive act and is not a unique facility. Therefore, WAPA did not further evaluate this resource.

3.2.5 Law Enforcement

Law enforcement activities take place throughout the Project area to protect the public, wildlife, and sensitive resource areas. The land within and surrounding the Project area is under BLM LHFO jurisdiction. The Havasu City Police Department (Lake Havasu City, AZ) and Mohave County Sherriff Department (Kingman and Mohave Valley, AZ) protect private and public inholdings. The Proposed Action would not increase law enforcement activities or require additional personnel to patrol resource areas during construction or operation; therefore, WAPA did not further evaluate this resource.

3.2.6 Noise and Sensitive Receptors

The closest noise generating activities associated with construction of the Proposed Action would occur approximately 5 miles from the nearest population center, Lake Havasu City. The closest sensitive receptor near the Project area, a non-profit gold seekers club camping site, is located adjacent to the existing eastern access road and the proposed distribution line alignment. Other potential noise receptors include residential dwelling units at the entrance of the western access road, at the edge of Lake Havasu

[1] MTCO2e = metric tons of CO_2 equivalent

City. The camping site and other potential noise receptors would be protected by the Mohave County requirements to avoid nuisances and protect the local noise environment. According to County Ordinance No. 2015-05, "loud and disturbing noise and vibration can disrupt sleeping patterns, make conversations difficult, distract drivers, and reduce enjoyment of property"; however, "sounds resulting from reasonable use of construction vehicles" between 6:00 a.m. and sunset are exempt from the noise ordinance. Noise-generating activities would be limited to short-term construction equipment operation and traffic, and nighttime construction work would not be necessary. Helicopter use would occur only near the proposed communications facility, on the steep slopes of Crossman Peak, at least 5 miles from the camping site. Operation of the distribution line would not produce an audible "corona effect" (humming) given the low voltage of the power line. Operation of the communications facility may involve usage of the backup generator in the event of failure of the electrical distribution line. However, occurrence of this is assumed rare, noise generation would occur 6 miles from the nearest sensitive receptor, and would be of short duration. Further, adjacent to the proposed communications facility site, a privately owned (i.e., non-federal) communications facility uses a diesel generator as its power source, which generates noise. Therefore, long-term operation of the communications facility will not create any notable increase in noise. Project related noise would not violate any applicable local standards or expose people to an excessive, permanent increase in existing ambient levels; therefore, WAPA did not further evaluate this resource.

The privately owned (i.e., non-federal) communications facility adjacent to the proposed communications facility requires diesel deliveries twice a week. The diesel delivery truck produces vehicle noise as it travels through residential areas (sensitive receptors) using Kiowa Boulevard, Bison Boulevard, and Paso De Oro Drive to reach the entrance of the western access road. Further, operation of the generator currently produces noise. It is possible that the private communications facility would utilize the proposed electric power source to replace the current diesel source, reducing the need for diesel deliveries and use of the generator as the primary power source, thereby reducing noise generation. Therefore, the Proposed Action would have the potential to result in beneficial impacts to sensitive receptors through reduced noise generation.

Potential impacts to wildlife due to the use of a helicopter and other noise during construction are presented in Section 3.6, Biological Resources.

3.2.7 Socioeconomics and Environmental Justice

Socioeconomics

Construction of the Project would require up to 20 workers, who would not be on the job site at the same time. Lake Havasu City contains a large construction workforce in comparison to the employment need. Should any of these workers travel from outside the Lake Havasu City area and wish to temporarily relocate during construction, ample short-term rental housing is available. As such, no adverse impacts to population, housing demand, or changes to existing employment patterns would occur. Furthermore, no residences or businesses would be relocated or displaced by the Project. Once constructed, existing WAPA and UES personnel would maintain the Project.

The local economy could experience a nominal short-term increase in revenue as workers purchase food, supplies, from area businesses and possibly from short-term housing rent. However, due to the small number of construction workers, any influence on the Lake Havasu City employment sectors or the regional economy would be negligible. Operation of the proposed distribution line presents the potential for current or prospective land owners to purchase power, which may increase the attractiveness of the land along the alignment. Additionally, the proposed distribution line may attract additional communications facilities to Crossman Peak. However, any socioeconomic effects would be negligible. Therefore, WAPA did not further evaluate this resource.

Environmental Justice

The Proposed Action is within and immediately proximate to two U.S. Census Tracts, neither of which has low-income populations exceeding 50 percent. Because the Proposed Action and the No Action Alternative would not result in significantly adverse and unavoidable environmental impacts, no adverse impact would disproportionately burden minority or low-income populations. Furthermore, due to the linear nature of the Proposed Action alignment, any environmental impact to adjacent populations would be similar or identical across the entire route. The proposed distribution line would have a potential beneficial indirect impact that may positively affect rural populations that did not previously have access to electric power by providing the opportunity to purchase power from UES; therefore, WAPA did not further evaluate this resource.

Potential impacts due to Project implementation on Native American Religious Concerns are discussed in Section 3.7.2.

3.2.8 Wild Horses and Burros

The management of wild horses and burros on public land is conducted to assure the herd's free-roaming character, health, and self-sustaining ability (BLM, 2007a). Herd Management Areas (HMA) are geographic areas identified as being habitat used by wild horses and burros (Herd Areas) and within which wild horses and burros can be managed for the long term. The wild horses and burros are managed as an integral component of public lands (BLM, 2007a). While the Proposed Action is within a HMA, Project-related activities would be limited to short-term construction activities that would not impact wild horses or burros. Project implementation would not conflict with the wild horse and burro herd's free-roaming character, health, or self-sustaining ability; therefore, WAPA did not further evaluate this resource.

3.2.9 Wilderness

There are no wilderness areas within or adjacent to the Proposed Action alignment or within the Project area (BLM, 2007a); therefore, WAPA did not further evaluate this resource.

3.3 Land Use and Ownership

Land use refers to the use of land for various activities, including commercial, industrial, recreational, agricultural, and residential. Adopted plans and development regulations control the type of land use and the intensity of development or activities permitted. Changes in land use patterns that result from development can affect the character of an area and result in physical impacts to the environment. This section describes the land use and ownership resources occurring in the Project area and the potential impacts to those resources due to Project implementation.

3.3.1 Affected Environment

3.3.1.1 Land Ownership and Jurisdiction

The Proposed Action traverses public, private, and trust lands. The proposed communications facility is on private land. The west access road used to access the communications facility is primarily on BLM land, as well as 0.5 miles on private land near the communications facility site, and a 0.5 miles crossing through Arizona State Trust Lands nearest Lake Havasu City. The proposed distribution line would travel north and west from the communications facility site, predominately on BLM land, with small portions crossing private lands. The access road primarily follows the distribution line, terminating 0.5 miles north of the communications facility, and is located on BLM and private land. Figure 2-1 shows land ownership within the Project area.

3.3.1.2 Land Use Designations

BLM designated portions of the Project area with a Special Designation as an ACEC. Some portions of the Project area on BLM land are also within the Havasu Urban SRMA and cross through two RMZs; RMZ 2 – Crossman Peak and RMZ 3 – Havasu Urban Interface (Figure 3.3-1). The BLM's 2007 LHFO RMP lists multiple objectives for recreation and natural resource protection and appreciation. The Project area is primarily managed for Semi-Primitive and Rural Natural Recreation, with a small portion of the west access road managed as Rural Developed (Figure 3.3-2). The Proposed Action is within the LHFO-administered allotments available for grazing (BLM, 2007a). Refer to Section 3.2, Resources Considered but not Further Evaluated, for information pertaining to grazing resources.

The ASLD sustainably manages State Trust lands and resources to enhance their value and optimize economic return for the Trust beneficiaries, consistent with sound stewardship, conservation, and business management principles to support socioeconomic goals for citizens (ASLD, 2016a).

Table 3.3-1 describes all components of the Proposed Action and their associated land use designations, followed by Table 3.3-2, which elaborates on the definitions and land use requirements of each stated designation.

Table 3.3-1. Land Use, Ownership, and Designations

Project Component	Land Use Designation	Land Use Types	Land Ownership
0.1-acre communications facility	Private Land	Private	Private
Use of existing six-mile west access road from Lake Havasu City to communications facility for facility construction and operation	SRMA (RMZ 2 and RMZ 3), ACEC, and Grazing	Semi-Primitive, Rural Developed	Private, Arizona State Trust, and BLM LHFO
Widening of around 0.5 miles of the west access road's switchbacks near the proposed communications facility	Private Land	Private	Private

Table 3.3-1. Land Use, Ownership, and Designations

Project Component	Land Use Designation	Land Use Types	Land Ownership
Use of and improvements to the existing 14.7-mile east access road for the construction of the proposed distribution line	SRMA (RMZ 2), Extensive Recreation Management Area (ERMA), ACEC, and Grazing	Semi-Primitive and Rural Natural	BLM LHFO and Private
Construct 4.6 miles of new spur routes	SRMA (RMZ 2), ERMA, ACEC, and Grazing	Semi-Primitive and Rural Natural	BLM LHFO
Construct 0.24-mile road extension on east access road ending 0.5 miles north of communications facility	SRMA (RMZ 2), ERMA, ACEC, and Grazing	Semi-Primitive and Rural Natural	BLM LHFO
Right-of-way for WAPA from BLM LHFO	SRMA (RMZ 2 and RMZ 3), ACEC, and Grazing	Semi-Primitive, Rural Developed	BLM LHFO
Right-of-way for WAPA from ASLD	Arizona State Trust Lands	Trust Lands (unleased)	Arizona State Trust
Right-of-way for UES from BLM LHFO	SRMA (RMZ 2), ERMA, ACEC, and Grazing	Semi-Primitive and Rural Natural	BLM LHFO
Right-of-way for UES from several private land owners	Agricultural-Residential	Private	Private

Source: BLM, 2007a

Table 3.3-2. Land Use Designation Requirements

Land Use Designation	Land Use Designation Requirements	Management Objective	Guiding Plan
Crossman Peak Scenic ACEC	A 48,855-acre natural scenic area with significant places of cultural importance, natural scenic backdrop, mountain preserve, major lambing grounds for bighorn sheep, and public land that exhibits high degree of naturalness with little human modification of the landscape.	Facilities will be limited to projects that protect the values that initiated the ACEC designation, with certain exceptions noted. Hiking and non-motorized use will be encouraged by developing a non-motorized trail network.	*Lake Havasu Field Office RMP, 2007*
Havasu Urban SRMA	Designated areas with focused management, funding, and planning to provide for the best possible recreation experience while protecting, sustaining, and enhancing the environmental resources of these areas.	Developed for public enjoyment, resource protection, and public health and safety.	*Lake Havasu Field Office RMP, 2007*
Crossman Peak RMZ 2	The recreation niche is for scenic hiking, equestrian opportunities, and off highway vehicle (OHV) trail riding for "personal exploration and discovery."	Developed to provide a scenic backdrop to Lake Havasu City and Lake Havasu SRMA with access to recreational activities, and to provide opportunities for residents to "engage in sustainable personal discovery, while protecting critical resources located in the area."	*Lake Havasu Field Office RMP, 2007*
Havasu Urban Interface RMZ 3	The recreation niche is to provide access to public lands with opportunities for hiking, equestrian use, OHV, wildlife and cultural appreciation, and other recreational activities.	Developed to provide opportunities for visitors and residents access to engage in targeted activities and realize benefits to persons, community, and environment.	*Lake Havasu Field Office RMP, 2007*

Table 3.3-2. Land Use Designation Requirements

Land Use Designation	Land Use Designation Requirements	Management Objective	Guiding Plan
Extensive Recreation Management Area	A recreation area outside of an SRMA that does not receive focused, specific recreation program management.	N/A	*Lake Havasu Field Office RMP, 2007*

Source: BLM, 2007a

3.3.1.3 Recreation

The primary land use in the Project area and vicinity is recreation. The existing east and west access roads for the Proposed Action are BLM-designated OHV roads; together these OHV roads total 21 miles (see Figure 3.10-1 in Section 3.10). The proposed communications facility, distribution line, and access roads cross through two RMZs, identified as RMZ 2 – Crossman Peak and RMZ 3 – Havasu Urban Interface, within Havasu Urban SRMA. The distribution line and east access road, including the 0.24-mile extension, also cross through the Extensive Recreation Management Area (ERMA), as identified in the Lake Havasu's RMP. Figure 3.3-1 shows the recreation zones in the Proposed Action. Refer to Tables 3.3-1 and 3.3-2 for descriptions and management objectives of each designation as it pertains to recreation.

The primary recreation activities in the Project area are hiking, OHV touring, backpacking, equestrian/trail riding, recreational mining, and rockhounding. The desired experiences for the setting on Crossman Peak are for "developing skills and abilities, testing personal endurance, enjoying risk-taking adventure, savoring the total sensory experience of a natural landscape, and escaping everyday responsibilities for a while" (BLM, 2007a). The Arizona State Trust Lands that the existing west access road crosses are currently undeveloped (ASLD, 2016b). Uses of these lands include dispersed recreation such as hiking, equestrian use, OHV, and wildlife and cultural appreciation.

3.3.1.4 Areas of Critical Environmental Concern

Portions of the Project area are located within the 48,855-acre Crossman Peak Scenic ACEC (Figure 3.3-1). The Crossman Peak Scenic ACEC encompasses the Crossman Peak Natural Scenic Area that was originally designated in 1987 (BLM, 2007a). With regards to land use, ownership, and recreation, the Crossman Peak Scenic ACEC is protected for its natural scenic backdrop and as a mountain preserve for Lake Havasu City residents. A large region of public land in the southeast end of the Crossman Peak Scenic ACEC exhibits a high degree of naturalness with a small amount of human modification to the landscape. The protection of the ACEC creates opportunities for solitude and unconfined recreation for residents and visitors (BLM, 2007a).

About 4 miles of the upland portion of the Proposed Action will occur within the boundaries of the Crossman Peak Scenic ACEC (Figure 3.3-1). The BLM LHFO RMP provides land use authorizations for Special Designations:

> LR-7: *"Within the boundaries of Special Designations (such as but not limited to: ACEC, [Wilderness Study Area] WSA, proposed Wild and Scenic Rivers, etc.) as identified in this Approved RMP, no new utility and roads ROWs will be authorized, with the exception of utilities and access roads that provide service to nonfederal land within these areas. One additional right-of-way will be issued in the proposed Crossman Peak Scenic ACEC to authorize an existing building and two towers on public land in T. 14 N., R. 19 W., section 13, lot 1…"* (BLM, 2007a).

The Proposed Action includes the development of the communications facility on private, nonfederal land, meeting the defined exception.

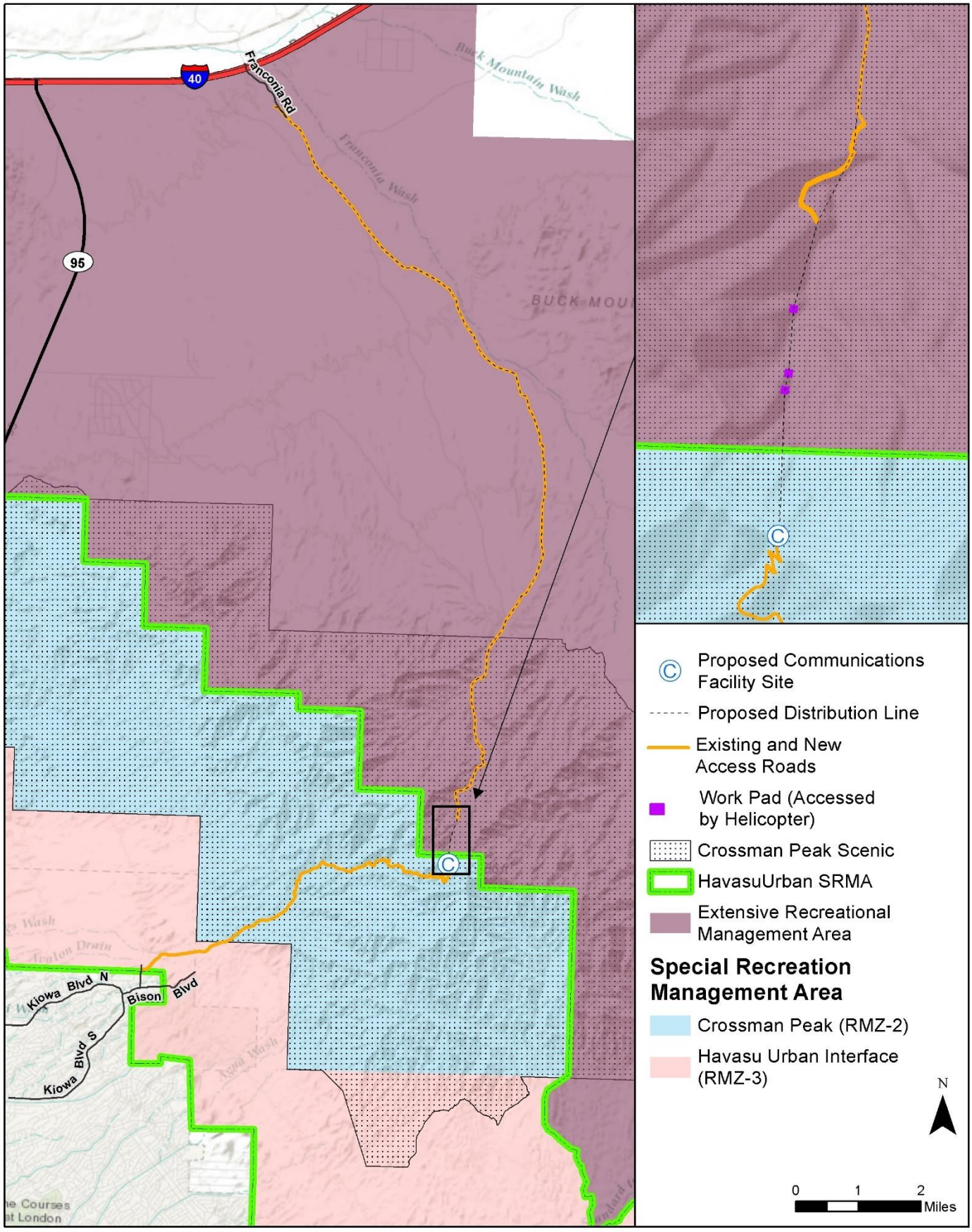

Figure 3.3-1. Special Recreation Management Area and Scenic ACEC

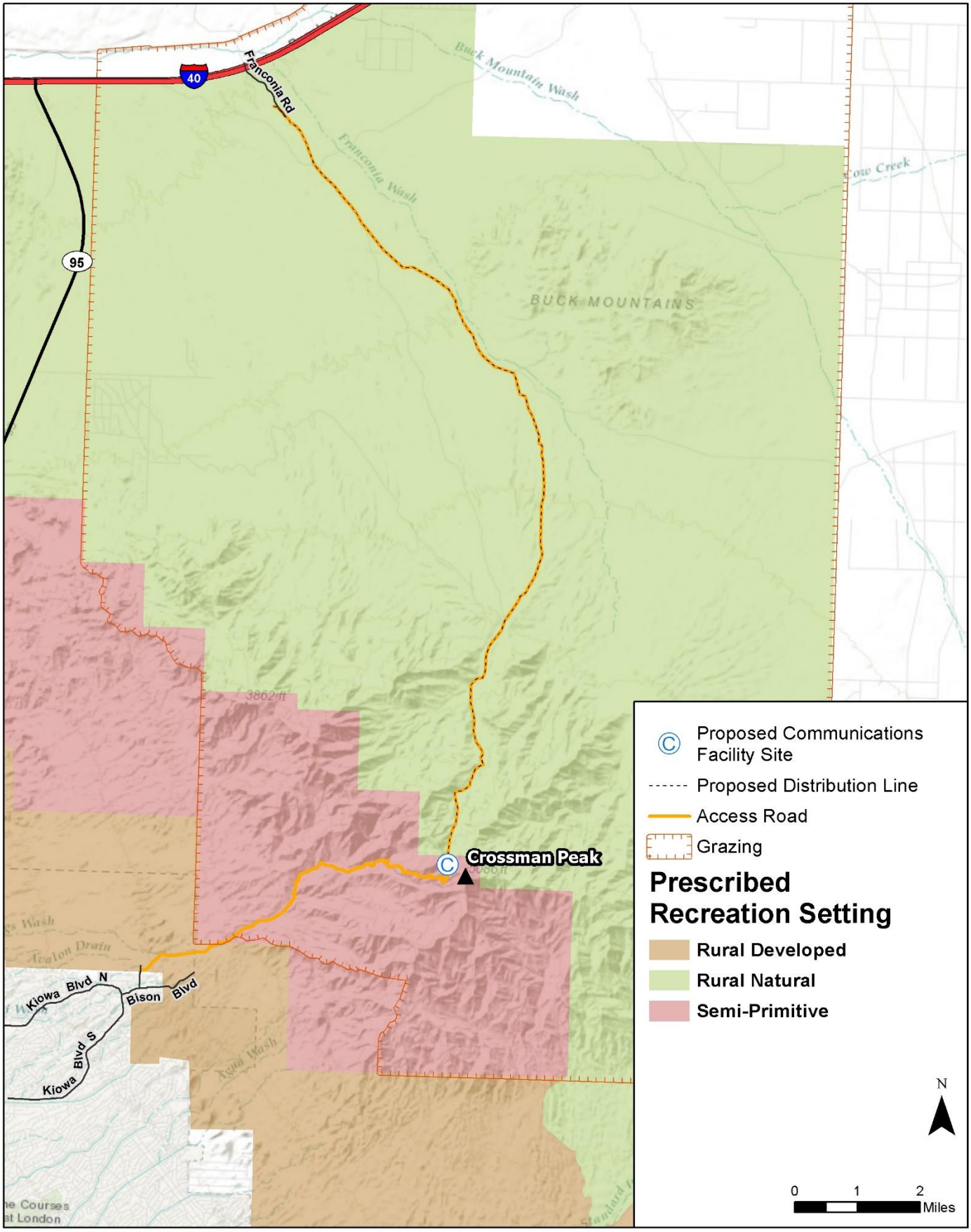

Figure 3.3-2. Prescribed Recreation Setting and Grazing Allotment

3.3.2 Environmental Consequences

Resource protection measures will be implemented as part of the Proposed Action. Those applicable to land use are summarized below, with the full text of the measures presented in Table 2-1.

AES-1 requires the communications facility to be constructed with dulled steel, and the distribution poles be dulled or rusticated (brown), or made of wood.

REC-1 limits disturbance to recreation access during construction.

PHS-1 requires covering of excavated holes at night.

PHS-2 requires securing construction equipment at night.

Proposed Action

Land Ownership and Jurisdiction

The FLPMA allows BLM LHFO to issue right-of-way grants for access roads, power lines, fiber optic systems, communications facilities, and so forth. WAPA would acquire access road rights-of-way from the BLM (2.4 acres), ASLD (1.2 acres), and any private landowners (0.1 acres) for use of an existing road to access the new communications site. WAPA would also acquire necessary land rights, including possible acquisition, from the private landowner for 0.1 acres to construct, operate, and maintain the proposed communications facility. UES would acquire a right-of-way from BLM for the proposed distribution line and access road construction and improvements, which traverse 116 acres of BLM land and 11 acres of private land. The land ownership changes associated with the Proposed Action are negligible in comparison to the vast land in the Project area owned by BLM, ASLD, and private entities. Easements would be granted, but only small amounts of land (0.1 acres), if any, would change ownership as a direct result of the Proposed Action.

Along the proposed distribution line, the ability to acquire electrical power where previously unavailable would potentially result in increased attraction to available land. Customers within 500 feet of the distribution line could request interconnection from UES. By providing a convenient power source, prospective land owners may see increased value in available properties. It is anticipated any future changes to land ownership from increased access to electricity would be negligible given the remoteness of the Project area.

