Draft Environmental Assessment for the MPP-Q01 Interconnection Project

DOE/EA-2208

Prepared for:

Western Area Power Administration

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

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ACRONYMS AND ABBREVIATIONS

ADEQ	Arizona Department of Environmental Quality
APE	Area of Potential Effect
APS	Arizona Public Service
ASLD	Arizona State Land Department
ASM	Arizona State Museum
AZGFD	Arizona Game and Fish Department
BA	Biological Assessment
BCC	Birds of Conservation Concern
BE	Biological Evaluation
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impact
GHG	greenhouse gases
KOP	Key Observation Point
kV	kilovolt
MBTA	Migratory Bird Treaty Act
MRO	Midwest Reliability Organization
MMT	million metric tons
MT	metric tons
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OATT	Open Access Transmission Service Tariff
ROW	Right-of-Way
SDT	Sonoran desert tortoise

SHPO	State Historic Preservation Office
SR	State Route
TCPs	Traditional Cultural Places
TOP	Transmission Operations
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
WAPA	Western Area Power Administration
WECC	Western Electricity Coordinating Council

EXECUTIVE SUMMARY

Project Participants and Background

Western Area Power Administration (WAPA), a federal power marketing agency within the U.S. Department of Energy (DOE), is the lead federal agency for the Project under the National Environmental Policy Act (NEPA). Arizona Public Service (APS) is an electricity generation and distribution company and the Project proponent.

WAPA is responding to APS' request to interconnect a proposed 230-kilovolt (kV) transmission line near Bagdad, Arizona, to WAPA's existing electrical transmission system. This request would result in the MPP-Q01 Interconnection Project (herein called the Project or Proposed Action). The Proposed Action's transmission line would interconnect with WAPA's Mead-Perkins 525-kV (MDE-PES) transmission line near the junction of U.S. Route 93 (US 93) and Arizona State Route (SR) 97. The Project will provide additional firm transmission capability to satisfy future electrical load and will provide future opportunities for increased reliability of the APS electrical system for its customers.

Project Location

The Project is located in Yavapai County, from southeast of the US 93 and SR 97 junction to approximately 1 mile west of the SR 97 and SR 96 intersection, near Bagdad, Arizona (Project Area; **Figure 1**). The Project is located on Arizona State Trust Land managed by the Arizona State Land Department (ASLD), private property, and land administered by the Bureau of Land Management. The Project's transmission line runs north-south on State Trust Land.

Purpose and Need

WAPA

WAPA owns, operates, and maintains transmission lines and associated facilities in accordance with the Federal Power Act (16 U.S.C. §§ 791-825r). WAPA's purpose and need for the Project is to consider and respond to APS' interconnection request in accordance with the Federal Power Act, which Section 211 requires that transmission service be provided upon request if capacity is available without impairing the continued reliability of electric systems and if it is in the public's interest to do so.

Redundant communications systems are proposed along with the transmission line (two microwave towers and collocated fiber-optic cable). Accordingly, WAPA's requirement for the redundant communication with the MPP-Q01 switchyard portion of the Project results from the North American Electric Reliability Corporation (NERC) Transmission Operations (TOP) Standards. TOP-001-5 requires that Transmission Operators and Balancing Authorities have redundant and diversely routed data exchange infrastructure within the Transmission Operator's primary Control Center for the exchange of real-time data. WAPA operates a redundant communication network to maintain the safety and reliability of the bulk electric system.

Proposed Action

WAPA

WAPA's Proposed Action consists of responding to an interconnection request from APS, and if approved, entering into an interconnection agreement with APS, and implementing transmission and communication system additions. These additions include WAPA constructing, operating, and maintaining a new 500-kV MPP-Q01 Switchyard; two microwave towers, one located near the existing 169-5 tower along the MDE-PES 525-kV transmission line, and the second microwave tower located within or adjacent to the existing Pete Smith Peak communications facility (**Figure 1**). WAPA would also provide redundant communications by using a dedicated capacity on an APS-owned and installed Optical Ground Wire (OGW) fiber optic cable along the new transmission line.

APS

APS proposes to build, operate, and maintain a 14-mile 230-kV transmission line. The line would interconnect with WAPA's MDE-PES 525-kV transmission line at the southern end. In addition to the transmission line, APS proposes to build, operate and maintain two new substations, known as TS-01 and TS-02, located at each end of the new line (**Figure 2**). APS would also install fiber optic cable along the new transmission line; on which WAPA would have dedicated capacity to provide redundant communications for the new infrastructure.

Alternatives

A No Action Alternative was evaluated to provide a baseline against which the impacts of the Proposed Action can be compared. Under the No Action Alternative, WAPA would not approve an interconnection request, enter into an interconnection agreement, or implement Project-related communication system additions, and APS would not construct the 230-kV transmission line and associated structures.

Summary of the Proposed Action's Environmental Consequences

Biological Resources

Construction of the Proposed Action would have direct, long-term impacts to vegetation. Approximately 176 acres of vegetation would be cleared. Permanent vegetation removal would occur within approximately 106 acres for transmission structures, permanent access roads, the MPP-Q01 switchyard, TS-01 and TS-02 substations, and the microwave towers at the 169-5 communications site and Pete Smith Peak. The remaining 70 acres of disturbance would be temporary for the construction and use of temporary access roads and pulling locations.

Impacts to special-status species during construction include the permanent and temporary loss of suitable habitat (176 acres), potential disturbance from human noise and activity, and risk for direct mortality from ground disturbance and vehicle strikes. However, with the implementation of conservation measures, it is unlikely that the Proposed Action would result in direct mortality of individual species during construction.

Special-status species that may use the Project Area for foraging or breeding may experience long-term impacts as a result of disturbance and loss of habitat. Conservation measures would be implemented to minimize impacts to special-status species, therefore, long-term impacts to special-status species would be negligible and unlikely to result in population-level effects.