Land Use Designations

The Proposed Action would not change any land use designations in the Project area or conflict with any land use designation requirements. Impacts would not occur.

Recreation

During construction and operation, no new fencing would be built around the communications site or along the access roads and no change in the locking of existing gates would occur. All existing and newly constructed roads would remain open to the public during and after construction. There would be no long-term adverse impact to recreation access to and around the Project and surrounding areas.

During construction, existing access roads would be used, and portions would be improved, for the movement of materials and workers accessing the Project site. During these times of use and modification, movement along roads may be slower, or vehicles may be directed to go around any temporary obstructions

for public safety. Increased traffic for improvement and use of the access roads would lead to direct adverse recreation impacts from temporary road access restrictions; however, no official road closures are planned. According to land use allocation TM-14 in the LHFO RMP, motorized vehicles are permitted to pull off existing roads up to 100 feet on either side of centerline; this would allow access around any temporary obstructions if the landscape permits. The public would be notified in advance of any access restrictions or delays to ensure continued access to recreational resources. Adverse, direct effects to recreation would be short-term and minor.

During the construction of the distribution line, any holes or ditches created and not immediately used will be covered or given adequate signage as to protect the public from harm while driving, hiking, or during other recreational activities. Any other hazard shall be either removed from site or stored with proper precaution after the workday so the public is not in danger at night when lighting is not adequate. UES would also construct a turnaround site at the southern end of the east access road extension to discourage further passage due to rough terrain. The indirect, adverse, short-term impact to recreationists from construction hazards would be negligible. Refer to Section 3.9 for additional analysis of public health and safety.

Air quality during construction due to emissions from construction equipment and the creation of dust due to ground disturbance during construction activities and increased vehicle use on unpaved roads is an issue of concern to recreationists. This indirect short-term impact is evaluated further in Section 3.5, Air Quality, but would result in minimal hazards that impeding a recreationist's visibility or respiratory functions.

The Proposed Action would result in negligible to minor, direct and indirect, adverse, short-term impacts to recreation. These impacts would be limited to the restricted access on access roads during construction and the health and safety of residents and recreationists during construction. The impacts would be negligible to minor because of their small scale and temporary nature. The direct, adverse, long-term impacts to the Crossman Peak Scenic ACEC due to the presence of the communications facility and the associated distribution line would be minor. The direct, adverse, short-term impacts to the Crossman Peak Scenic ACEC due to the presence the construction workers, vehicles, and equipment would be minor, and would be eliminated with completion of construction.

Areas of Critical Environmental Concern

The proposed communications facility on Crossman Peak would be designed and constructed with dulled steel so it blends in with the skyline, making it consistent with the ACEC designation as a scenic backdrop and mountain preserve for Lake Havasu City. Likewise, UES would design the distribution line poles to blend into the natural environment by using dulled or rusticated (brown) metal poles in mountainous or hilly terrain, and wood poles in flat terrain. This would be consistent with the land use plan described in the LHFO RMP for the region's desired level of naturalness and as a space away from the modern, human-built environment for residents and recreationists (BLM, 2007a). Installation of the communications facility on Crossman Peak, along with the associated distribution line would represent a long-term, permanent change in the visual landscape. However, three similar towers are already located on Crossman Peak and installation of a new communications facility among this cluster of towers would result in a negligible change in the visual landscape. The presence of the distribution line would result in a minor change in the visual landscape and would not block or interfere with the panoramic views across the desert landscape from this location. The distribution line will largely parallel an existing road which will reduce the area of a non-natural landscape.

Impacts to the Crossman Peak Scenic ACEC would also occur during construction due to worker vehicles, trucks delivering materials, and construction-related equipment (including grading equipment, augering equipment, cranes, and line stringing equipment) that would be present along the access road and the communications facility site. These would create a direct, adverse, short-term visual impact to the Crossman Peak Scenic ACEC. Refer to Section 3.4 for additional analysis of aesthetics and visual resources.

Cumulative Impacts

The impacts of the Proposed Action on land use and ownership are primarily concerned with recreation and special designations. No past, present, and reasonably foreseeable future projects listed in Table 2-2 would obstruct the use of access roads during the construction timeframe of the project, so would not combine to result in cumulative effect for access to recreational activities. No past, present, and reasonably foreseeable future projects listed in Table 2-2 are expected to negatively impact the ACEC or the land use management areas. The Proposed Action would result in no cumulative impacts to land use and ownership.

No Action Alternative

Under the No Action Alternative, there would not be any development in the Crossman Peak special designations; therefore, there would be no direct or indirect impacts to land use and ownership. Since there would be no construction activities under this alternative, temporary impacts to recreation would not occur.

3.4 Aesthetics and Visual Resources

Aesthetics and visual resources refer to the components of the environment as perceived through the visual sense only. Because a person's reaction and attachment to a given visual resource is subjective, visual changes inherently affect viewers differently. Accordingly, aesthetics and visual resource analysis is a systematic process to logically assess visible change in the physical environment and the anticipated viewer response to that change. The following describes the existing landscape character of the Project area, existing views of the area from two on-the-ground vantage points (key observation points), the visual characteristics of the Proposed Action, and the landscape changes that would be associated with the construction and operation of the Proposed Action (as seen from two key observation points).

The analysis of aesthetics and visual resources utilizes resource-specific, qualitative and quantitative terminology. The following defines terms utilized within this analysis:

- **Key Observation Point (KOP):** One or a series of points on a transportation corridor or at a public/ private use area, where the view of a proposed activity would be most revealing or considered sensitive.
- **Viewshed:** The landscape that can be directly seen under favorable atmospheric conditions, from a KOP or along a transportation corridor.
  - Foreground View: 0-1 mile
  - Middleground View: 1-3 miles
  - Background View: 3-5 miles
- **Visual Contrast:** Opposition or unlikeness of different forms, lines, colors, or textures in a landscape. Generally, increased visual contrast within foreground distances would be more noticeable to viewers than increased visual contrast within middleground and background view distances.
- **Visual Quality:** The relative worth of the overall impression or appeal of an area created by the physical features of the landscape, such as natural features (landforms, vegetation, water, color, adjacent scenery and scarcity), and built features (roads, buildings, railroads, agricultural patterns, and utility lines). These features create the distinguishable form, line, color, and texture of the landscape composition that can be judged for scenic quality using criteria such as contrast.

3.4.1 Affected Environment

The Crossman Peak Scenic ACEC, designated by the LHFO RMP (2007), encompasses 48,855 acres north-east of Lake Havasu City. BLM allocated this area in 1987 as a Natural Scenic Area (BLM, 2007a). The Crossman Peak Scenic ACEC encompasses this natural scenic area protection, in addition to cultural and other resource concerns, such as land use and recreation. BLM manages this ACEC for its natural scenic qualities, and because a large region of public land in the southeast end of the Crossman Peak Scenic ACEC exhibits a high degree of naturalness with a small amount of human modification to the landscape, creating opportunities for solitude and unconfined recreation (BLM, 2007a). About 28 acres, or 43 percent, of the Project would occur within the boundaries of the Crossman Peak Scenic ACEC.

By law, BLM is responsible for ensuring that the scenic values of public lands under its jurisdiction are considered before allowing uses that may have adverse visual impacts. BLM accomplishes this through its Visual Resource Management (VRM) system (BLM, 2017). BLM's VRM system provides a way to identify and evaluate scenic values to determine the appropriate levels of management. It also provides a way to analyze potential visual impacts and apply visual design techniques to ensure that surface-disturbing activities are in harmony with their surroundings. The VRM system consists of two stages:

- Inventory (Visual Resource Inventory)
- Analysis (Visual Resource Contrast Rating)

VRM Inventory. The inventory stage involves identifying the visual resources of an area and assigning to them inventory classes using BLM's visual resource inventory process. The process involves rating the visual appeal of a tract of land, measuring public concern for scenic quality, and determining whether the tract of land is visible from travel routes or observation points. The results of the visual resource inventory become an important component of BLM's RMP for the area. Visual values are considered throughout the RMP process, and the area's visual resources are then assigned management classes with established objectives (BLM, 2017):

- **Class I Objective:** To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- **Class II Objective:** To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- **Class III Objective:** To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- **Class IV Objective:** To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

The BLM LHFO 2007 RMP designates portions of the Project area as Class II, Class III, and Class IV (refer to Figure 3.4-1).

VRM Analysis. The aesthetics and visual resource analysis of the Proposed Action and Alternatives is provided later in Section 3.4.2. Additionally, the BLM Contrast Rating Sheet analyses are provided as Appendix G of this document.

Key Observation Points

Key receptors with exposure to the Proposed Action would primarily include recreationists using existing roads or trails. KOPs 1 and 2 were selected in coordination with BLM to represent views from these sensitive receptor locations for analysis,[1] Figure 3.4-1 displays the location of both KOP 1 and KOP 2 in the context of the Proposed Action and the existing landscape.

Key Observation Point 1 (KOP 1) – View Looking South-Southwest from Existing BLM Recreation Trail Towards Crossman Peak. Figure 3.4-2 depicts existing conditions at KOP 1. This KOP is located along an existing BLM trail route along the eastern slope of Crossman Peak mountain. When looking south, panoramic views across the mountain face are present including numerous distinctive natural features. Vegetation, small rock outcroppings, and natural berms are visible within the foreground, with middleground and background views dominated by the elevated mountain slope toward the summit. In the background viewshed, existing communications facilities extend from the mountain top horizon just east of the Crossman Peak summit. While these industrial shapes contrast the daytime sky along the mountain horizon, the view is dominated by natural landscape and muted color tones.

[1] Typically, a 50-millimeter (mm) focal length lens is used to best capture what the human eye would see. However, these photographs were created using an 80-mm focal length lens, creating a telescopic view, making distant objects appear closer. In the field, the objects shown would appear farther away and spacing between objects would appear greater.

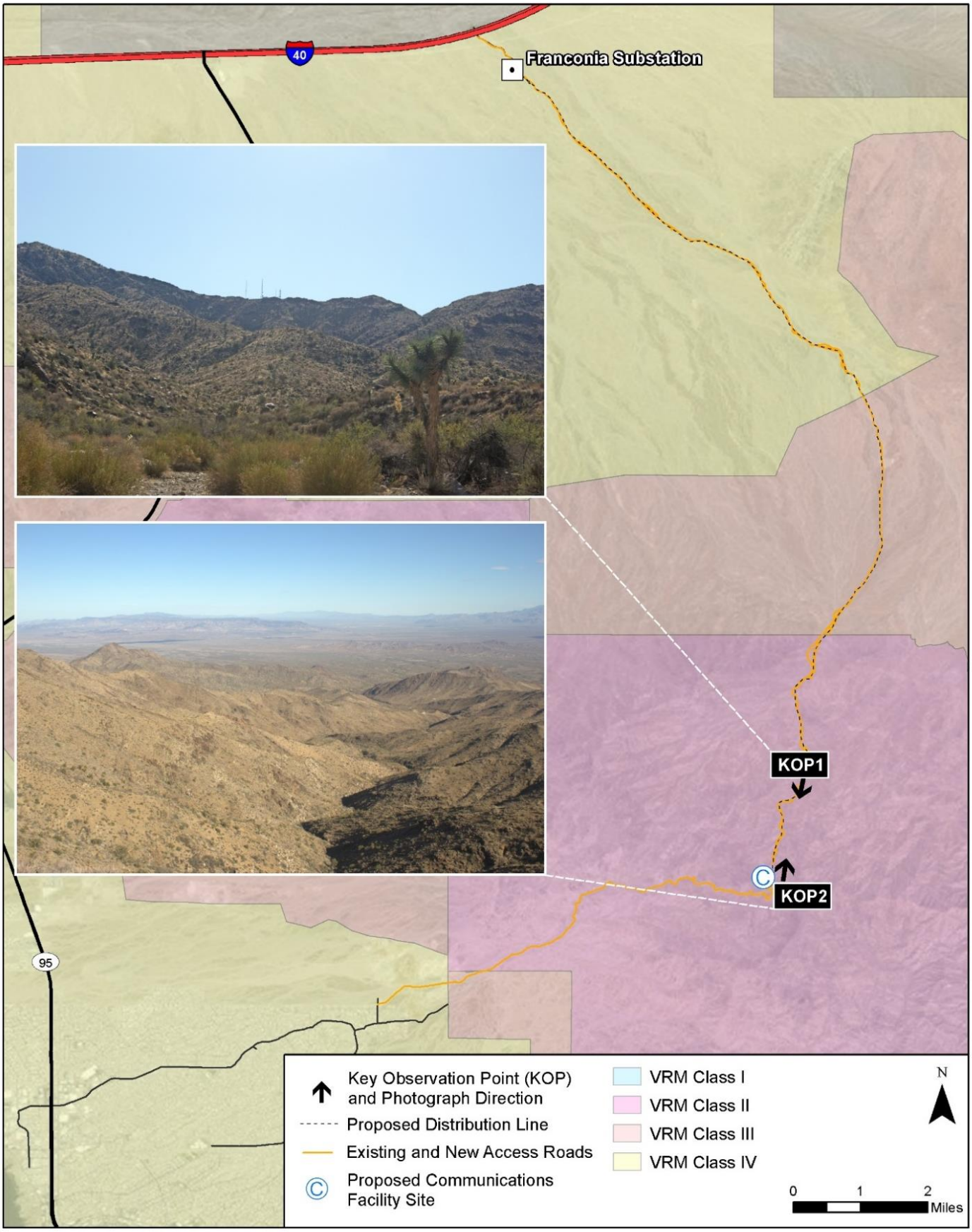

Figure 3.4-1. KOP 1 and KOP 2: Location and View

Figure 3.4-2. KOP 1: Existing Conditions and Simulated New View

Existing Conditions

Simulated View

Figure 3.4-3. KOP 2: Existing Conditions and Simulated New View

Key Observation Point 2 (KOP 2) – View Looking North-Northwest from Existing BLM Access Road (Recreation Trail) From Crossman Peak Down the Northern Face of the Mountain. Figure 3.4-3 depicts existing conditions at KOP 2. The KOP 2 view looks north from the existing communications facility located just west of the Crossman Peak summit. From this elevated position, the viewshed from KOP 2 extends a great distance. Foreground and middleground views show the descending mountain landform, with background views showing a mostly undisturbed valley floor with distant mountains defining the horizon. As shown, natural landscape and muted colors dominate the entire viewshed and the associated abundance of horizontal mountain topography waveforms punctuate existing KOP 2 views. While background views of a small cluster of white residential structures can be seen in the low horizontal form, the overall extent of the natural landscape and vast view of the distant mountains provide the primary visual interest. The existing communications towers near KOP 2 were not included in this view to highlight the natural visual features to the north and northeast.

3.4.2 Environmental Consequences

The resource protection measure applicable to aesthetics and visual resources is summarized below, with the full text of the measure presented in Table 2-1 (Section 2.2, Resource Protection Measures).

AES-1 requires the communications facility to be constructed with dulled steel

AES-2 requires the distribution poles to be dulled or rusticated (brown), or made of wood, and the distribution line conductors to be non-specular so as not to catch and reflect the sun.

Proposed Action

Overall, WAPA determined that the Project meets the goals of the existing VRM classification and would not lead to a change in the VRM classification of the surrounding area (refer to BLM Contrast Rating Sheet analyses in Appendix G).

Communications Facility

The new communications facility on Crossman Peak would be consistent with existing conditions, which includes previously installed towers.

During construction worker vehicles, trucks delivering materials, and construction-related equipment (including grading equipment, augering equipment, cranes, and line stringing equipment) would be present along the access road and at the communications facility site. These would create a short-term, temporary visual impact, which would be eliminated with completion of construction. Dust visible from movement of vehicles on unpaved surfaces would be reduced by required dust suppression activity.

Installation of the communications facility on Crossman Peak would represent a long-term, permanent change in the visual landscape. However, there are three similar towers already located on Crossman Peak; installation of a new tower among this cluster of towers would result in a negligible change in the visual landscape. Installation of the electric distribution line between Franconia Substation and Crossman Peak and the associated improvements to the existing unpaved road and development of spur routes to some pole sites would also represent a long-term, permanent change in the visual landscape. Seen from the nearest public road (Interstate 40), the electric line would be a negligible change owing to the distance between the road and the distribution line, and view blockage due to intervening topography. For recreationalists using the existing east access road, the distribution line and road improvements would be more prominent, as the line would generally follow the road. However, the poles would be brown in color, in keeping with the coloration of the landscape, and would be widely spaced. Near Franconia Substation, existing lines are found on similar pole structures. The poles would be visible only in the immediate vicinity

of the road, with long or distant views of the poles typically obscured by topographic relief. Installation of the poles and the associated road work would result in a minor to moderate change in the visual landscape. For viewers situated on Crossman Peak, the distribution line would be at a lower elevation and would tend to blend with the surrounding landscape as it falls away to the south. The presence of the distribution line would result in a minor change in the visual landscape and would not block or interfere with the panoramic views across the desert landscape from this location.

Distribution Line

Approximately 250 poles would be installed along 14.7 miles of existing unpaved access road. This averages to 17 poles per mile, or one pole every 310 feet. However, the distance between poles varies, depending on topography, change in direction of the line, and pole height. Distribution line poles would blend with the natural environment by using rusticated (brown) metal and wood poles, which would make the poles less visually intrusive. Wood poles would be brown in color and would weather in the desert sun. Steel poles would be treated to dull the reflectance of the steel, and would have a brown aspect. Conductors would be non-specular so as not to catch and reflect the sun

The Franconia Substation is approximately 0.7 miles south of Interstate 40 and is hidden from the highway by rolling topography. The proposed distribution line to Crossman Peak would begin at the substation and extend south, away from the highway. Distribution poles would either not be visible from the highway because of intervening topography or would be visible at middleground to background distances, which would render them a minor part of the overall view. At a distance over 5 miles from the viewer, the poles would be obscured by natural haze and the resulting muting of colors and forms that occurs with objects viewed over great distances, causing them to be indistinct or nearly invisible when seen against the existing terrain.

The distribution line and poles would be visible to users of the unpaved access road extending from Franconia Substation toward Crossman Peak and to visitors at Crossman Peak. An existing transmission line extends southwest from the Franconia Substation to Highway 95 just north of Havasu Heights Road; however, the line to Crossman Peak would be new and would introduce vertical elements into the landscape along the east access road. Visually, the result would be similar to conditions found along local roads and highways in the vicinity, which typically parallel power lines. The unimproved east access road is an existing cultural modification to the landscape which would be extended approximately 0.24-mile at its southern end (without reaching the peak). The loops and curves in the road and the rise and fall in topographic relief would obscure most of the poles except for those in the immediate vicinity of the observer. This is shown in Figure 3.4-3, where more distant poles are screened from trail user views by local topography or more distant, higher elevation poles are obscured against the mountain backdrop and the natural blending of objects with the background when viewed over greater distances.

While the distribution line and short segment of road extension and spur routes would introduce a visual change in the viewshed, the level of change to the characteristic landscape here would be low, and would be consistent with the Class II designation for the final segment of the line and road. Similarly, at the Project location on Crossman Peak, where there are other existing towers, the change to the characteristic landscape would be low, consistent with the Class II designation.

Cumulative Impacts

Cumulative impacts to aesthetics and visual resources would occur only if impacts of the Proposed Action combined with impacts of the foreseeable projects that occurred at the same time and in close proximity. As identified in Section 2.5, Past, Present and Reasonably Foreseeable Future Actions, most actions are at locations remote from the proposed Crossman Peak Project. The distance between these actions and the

Proposed Action are sufficient to ensure that the Proposed Action would not contribute to cumulative impacts to aesthetics and visual resources.

No Action Alternative

Under the No Action Alterative, there would be no visual changes in the landscape or conflicts with VRM classifications. Implementation of the No Action Alternative would not impact aesthetics and visual resources in the Project area.

3.5 Air Quality

This section describes the air quality conditions in the Project area and the potential impacts to air quality due to Project implementation. Refer to Appendix F for calculations and supporting data used for emission estimates.

3.5.1 Affected Environment

Ambient Air Quality Conditions

Air quality is determined by the concentration of various pollutants in the atmosphere. The USEPA Office of Air Quality Planning and Standards has established National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for the criteria air pollutants considered most harmful to public health and the environment. These criteria pollutants include: sulfur dioxide (SO_2), carbon monoxide (CO), ozone, lead, particulate matter less than ten microns in aerodynamic diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), and nitrogen dioxide (NO_2). NAAQS place limits on acceptable ambient concentrations of these pollutants. Based on the concentration of criteria pollutants, areas of Arizona are designated as one of the following:

- Non-attainment – areas in which ambient pollutant concentration exceed federal standards;
- Attainment – areas meeting or maintaining federal standards; or,
- Unclassifiable – areas where no information is available to determine if standards are met.

USEPA is further authorized to classify these areas according to their degree of severity (e.g., moderate or serious). Air quality management agencies with jurisdiction over areas having a non-attainment designation must establish a State Implementation Plan to demonstrate how the area will attain the ambient air quality standards.

The ADEQ regulates emission sources in Mohave County, except on Tribal lands. All air pollution sources related to the Proposed Action would be within the jurisdiction of the ADEQ.

Mohave County, Arizona is designated by the USEPA as unclassifiable or in attainment for all NAAQS. Table 3.5-1 shows the ambient air quality conditions near the Proposed Action. Ambient 24-hour PM10 concentrations at the Bullhead City monitoring station, 34.5 miles northwest of the Proposed Action, have occasionally exceeded the PM10 NAAQS (150 µg/m^3) in 2012 and 2013. Ambient ozone and PM2.5 concentrations were not in exceedance at the Alamo Lake monitoring station, 42miles southeast of the Proposed Action, from 2012 to 2014. These were the most representative monitoring stations providing valid ambient air quality data near the Proposed Action.

Table 3.5-1. Ambient Air Quality near the Proposed Action

		Maximum Concentration		
Pollutant	**Averaging Time**	**2012**	**2013**	**2014**
Ozone	8-hour (ppm)	0.075	0.071	0.071
PM10	24-hour (µg/m^3)	185	208	108
PM2.5	24-hour 98th percentile (µg/m^3)	—	—	2.0
	Annual (µg/m^3)	—	—	8.2

ppm = parts per million
µg/m^3 = micrograms per cubic meter
"—" = no data or insufficient annual coverage currently available.
Source: ADEQ, 2015.

Sensitive Receptors

Sensitive receptors include but are not limited to children, pregnant women, the elderly, and acutely or chronically ill. These individuals may be present at educational or day-care facilities, convalescent homes, hospitals, residences, or open recreational areas.

The Project location would be in the unincorporated Arizona Desert about 6 miles from the edge of Lake Havasu City. The nearest sensitive receptors to the Project site are two residential dwelling units approximately 150 feet from the end of the communications facility access road. Additionally, a non-profit gold seekers club camping site is located approximately 150 feet east of the proposed distribution line right-of-way. The club has over 300 members with less than 100 camping sites near the Proposed Action (HGS, 2016a). The open desert lands of Mohave County attract seasonal and transient travelers for the abundance of camping sites, mainly along the existing eastern access road.

The desert landscape and existing off-road trails make Mohave County an OHV recreational destination and one of the main activities of the local population. People visiting recreation areas are considered moderately sensitive to air pollution. Although exposure periods are generally short, noticeable air pollution can detract from the enjoyment of recreation.

3.5.2 Environmental Consequences

Resource protection measures applicable to air quality are summarized below and the full text of the measures is presented in Table 2-1.

BIO-1 requires minimization of land disturbance.

AQ-1 requires dust suppression on unpaved access roads through wetting or other reasonable means.

AQ-2 requires limiting speeds on unpaved roads and work areas.

AQ-3 requires removal of unused soil and covering of trucks when hauling soil.

AQ-4 requires cleaning of vehicle tires when leaving construction sites and paved roads near construction access.

AQ-5 requires ceasing of construction during high winds, stabilizing soil piles, and creation of windbreaks in areas highly susceptible to fugitive dust.

AQ-6 requires revegetation of disturbed land not used for the project.

Proposed Action

Sources of air pollution that would occur during construction include combustion pollutants from equipment exhaust and fugitive dust from disturbed soils becoming airborne. During construction, it is anticipated that less than 15 trucks or pieces of industrial equipment would be operated per day and would be spread across the various components of the Project. In addition, up to 24 concrete truckloads would be needed for the Proposed Action, but would be spread throughout the 7-month construction period at different locations. Short-term and temporary air emissions from construction vehicle and equipment exhaust would be generated at each of the construction sites and along the access roads.

WAPA estimated levels of emissions that would occur during construction (Table 3.5-2) (refer to Appendix F for calculations and supporting data). Emissions from construction activity on disturbed areas from use of heavy-duty equipment, portable sources, and helicopters were estimated based on the preliminary estimates of the proposed equipment fleet and duration of construction. Additionally, use of gasoline and diesel-powered water and concrete trucks would create emissions along the highways and access roads leading to work areas. However, emission impacts from light-duty, on-highway vehicles would be minor and were not included in emissions estimations.

Table 3.5-2. Construction-Related Criteria Air Pollutant and GHG Emissions

Source Type	NOx (ton)	VOC (ton)	PM10 (ton)	PM2.5 (ton)	CO (ton)	SOx (ton)	CO2e (MTCO2e)
Disturbed Area (Fugitive Dust)	—	—	13.1	2.0	—	—	—
Mobile Sources (Non-Road)	15.3	0.8	0.7	0.6	2.7	0.3	956.5
Portable Sources	0.4	0.3	0.0	0.0	15.3	0.0	128.6
Helicopters	0.2	0.2	0.0	0.0	0.2	—	27.5
Total	**15.9**	**1.3**	**13.8**	**2.6**	**18.2**	**0.3**	**1112.6**

Emission sources from operation of the Proposed Action would include maintenance vehicles and a propane-powered backup generator for the communications facility. The propane-powered generator engine would be a stationary source of air pollutants, and would be subject to review for a general air permit from the ADEQ prior to installation and operation. As a backup generator, the engine would operate only during periods of electrical service outages and for maintenance or testing. Operation and maintenance activities would be intermittent for periodic inspections or repairs and of short duration.

The minor levels of emissions during construction and operation of the proposed facilities would not impact the air quality conditions in any area designated as Class I under the Clean Air Act. The western end of the communications facility access road is approximately 66 miles northeast of Joshua Tree National Park, which would be the nearest designated Class I area.

The Mohave County area is subject to intermittent, strong wind storms that can cause loose soils to become airborne, thereby creating a dust storm. Dust control measures would minimize the fugitive dust generated during construction and reduce the potential to contribute to fugitive dust or naturally occurring dust storms. Potential impacts to sensitive receptors due to fugitive dust near the Project area would be minimal.

Given the small construction force and temporary nature of construction, the Proposed Action would not exceed the air quality standards, would not result in a declaration of non-attainment in a specific area for one or more criteria pollutants, and would not cumulatively contribute to a net increase in any criteria pollution that would result in non-attainment of the area. The Proposed Action would not result in a substantial increase of any criteria pollutant, as shown in Table 3.5-2, for which the region is in non-attainment under an applicable local, state, or federal ambient air quality standard. The Proposed Action would result in a negligible and short-term adverse impact on air quality.

Adjacent to the proposed communications facility site, a privately owned (i.e., non-federal) communications facility uses a diesel generator as its power source and requires diesel deliveries twice a week. Diesel deliveries introduce potential air quality impacts through GHG and fugitive dust emissions. It is possible that the private communications facility would utilize the proposed electric power source to replace the current diesel source, reducing diesel deliveries and reducing potential impacts to air quality.

Cumulative Impacts

The past, present, and reasonably foreseeable future projects with potential air quality impacts identified in Table 2-2 (Section 2.5, Past, Present and Reasonably Foreseeable Future Actions) are located within Mohave County. Air quality impacts associated with these projects would occur during construction; individually, tailpipe emissions and fugitive dust from these projects are anticipated to have a negligible impact on air quality. Each project would be responsible for implementing dust control measures during

construction, pursuant to ADEQ requirements and agency or utility best management practices. The Proposed Action's localized and temporary construction emissions would be minor and would not contribute to a violation of air quality standards in combination with other past, present, and reasonably foreseeable projects.

No Action Alternative

Implementation of the No Action Alternative would not result in any emissions including fugitive dust; therefore, it would not impact ambient air quality conditions and would not exceed air quality standards. Impacts to air quality would not occur.

3.6 Biological Resources

This section describes the vegetation, wildlife, and special-status plants and animals occurring or potentially occurring in the Project area and the potential Project effects to those biological resources. For additional information on these biological resources, refer to the Biological Evaluation prepared for this Project (Appendix B).

Biologists visited the Project area from November 1 through 3, 2016, to evaluate biological resources. The field visit included a reconnaissance-level survey for plants and animals and a habitat assessment for special-status species within the Project area. All plants and animals observed in the field were identified and recorded (see species list in Appendix B; Attachments 1 and 2). Biologists drove all access roads and conducted pedestrian surveys at various locations in the Project area that warranted closer examination.

Vegetation, invasive plants, and common plants are addressed in Section 3.6.1 (Vegetation). Wildlife species are addressed in Section 3.6.2 (Wildlife). Special-status plants and animals are addressed in Section 3.6.3 (Special-status Species).

3.6.1 Vegetation

3.6.1.1 Affected Environment

To characterize the affected environment, biologists digitized vegetation and land use types within the Project area. Digitizing was done using 1-meter-pixel aerial imagery. The minimum mapping unit is approximately 0.25 acres (10,890 square feet). Vegetation was mapped according to the nomenclature and descriptions of Brown (1994); the Southwest Regional Gap Analysis Project (SWReGAP) (Prior-Magee et al., 2007) was also used to the greatest extent possible. Mapped vegetation boundaries are accurate to within approximately 10 feet. Aspen identified five land use and vegetation types in the Project area; photographs of four of the five types are presented in Appendix B; Exhibit 1.

Sonoran-Mojave Creosote bush – White Bursage Desert Scrub. This cover type is characterized by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Other species noted, much less frequently, include white ratany (*Krameria grayi*), big galleta (*Pleuraphis rigida*), and pencil cholla (*Cylindropuntia ramosissima*). Larger shrubs are generally sparse, but annuals are seasonally abundant and dependent on rainfall. We observed annuals such as sandmat (*Chamaesyce* spp.), low woollygrass (*Dasyochloa pulchella*), three-awn grass (*Aristida* spp.), cryptanthas (*Cryptantha* spp.), and phacelias (Phacelia spp.). Within the Project area, this cover type is found primarily on the bajada surfaces along the northernmost portion of the alignment.

Sonoran Palo verde-Mixed Cacti Desert Scrub. This vegetation is characterized by yellow palo verde (*Parkinsonia microphylla*) and less-abundant species such as ocotillo (*Fouquieria splendens*), creosote bush, white bursage, chollas (*Cylindropuntia* spp.), and brittlebush (*Encelia farinosa*). South of Crossman Peak, yellow palo verde is relatively sparse and species such as buckhorn cholla (*Cylindropuntia acanthacarpa*), teddy-bear cholla (*Cylindropuntia bigelovii*), hedgehog cactus (*Echinocereus* spp.), California barrel cactus (*Ferocactus cylindraceus*), dollarjoint pricklypear (*Opuntia chlorotica*), Parry's beargrass (*Nolina parryi*), and desert agave (*Agave deserti*) are relatively more abundant. Along the southern access road, saguaro (*Carnegiea gigantea*) are also present. Within the washes and canyon bottoms, additional species such as common burrobrush (*Ambrosia salsola*), Coues' cassia (*Senna covesii*), sweetbush (*Bebbia juncea*), and catclaw acacia (*Senegalia greggii*) are also present.

Mojave Mid-Elevation Mixed Desert Scrub. This diverse shrubland is characterized by numerous shrubs and trees such as crucifixion thorn (*Canotia holocantha*), Parry's beargrass, Joshua tree (*Yucca brevifolia*), turpentinebroom (*Thamnosma montana*), desert agave, and bladder-sage (*Salazaria mexicana*). In the canyon bottoms and washes, common burrobrush, desert baccharis (*Baccharis sergiloides*), Mojave rabbitbrush (*Ericameria paniculata*), and CoUES's cassia are found. Within the Project area, this cover type is found on the northern slope of Crossman Peak from an elevation of about 2,700 feet up to the summit.

Great Basin Pinyon-Juniper Woodland. This vegetation type is characterized by singleleaf pinyon (*Pinus monophylla*), a tree that grows up to 30 feet tall. In the Project area, this cover type was found only on the north slopes of Crossman Peak above an elevation of approximately 3,900 feet. Additional species such as Sonoran scrub oak (*Quercus turbinella*), an unidentified scrub oak (*Quercus* sp.) that may be *Q. john-tuckeri*, dollarjoint pricklypear, and Heermann''s buckwheat (*Eriogonum heermanii*) are also present.

Developed and Disturbed. Within the Project area are human-dominated land uses, including the existing communications facility, a small development, and the unpaved access roads. Vegetation (if present) is dominated by native and non-native ruderal (weedy) species.

Aspen biologists documented 100 plant species within the Project area including 96 native and four non-native. The four-non-native species are: Asian (or Sahara) mustard (*Brassica tournefortii*), tamarisk (*Tamarix ramosissima*), compact brome (*Bromus madritensis*), and Bermudagrass (*Cynodon dactylon*). Asian mustard and compact brome occur over much of the Project area but in very low numbers. Several tamarisk trees were present in the sandy canyon bottom approximately 1.8 miles north of Crossman Peak. Bermudagrass was uncommon within the Project area and the largest population was within a rock-lined canyon along the existing access road south of Crossman Peak. The complete list of plant species observed is presented in Appendix B; Attachment 1.

3.6.1.2 Environmental Consequences

The resource protection measures applicable to vegetation are summarized below with the full text of the measures presented in Table 2-1 (Section 2.2, Resource Protection Measures).

BIO-1 limits mechanical disturbance of previously undisturbed areas.

BIO-12 minimizes the likelihood of introducing new invasive species to the Project area by reducing the spread of invasive species already present.

BIO-13 requires that temporary impact areas be recontoured at the end of the Project to improve the likelihood that native vegetation will recover.

Proposed Action

Construction of the Proposed Action would have direct, long-term impacts to vegetation. Approximately 13.9 acres of vegetation would be cleared prior to building the communications facility, installing distribution line poles, and road work. Vegetation within the distribution line right-of-way that is not at a proposed pole site or access road would be undisturbed. Vegetation clearing for staging areas, tensioning sites, conductor pulling sites, and some spur routes would be allowed to recover after construction. However, these impact areas may never provide the same habitat value as prior to construction because desert ecosystems take a very long time to recover from disturbance. Construction of the Proposed Action would not result in any indirect effects to vegetation adjacent to the project area.

Operation and maintenance of the Proposed Action would result in some short-term impacts to vegetation. These impacts would be limited to trimming of non-special-status vegetation along access roads and would be negligible because it would not affect the viability of any common species or local population.

Cumulative Impacts

Cumulative impacts to non-special-status vegetation may occur as a result of ground disturbing activities and vegetation removal during construction of the Proposed Action and to a lesser extent during future maintenance. Most of the past, present, and future projects in Table 2-2 are not located near the Project area or are not expected to result in adverse impacts to vegetation that would contribute to an adverse cumulative effect. The Misery Loves Company Mine Plan of Operations and Occupancy is near the Project area but would not require vegetation removal. Given that Proposed Action's impacts to vegetation are negligible and there are no nearby projects that would remove vegetation, the project would not contribute to cumulative impacts.

No Action Alternative

Under the No Action Alternative, the Proposed Action would not be constructed. No vegetation would be removed and therefore impacts to vegetation would not occur.

3.6.2 Wildlife

3.6.2.1 Affected Environment

The entire Project area provides habitat for common wildlife species such as mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), side-blotched lizard (*Uta stansburiana*), and coyote (*Canis latrans*). The canyons and higher elevations of the Project area near Crossman Peak provide habitat for other more localized wildlife species such as rock wren (*Salpinctes obsoletus*), black-tailed gnatcatcher (*Poplioptila melanura*), canyon towhee (*Melozone fusca*), and desert spiny lizard (*Sceloporus magister*). Aspen biologists observed 25 wildlife species during the survey. Many more wildlife species were not observed during the surveys but are assumed to use the habitat in these areas and are likely to be present. A complete list of all animals observed is presented in Appendix B; Attachment 2.

3.6.2.2 Environmental Consequences

The resource protection measures applicable to wildlife are summarized below with full text of the measures presented in Table 2-1.

AQ-2 requires limiting speeds on unpaved roads and work areas.

BIO-1 limits mechanical disturbance of previously undisturbed areas.

BIO-2 requires pre-activity clearance surveys for special-status species and nesting birds within 300 feet of the Project area or within an area determined by the biological monitor.

BIO-3 requires that a biological monitor be present during vegetation clearing or soil disturbance and during construction.

BIO-6 requires worker training on biological resource protection measures.

BIO-7 prohibits pets from being present during Project activities. It also prohibits workers from interacting with wildlife.

BIO-8 requires that trash and food materials be properly contained within vehicles or closed refuse bins while on the site, and be removed daily from the site for proper disposal.

BIO-9 requires that water applied to dirt roads and construction areas for dust abatement not be allowed to puddle, which could attract wildlife to construction sites.

BIO-10 requires that workers ensure that wildlife will not become entrapped in excavations, pipes, water storage containers, and that wildlife friendly erosion control measures be used.

BIO-11 requires that the distribution line be designed using Avian Power Line Interaction Committee (APLIC) 2012 design guidelines to reduce the risk of electrocuting golden eagles or other large birds.

BIO-12 requires that construction equipment be cleaned prior to arrival in the Project area to reduce spread of invasive plant species. It also requires that invasive plants be flagged and avoided prior to ground disturbance to reduce their spread.

Proposed Action

Construction and operation impacts to wildlife habitat (i.e., vegetation) are described in Section 3.6.1). Additionally, direct, long-term habitat loss of habitat from the construction of the new access roads and distribution line poles would fragment habitat that is currently intact. However, any fragmentation of the habitat would be negligible because of the narrow width (< 25 feet) of this habitat loss and the infrequent use of the access road. Most wildlife will still utilize the habitat and will move between habitat patches across access roads. Direct impacts to wildlife could occur during Project construction if wildlife is accidentally injured or killed by colliding with vehicles, crushed during vegetation clearing, or by other similar activities. With increased human presence and associated noise, most wildlife species will move away from the Project area during and prior to these activities which would avoid impacts. Therefore, direct impacts to common wildlife would be negligible. Indirect effects to wildlife from disturbance during construction would be temporary.

Cumulative Impacts

Cumulative impacts to wildlife may occur as a result of wildlife habitat loss and if any common wildlife species are accidentally injured or killed during construction and maintenance activities. Most of the past, present, and future projects in Table 2-2 are not located near the Project area or are not expected to result in adverse impacts to wildlife that would contribute to an adverse cumulative impact. The Misery Loves Company Mine Plan of Operations and Occupancy is near the Project area, but is not expected to result in measurable loss of wildlife or wildlife habitat. Given that Proposed Action's impacts to wildlife are negligible and there are no nearby projects that would adversely impact wildlife, the project would not contribute to cumulative impacts.

No Action Alternative

Under the No Action Alternative, the Proposed Action would not be constructed and no vegetation clearing would occur. Therefore, there would be no loss of wildlife habitat, injury or mortality, or displacement of wildlife. No impacts to wildlife would occur.

3.6.3 Special-status Species

Biologists reviewed the Arizona On-line Environmental Review Tool (AGFD, 2016a), the USFWS Information for Planning and Conservation (IPaC) on-line interface (USFWS, 2016a), the Arizona Rare Plant Field

Guide (Arizona Rare Plant Committee, 2001), and lists of BLM sensitive plants and animals (BLM, 2010) to identify all federally listed endangered or threatened species, any candidate species or species proposed for listing, species designated as sensitive by the BLM, and species protected under the Bald and Golden Eagle Protection Act (BGEPA). This section also addresses birds protected by the Federal Migratory Bird Treaty Act (MBTA). The MBTA prohibits take of any migratory bird, including active nests, except as permitted by regulation (e.g., waterfowl or upland game bird hunting). Other, non-special status wildlife species are addressed in Section 3.6.2 (Wildlife). Non-special status plants are addressed in Section 3.6.1 (Vegetation).

During the field surveys, biologists searched suitable habitat for burrowing owl burrows, inactive bird nests, and evidence of any other special-status species. Aspen did not conduct BLM- or USFWS-protocol surveys for any wildlife or plant species. Aspen reviewed the USFWS interim guidelines for communications tower siting, construction, operation, and decommissioning recommendations (USFWS, 2016b). Most of these recommendations have been incorporated into the Proposed Action to reduce impacts to biological resources, in particular, Special-status birds.

3.6.3.1 Affected Environment

The Project area includes desert scrub vegetation described above in section 3.6.1 (Vegetation). These areas provide suitable habitat for a number of special-status species, which are present or may be present in the Project area. No federally listed, proposed, or candidate species identified by the literature review have a potential to occur within the Project area or be impacted by Project activities. Several special-status species were identified within the Project area or have a potential to be present and are addressed below. Special-status species with a potential to be present in the Project area are described in further detail in Appendix B.

Species Protected Under the Federal Bald and Golden Eagle Protection Act

Bald eagles (*Haliaeetus leucocephalus*). Bald eagles were listed as endangered in 1978, down-listed to threatened in 1995, and delisted in 2007 (USFWS, 1978; 1995; 2007). In 2008, the Sonoran Desert population of bald eagle was relisted as a threatened Distinct Population Segment and subsequently delisted in 2011 (USFWS, 2008; 2011). Bald eagles are seen regularly and nearly year-round in the Colorado River Valley and over Lake Havasu. The nearest known nest site to the Project area is the "Mohave" nest location which was active in 2014 and is located approximately 10 miles west of the Project area (AGFD, 2016b). While their nests are active, bald eagles forage in close proximity to their nest sites. Outside the nesting season, bald eagles forage over much wider areas. Even during the nesting season, bald eagles without nests (i.e., juveniles or unmated adults) may forage widely throughout the region.

Golden eagle (*Aquila chrysaetos*). Golden eagles are year-round residents throughout most of their range in the western United States. In the southwest, golden eagles are more common during winter months because of an influx of migrants from other breeding areas. They breed from late January through August (Pagel et al., 2010). In the desert, they generally nest in steep, rugged terrain, often on sites with overhanging ledges, cliffs or large trees as cover. Golden eagles are wide-ranging predators, especially outside of the nesting season when they have no need to return to eggs or young at their nests.

Suitable nesting habitat was observed approximately 400 feet to the east of the Project area on steep cliff faces just to the northeast of Crossman Peak. A large stick nest was observed on the cliff face but biologists were unable to determine the nest type during field surveys. Additional suitable habitat is present within the vicinity of the Project area. The AGFD conducted a survey of this area in 2013 and found the closest occupied nest was approximately 25 miles away. There are no historical nest locations in the project vicinity

Species Protected Under the Migratory Bird Treaty Act

The MBTA prohibits take of any migratory bird, including active nests, except as permitted by regulation (e.g., waterfowl or upland game bird hunting). The MBTA broadly defines "migratory bird" as "any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle" and thus applies to most native bird species in North America except terrestrial gamebirds. Some of these species are also special-status, while most migratory bird species have no other special conservation status.

During Aspen's survey, many nests were observed throughout much of the Project area. This included a large stick nest on a nearby rocky cliff, mourning dove nests in some of the larger shrubs and trees, cavity nests in the saguaros and larger shrubs (i.e. palo verdes), and dozens of other small inactive nests were also observed. No active nests were observed because the survey was conducted outside of the nesting season.

Species Designated as Sensitive by BLM

American peregrine falcon (*Falco peregrinus anatum*); Status: BLM sensitive, MBTA protected. American peregrine falcon nests on cliffs near open water where it builds scrape nests that are a simple depression, usually with a rim sufficient to prevent eggs from rolling away (Ehrlich et al., 1988). It is known to nest along the Colorado River, roughly 10 miles west of the Project area, and at the Bill Williams National Wildlife Refuge, roughly 20 miles southeast of the Project area (Abbate, 2012). It is also regularly documented along the Colorado River and over Lake Havasu (Ebird.org, 2016a). Suitable nesting habitat was observed on the cliff faces just northeast of Crossman Peak, but the distance to the nearest surface water makes this habitat less favorable.

Ferruginous hawk (*Buteo regalis*); Status: BLM sensitive, MBTA protected. Ferruginous hawks live in the open spaces of the west in grasslands, prairie, sagebrush steppe, scrubland, and pinyon-juniper woodland edges. It also regularly forages in agricultural fields. This species nests on the Colorado Plateau in portions of northern Arizona. It winters throughout much of Arizona and is observed frequently along the Colorado River, where agricultural areas provide suitable foraging habitat (Ebird.org, 2016d). Ferruginous hawks may forage in the Project area during migration or winter, but they are not likely to nest in the region.

Desert purple martin (*Progne subis hesperia*); Status: BLM sensitive, MBTA protected. Desert purple martin generally use saguaro cactus for nesting. They are aerial foragers and typically feed on insects over water. Aspen surveys did not detect purple martins, but the species is known to forage over Lake Havasu, approximately 5 miles west of the Project area. Suitable nest sites (saguaro cacti) are present in the Project area along the western access road.

Gilded flicker (*Colaptes chrysoides*); Status: BLM sensitive, MBTA protected. It excavates cavity nests in large trees and saguaro cacti (Rosenberg et al., 1991). Its primary habitat is cottonwood-willow riparian woodland and uplands with saguaro cactus stands. The gilded flicker is a year-round resident. Our surveys did not detect gilded flickers, but the species is known to occur near the Project area (Ebird.org, 2016c). Saguaro cactus and larger trees in the desert washes (e.g., palo verde) may provide suitable nesting habitat. Numerous cavities were observed in the saguaros and palo verde in the Project area and may have been created by gilded flickers, although other woodpeckers (that are also protected by MBTA) are also present in the Project area.

Pinyon jay (*Gymnorhinus cyanocephalus*); Status: BLM sensitive, MBTA protected. It is a resident bird of the middle elevation areas throughout much of the western United States. It is strongly tied to pinyon-juniper woodland vegetation, but also uses scrub oak and chaparral habitats. Aspen surveys did not detect

Pinyon jays, but the species is known to use habitat types observed within the Project area near Crossman Peak. All areas mapped as pinyon-juniper woodland on Figure 2 in Appendix B provide suitable nesting and foraging habitat for pinyon jay.

Western burrowing owl (*Athene cunicularia hypugaea*); Status: BLM sensitive, MBTA protected. Burrowing owls are generally uncommon in desert habitats, but can be found in much higher densities near agricultural lands or riparian habitats where rodent and insect prey tend to be more abundant. Western burrowing owls typically use the burrows of ground squirrels and other rodents for shelter and nesting. They forage in open areas including agricultural fields, disturbed lands, and grasslands. During Aspen's reconnaissance-level survey, no active burrows or burrowing owl sign were identified, but suitable habitat was found throughout much of the Project area in the more open habitats. Burrowing owls are known from numerous locations in and adjacent to Lake Havasu City, including at least one site within 2 miles of the Project area (Ebird.org, 2016b).

Bats. The BLM list of sensitive species includes several bat species that could occur in the Project area: Allen's lappet-browed bat, Arizona myotis, California leaf-nosed bat, cave myotis, greater western mastiff bat, Townsend's big-eared bat, and spotted bat. California leaf-nosed bats, Arizona myotis, and cave myotis roost in crevices, caves, mines, and buildings (Harvey et al., 2011). Allen's lappet-browed bat roosts in cliffs. Townsend's big-eared bat, greater western mastiff bat, and spotted bat, all roost in caves, mines, rocky cliffs, and crevices (Harvey et al., 2011). There are numerous mines, rocky crevices, and cliff faces in the Project area near Crossman Peak that provide suitable roosting habitat for these species. All special-status bats in the Project region are insectivorous, catching their prey either on the wing or on the ground. These species forage over open shrublands, such as those found in and around the Project area.

Desert bighorn sheep (*Ovis canadensis nelsoni*). Desert bighorn sheep are not officially designated by BLM as sensitive; however, the Crossman Peak ACEC is managed by BLM, in part, for the protection of this species. Desert bighorn sheep are known from the desert mountains of California, Nevada, Utah, and Arizona. This species typically inhabits rough, rocky canyons and washes vegetated with Joshua tree, creosote bush, and a variety of warm season grasses. In higher elevations, the vegetation in suitable habitat is dominated by pinyon-juniper woodlands. Bighorn sheep may be found in woodland habitats on canyon rims throughout the year.

During the hot summer months, bighorn sheep stay in shaded areas near water as much as possible and are seldom found more than 3 miles from a dependable water source such as a tinaja (ephemeral pools of water found in rock pockets). After rain or snow, bighorn sheep travel further distances from permanent water sources than they do during the drier portions of the year.

During the lambing season (February 1 to March 30), females accompanied by young generally occur on the steepest and most rugged terrain within their home ranges as a means of enhancing the safety of themselves and their offspring (Bleich et al., 1997). The females with young are especially vulnerable to disturbance (Wehausen, 1980; King and Workman, 1986).

Much of the Project area is suitable habitat for desert bighorn sheep (refer to Figure 3.6-1). Suitable lambing habitat is limited to the higher elevation areas on and near Crossman Peak. Biologists detected sign of bighorn sheep, including scat and tracks, in the steep, rocky canyon north of Crossman Peak.

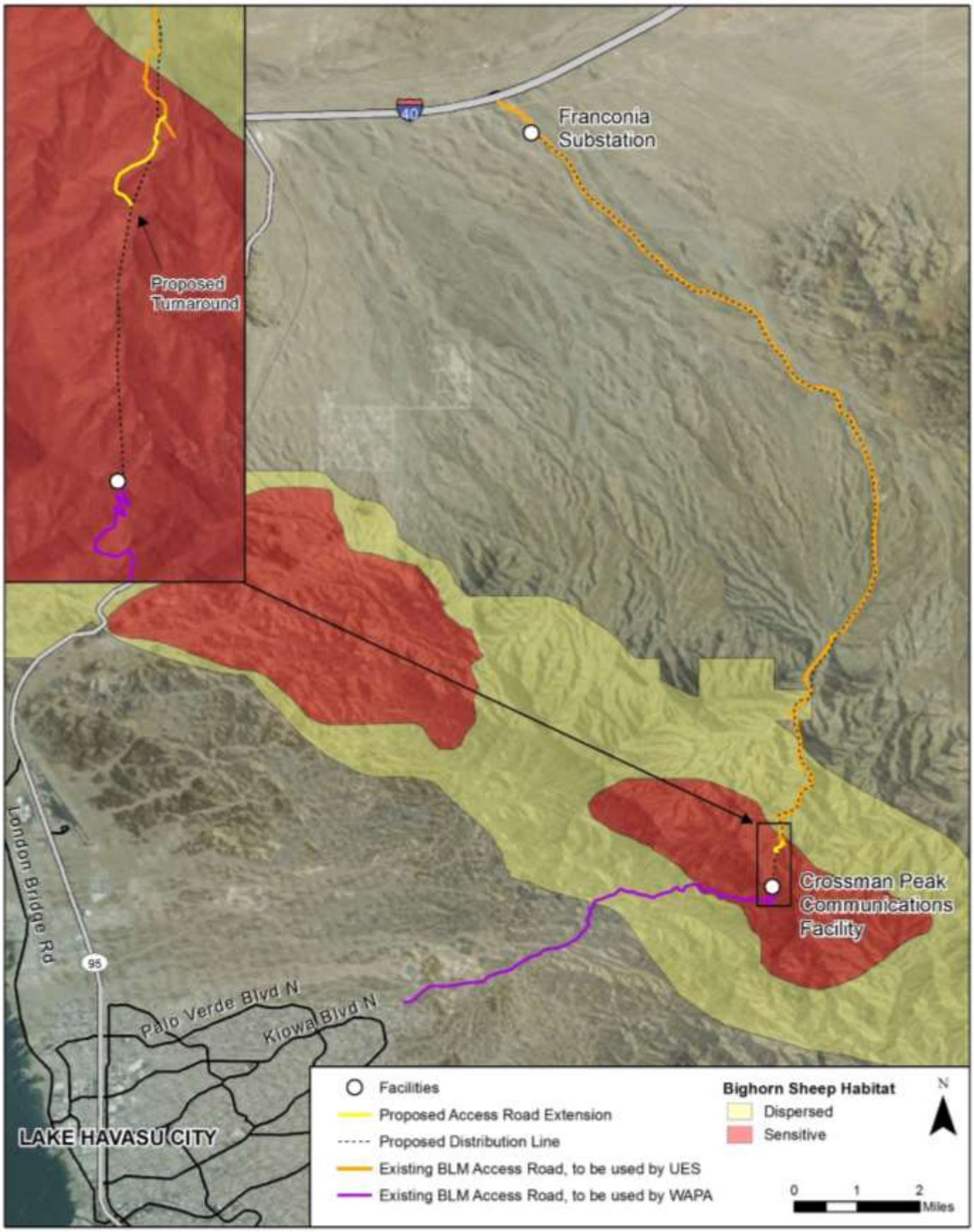

Figure 3.6-1. Bighorn Sheep Habitat in the Project Area.

Joshua tree (*Yucca brevifolia*); Status: BLM sensitive. Joshua trees have a broad range in Arizona and grow in scattered locations throughout the northwest corner of the state. They were recently added to the BLMs list of sensitive species because of large scale removal for agriculture and other land use conversions. Joshua trees are most frequently found in large broad valley floors and occasionally on adjacent mountain slopes and foothills. Within the project area they were growing primarily on the steeper north-facing slopes just north of the communications site. Suitable habitat is present throughout much of the project area from Crossman Peak north to the end of the project area.

Parish's onion (*Allium parishii*); Status: BLM sensitive. Parish's onion has a limited range in Arizona and was known from a single location in the Kofa Mountains (AGFD, 2005) prior to 2005. In 2005 and 2008, it was found in the immediate vicinity of the Project area on granitic substrates on north- to northeast-facing slopes (SEINet, 2016). It typically grows in Joshua tree woodlands, but the two collections within the vicinity of the Project area noted species that it was growing with; brittlebush, crucifixion thorn, catclaw acacia, and starry bedstraw (*Galium stellatum*), all of which are common in the Project area. Suitable habitat is limited to the north-facing slope of Crossman Peak, extending from the peak approximately 4 miles north to the mouth of the canyon. Aspen did not detect Parish's onion in the Project area, but our surveys were not conducted during the appropriate time of year to detect it.

Sonoran desert tortoise (*Gopherus morafkai*); Status: BLM sensitive, AGFD species of greatest conservation need. In 2010 the Sonoran population of desert tortoise became a candidate for listing under Endangered Species Act (USFWS, 2010). In 2015, the USFWS determined that Sonoran desert tortoise did not warrant listing, in part because of the implementation of a Candidate Conservation Agreement (CCA) for the species (USFWS et al., 2015). The CCA exists between the USFWS and several other entities including the BLM.

The Sonoran desert tortoise lives primarily in upland and sloping bajada landforms, between about 500 and 4,100 feet in elevation, throughout much of southern and western Arizona and Sonora, Mexico. It is typically found in Mojave Desert scrub and the Arizona Upland and Lower Colorado River Valley subdivisions of the Sonoran Desert (USFWS et al., 2015).

Desert tortoises spend much of their time in burrows, either during inactive seasons or during inactive diurnal periods for thermoregulation, nesting, and protection from predators. Thus, burrows, and soils suitable for burrowing, are an important habitat feature. Burrows are constructed below rocks, boulders, or shrubs on semi-open slopes or the banks of washes. Tortoises may also shelter in rocky crevices or shelves (e.g., caliche) in washes and packrat middens (USFWS et al., 2015).

Sonoran desert tortoises are active during spring and late summer (March 1 – November 1); however, they may be active (outside their burrows) for short periods at any time of year, depending on rainfall and temperature (AGFD, 2008). The primary activity season in late summer (late June through September) coincides with monsoonal rainfall, when water and new plant growth are available (USFWS et al., 2015).

Suitable desert tortoise habitat was observed throughout the Project area, with the exception of the steep higher elevation areas near the top of Crossman Peak. The entire Project area is within the elevation and geographic range of the species. The northernmost approximately 12 miles of the distribution line alignment provide the best quality habitat and have the highest likelihood of occurrence. Numerous areas with caliche shelters were observed, primarily along the existing access road west of Crossman Peak and these are described in more detail in Appendix B. There is a moderate potential for occurrence of Sonoran desert tortoise along the proposed distribution line and its access road as well as the access road southwest of Crossman Peak, but minimal potential for occurrence at the proposed communications facility.

Aspen did not detect desert tortoises or their sign (burrows, scat, shell fragment, etc.); however, the survey did not conform to AGFD survey guidelines (AGFD, 2010) because it was not conducted during the appropriate time of year and did not cover 100 percent of the suitable habitat within the Project area.

3.6.3.2 Environmental Consequences

The resource protection measures applicable to special-status species are summarized below with full text of the measures presented in Table 2-1.

AQ-2 requires limiting speeds on unpaved roads and work areas.

BIO-1 limits mechanical disturbance of previously undisturbed areas

BIO-2 requires pre-activity clearance surveys for special-status species and nesting birds within 300 feet of the Project area or within an area determined by the biological monitor.

BIO-3 requires that a biological monitor be present during vegetation clearing or soil disturbance and construction. It has specific language that applies to Sonoran desert tortoise and birds protected by MBTA and BGEPA as well as special-status plants.

BIO-4 limits Project activities within sensitive bighorn sheep lambing areas during the most sensitive time of the lambing season.

BIO-5 requires that the biological monitor to identify and mark potential bat roost sites and that the areas be avoided during Project activities to reduce impacts to bats.

BIO-6 requires worker training on resource protection measures for biological resources.

BIO-7 prohibits pets from being present during Project activities. It also prohibits workers from interacting with wildlife.

BIO-8 requires that trash and food materials be properly contained within vehicles or closed refuse bins while on the site, and be removed daily from the site for proper disposal.

BIO-9 requires that water applied to dirt roads and construction areas for dust abatement not be allowed to puddle, which could attract wildlife to construction sites.

BIO-10 requires that workers ensure that wildlife will not become entrapped in excavations, pipes, water storage containers, and that wildlife friendly erosion control measures be used.

BIO-11 requires that the distribution line be designed using APLIC (2012) design guidelines to reduce the risk of electrocuting golden eagles or other large birds.

BIO-12 requires that construction equipment be cleaned prior to arrival in the Project area to reduce spread of invasive plant species. It also requires that invasive plants be flagged and avoided to reduce their spread.

BIO-13 requires that all temporary impact areas be recontoured and have topsoil spread throughout at the end of the Project. It also requires that water flow lines be reestablished.

Proposed Action

Species Protected Under the Federal Bald and Golden Eagle Protection Act

Project activities would not affect nesting bald eagles or foraging activities within foraging range of potential nest sites because there is no suitable nesting habitat within 5 miles of the Project area. This species may forage in or near the Project area throughout the year, especially during winter. Project activities would not cause long-term adverse effects to foraging habitat, such as habitat degradation or preclusion from foraging areas, but may temporarily cause bald eagles to avoid work areas due to noise and other Project activities. Given the small acreage to be impacted, the short duration of the construction phase, and the eagle's ability to move away from the Project area, effects to foraging behavior would be negligible and short-term.

Project activities would be scheduled to avoid the golden eagle nesting season (January 15 to May 31) or will take place after a biologist has confirmed that there are no active nests on the nearby cliff faces. Golden eagles are likely to forage in the vicinity of Project area. Project activities would not cause long-term adverse effects to foraging habitat, such as habitat degradation or preclusion from foraging areas, but may temporarily cause bald eagles to avoid work areas due to noise and other Project activities. Given the small acreage to be impacted (16.9 acres), the short duration of the construction phase, and the eagle's ability to move away from the Project area, effects to foraging behavior would be negligible and short-term.

Operation and maintenance of the Proposed Action would avoid or minimize impacts to golden eagle as described above. Operation and maintenance of the Proposed Action would not impact bald eagles because they are not likely to be in the area.

Species Protected Under the Migratory Bird Treaty Act and BLM-Sensitive Birds

Pre-construction nesting bird surveys, including surveys for burrowing owls, would be conducted to identify any nesting birds, including ground-nesting species (e.g., killdeer (*Charadrius vociferus*)) that may nest in construction sites or staging areas and any burrowing owls that may use burrows in the Project area. Where bird nests or active burrowing owl burrows are located, nest avoidance measures would be implemented to minimize impacts to migratory birds.

Temporary impacts to migratory bird habitat and BLM sensitive birds would result from vegetation clearing at new structure locations, new access roads, and conductor pulling and tensioning sites. Impacts to habitat could cause migratory birds and BLM sensitive birds to be displaced into similar habitats in the surrounding area. At each proposed distribution line pole, there would be a very small (25 square feet) direct, long-term loss of habitat. Vegetation clearing for temporary work areas and access roads would also cause direct, short-term habitat loss. Direct, long-term habitat loss of habitat from the construction of the new access roads and distribution line poles would fragment habitat that is currently intact. However, any fragmentation of the habitat would be negligible because of the narrow width (< 25 feet) of this habitat loss and the infrequent use of the access road. Most wildlife will still utilize the habitat and will move between habitat patches across access roads.

Suitable foraging habitat for several BLM sensitive birds is present in the Project area. These species may forage in the vicinity of Project area, and Project activities could cause them to temporarily move away from the area but this impact would not affect nesting or productivity.

Operation and maintenance of the Project would cause impacts to migratory birds as a result of vegetation trimming along access roads or access road maintenance. Impacts to migratory birds would be indirect,

short-term and negligible because nesting season would be avoided or work would occur only after the area is surveyed by a biologist. The proposed distribution line would conform to APLIC (2006) design guidelines to minimize the potential electrocution risk to large raptors. It would also conform to APLIC (2012) guidelines to minimize the potential collision risk for large raptors and other birds. The proposed distribution line may still pose some risk of collision to birds but its location in an open desert environment away from open water, foraging habitat, and other areas of high bird use make this unlikely impact negligible. By collocating the new communications facility near existing towers of similar height, the overall risk of avian collisions would remain unchanged. Also by constructing a self-supporting tower, there are no guy-wires, avoiding an additional avian collision hazard.

Other BLM-Sensitive Species

Bats. Roost sites would be marked prior to construction and avoided by equipment to eliminate potential for injury or mortality and minimize disturbance to bats. Impacts to roosting bats would be indirect, short-term, and negligible. Project activities would cause loss or degradation of foraging habitat but these impacts will be negligible because the habitat affected would be minimal compared with the extensive foraging habitat in the vicinity of the Project area. Operation and maintenance of the Proposed Action would not impact bats because operation and maintenance activities would not impact roosting or foraging habitat and would not alter foraging behaviors.

Desert bighorn sheep. Project activities could result in long-term, adverse impacts to foraging habitat due to vegetation removal, and habitat fragmentation. Project activities would avoid the most sensitive time of the lambing season for bighorn sheep (February 1 through March 30) as well as the month before and after as needed. Outside of the lambing season, Project activities would cause noise and human disturbance, which is expected to cause bighorn sheep to temporarily leave the Project area, thereby avoiding direct impacts. Project activities could cause long-term, adverse impacts to a small amount of habitat and could have some long-term, indirect impacts from habitat fragmentation caused by extending the access road 0.25 miles into lambing habitat. Desert bighorn sheep will be able to use the access road as a movement corridor and will also still be able to utilize intact habitat between poles 247 and 248 where the access road is not proposed to connect to the peak. Operation and maintenance of the Proposed Action is not expected to result in adverse or direct impacts to desert bighorn sheep.

Joshua tree. The proposed action would cause some habitat degradation. Direct impacts to Joshua tree would largely be avoided. If any Joshua trees must be removed for the Project, then BLM coordination would be required and the tree(s) may require relocation out of harm's way. Operation and maintenance of the Proposed Action is not expected to impact Joshua tree because these activities will be limited to established roads and will not impact previously undisturbed areas.

Parish's onion. The Proposed action would cause some minor habitat degradation. Pre-construction clearance surveys and monitoring during construction would avoid crushing or removing and special-status plants; direct impacts would be negligible. Operation and maintenance of the Proposed Action is not expected to impact Parish's onion because these activities will be limited to established access roads and will not impact previously undisturbed areas.

Sonoran desert tortoise. Direct impacts to Sonoran desert tortoise would be minimal. Indirect impacts to Sonoran desert tortoise resulting from increased common raven (*Corvus corax*), coyote (*Canis latrans*), and domestic dog (*Canis lupus familiaris*) activity in the area would be minimal. In addition, the single crossarm and monopole design of the distribution line does not provide quality nesting habitat for ravens. Any impacts to Sonoran desert tortoise habitat are expected to be negligible because the amount of habitat affected (16.9 acres) would be minimal compared with the extensive foraging habitat in the vicinity of

the Project area. In addition, the habitat on and adjacent to the access roads would continue to be available to tortoises following the project construction. Operation and maintenance of the Proposed Action would avoid any direct mortality from vehicle collision impacts to Sonoran desert tortoise. All personnel assigned to the project will be trained and will be able to recognize and avoid Sonoran desert tortoise. Personnel will also be instructed to look under vehicles, equipment, and materials before they are moved to reduce or avoid impacts to tortoises.

Cumulative Impacts

Cumulative impacts to special-status species may occur as a result of habitat fragmentation and loss and of some special-status species being displaced, disturbed, injured, or killed during construction and maintenance activities. Most of the past, present, and future projects in Table 2-2 are not located in close proximity to the Project area or are not expected to result in adverse impacts to wildlife that would contribute to an adverse cumulative impact. However, these species have been designated with a special status to reflect their need for protection; any projects within the range of these species have the potential to combine with the impacts of the Proposed Action to result in cumulative impacts. Given that the Proposed Action's impacts to special-status species are negligible, its contribution to cumulative impacts would not be considerable.

No Action Alternative

Under the No Action Alternative, the Proposed Action would not be constructed. There would be no vegetation clearing, human presence or use of equipment. Therefore, there would be no disturbance, injury or mortality, habitat loss, or other direct or indirect impacts to special-status species, including migratory birds.

3.7 Heritage Resources and Human Environment

This section describes the heritage resources and human environment in the Project area and the potential Project effects to those resources. This section was based upon the confidential[1] cultural resources technical report prepared by Logan Simpson Design for this Project (Gibson et al., 2016) which describes the results of a record search, archival research and pedestrian survey.

Cultural resources are addressed in Section 3.7.1 (Cultural Resources). Native American Religious Concerns are addressed in Section 3.7.2 (Native American Religious Concerns). Paleontological Resources are addressed in Section 3.7.3 (Paleontological Resources).

3.7.1 Cultural Resources

3.7.1.1 Affected Environment

Three kinds of cultural resources are considered in this assessment: prehistoric, ethnographic, and historic. Prehistoric archaeological resources are associated with the human occupation and use of the Project area prior to European contact. In the Project area, the prehistoric period began over 12,000 years ago and lasted to the beginning of the eighteenth century, with the establishment of the first Spanish missions. Ethnographic resources represent the heritage of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. Historic period resources, both archaeological and architectural, are associated with Euro-American exploration and settlement of an area, and the beginning of a written historical record.

Prehistory

The culture-historical chronological sequence for the lower Colorado River Valley consists of three periods, based on a general evolutionary sequence hallmarked primarily by different artifact types: Paleoindian (9500-5000 BC), Archaic (8500 BC to AD 500), and the Patayan (AD 500 to 750). Relatively little is known about the Paleoindian period, which is the earliest phase of human occupation in the region. This is mostly the result of natural processes, which have buried or eroded many Paleoindian sites. Only one prehistoric resource, a rock ring (FN-004), was found in the Project area. However, its temporal association is uncertain (Gibson et al., 2016).

Ethnography

Historic Native American groups occupying this portion of the Colorado Desert include a number of Yuman-speaking groups, of whom the Quechan, Mojave, and Yavapai are most prominent near the Project area. Today, the nearest reservation is the Colorado River Indian Reservation, which includes four main tribes: Mojave, Chemehuevi, Navajo, and Hopi (Gibson et al., 2016).

The Lower Colorado River is an area with high cultural significance for local tribal groups. The river corridor contains a series of trails, ceremonial sites, camp sites, and limited activity areas. The river corridor includes the *Xam Kwatcan* trail system, which starts at Pilot Knob near Yuma, Arizona, and follows the river 160 miles north to *Avikwame*, or Spirit Mountain, in the Newberry Mountains near Laughlin, Nevada. The trail traverses the traditional territory of several Native American groups and is closely tied to accounts of tribal history, tribal identity, and cultural continuity. The *Xam Kwatcan* trail system includes extant trails, associated ceremonial sites, and natural landscape elements. In addition to these physical elements,

[1] Disclosure of archaeological site locations is restricted per 36 CFR 296.18

Yuman dreaming, which is considered a path to spiritual knowledge and wisdom, is closely tied with the trail network. In addition to dreaming, the trail network was associated with the *keruk*, the cremation ceremony. Following a *keruk* at Pilot Knob, individuals would pilgrimage to *Avikwame* to seek spiritual guidance. The intaglios associated with the National Register-listed Blythe Intaglios Archaeological District, and those found in the surrounding region, likely figured prominently in pilgrimage ceremonies and rituals (Gibson et al., 2016).

Akoke-humi (Crossman Peak) has been identified as a significant place of traditional cultural importance and is included in oral traditions concerning the creation of the Colorado River. The relationships between *Akoke-humi*, ceremonial sites, and trails convey a network of traditional practice areas, and modern Native Americans regard these with high importance. The importance of these places and resources has been acknowledged by BLM through the establishment of the Crossman Peak Scenic ACEC (BLM, 2007a). The prehistoric rock ring (FN-004) may be associated with the sacred use of Crossman Peak (Gibson et al., 2016).

Historic

The historic-era along the Colorado River in southern Arizona and California can be broken into three periods: the Spanish Period (1769 to 1821), the Mexican Period (1821 to 1848), and the American Period (1848 to Present). The following discussion emphasizes mining in the American Period.

As early as 1857, gold placer, or surface mining, emerged in the gulches along the Colorado River near present-day Lake Havasu City. Placer mining in the Chemehuevi Mountains led to the location of the area's first lode mine in 1870, although it was abandoned shortly thereafter. In 1890, Walter Scott and Clay E. Smith marked the location of the Sunrise lode near the crest of what is today known as Crossman Peak. This discovery is credited with spurring sustained lode mining operations in the Mohave Mountains over the next five decades. A third lode was located on the peak in January 1892, bringing increased media attention to the area. In 1902, a fourth body of ore near the top of Crossman Peak was discovered, leading to the establishment of the Rattlesnake Mine. Four mining complexes are present within the Project area. Historic roads in the Project area are primarily associated with mining activities (Gibson et al., 2016).

Cultural Resources Identified

To characterize the affected environment, the Aspen team's cultural resources specialists conducted a record search, archival research, and a pedestrian survey. The record search included the Project area and the surrounding half-mile radius. The Aspen team searched the archaeological sites files and inventory reports at the BLM LHFO, Arizona State Historic Preservation Office, and the Arizona State Museum's (ASM) electronic inventory of cultural resources known as AZSITE. The records revealed that nine projects have been conducted and 10 resources have been identified within 0.5 miles of the Project area. Seven of the previously identified resources are plotted within the Project area. The entire Project area is located within the boundaries of the California-Arizona Maneuver Area where World War II military desert training occurred. Approximately 8.7 miles of the 19.5-mile Project area (45%) is located on Crossman Peak and within the Crossman Peak Scenic ACEC (BLM, 2007a).

Aspen team cultural resources specialists conducted a pedestrian survey of the Project area and buffer between the access road and the distribution line from November 29, 2016 to December 6, 2016. A total of 207 acres was surveyed and included land owned by the BLM and the ASLD (Gibson et al., 2016). A total of nine cultural resources are present within the Project area including one traditional cultural property, one prehistoric resource and seven historic resources (Table 3.7-1). Four of these resources — AZ L:8:2

(ASM), AZ L:8:7 (ASM), FN-001, and FN-003 — were determined eligible for the National Register of Historic Places (NRHP). These included three historic-era mining complexes and a segment of a historic road. In addition, approximately 42 percent of the Project area is located on Crossman Peak and within the Crossman Peak Scenic ACEC. The mountain is a significant place of traditional cultural importance (BLM, 2007a: K-2), but has not been formally evaluated for the NRHP. No evidence of the California-Arizona Maneuver Area was discovered.

In addition to the nine resources described above, the record search identified three prehistoric resources that were recommended eligible for the NRHP by previous researchers, in the Project area. However, these resources were not relocated by the survey team. Resources AZ L:8:4 (ASM); AZ L:8:5 (ASM); and AZ L:8:8 (ASM) may have been destroyed or their locations inaccurately mapped within the Project area when they are actually outside of the Project area.

3.7.1.2 Environmental Consequences

The resource protection measures applicable to cultural resources are summarized below with the full text of the measures presented in Table 2-1.

GEN-1 requires instruction of construction personnel on the protection of cultural resources and types of cultural resources present in the Project area.

AES-1 requires the communications facility to be constructed with dulled steel, and the distribution poles be dulled or rusticated (brown), or made of wood.

AES-2 requires distribution line conductors to be non-specular so as not to catch and reflect the sun.

CUL-1 restricts Project related road improvements within the boundaries of historic properties to the previously disturbed roadway.

CUL-2 restricts construction, maintenance, and operation vehicles to the existing road while within the boundaries of historic properties.

CUL-3 requires monitoring during construction near or within the boundaries of historic properties.

CUL-4 provides guidelines to follow in the event that new discoveries or human remains are encountered during ground-disturbing activities on BLM land.

CUL-5 provides guidelines to follow in the event that new discoveries or human remains are encountered during ground-disturbing activities on private land.

The BLM LHFO RMP designates portions of the Project area as part of the Crossman Peak Scenic ACEC (BLM, 2007a). The State Protocol Agreement[2] protects the traditional cultural values of the sacred mountain as well as sites eligible for inclusion on the NRHP.

[2] The State Protocol Agreement Between the Bureau of Land Management, Arizona and the Arizona State Historic Preservation Office Regarding the Manner in Which the Bureau of Land Management will meet its Responsibilities Under the National Historic Preservation Act and the National Programmatic Agreement Among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (BLM 2014d),

Proposed Action

Project construction, operation, and maintenance will have no adverse effect on the three NRHP-eligible resources (AZ L:8:7 [ASM], FN-001, and FN-003) present within the Project area (Table 3.7-1). Potential impacts to historic properties due to the installation of three distribution line support structures (2,500 square feet of disturbance and pole foundations 30 feet deep), road construction (5.5 miles), and maintenance and continued use of existing roads (14.5 miles) would be avoided or minimized through monitoring, flagging resource and feature boundaries to ensure avoidance of sensitive resources, and data collection. The addition of Project components to Crossman Peak has the potential to cause indirect adverse impacts to the setting of the traditional cultural property (TCP). As of Draft EA publication, tribes have not indicated if the Project would result in an adverse impact to the TCP. However, the visual analysis in Section 3.4 (Aesthetics and Visual Resources) indicates that the new components would be nearly indistinguishable from existing infrastructure from a distance.

Operation and maintenance of the Proposed Action will have no adverse effect on historic properties or TCPs.

Table 3.7-1 Cultural Resources Present in the Project Area

Resource No.	Description	NRHP Eligibility Status	Potential Project Impacts and Associated Project Component	Land Status
Crossman Peak	Traditional Cultural Property	Unevaluated	Unknown	BLM; Crossman Peak Scenic ACEC
AZ L:8:1(ASM) National Old Trails Road	Historic road segment Pre-A.D. 1914 to Present	Road Eligible Criterion A, C and D (SHPO), Segment Determined Non-Contributing	None	BLM
AZ L:8:2(ASM) Franconia Wash Road	Historic road segment A.D. 1883 to Present	Road Eligible Criteria D (SHPO), Segment Determined Contributing	Road construction; Construction activity for distribution line; Road maintenance; Continued vehicle use	BLM and Private
AZ L:8:6(ASM) Scotts Well wagon road	Historic road segment A.D. 1870s to 1914	Not Eligible	None	BLM and Private; Crossman Peak Scenic ACEC
AZ L:8:7(ASM)	Mining complex A.D. 1911 to 1945	Eligible, Criteria D	Construction of pole 234; Vehicle use	BLM; Crossman Peak Scenic ACEC
FN-001 Broken Pick	Mining complex and historic camp A.D. 1925 to 1945	Eligible, Criteria D	Construction of poles 240 and 241; Vehicle use	BLM; Crossman Peak Scenic ACEC
FN-002	Mining complex A.D. 1925 to 1945	Not Eligible	None	BLM; Crossman Peak Scenic ACEC
FN-003 Sunrise	Mining complex A.D. 1890 to 1945	Eligible, Criteria A and D	Vehicle use	BLM and Private; Crossman Peak Scenic ACEC

Table 3.7-1 Cultural Resources Present in the Project Area

Resource No.	Description	NRHP Eligibility Status	Potential Project Impacts and Associated Project Component	Land Status
Crossman Peak	Traditional Cultural Property	Unevaluated	Unknown	BLM; Crossman Peak Scenic ACEC
FN-004	Prehistoric rock ring	Not Eligible	None	BLM

Cumulative Impacts

Cumulative impacts to cultural resources may occur as a result of ground disturbing activities during construction, operation, and maintenance of the Proposed Action. Most of the past, present, and future projects in Table 2-2 are not located in close proximity to the Project area or are not expected to result in adverse impacts to cultural resources that would contribute to an adverse cumulative impact. The contribution of the Proposed Action to the cumulative impacts would be negligible because of the small scale of these losses (16.9 acres of total ground disturbance in disparate locations) compared to the relatively pristine setting of the surrounding environment.

No Action Alternative

Implementation of the No Action Alternative would not result in impacts to cultural resources.

3.7.2 Native American Religious Concerns

As part of compliance with Section 106 of the National Historic Preservation Act (NHPA), all federal agencies are required to consult with interested tribes to identify properties of special significance to them in the Project area. WAPA is conducting ongoing consultation through the NEPA process. This responsibility is reinforced by the American Indian Religious Freedom Act, directing federal agencies to minimize interference with the free exercise of Native American religious practice, and accommodate access to and use of important religious sites. Properties identified through the Tribal consultation process may include TCP, sacred landscape or landscape elements, and traditional use areas important for Native American cultural and religious practices. The culturally sensitive nature of these properties often precludes tribes from revealing this information.

3.7.2.1 Affected Environment

As part of past tribal consultation associated with 2007 BLM LHFO RMP (BLM, 2007a) and previous management plans, Crossman Peak has been identified as a place of traditional cultural importance, which is included in oral traditions concerning the creation of the Colorado River. The Crossman Peak Scenic ACEC was established in part to protect this place and associated ceremonial sites and trails.

WAPA contacted 14 Indian tribal governments by letter on October 12, 2016 regarding the Proposed Action to determine if they had concerns or issues regarding cultural resources, TCPs, or religious practices, and to invite representatives to an in-person consultation meeting (see Chapter 4 for full list of tribal governments consulted). WAPA initiated consultation with these Indian tribes on the basis of proximity of ancestral lands to the Project area or stated interest. WAPA followed up with an email and phone calls to tribes to further encourage consultation. An in-person consultation meeting occurred on November 17, 2016 and was attended by WAPA and BLM; however, no tribal government representatives attended.

One tribal government representative deferred to more local tribe(s) regarding the Project. In addition, another representative expressed interest in consulting and requested copies of the cultural resources survey report and any proposed treatment plans.

3.7.2.2 Environmental Consequences

The resource protection measures applicable to Native American religious concerns are summarized below with the full text of the measures presented in Table 2-1.

GEN-1 requires instruction of construction personnel on the protection of cultural resources and types of cultural resources present in the Project area.

AES-1 requires the communications facility to be constructed with dulled steel, and the distribution poles be dulled or rusticated (brown), or made of wood.

AES-2 requires distribution line conductors to be non-specular so as not to catch and reflect the sun.

CUL-1 restricts Project related road improvements within the boundaries of historic properties to the previously disturbed roadway.

CUL-2 restricts construction, maintenance, and operation vehicles to the existing road while within the boundaries of historic properties.

CUL-3 requires monitoring during construction near or within the boundaries of historic properties.

CUL-4 provides guidelines to follow in the event that new discoveries or human remains are encountered during ground-disturbing activities on BLM land.

CUL-5 provides guidelines to follow in the event that new discoveries or human remains are encountered during ground-disturbing activities on private land.

The 2007 BLM LHFO RMP (BLM, 2007a) designates portions of the Project area as part of the Crossman Peak Scenic ACEC. The State Protocol Agreement will protect the traditional cultural values of the sacred mountain as well as sites eligible for inclusion on the NRHP.

Proposed Action

As of Draft EA publication, none of the Federally Recognized Indian Tribes have stated that the proposed action would lead to the loss, destruction or inaccessibility of a TCP or a sacred site. In addition, areas known to contain human burials have not been identified within the Project Area. Therefore, the Project will not have an adverse effect to TCPs. WAPA addressed concerns by Indian tribes received during the on-going consultation process. Potential impacts to resources of concern to Native Americans, due to the installation of three distribution line support structures (2,500 square feet of disturbance and pole foundations 30 feet deep), road construction (5.5 miles), and maintenance and continued use of existing roads (14.5 miles) construction activities for the Proposed Project would be avoided or minimized through monitoring, flagging resource and feature boundaries to ensure avoidance of sensitive resources and data collection.

Cumulative Impacts

Cumulative impacts to Native American religious concerns may occur as a result of ground disturbing activities during construction, operation and maintenance of the Proposed Action. Most of the past, present, and future projects listed in Table 2-2 are not located in close proximity to the Project area or are not expected to result in adverse impacts to Native American religious concerns that would contribute to an adverse cumulative impact. The contribution of the Proposed Action to the cumulative impacts would

be negligible because of the small scale of these losses (16.9 acres of total ground disturbance in disparate locations) compared to the relatively pristine setting of the surrounding environment.

No Action Alternative

Since there would be no construction or subsurface disturbance, impacts to resources of Native American religious concern would not occur. BLM's annual monitoring program (BLM, 2007a) would continue to record changing site conditions at known sensitive sites within the Crossman Peak Scenic ACEC.

3.7.3 Paleontology

Paleontological resources, or fossils, are the evidence of once-living organisms. They include both the fossilized remains of ancient plants and animals and traces thereof (e.g., trackways, imprint, burrows, etc.). In general, fossils are considered to be greater than 5,000 years old (Middle Holocene) and are typically preserved in sedimentary rocks. Although rare, fossils can also be preserved in volcanic rocks and low-grade metamorphic rocks under certain conditions. Paleontological resources are considered non-renewable scientific resources because once destroyed, they cannot be replaced.

3.7.3.1 Affected Environment

The Proposed Action would occur on the north and east faces of Crossman Peak in the Mohave Mountains. The Arizona Geological Survey mapped the geology of the Project Area (AZGS, 2000). This map shows that much of the Project is underlain by alluvium and other sedimentary deposits. Research for a recent project in the vicinity (Rio Mesa Solar Electric Generating Facility) found that these deposits range from low to high paleontological sensitivity (CEC, 2012). The following is a description of the sensitivity of the strata in the Project area using the Potential Fossil Yield Classification system (BLM, 2016), as shown on Figure 3.7-1. Please see Section 3.8, Geology, Soils, and Mineral Resources for a discussion of the physical characteristics of the geologic strata in the Project area.

Holocene Quaternary Surficial Deposits (Q) Holocene-aged (0 to 12 thousand years ago) valley and stream fill and fan deposits. These sediments often contain the remains of modern organisms; however, they are too young to contain significant paleontological resources. In addition, coarser-grained alluvial deposits are not likely to contain significant vertebrate fossils due to their nature of deposition; therefore, these sediments are determined to have a low paleontological sensitivity. However, paleontologically sensitive Pleistocene age (12,000 to 2 million years ago) alluvial and fluvial deposits may be encountered at depth. Thus, areas within the Project area mapped as Q are considered to have a paleontological sensitivity ranging from low (Class 2) to high (Class 4), increasing with depth (i.e., with age).

Early Pleistocene to Late Pliocene Surficial Deposits (Qo) Older alluvium (12 thousand to 2 million years ago), local terrace deposits, and dissected fans. Alluvial material bordering the Colorado River dissected by the present drainage and Pleistocene deposits along the Colorado River have yielded scientifically significant vertebrate fossils (CEC, 2012). Therefore, Early Pleistocene to Late Pliocene deposits within the Project area are considered to have a high (Class 4) paleontological sensitivity.

Early Tertiary to Late Cretaceous Granitic Rocks (TKg) Igneous rocks (50 to 82 million years ago). These rocks do not typically preserve fossil remains as they are formed at a high temperature; therefore, igneous rocks within the Project area are considered to have a low (Class 2) paleontological sensitivity.

Middle Miocene to Oligocene Shallow Intrusions (Ti) Volcanic intrusions (14 to 35 million years ago). Volcanic rocks do not typically preserve fossil remains as they are formed at a high temperature; therefore, igneous rocks within the Project area are considered to have a low (Class 2) paleontological sensitivity.

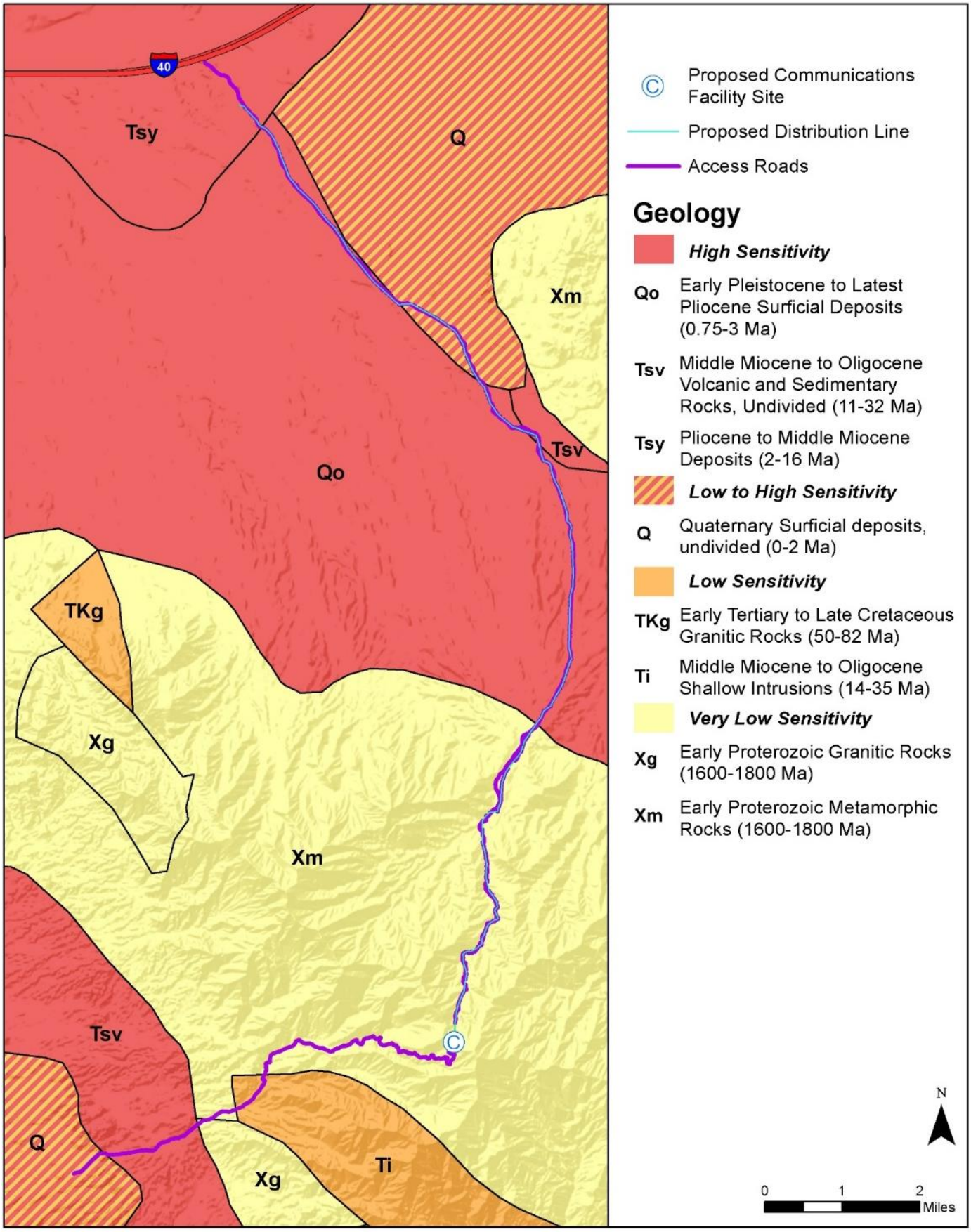

Figure 3.7-1. Paleontological Sensitivity in the Project Area

Middle Miocene to Oligocene Volcanic and Sedimentary Rocks, Undivided (Tsv) Miocene and Oligocene sedimentary rock (14 to 35 million years ago) interbedded with diverse volcanic rock. Sedimentary deposits along the Colorado River and in the general geographic area have yielded scientifically significant vertebrate fossils (CEC, 2012). Therefore, middle Miocene to Oligocene sedimentary rocks within the Project area are considered to have a high (Class 4) paleontological sensitivity.

Pliocene to Middle Miocene Deposits (Tsy) Sedimentary deposits (2 to 16 million years ago) along the Colorado River and in the general geographic area have yielded scientifically significant vertebrate fossils (CEC, 2012). Therefore, middle Miocene to Oligocene sedimentary rocks within the Project area are considered to have a high (Class 4) paleontological sensitivity.

Early Proterozoic Granitic Rocks (Xg) Intrusive igneous rock (1600 and 1800 million years ago). Igneous (volcanic) rocks do not typically preserve fossil remains as they are formed at a high temperature; therefore, igneous rocks within the Project area are considered to have a very low (Class 1) paleontological sensitivity.

Early Proterozoic Metamorphic Rocks (Xm) Intrusive igneous rock (1600 and 1800 million years ago). Igneous (volcanic) rocks do not typically preserve fossil remains as they are formed at a high temperature; therefore, igneous rocks within the Project area are considered to have a very low (Class 1) paleontological sensitivity.

3.7.3.2 Environmental Consequences

Resource protection measures applicable to paleontological resources are summarized below; full text of the measures is provided in Table 2-1.

GEN-1 requires that all field personnel receive worker's environmental awareness training that includes paleontological resources.

PALEO-1 requires a qualified and professional paleontologist to be retained.

PALEO-2 requires the preparation and implementation of a Paleontological Resources Identification and Mitigation Plan.

PALEO-3 requires a pedestrian survey of all high and potentially high sensitivity (geologic strata Qo, Tsv, Tsy, and Q) sediments.

PALEO-4 requires monitoring based on the results of the pedestrian survey and outlined in detail in the Plan.

PALEO-5 requires a report be prepared describing the results of the paleontological pedestrian survey and mitigation monitoring.

PALEO-6 requires that all scientifically important fossils collected will be curated in a museum.

Proposed Action

Impacts to paleontological resources would be avoided or minimized through resources identification, monitoring, and the implementation of Paleontological Resources Identification and Mitigation Plan. Therefore, construction would result in either no impacts (no fossils encountered) or beneficial impacts (fossils encountered, preserved, and identified). Beneficial impacts include fossil discoveries which would enhance our understanding of the prehistoric climate, geology, and geographic setting of the region for the benefit of current and future generations.

While operation and maintenance of the Proposed Action are unlikely to result in impacts to paleontological resources because ground disturbance would be minimal, worker environmental awareness training and implementation of the Paleontological Resources Identification Mitigation Plan would ensure no impacts (no fossils encountered) or beneficial impacts (fossils encountered, preserved, and identified) would occur, as described above.

Cumulative Analysis

The Proposed Action would result in either no impacts (no fossils encountered) or beneficial impacts (fossils encountered, preserved, and identified), but would not result in cumulatively considerable impacts if combined with other projects. Construction associated with past and present projects could add to fossil discoveries which would enhance our understanding of the prehistoric climate, geology, and geographic setting of the region for the benefit of current and future generations.

No Action Alternative

Implementation of the No Action Alternative would not result in beneficial impacts due to fossil collection, preservation, and identification (if any were found). As such, our understanding of past climate, geology, and geographic setting of the region would not be changed or enhanced. There would be no impact.

3.8 Geology, Soils, and Mineral Resources

This section characterizes the environmental setting for the Project area for geology, soils, and mineral resources, and the potential impacts to those resources due to Project implementation. Section 3.8.1 discusses the existing resource conditions in the Project area. Section 3.8.2 discusses the potential impacts to those resources.

3.8.1 Affected Environment

3.8.1.1 Geology

The Project lies within the Basin and Range geomorphic province in Arizona (SSU, 2016). This province has been stretched and extended through tectonic activity thinning and cracking the crust, creating large faults. The result of the stretching creates an alternating pattern of mountains and valleys. The southern half of the Proposed Action traverses the east and north faces of the Mohave Mountains. The northern half traverses a flat, desert landscape extending to the Franconia Substation. The Proposed Action is not located near any fault lines.

The Proposed Action crosses a mixture of geologic units in the Sonoran Desert, most of which consists of Early Proterozoic Metamorphic Rocks and Early Pleistocene to the Latest Pliocene Surficial Deposits. All encountered geologic units, beginning at the south end of the communications facility access road to the end of the distribution line at the Franconia Substation, are listed below and visually depicted in Figure 3.8-1, including age and description (AZGS, 2000):

Quaternary Surficial deposits, undivided (0-2 Ma). Unconsolidated to strongly consolidated alluvial and eolian deposits. This unit includes: coarse, poorly sorted alluvial fan and terrace deposits on middle and upper side slopes and along large drainages; sand, silt and clay on alluvial plains and playas; and wind-blown sand deposits.

Middle Miocene to Oligocene Volcanic and Sedimentary Rocks, Undivided (11-32 Ma). Sequences of diverse volcanic rocks with abundant interbedded sedimentary rocks.

Early Proterozoic Granitic Rocks (1600-1800 Ma). Wide variety of granitic rocks including granite, granodiorite, tonalite, quartz diorite, diorite, and gabbro. These rocks are commonly characterized by steep, northeast-striking foliation.

Early Proterozoic Metamorphic Rocks (1600-1800 Ma). Undivided metasedimentary, metavolcanic, and gneissic rocks.

Middle Miocene to Oligocene Shallow Intrusions (14-35 Ma). Generally, very fine-grained, porphyritic rhyolite to dacite in small, irregular-shaped bodies formed as subvolcanic intrusions in volcanic fields of southern and western Arizona, or in concentrated zones of dikes in the Mohave and Black Mountains of northwestern Arizona. The unit consists of mafic tuff, breccia, and shallow intrusions at Buell Park in north-eastern Arizona.

Early Pleistocene to Latest Pliocene Surficial Deposits (0.75-3 Ma). Coarse relict alluvial fan deposits that form rounded ridges or flat, isolated surfaces that are moderately to deeply incised by streams. These deposits are generally topographically high and have undergone substantial erosion. Deposits are moderately to strongly consolidated, and commonly contain coarser grained sediment than younger deposits in the same area.

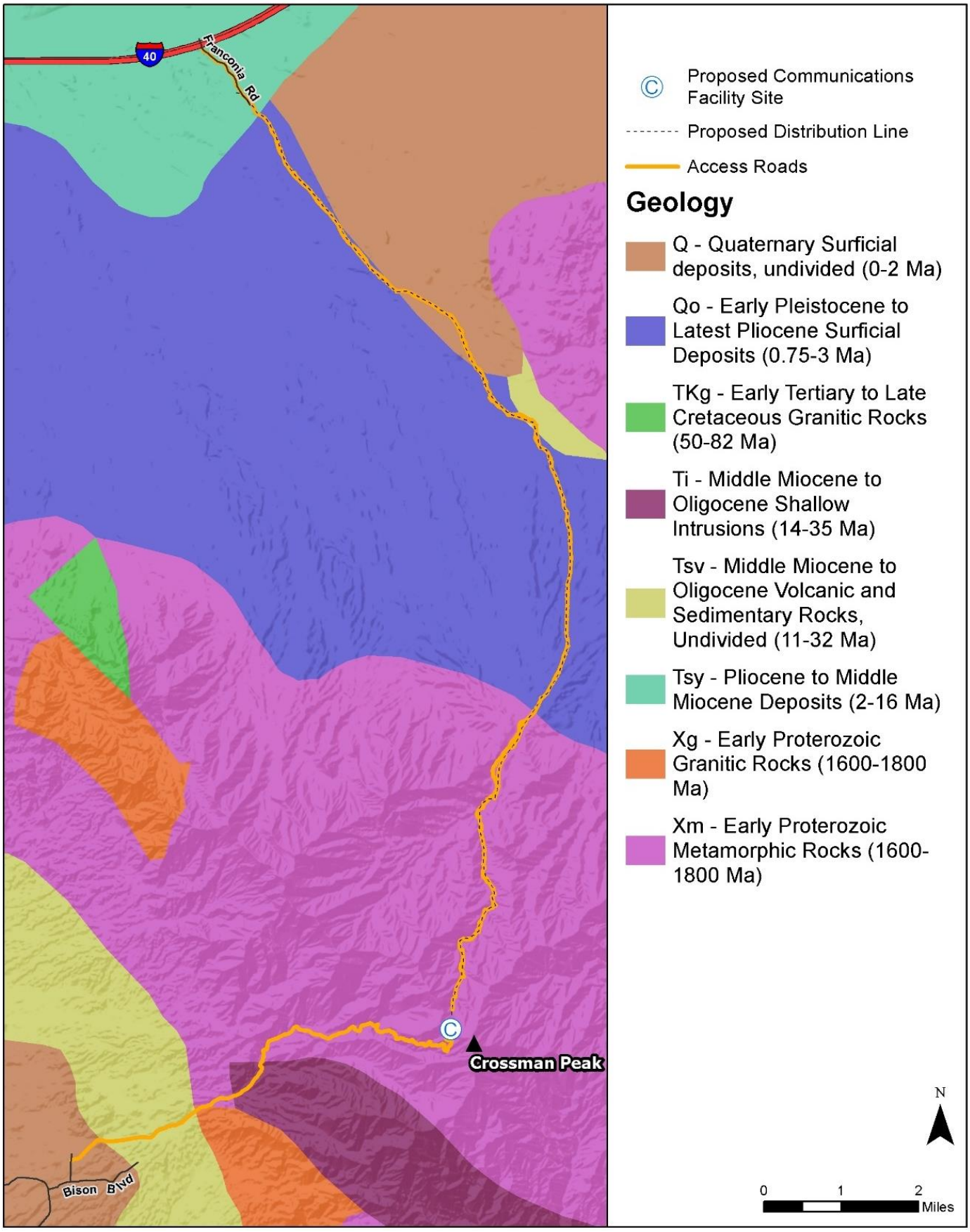

Figure 3.8-1. Geologic Units in the Project Area.

liocene to Middle Miocene Deposits (2-16 Ma). Moderately to strongly consolidated conglomerate and sandstone deposited in basins during and after late Tertiary faulting. Includes lesser amounts of mudstone, siltstone, limestone, and gypsum. These deposits are generally light gray or tan. They commonly form high rounded hills and ridges in modern basins, and locally form prominent bluffs. Deposits of this unit are widely exposed in the dissected basins of southeastern and central Arizona.

3.8.1.2 Soils

The Project occurs in the northern tip of the Sonoran Desert, with half the Project traversing the Mohave Mountains, reaching about 5,000 feet in elevation, and the other half occurring on barren desert plains. The majority of the Proposed Action occurs on visible layers of dry, rocky soil with slopes ranging from 20 to 60 percent. This soil is alluvium and colluvium derived from igneous and metamorphic rock with very high runoff potential. In the lower sloped areas (2 to 15 percent), the soil is predominantly very gravelly loam. This soil is alluvium derived from mixed units with a low runoff classification. The Proposed Action is not located near any soils susceptible to landslides.

Refer to Figures 3-1 to 3-13 in Appendix C, Preliminary Jurisdictional Delineation Report, for visual depictions of the soils encountered in the survey area. The full list of encountered soils is presented below, including slopes, beginning at the south end of the communications facility access road to the end of the distribution line at the Franconia Substation (NRCS, 2016a):

- Carrizo family very gravelly loamy sand, one to three percent slopes
- Quilotosa-Rock outcrop complex, 20 to 60 percent slopes
- Cellar-Rock outcrop complex, dry, 20 to 60 percent slopes
- Cellar-Rock outcrop complex, 20 to 60 percent slopes
- Cacique family extremely gravelly loam, one to seven percent slopes
- Gunsight very gravelly loam, two to 15 percent slopes
- Chuckawalla-Riverbend families complex, two to 15 percent slopes

3.8.1.3 Mineral Resources

The Proposed Action occurs in a mineral rich area with a large mining industry. Within one mile of the Proposed Action, five mineral operations are present or prospected for gold, silver, tungsten, iron, lead, sand, and gravel. Along the distribution line right-of-way, Havasu Gold Seekers, a local gold mining club, has a 40-acre base camp with no more than 100 camp sites. Havasu Gold Seekers has 20 claims and over 3,200 acres of gold bearing claims (HGS, 2016b).

3.8.2 Environmental Consequences

The resource protection measures applicable to geologic, soil, and mineral resources are summarized below with the full text of the measures presented in Table 2-1 (Section 2.2, Resource Protection Measures).

AQ-3 requires unused soil be redistributed along access roads, no soils imported or exported.

AQ-6 requires revegetation of disturbed land not used for the Project.

BIO-1 requires minimization of land disturbance.

BIO-14 requires that temporary impact areas be recontoured at the end of the Project to improve the likelihood that native vegetation will recover.

REC-1 limits disruption to recreation access during construction.

Proposed Action

Impacts associated with geology could occur if construction is performed on steeper, unstable slopes, disturbing the subsurface and causing slope failure, slumps, or landslides of rock. Approximately 5 miles of the Proposed Action occurs on sloped faces of Crossman Peak and has the potential to result in slope failure. However, potential for slope failure and other geologic impacts associated with ground disturbance would be short-term and minor. WAPA and UES construction workers and linemen are trained and experienced with communications facility and distribution line construction and operation.

WAPA and UES would utilize a helicopter, specifically in the steeper slopes, reducing potential for slope failure due to the presence of heavy construction equipment and construction-related ground disturbance. Permanent ground disturbance around each distribution pole location is approximately two square feet as access and clearance is not maintained. Permanent ground disturbance could be up to 3,500 square feet for the communications facility. However, the proposed facility is adjacent to an existing facility with multiple towers and no previous instances of slope failure.

While long-term ground disturbance cannot be avoided, impacts resulting in slope failure or erosion due to the Proposed Action would be minor as newly designed roads and routes would be engineered for safety and stability. Furthermore, minimal annual rainfall in the Project area reduces potential for land or mudslides or slope failure. Improvements to the existing west access road results in a potential beneficial impact through improvement to the stability and slope of the switchback turns. Therefore, adverse impacts to geologic resources would be minor.

Adverse impacts to soils could occur if the overall soil structure is affected. This can arise from heavy machinery compacting soils, destroying composition and inhibiting future plant growth. Construction would result in disturbance of approximately 17 acres of soils in disparate locations throughout the Project area. WAPA and UES would implement soil erosion control, ensure soil conditions are left to facilitate proper vegetation regrowth, and minimize disturbance and removal of soils and vegetation to prevent destabilization of soils and slopes and the resultant potential increase in soil erosion and sediment transport rates. Furthermore, minimal annual rainfall in the Project area reduces potential for soil erosion. Improvements to the existing west access road would result in a potential beneficial impact through improvement to the stability and slope of the switchback turns. Adverse impacts to soils in the Project area would be short-term and minor.

Impacts to mineral resources may occur if the loss of availability of a mineral resource is created by Project activities such as limiting access, removing a mineral site, or using the resource for the Project, making it unavailable to the area. Due to the nature of the Project, which is comprised of short-term construction and limited maintenance of a communications facility and distribution line, potential impacts to mineral resources would be temporary and site-specific, limited to potential access restrictions associated with the presences of construction vehicles and equipment on access roads. Impacts to mineral resources would be negligible.

Cumulative Impacts

Cumulative impacts to geology, soils, and minerals would occur only if impacts of the Proposed Action combined with impacts of the projects in Table 2-2 occurred at the same time and in close proximity. The Proposed Action would result in negligible or minor and temporary impacts and none of the cumulative projects would occur in such a way as to combine with the Proposed Action. Therefore, the Proposed Action's contribution would not result in cumulative impacts to geologic, soil, or mineral resources.

No Action Alternative

Under the No Action Alternative, ground disturbance would not occur. There would be no impacts geology, soils, and minerals.

3.9 Public Health and Safety

This section describes the public health and safety resources occurring in the Project area and the potential Project impacts to those resources. Law Enforcement and Intentional Destructive Acts are addressed in Section 3.2, Resources Considered but not Further Evaluated.

3.9.1 Affected Environment

3.9.1.1 Emergency Services

Within the Project area, public safety services are provided by the Havasu City Police Department, the Mohave County Sheriff's Office, and the BLM LHFO. The Havasu Regional Medical Center is a 171-bed local hospital and is located approximately 4.5 miles southwest of the Proposed Action.

3.9.1.2 Public and Worker Safety

Existing physical hazards may include injury from improper use of tools or machinery, construction site dangers, and electrocution. Concern has been raised over the recreational use of communications and distribution structures by members of the public, as they can be enticing to children and some adults because they look like tall ladders. Physical hazards associated with climbing communications and distribution line towers include blunt physical trauma and electric shock.

3.9.1.3 Fuels/Fire Management

Within the Project area, fire management services are provided by the Lake Havasu City Fire Department, Desert Hills Fire District, Yucca Fire Department, and BLM Colorado River District. In the event of a fire, the department or district responsible for management would depend on the location of the fire. Fires along the distribution line or eastern access road would be accessed from Interstate 40 and would be the responsibility of Yucca Fire Department or the Desert Hills Fire District. Fires along the western access road or communications facility would be the responsibility of the Lake Havasu City Fire Department.

3.9.1.4 Electromagnetic Fields

Both current and voltage are required to transmit electrical energy over any electricity distribution or distribution line. The current, a flow of electrical charge measured in amperes, creates a magnetic field. The voltage, the force or pressure that causes the current to flow measured in units of volts or kilovolts, 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.

Distribution 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 line, and configuration and height of conductors. Both the magnetic field and the electric field decrease rapidly, or attenuate, with distance depending on the source.

Over the past 25 years, research has not proven that power frequency EMF exposure causes adverse health effects (NIEHS, 2002). Regardless, 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 (833 mG [milliGauss]) and a continuous electric field exposure limit of 4.2 kilovolts per meter

(kV/m) for members of the public. The American Council of Governmental Industrial Hygienists publishes Threshold Limit Values for various physical agents. The limit 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.

In the home, power frequency fields (60 Hz) occur in the vicinity of motorized electrical appliances. The fields are greatest closest to the surface of the cord and appliance and drop rapidly in just a short distance. Table 3.9-1 shows typical magnetic fields from common household electrical devices.

Table 3.9-1. 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
Fluorescent light	40	2

Source: NIEHS, 2002

The proposed communications tower would emit radio frequency (RF) signals when in operation. However, point-to-point microwave antennas transmit RF signals in a directed beam from a transmitting antenna to a receiving antenna, and dispersion of microwave energy outside of the relatively narrow beam is minimal or insignificant. Further, these antennas transmit using very low power levels, usually on the order of a few watts or less. Measurements of ground-level power densities due to microwave directional antennas show levels normally a thousand times or more below recommended safety limits (FCC, 2015).

Sources of existing EMF in the Project area include the existing, private communications facility and common household wiring and appliances for residences and communities in the area. EMF field levels in homes and businesses vary widely with wiring configurations, the types of equipment and appliances in use, and proximity to these sources.

3.9.2 Environmental Consequences

The resource protection measures applicable to public health and safety are summarized below with the full text of the measures presented in Table 2-1 (Section 2.2, Resource Protection Measures).

PHS-1 requires covering of excavated holes at night.

PHS-2 requires securing construction equipment at night.

Proposed Action

During construction, work would be performed according to standard health and safety practices, WAPA's Construction Standards, and Occupational Health and Safety Administration policies and procedures. Maintenance and repair work would be localized, minimizing the potential for serious injuries to workers or the public. WAPA and UES construction workers and linemen are trained and experienced with communications facility and distribution line operations and maintenance. WAPA's comprehensive safety program includes an annual update of its Power System Safety Manual that provides direction and guidance for prevention of accidents that may result in personal injury, illness, property damage, or work interruption. UES's engineering, design, and operating standards on 20.8-kV lines, proper grounding standards, and safety practices would be implemented on the distribution line and conductive objects within, crossing, or parallel to the right-of-way. Further, as part of the UES safety plan, local authorities and emergency services would be notified of the Project and coordination protocol in the event of a serious injury would be established. Therefore, the Proposed Action would not result in serious injuries to workers or create

worker health hazards beyond limits set by health and safety regulatory agencies or that endanger human life and/or property. Adverse impacts to worker health and safety would be short-term and negligible.

Any excavations would be properly covering, filling, or fenced and construction vehicles and equipment would be properly stores and locked when not in use. Direct impacts to the public safety would be negligible.

The Proposed Action would create potential fire hazards if the distribution line or communications facilities came in contact with vegetation or other structures or if a structure was struck by lightning. To reduce or avoid fire hazards, the Project would be designed, constructed, and maintained in accordance with National Electric Safety Code requirements, which establish clearances from other man-made and natural structures as well as tree-trimming requirements. Potential adverse effects associated with lightning strikes would be further minimized by installing ground wires to shield the conductors and communications facilities and reduce the risk of fire during a storm. If a fire were to occur, local public services would be available to extinguish the fire. Potential adverse impacts due to fire hazards would be long-term, but minor.

The proposed distribution line would have no adverse public health and safety impacts from EMF exposure. In addition, the installation of polymer insulators, which remain intact in the event of an internal fault or external influence such as vandalic gunfire, reduces maintenance and electrical problems. As shown in Table 3.9-2, the electric and magnetic fields for a 20.8-kV line at the edge of the 50-foot right-of-way would be about 0.044 kV/ft and 2.4 mG, well below the recommended guidelines of the International Commission on Non-Ionizing Radiation and the American Conference of Governmental Industrial Hygienist. The Project would result in a negligible impact because it would not expose the public or workers to unusual or higher than usual levels of EMF.

Table 3.9-2. EMF Estimations for 20.8-kV Distribution Line

	Typical Field at (ft): 0		Typical Field at (ft): 82		Typical Field at (ft): 25	
Line Power (kV)	Magnetic (mG)	Electric (kV/ft)	Magnetic (mG)	Electric (kV/ft)	Magnetic (mG)	Electric (kV/ft)
11	2	0.061	0.1	0.0030	1.42	0.043
33	5	0.061	0.5	0.0061	3.63	0.044
20.8	3.34	0.061	0.28	0.0044	2.40	0.044

Source: EMFs.info, 2016

The proposed communications facility would have no adverse public health and safety impacts from RF exposure. Significant exposure from the directional microwave antennas could only occur in the unlikely event that an individual were to stand directly in front of and very close to an antenna for a period of time (FCC, 2015). Since the antennas would be mounted at least 10 feet above the ground surface, no one would be able to walk into the microwave path.

Adjacent to the proposed communications facility site, a privately owned (i.e., non-federal) communications facility uses a diesel generator as its power source and requires diesel deliveries twice a week. Diesel deliveries introduce potential risks to driver and public safety in the event of a vehicle accident. It is possible that the private communications facility would utilize the proposed electric power source to replace the current diesel source, reducing diesel deliveries and reducing potential risks to public and worker safety.

Cumulative Impacts

Cumulative impacts to public health and safety would occur only if impacts of the Proposed Action combined with impacts of the foreseeable projects that occurred at the same time and in close proximity. Due to the negligible and temporary nature of the impacts of the Proposed Action, such events are unlikely. Therefore, the Proposed Action would have a negligible contribution to cumulative impacts to public health and safety.

No Action Alternative

Under the No Action Alterative, there would be no construction activities, which would eliminate any hazards to workers or the public. There would be no increase in fire hazards or EMF. Implementation of the No Action Alternative would not impact public health and safety in the Project area.

3.10 Travel Management and Transportation

The Project area is accessed easily via Interstate 40 and existing local roads. Transportation of construction materials to the Project area would occur via the existing paved road network. During construction, fewer than 20 people would travel to and from the construction sites daily; this limited amount would use existing transportation routes and would have no discernible impact on traffic flow rates on the paved roads. During operation, traffic would be limited to occasional access for routine maintenance. Therefore, this EA does not further evaluate traffic and transportation on the paved roads because no impacts would occur. This section focuses on the unpaved access roads associated with the proposed distribution line and communications site.

BLM aims to provide reasonable and varied transportation routes for access to the public lands and to provide areas for a wide variety of both motorized and non-motorized recreational activities. The various landscapes, user interests, equipment options, weather conditions, transportation infrastructure, and resource constraints all must be considered through a process described as Comprehensive Travel and Transportation Management (CTTM). The BLM manages travel on the lands it administers through the CTTM program.

3.10.1 Affected Environment

The Proposed Action is located within the Havasu Travel Management Area (TMA), established by the BLM's 2007 LHFO RMP. The TMA encompasses 557 square miles in Mohave County, Arizona and San Bernardino County, California. Outdoor recreation is a major draw for residents and seasonal visitors to Lake Havasu City. Within the Havasu TMA the public may experience a wide variety of OHV riding, target shooting, hunting, hiking, biking, horseback riding, recreational mining, camping, wildlife observation, sightseeing, shoreline fishing and rock hounding. Due to hot summer temperatures, the highest OHV use period occurs during the winter months. The winter recreation season runs from late October through late March (BLM, 2013).

The Havasu Travel Management Plan (TMP) lists Statewide Standard Arizona BLM OHV Regulations and Travel Management Policies (BLM, 2013). The following policies would be applicable to this Project:

- Permittees (e.g., for hunting, wood gathering, livestock operators) must comply with TMP route designations. Exceptions may be made by the authorized officer.
- There shall be no motorized access to harvested game cross country or off a route designated open to the public, although use of a mechanized game carrier off an open route is permitted outside of designated wilderness areas.
- Use of motorized or mechanized vehicles off the designated route for the purpose of working livestock is prohibited.
- State vehicle laws apply to motor vehicle use.
- There are no posted speed limits on BLM roads, primitive roads, or trails. The speed limit on primitive roads should be 15 to 25 miles per hour.
- BLM will not develop, endorse, or publish road or trail ratings. BLM may describe physical characteristics of a route.
- Where pulling off a vehicle 100 feet from a route's centerline is allowed, impacts to natural and cultural resources shall be monitored on a continuing basis. When monitoring, results show effects that exceed limits of acceptable change, motorized vehicles will not be allowed to pull off 100 feet from any designated route on either side of the centerline within the impacted area.

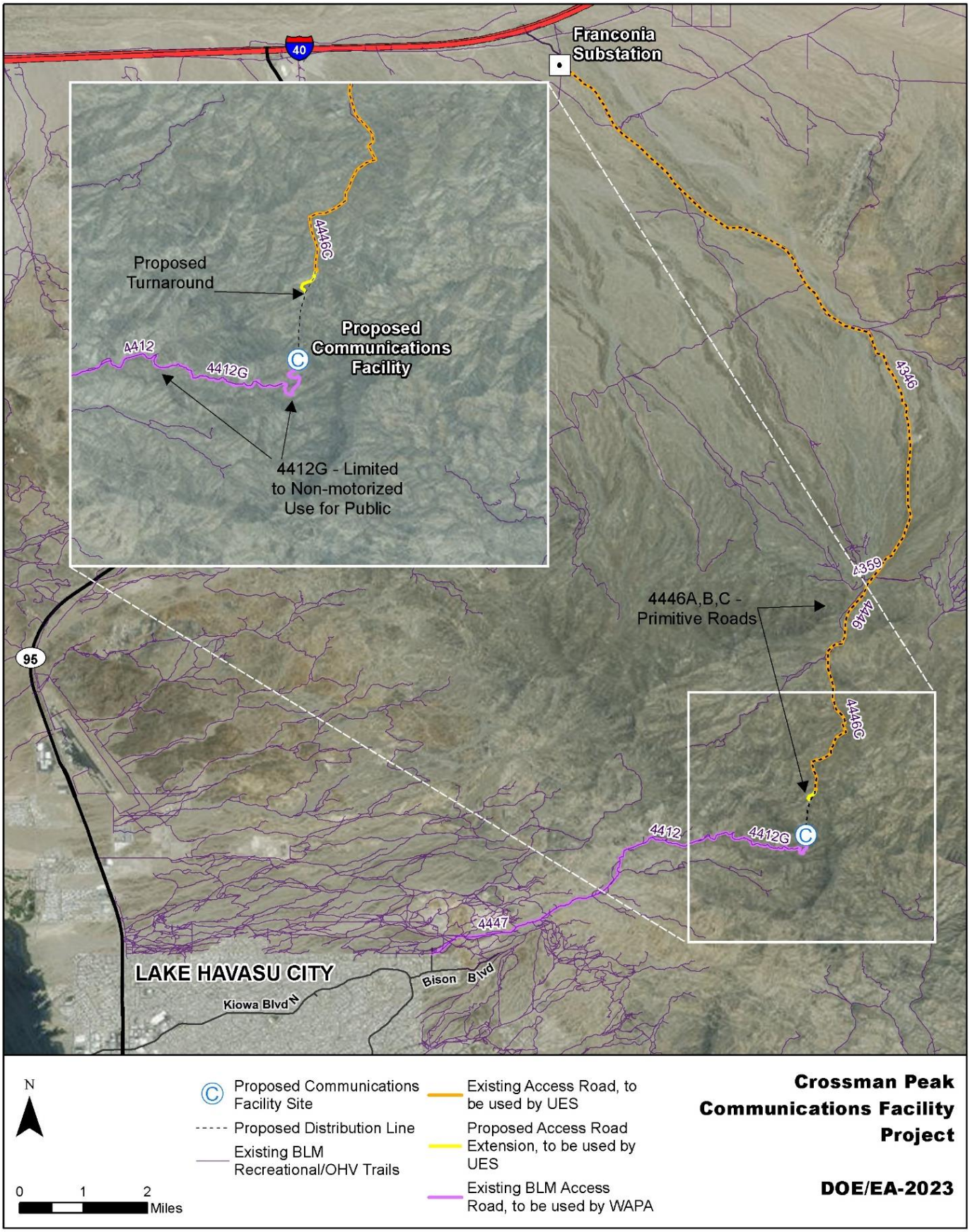

Figure 3.10-1. BLM-designated Roads and Trails in the Project Area

West Side Access (to Communications Facility)

The unpaved access road on the west side of Crossman Peak is made up of existing BLM access routes Route 4447 and Route 4412, designated Open (BLM, 2014a) (refer to Figure 3.10-1 and Table 3.10-1). The easternmost portion of this access road, Route 4412G, is designated as Limited to Non-Motorized Use for the Public and Motorized Use for Authorized Users (BLM, 2014b). These routes are designated as Primitive Roads by the BLM, which are defined as a route able to be traversed by four-wheel drive or high-clearance vehicles that normally do not meet any BLM road design standards (BLM, 2013). Approximately 4.3 and 5.9 miles from the start of the west access road in Lake Havasu City, two security gates are locked and managed by the private land owner of the existing privately owned communications facility.

East Side Access (along Distribution Line)

The proposed distribution line access road on the east side of Crossman Peak would follow existing BLM routes: Route 4346, Route 4359, Route 4446, and 4446C, which are designated Open (BLM, 2014c) (refer to Figure 3.10-1 and Table 3.10-1). Portions of Route 4346 and 4446 cross private land. Route 4446 and 4446C are designated Primitive Roads. Route 4359 is a designated Road. Most of Route 4346 is designated as Road, but the portion of the route within Crossman Peak Scenic ACEC is designated as a Primitive Road. A BLM designated Road is defined as a route managed and maintained for regular and continuous use by low-clearance vehicles having four or more wheels (BLM, 2013).

Table 3.10-1. BLM-designated Roads in the Project Area

Road Number	Road Type	Length (mi)	Length in Project Area (mi)	Jurisdiction	Project Use	Project Actor
4346	Road and Primitive Road	11.2	11.2	BLM and Private	Distribution Line Access	UES
4359	Road	8.4	0.1	BLM	Distribution Line Access	UES
4412	Primitive Road	4.3	4.3	BLM	Communications Facility Access	WAPA
4412G	Primitive Road	1.0	1.0	BLM and Private	Communications Facility Access	WAPA
4446	Primitive Road	3.7	1.4	BLM and Private	Distribution Line Access	UES
4446C	Primitive Road	2.4	2.4	BLM	Distribution Line Access	UES
4447	Primitive Road	1.1	1.1	BLM and ASLD	Communications Facility Access	WAPA

Source: BLM 2014a; 2014b; 2014c

3.10.2 Environmental Consequences

The resource protection measures applicable to transportation and travel management are summarized below with the full text of the measures presented in Table 2-1 (Section 2.2, Resource Protection Measures).

REC-1 limits disturbance to recreation access during construction.

Proposed Action

The use of the west-side access road would not require temporary road closures, and therefore, would not prohibit the public from using the dirt access road. Construction equipment might occasionally slow

traffic on the access roads, but these adverse direct effects would be short-term and minor. WAPA would notify the public of the use of the access road such that they can incorporate any delays into their planning.

WAPA would improve four degraded switchback curves located on the west-side access road on private land near the existing communications facility. These improvements could temporarily block access of the road but this portion of the access road is not open to the public. Therefore, the improvement would not result in a direct effect.

During construction of the distribution line, UES would mainly limit construction work areas to within the proposed distribution line right-of-way and the 20-foot-wide access road right-of-way. UES would access the work areas by construction vehicles using the existing unpaved access road. Construction equipment might occasionally slow traffic on the access roads, but these adverse direct effects would be short-term and minor.

The UES construction would require use of heavy machinery near proposed pole locations, which could result in temporary closures on the access road during active construction for safety purposes such as when a concrete truck would need to access a structure. Similarly, because the distribution line crosses the access road numerous times, temporary road closures may be required during conductor pulling. Temporary access road closures would be a direct adverse effect to the public, but is likely to be limited in nature as it would occur only at some of the pole and stringing locations and during limited periods. Impacts would be expected to be short-term and minor.

UES would configure a turnaround site at the end of the 0.24-mile-long east-side access road extension to prevent off-road use of the area between the proposed road extension and Crossman Peak. This natural rock barrier would end 0.55 miles north of, and 740 feet below, the communications facility to provide a clear, well-defined end point where the public can easily and safely turnaround. No new fencing is proposed. BLM would add the road extension to their TMP, but would not add the new spur routes. The Project is not anticipated to have any permanent effects to travel management as there would be no permanent changes to public access on roads in the Project area. The 4.6 miles of newly constructed spur routes for access to the distribution poles during construction would be temporary, and not maintained by UES after construction is complete.

Cumulative Impacts

The direct impacts of the Proposed Action on travel management and transportation would be on the existing unpaved access road because of temporary delays and possible closures. None of the cumulative projects would require use of these same unpaved access roads during the construction timeframe of the Project, and therefore, would not combine to result in cumulative effect.

No Action Alternative

Because there would be no construction, the No Action Alternative would not require use of the existing access roads and no impacts to travel management and OHV users would occur.

3.11 Water Resources

This section describes the surface and groundwater resources occurring in the Project area and the potential Project impacts to those resources. Water quality, storage, and floodplains are addressed in Section 3.11.1. Waters potentially under the jurisdiction of the U.S. Army Corps of Engineers (USACE) are addressed in Section 3.11.2. For additional information on jurisdictional resources refer to the Preliminary Jurisdictional Delineation prepared for this Project (Appendix C).

3.11.1 Water Quality: Surface and Ground

3.11.1.1 Affected Environment

The Proposed Action would occur within the Lower Colorado River Basin of the Upper Colorado Planning Area (UCPA), as defined by the Arizona Department of Water Resources. The UCPA covers approximately 11,860 square miles and contains most of the Colorado-Lower Gila Watershed. The Proposed Action traverses two subdivisions within this watershed, the Lower Colorado River–Lake Havasu and the Franconia Wash–Sacramento Wash watersheds, totaling 475 square miles (WRRC, 2010).

The climate of the region encompassing the Project area is arid, and the drainages within and near the Project area are all dry except during rainfall. From 1981 to 2010, annual maximum temperatures occurred in the summer months and ranged between 95 and 110 degrees Fahrenheit. Annual minimum temperatures occur in the winter months and range between 40 and 60 degrees Fahrenheit. Average annual precipitation in the Project area is approximately 4 inches (WRCC, 2016).

The Proposed Action also traverses the west and north faces of the Mohave Mountains near Crossman Peak, which rises over 5,000 feet above mean sea level (amsl). Primary drainageways within and near the Project area are the Fall Springs Wash, which drains to Lake Havasu through Lake Havasu City, and numerous other desert washes, which drain to the Franconia and Sacramento washes and eventually the Colorado River. The proposed distribution line and associated access roads cross several upper canyons of the Mohave Mountains. The existing access road along the proposed distribution line is within or close to the braided alluvial bed of one of the larger canyon washes for approximately 1.3 miles. Below the mountains, the proposed distribution line and associated access road are mainly on higher ground between drainageways, but cross several drainageways leading to the Franconia Wash and Sacramento Wash. The existing access road that extends west and south from Crossman Peak is within the braided alluvial bed of the Fall Springs Wash for about 4.3 miles, and crosses the main channel several times.

Floodplains and Drainages. In addition to numerous unnamed canals and ephemeral streams and washes, several named drainages run near the Project area, including:

- the Lower Colorado River, which flows from the north to the south, approximately 5 miles west of the Proposed Action;
- the Lake Havasu, created by the Parker Dam, with a capacity of approximately 650,000 acre-feet, approximately 5 miles west of the Proposed Action;
- the Fall Springs Wash, traversed by the existing access road extending south and west from Crossman Peak; and
- the Franconia Wash, near the proposed distribution line and associated access road near the Franconia Substation.

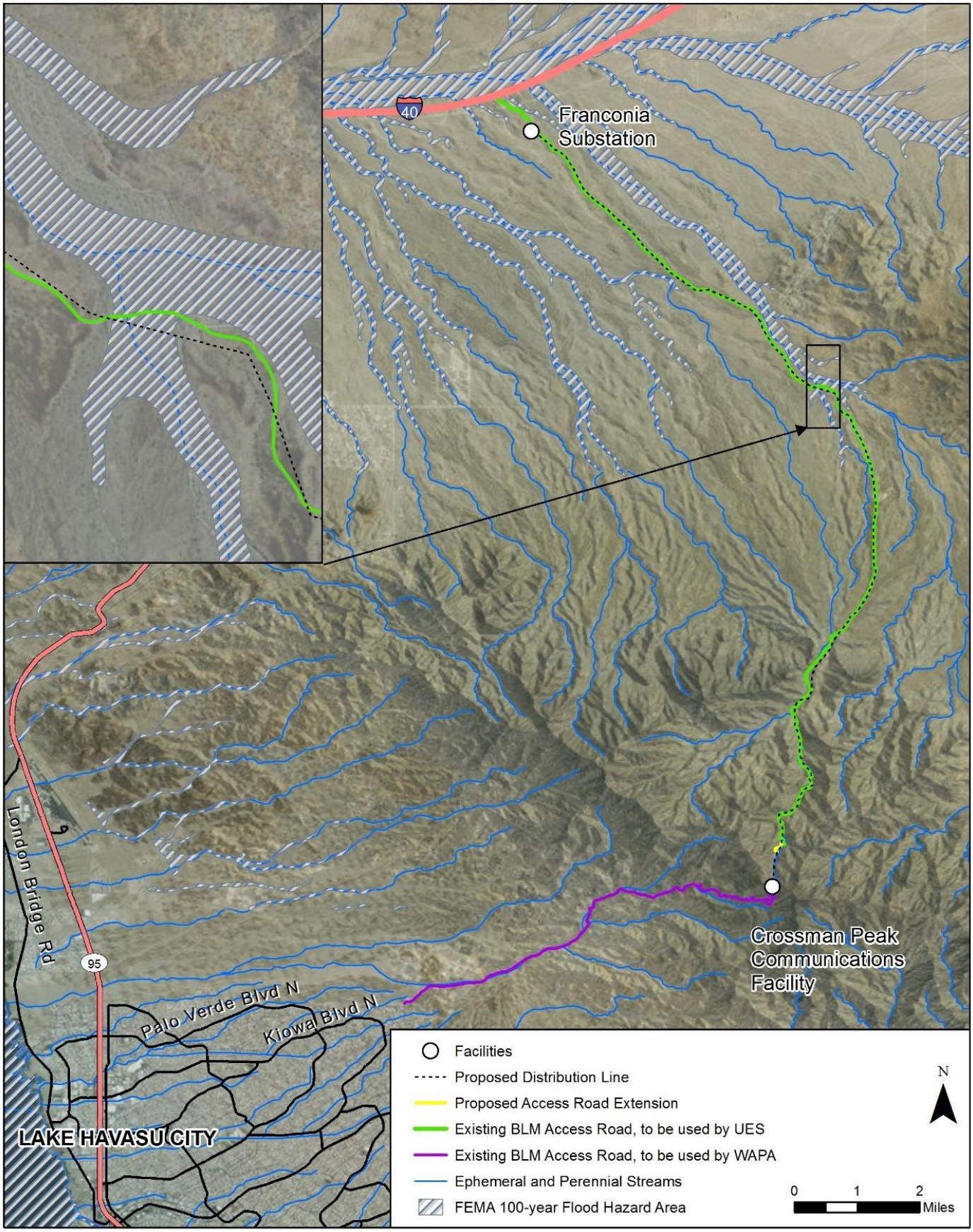

Figure 3.11-1. FEMA 100-year Flood Hazard Areas in the Project Area

A portion of the proposed distribution line and associated access road cross a Federal Emergency Management Agency-mapped floodplain, an approximate 675-foot-wide tributary of the Franconia Wash (Figure 3.11-1) (FEMA, 2009). None of the other watercourses that would be crossed by the Project have mapped floodplains, but all would have floodplains that could be inundated during runoff events. The braided watercourses described above (Fall Springs Wash and another unnamed watercourses draining to Franconia Wash) have alluvial channels that could potentially shift position during large runoff events.

Surface Water Quality. No waterbodies (streams or lakes) within the Project area are listed on the Clean Water Act 303d list of impaired and threatened waters that have been identified and reported to the USEPA. The nearest impaired waterbody is a segment of the Colorado River near Parker Dam, approximately 17 miles downstream of the Proposed Action (ADEQ, 2014).

Groundwater. The northern and western portions of the Project area are underlain by the Sacramento Valley and Lake Havasu groundwater basins within the UCPA. Near the Project area, these two Basins are roughly divided by the Mohave Mountains.

Productive groundwater-bearing units in the Sacramento Valley Basin consist of unconsolidated sediments, fractured volcanic rock, and alluvial fans. Groundwater flows generally from east to west to the Colorado River. Municipal water use is responsible for much of the groundwater demand, followed by industrial uses. Recharge for the Sacramento Valley Basin comes primarily from infiltration along the mountain fronts and is estimated at 1,000 to 4,000 acre-feet annually (AFA). Approximately 6.5 million acre-feet (maf) of groundwater is in storage to a depth of 1,200 feet below land surface (bls). Median well yields are between 100 and 170 gallons per minute (gpm). Depth to groundwater ranges from 475 feet bls to near 500 feet bls. Drinking water standards for concentrations of fluoride, arsenic, radionuclides, and other constituents have been exceeded in wells throughout this Basin (ADWR, 2009).

The Lake Havasu Basin is mostly basin fill, consisting of sand, silt, and gravel and has a direct hydraulic connection with the Colorado River. Groundwater flows generally from north to south. Groundwater storage is estimated at between one to two maf with recharge estimated at 35,000 AFA at a depth of 1,000 feet bls. Well yields of 1,000 gpm are common at a depth of approximately 75 feet. Drinking water standard exceedances are primarily due to elevated concentrations of nitrates, nitrites, and organics measured near Lake Havasu City (ADWR, 2009).

3.11.1.2 Environmental Consequences

The resource protection measures applicable to water quality and floodplains are summarized below with the full text of the measure presented in Table 2-1 (Section 2.2, Resource Protection Measures).

BIO-1 requires minimization of land disturbance.

WATER–1 requires that no vehicles or equipment shall be refueled within 100 feet of an ephemeral drainage unless a bermed and lined refueling area is constructed, spill kits are maintained onsite, and vehicles are properly maintained to prevent leaks.

Proposed Action

Floodplains. Approximately 675 feet of the proposed distribution line, a proposed spur route, and associated existing access road cross a FEMA 100-year flood hazard area. Within this, UES would construct three distribution poles and a 20-foot-wide spur route which would be exposed to potential flooding. The remainder of the distribution line and associated access road would be situated above or away from flood-prone areas. Spur route construction and pole placement result in a potential for local obstructions or

diversions of flood waters, however, these would be minor and not in areas that would result in damage to adjacent property. Direct, long-term flooding impacts to the distribution line would be minor.

Drainages. Refer to Section 3.11.2 below.

Surface Water Quality. Construction and operation of the Proposed Action could result in water quality impacts due to soil disturbance that produces increased sediment load to runoff, and due to spills of materials such as fuel, engine oil, and lubricants. UES would adhere to a SWPPP to prevent erosion and sedimentation resulting from construction, as well as preventing and/or quickly responding to leaks or accidental spills of hazardous materials. WAPA's action would not require a SWPPP as impacts would be less than one acre; however, WAPA would implement measures to control erosion and address any spills (refer to Table 2-1). Stockpiles of excavated material would be protected from erosion, and protective measures would be taken to prevent contaminants from leaking or accidentally spilling onto the ground or into waterways during construction and/or operation of the Proposed Action. Any spills that may occur would be cleaned up in a timely manner. WAPA or UES would obtain all required permits prior to commencement of construction activities to ensure protection of water quality within the Project area (refer to Table 5-2 in Section 5 for a list of permits). Soil disturbance and potential leaks would not lead to increased water quality degradation and would result in minor, short-term impacts.

Operation of the Project would consist mainly of roadway maintenance and occasional repairs to the distribution line and communications facility. The communications facility is not located in or near a watercourse, and any potential contaminants used at the facility would be minimal, and any spills would be contained and cleaned per federal and state law. Occasional roadway maintenance may be required due to flooding, especially along the braided washes. Operational impacts to surface water quality would be negligible.

Groundwater. No impacts to groundwater resources would occur due to construction or operation of the Proposed Action. Depth to groundwater in the Project area is greater than 75 feet (ADWR, 2009). Excavation of the communications site tower footings and installation of new towers are expected to be 10 to 20 feet deep, so construction activities would not require dewatering and would not impact groundwater resources. Any construction-related water (such as for dust suppression or concrete mixing) would be acquired through an appropriate water provider or authority. Groundwater resources would not be depleted by construction or operation of the Proposed Action. WAPA would quickly contain and remove any leaks or accidental spills of hazardous materials, and therefore, no hazardous materials would enter the groundwater.

Cumulative Impacts

The list of cumulative projects is presented in Table 2-2. It is expected that industry standard best management practices would be applied to other projects in the affected watersheds and groundwater basins, to minimize or avoid cumulative impacts. The Proposed Action would not result in direct adverse impacts to floodways and floodplains, and would not have the potential to combine with similar impacts of other projects. No cumulative flood-related impacts or impacts to floodplains would occur. Furthermore, the Proposed Action would not result in cumulatively considerable impacts to groundwater storage or recharge.

Water quality impacts from the Proposed Action would not have the potential to combine with impacts associated with other projects. Therefore, the Project would result in negligible cumulative impacts to surface or groundwater quality.

No Action Alternative

Under the No Action Alterative, there would be no construction activities, which would eliminate any potential for degradation of surface or groundwater quality or modifications to floodplains. Implementation of the No Action Alternative would not impact surface water, groundwater, or floodplains in the Project area.

3.11.2 Jurisdictional Waters

3.11.2.1 Affected Environment

Biologists visited the Project area from November 1 through 3, 2016 to investigate the presence of potential jurisdictional features (including wetlands) and to map vegetation communities within the Project area. Based on the assessment of hydrology, vegetation, and soils and in Aspen's professional opinion, no portion of the Project area satisfies the criteria as wetlands pursuant to the USACE 1987 Manual and 2008 Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region, with subsequent clarification memoranda and dependent on confirmation by the USACE (USACE, 1987 and 2008a) (see Appendix C).

Using guidance in the USACE Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region (2008b), Aspen delineated jurisdictional non-wetland "waters of the U.S." Based on this, and an assessment of hydrology and the limits of the OHWM as determined by aerial imagery, evidence of flow, changes in physical and biological features such as bank erosion, deposited vegetation or debris, and characteristics of vegetation and soils documented during Aspen's field surveys, approximately 41.0 acres of the Project area meet the definition of "waters of the U.S." as defined in 33 CFR Part 328 (refer to Appendix C, Preliminary Jurisdictional Delineation Report). All mapped drainages south and southwest of Crossman Peak are part of the Falls Springs Wash watershed; this watershed drains to Lake Havasu, a known "waters of the U.S." Drainages mapped north of Crossman Peak drain northward into the Sacramento Wash that ultimately confluences with the Colorado River, a known "waters of the U.S."

3.11.2.2 Environmental Consequences

The resource protection measures applicable to jurisdictional waters are summarized below with the full text of the measures presented in Table 2-1 (Section 2.2, Resource Protection Measures).

WATER–1 requires that no vehicles or equipment shall be refueled within 100 feet of an ephemeral drainage unless a bermed and lined refueling area is constructed, spill kits are maintained onsite, and vehicles are properly maintained to prevent leaks.

BIO-1 limits mechanical disturbance of previously undisturbed areas.

BIO-13 to improve access through a wash, native material will be pulled back, up, and out of the wash, rather than pushed into a wash. Within drainages, flow will not be altered and final elevations will not lead to advanced erosion.

Proposed Action

Project activities would result in approximately 11.9 acres of temporary[1] impacts and 1.8 acres of permanent impacts to jurisdictional waters. Direct impacts to jurisdictional waters would include the removal of

[1] The impacts associated with the proposed spur routes are defined as "temporary" within jurisdictional waters based on the USACE 2012 Nationwide Permit conditions, which state: "Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate."

native vegetation, the discharge of fill, degradation of water quality, and increased erosion and sediment transport. Potential indirect impacts could include alterations to the existing topographical and hydrological conditions. During construction, WAPA and UES would maintain existing hydrologic patterns to the extent possible and minimize impacts to water quality as described in Section 3.11.1. If access through a drainage needs improvement, native material will be pulled out and away as to not alter flow and avoid advanced erosion. These adverse impacts to jurisdictional drainages occurring in the Project area would be minor. Permanent impacts in jurisdictional waters from construction of the proposed distribution line and associated access road work would require acquisition of an Individual Permit from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) and a Water Quality Certification from the Arizona Department of Environmental Quality (ADEQ) pursuant to CWA Section 401. UES would comply with the terms and conditions of these authorizations to reduce impacts to jurisdictional waters. WAPA's proposed construction action would not permanently impact jurisdictional waters.

Operation and maintenance would result in direct and indirect, adverse impacts to jurisdictional waters resulting from vehicular traffic in washes and occasional repairs to drainage crossings. These impacts are the same as described for construction impacts described above, albeit for a shorter duration but long-term. Operational impacts to jurisdictional waters would be minor. Operational impacts to jurisdictional waters would be minor.

Cumulative Impacts

Cumulative impacts to jurisdictional waters would occur if impacts of the Proposed Action are combined with impacts of past, present, and reasonably foreseeable future projects listed in Table 2-2. However, the construction phase of these projects would overlap only briefly (if at all) with that of the Proposed Action, and maintenance activities would be of short-duration and spread over a large geographic area. All projects in jurisdictional waters must implement conditions to minimize impacts pursuant to the CWA. Therefore, cumulative impacts on jurisdictional waters would be negligible.

No Action Alternative

Under the No Action Alterative, there would be no construction activities, which would eliminate any potential for fill of jurisdictional waters. Implementation of the No Action Alternative would not impact jurisdictional waters.

Chapter 4
Consultation and Coordination

WAPA invited the BLM LHFO to be a cooperating agency for this Project. This agency has been involved throughout the NEPA process, including scoping and EA development. Refer to Chapter 6 for a list of agency staff that contributed and were consulted in the preparation of this EA. Appendix E presents copies of WAPA's official correspondence with affected agencies.

The following is a list of agencies contacted for this Proposed Action:

Federal Agencies
- Bureau of Indian Affairs
- Bureau of Land Management, Lake Havasu Field Office
- Bureau of Reclamation
- Federal Emergency Management Agency
- United States Army Corps of Engineers, Los Angeles District
- United States Environmental Protection Agency, Region 9
- United States Fish and Wildlife Service
- USMC Marine Corps Air Station Yuma

Tribal Governments
- Yavapai-Apache Nation of the Camp Verde Indian Reservation
- Paiute Indian Tribe of Utah
- Las Vegas Paiute Tribe
- Moapa Band of Paiute Indians
- Kaibab Band of Paiute Indians of the Kaibab Indian Reservation
- Fort Mohave Tribal Council
- Fort McDowell Yavapai Nation
- Hualapai Indian Tribe of the Hualapai Indian Reservation
- Havasupai Tribe of the Havasupai Reservation
- Colorado River Indian Tribes
- Cocopah Indian Tribe of Arizona
- Chemehuevi Indian Tribe
- Hopi Tribe
- Quechan Tribe of the Fort Yuma Indian Reservation

State Agencies
- Arizona Game and Fish Department
- Arizona Department of Environmental Quality
- Arizona State Historic Preservation Office
- Arizona State Land Department
- Arizona State Parks
- Arizona Power Authority

County
- Mohave County, Arizona

Towns
- Town of Eagar, Arizona
- Town of Fredonia, Arizona
- Town of Gilbert, Arizona
- Town of Marana, Arizona
- Town of Springerville, Arizona
- Town of Thatcher, Arizona
- Town of Wickenburg, Arizona

Cities
- City of Boulder City, Nevada
- City of Corona, Arizona
- City of Escondido, California
- City of Mesa, Arizona
- City of Needles, California
- City of Safford, Arizona
- City of Vernon, Arizona
- City of Yuma, Arizona
- Lake Havasu City, Arizona

Chapter 5
Applicable Laws, Regulations, and Other Requirements

Table 5-1 summarizes applicable laws and regulations as they pertain to the Project.

Table 5-1. Summary of Applicable Federal and State Laws, Regulations, and Guidelines

Law / Regulation	Applicability
American Indian Religious Freedom Act of 1978 (42 USC 1996)	Cultural resources and Tribal consultation
Antiquities Act of 1906 (16 USC 431 et seq.)	Cultural resources and Tribal consultation
Archaeological Resources Protection Act of 1979, as amended (ARPA; 16 USC 470aa et seq.)	Cultural resources and Tribal consultation
Arizona Native Plant Law	Native plants
Arizona Revised Statute (41 USC 844)	Cultural resources and Tribal consultation
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d)	Bald eagles and golden eagles
Clean Air Act, as amended (42 USC 7401 et seq.)	Air pollution prevention and control Emission levels of regulated pollutants
Clean Water Act (CWA; Sections 401, 402, 404; 33 USC 1251 et seq.)	Surface water quality Discharge or dredge or fill materials into jurisdictional "waters of the U.S."
Consultation and Coordination with Indian Tribal Governments (EO 13175)	Tribal consultation
Energy Policy and Conservation Act of 1975	Energy-related projects
Endangered Species Act (ESA; 16 USC 1531 et seq.)	Threatened and endangered species, and critical habitat
Energy-related Projects (EO13212)	Energy-related projects
Environmental Justice (EO 12898)	Low income communities and minority communities
Federal Compliance with Pollution Control Standards (EO 12088)	Prevention, control, and abatement of environmental pollution
Federal Land Policy and Management Act of 1976	Management of public lands
Floodplain Management (42 USC 4321; EO 11988)	Impacts to floodplains
Indian Sacred Sites (EO 13007)	Protection and preservation of Tribal religious practices
Migratory Bird Treaty Act (MBTA; 16 USC 703-711; EO 13186)	Protection of selected bird species
National Environmental Policy Act (NEPA) (42 USC 4321 et seq.; CEQ, 40 CFR 1500-1508)	Federal undertakings
National Historic Preservation (EO 11593)	Protection and enhancement of the cultural environment
National Historic Preservation Act of 1966, as amended (NHPA; 16 USC 470 et seq.; 36 CFR 800)	Cultural resources and Tribal consultation
National Trails System Act of 1968, as amended (NTSA; 16 U.S.C. 1241 et seq.)	Creation and protection of historic and scenic trails

Table 5-1. Summary of Applicable Federal and State Laws, Regulations, and Guidelines

Law / Regulation	Applicability
Native American Graves Protection and Repatriation Act of 1990, as amended (NAGPRA; 25 USC 3001-30013 et seq.; 43 CFR 10)	Human remains, burial associated cultural resources, and Tribal consultation
Noise Control Act of 1972, as amended (NCA; 42 USC 4901 et seq.)	Noise protection
Noxious Weeds and Invasive Species (EO 13112)	Management of noxious weeds
Occupational Safety and Health Act of 1970 (OSHA; 29 USC 651 et seq.)	Health and safety standards
Paleontological Resources Preservation Act of 2009	Paleontological resources
Pollution Prevention Act of 1990 (PPA; 42 USC 13101 et seq.)	Reducing potential for pollution sources
Presidential Memorandum: Unleashing the Wireless Broadband Revolution, 2010 (§ 2, 75 FR at 38388)	Energy-related projects
Protection of Wetlands (42 USC 4321; EO 11990)	Impacts to wetlands
U.S. Department of Energy, NEPA implementing procedures (10 CFR 1021)	NEPA compliance for Department of Energy undertakings
Wild Free-Roaming Horses and Burros Act of 1971, as amended	Protection of selected species

CEQ – Council on Environmental Quality
CFR – Code of Federal Regulations
EO – Executive Order
FR – Federal Register
et seq. – and the following
USC – United States Code

Table 5-2 summarizes permits, licenses and entitlements required for the Project.

Table 5-2. Summary of Permits and Authorizations

Permitting Agency	Permit / Authorization	Applicant
Arizona Department of Agriculture	Permit for removal of native plants	WAPA and UES
Arizona Department of Environmental Quality	Arizona Pollutant Discharge Elimination System Permit for construction activities	UES
Arizona Department of Environmental Quality	Section 401 water quality certification	WAPA
Arizona Department of Environmental Quality	Compliance with dust control measures and standards	WAPA and UES
Arizona Department of Environmental Quality	General Permit for operation of propane generator	WAPA
Arizona Department of Environmental Quality	Stormwater Pollution Prevention Plan (SWPPP)	UES
Arizona State Historic Preservation Office	Section 106 compliance; review and approve potential disturbance to cultural resources on State Trust Land	WAPA
Arizona State Land Department	Right-of-way permit for use of an existing road on State Trust Land	WAPA
Bureau of Land Management	Right-of-way authorization for use of an existing access road on public land	WAPA

Table 5-2. Summary of Permits and Authorizations

Permitting Agency	Permit / Authorization	Applicant
Bureau of Land Management	Right-of-way authorization for the construction and use of a distribution line and access road improvements on public land	UES
Bureau of Land Management	Standard Form 299 Application for Transportation and Utility Systems and Facilities on Federal Lands	UES
U.S. Army Corps of Engineers	Section 404 Individual Permit for potential discharge of materials to or fill of waters of the U.S.	UES
U.S. Environmental Protection Agency	Floodplain use permit	UES
U.S. Fish and Wildlife Service	ESA compliance	WAPA and UES

Chapter 6
EA Preparers and Contributors

Western Area Power Administration, Desert Southwest Region

John Arnett ..... Biologist
Sean Berry ..... Regional Preservation Officer
Matthew Bilsbarrow ..... NEPA Document Manager
Mike Garcia ..... Project Manager
Tony Guinane ..... Communications Manager/Ten Year Plan Coordinator
Braileigh Jay ..... Realty Specialist
Kara Lamb ..... Public Affairs Specialist
Nick Lee ..... Communications Engineer
Linda Marianito ..... Environmental Manager
Jon Otteman ..... Communications Engineer
Silvia Perez ..... Communications Manager
David Pflanz ..... Construction Engineer
Michael Setering ..... Environmental Planner

Bureau of Land Management, Lake Havasu Field Office

Sheri Ahrens ..... Realty Specialist
Shari Ketcham ..... Biologist
Jessica Han ..... Archaeologist

UniSource Energy Services

Leslie Carpenter ..... Environmental and Land Use Planner II
Bill DeJulio ..... Senior Director of Electric Operations

Aspen Environmental Group

Heather Blair
Project Manager
B.S. Ecology, M.S. Conservation Biology
12 years of experience

Beth Bagwell
Cultural Resources, Native American Religious Concerns, Paleontology
B.A. Anthropology and Creative Writing, M.A. Anthropology, Ph.D. Anthropology
21 years of experience

Brewster Birdsall
Air Quality, Public Health and Safety
B.S. Mechanical Engineering, M.S. Civil Engineering
20 years of experience

Hunter Burgess
Paleontology
B.A. Anthropology
1 year of experience

Emily Capello
Transportation and Travel Management
B.A. English Literature and History, M.P.A. Environmental Science and Policy
10 years of experience

Baron Creager
Air Quality, Geology/Soils/Minerals, Public Health and Safety, Water Quality, Resources Considered but not Further Evaluated
B.S. Environmental Resource Engineering, EIT
1 year of experience

Scott Debauche
Aesthetics and Visual Resources
B.S. Urban Planning, Board Certified Environmental Planner
17 years of experience

Diana Dyste
Cultural Resources, Native American Religious Concerns, Paleontology
B.A. Anthropology, M.A. Archaeology
17 years of experience

Fritts Golden
Aesthetics and Visual Resources
B.A. Biology, M.R.P. Regional Planning
40 years of experience

Kellie Keefe
GIS Specialist
B.S. Environmental Studies, GIS Certificate
2 years of experience

Phil Lowe
Water Quality
B.A. Wildlife Management, M.A. Watershed Management
30 years of experience

Teresa O'Grady
Land Use and Ownership
B.S. Environmental Studies
1 year of experience

Kati Simpson
Graphic Design
B.A. Geography, Certified in Graphic Design
20 years of experience

Mark Tangard
Document Production
B.A. Geography
40 years of experience

Negar Vahidi
Land Use and Ownership
B.A. Political Science, Masters of Public Administration
20 years of experience

Jared Varonin
Jurisdictional Waters
B.S. Ecology and Systematic Biology
14 years of experience

Justin M. Wood
Biological Resources
B.S. Biology, M.S. Biology
12 years of experience

Chapter 7
References

Abbate, D. 2012. Peregrine Falcon Nest Site Monitoring in Arizona: 2012 Breeding-Season Results. Arizona Game and Fish Department, Research Branch, Phoenix, Arizona.

ADEQ (Arizona Department of Environmental Quality). 2015. Annual Ambient Air Assessment Report 2014. Publication Number: OFR-15-06.

_____. 2014. Arizona's 2012/14 Impaired Waters.

ADWR (Arizona Department of Water Resources). 2009. Arizona Water Atlas, Volume 4, Upper Colorado River Planning Area.

AGFD (Arizona Game and Fish Department). 2016a. Arizona Heritage Data Management System: Plant and Animal Abstracts, Distribution Maps, & Illustrations. [online]: http://www.azgfd.gov/wc/edits/hdms_abstracts.shtml. Accessed 28 November 2016.

_____. 2016b. Southwestern Bald Eagle Management Committee. [online]: http://www.swbemc.org/. Accessed 28 November 2016.

_____. 2014. Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects. Arizona Game and Fish Department, Phoenix, Arizona. Revised September 22, 2014.

_____. 2012. Arizona's State Wildlife Action Plan: 2012-2022. Arizona Game and Fish Department, Phoenix, Arizona.

_____. 2010. Desert tortoise survey guidelines for environmental consultants. Arizona Game and Fish Department, Phoenix, Arizona (June 2010).

_____. 2008. Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat. Arizona Interagency Desert Tortoise Team.

_____. 2005. *Allium parishii*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 5 pp.

APLIC (Avian Power Line Interaction Committee). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.

_____. 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA. 207 pp.

Arizona Rare Plant Committee. 2001. Arizona Rare Plant Field Guide: A Collaboration of Agencies and Organizations. Washington: U.S. Government Printing Office.

ASLD (Arizona State Land Department). 2016a. Mission Statement. [online]: https://land.az.gov/. Accessed January,7 2017.

_____. 2016b. Parcel Viewer. [online]: http://gis.azland.gov/webapps/parcel/?loc=-114.1874,34.5507,12&layers=2,6,0. Accessed January 9, 2017.

AZGS (Arizona Geological Survey). 2000. Geologic Map of Arizona (1:1,000,000 scale). From: Richard, S.M., Reynolds, S.J., Spencer, J.E., and Pearthree, P.A., comps., 2000, Geologic Map of Arizona:

Arizona Geological Survey Map M-35, 1 sheet, scale 1:1,000,000. [online]: http://data.azgs.az.gov/geologic-map-of-arizona/#. Accessed January 2017.

Bleich, V.C., R.T. Bowyer, and J.D. Wehausen. 1997. Sexual segregation in mountain sheep: resources or predation? Wildlife Monographs 134:1-50.

BLM (Bureau of Land Management). 2017. Visual Resource Management System [online]: http://www.blm.gov/wo/st/en/prog/Recreation/recreation_national/RMS/2.html. Accessed January 2017.

_____. 2016. Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands. Instructional Memorandum No. 2016-124.

_____. 2014a. Havasu TMP Final Documents & Updates: Final Route Designation Maps / Access Guides, Map 3 – Havasu Unit SW. [online]: https://www.blm.gov/style/medialib/blm/az/pdfs/travel_mgmt/lhfo.Par.3448.File.dat/map3-hav-sw.pdf. Accessed December 2016.

_____. 2014b. Havasu TMP Final Documents & Updates: Final Route Designation Maps / Access Guides, Map 4 – Havasu Unit SE. [online]: https://www.blm.gov/style/medialib/blm/az/pdfs/travel_mgmt/lhfo.Par.92174.File.dat/map4-hav-se.pdf. Accessed December 2016.

_____. 2014c. Havasu TMP Final Documents & Updates: Final Route Designation Maps / Access Guides, Map 2 – Havasu Unit NE. [online]: https://www.blm.gov/style/medialib/blm/az/pdfs/travel_mgmt/lhfo.Par.29902.File.dat/map2-hav-ne.pdf. Accessed December 2016.

_____. 2014d. State Protocol Agreement Between the Bureau of Land Management, Arizona and the Arizona State Historic Preservation Office Regarding the manner in which the Bureau of Land Management will meet its Responsibilities under the National Historic Preservation Act and the National Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.

_____. 2013. BLM Lake Havasu Field Office Havasu Travel Management Plan. August. [online]: https://www.blm.gov/style/medialib/blm/az/pdfs/travel_mgmt/lhfo.Par.70254.File.dat/Havasu-TMP.pdf. Accessed December 2016.

_____. 2010. Arizona BLM Sensitive Species List. [online]: https://www.blm.gov/style/medialib/blm/az/pdfs.Par.64804.File.dat/sensitive-species.pdf. Accessed 28 November 2016.

_____. 2007a. Record of Decision and Lake Havasu Field Office Approved Resource Management Plan.

_____. 2007b. Visual Resources Management Classes – Lake Havasu Field Office Resource Management Plan. [online]: https://www.blm.gov/az/GIS/lhfo_rmp/VRM_LHFO/VRM_LHFO_metadata.html. Accessed January 2017.

Brown, D.E. 1994. Biotic Communities: Southwestern United States and Northwestern Mexico. University of Utah Press, Salt Lake City. 342 pp.

CEC (California Energy Commission). 2012. Rio Mesa Solar Electric Generating Facility (11-AFC-04). Preliminary Staff Assessment: Geology and Paleontology October. Docket Unit TN# 67723.

Ebird.org. 2016a. Observation map of peregrine falcon (North American) in the project vicinity. [online]: http://ebird.org/ebird/map/perfal1?neg=true&env.minX=-115.59760656205628&env.minY=33.85456061939921&env.maxX=-112.96088781205628&env.maxY=34.82180406756163&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2016. Accessed November 28, 2016.

_____. 2016b. Observation map of burrowing owl in the project vicinity. [online]: http://ebird.org/ebird/map/burowl?neg=true&env.minX=-115.66764440385316&env.minY=33.87964695484351&env.maxX=-113.03092565385316&env.maxY=34.84660265986952&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2016. Accessed November 28, 2016.

_____. 2016c. Observation map of gilded flicker in the project vicinity. [online]: http://ebird.org/ebird/map/gilfli?neg=true&env.minX=&env.minY=&env.maxX=&env.maxY=&zh=false&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2016. Accessed November 29, 2016.

_____. 2016d. Observation map of ferruginous hawk in the project vicinity. [online]: http://ebird.org/ebird/map/ferhaw?neg=true&env.minX=-114.80814718797262&env.minY=34.266973239455766&env.maxX=-113.48978781297262&env.maxY=34.749620230475&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2016. Accessed November 29, 2016.

Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. The birder's handbook: A field guide to the natural history of North American birds. Simon and Schuster Inc. New York, New York.

EMFs.info. 2016. Overhead power lines. [online]: http://www.emfs.info/sources/overhead/. Accessed December 30, 2016.

EPA (U.S. Environmental Protection Agency). 2014a. Overview of Greenhouse Gases. [online]: http://www.epa.gov/climatechange/ghgemissions/gases.html. Accessed September 10, 2014.

_____. 2014b. Sources of Greenhouse Gas Emissions. [online]: http://www.epa.gov/climatechange/ghgemissions/sources.html. Accessed September 10, 2014.

_____. 2013. Fast Facts U.S. Transportation Sector Greenhouse Gas Emissions 1990-2011. Office of Transportation and Air Quality, EPA-420-F-13-033a. [online]: http://www.epa.gov/otaq/climate/documents/420f13033a.pdf. Accessed September 10, 2014.

FCC (Federal Communications Commission). 2015. RF Safety FAQ. [online]: https://www.fcc.gov/engineering-technology/electromagnetic-compatibility-division/radio-frequency-safety/faq/rf-safety#Q19. Accessed March 2017.

FEMA (Federal Emergency Management Agency). 2009. FIRM Flood Insurance Rate Map, Mohave County, Arizona, Panel 5725 of 6700. U.S. Department of Homeland Security.

Gibson, W., M. Terlep, and P. Scott. 2016. A Class III Resources Inventory for the Western Area Power Administration, Crossman Peak Distribution Line, Staging Areas, and Access Roads, Near Lake Havasu City, Mohave County, Arizona. Prepared by Logan Simpson Design for Aspen Environmental Group and Western Area Power Administration.

Harvey, M.J., J.S. Altenbach, and T.L. Best. 2011. Bats of the United States and Canada. John Hopkins University Press, Baltimore, Maryland.

HGS (Havasu Gold Seekers). 2016a. Havasu Gold Seekers Inc. website – Home. [online]: http://www.havasugoldseekers.com/. Accessed December 9, 2016.

_____. 2016b. Havasu Gold Seekers – Homepage. [online]: http://www.havasugoldseekers.com/. Accessed January 5, 2017.

King, M.M., and G.W. Workman. 1986. Response of desert bighorn sheep to human harassment: management implications. Transaction of the North American Wildlife and Natural Resource Conference 51:74-85.

NIEHS (National Institute of Environmental Health Sciences). 2002. EMF Electric and Magnetic Fields Associated with the Use of Electric Power, Questions & Answers. [online]: http://www.niehs.nih.gov/health/topics/agents/emf/ -or- http://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf. Accessed June 6, 2013.

NRCS (Natural Resources Conservation Service). 2016a. Custom Soil Resource Report, Mohave County, Arizona, Southern Part. United State Department of Agriculture.

_____. 2016b. Web Soil Survey, Farmland Classification – Mohave County, Arizona, Southern Part.

Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. Interim golden eagle technical guidance: inventory and monitoring protocols; and other recommendations in support of eagle management and permit issuance. Division of Migratory Bird Management, Arlington Virginia. 26pp.

Prior-Magee, J.S., K.G. Boykin, D.F. Bradford, W.G. Kepner, J.H. Lowry, D.L. Schrupp, K.A. Thomas, and B.C. Thompson (eds.). 2007. Southwest Regional Gap Analysis Project Final Report. U.S. Geological Survey, Gap Analysis Program, Moscow, ID.

Rosenberg, K.V., R.D. Ohmart, W.C. Hunter, and B.W. Anderson. 1991. Birds of the Lower Colorado River Valley. University of Arizona Press, Tucson. 416 pp.

SEINet (Southwest Environmental Information Network). 2016. Database query of *Allium parishii* in Mohave County, Arizona. [online]: http://swbiodiversity.org/seinet/collections. Accessed November 23, 2016.

SSU (Salem State University). 2016. Tectonic Geomorphology. [online]: http://w3.salemstate.edu/~lhanson/gls210/gls210_Tectonic.htm. Accessed January 5, 2017.

USACE (U.S. Army Corps of Engineers). 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

_____. 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ed. R.W. Lichvar and S.M. McColley. ERDC/CRREL TR-08-12. Hanover, NH: Cold Regions Research and Engineering Laboratory.

_____. 1987. United States Army Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station. Vicksburg, MS.

USFWS (U.S. Fish and Wildlife Service). 2016a. Information for Planning and Conservation (IPaC) website powered by Environmental Conservation Online System (ECOS). [online]: https://ecos.fws.gov/ipac/. Accessed November 28, 2016.

_____. 2016b. Interim Guidelines for Communications Tower Siting, Construction, Operation, and Decommissioning Recommendations. [online]: https://www.fws.gov/midwest/Endangered/section7/telecomguidance.html (updated: February 25, 2016).

_____. 2011. Endangered and threatened wildlife and plants; bald eagles nesting in Sonoran Desert area of central Arizona removed from the list of endangered and threatened wildlife. Federal Register 76:54711-54713 (2 Sep).

_____. 2010. Endangered and threatened wildlife and plants; 12-month finding on a petition to list the Sonoran population of the desert tortoise as endangered or threatened. Federal Register 75: 78094-78146 (14 Dec).

_____. 2008. Endangered and Threatened Wildlife and Plants; Listing the Potential Sonoran Desert Bald Eagle Distinct Population Segment as Threatened Under the Endangered Species Act; Final Rule. Federal Register 73(85):23966.

_____. 2007. Endangered and threatened wildlife and plants; removing the bald eagle in the lower 48 states from the list of endangered and threatened wildlife. Federal Register 72:37346-37372 (9 Jul).

_____. 1995. Endangered and Threatened Wildlife and Plants; Final Rule to Reclassify the Bald Eagle from Endangered to Threatened in all of the Lower 48 States. Federal Register 60(133):36000-36010.

_____. 1978. Fish and Wildlife Improvement Act of 1978 (16 U.S.C. 7421; 92 Stat. 3110), Public Law 95-616 (approved November 8, 1978).

USFWS and Cooperating Agencies comprising the Arizona Interagency Desert Tortoise Team. 2015. Candidate Conservation Agreement for the Sonoran Desert Tortoise (*Gopherus morafkai*) in Arizona (May 27).

WAPA (Western Area Power Administration). 2016. Crossman Peak Power Requirement and Solar Analysis.

_____. 2013. Draft Crossman Peak Communication Site Field and Office Study.

Wehausen, J.D. 1980. Sierra Nevada bighorn sheep: history and population ecology. Ph.D. dissertation, University of Michigan, Ann Arbor, USA.

WRCC (Western Regional Climate Center). 2016. Lake Havasu City, Arizona Climate Summary. [online]: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?azlhac. Accessed December 30, 2016.

_____. 2010. NEMO Watershed-Based Plan, Colorado-Lower Gila Watershed. University of Arizona.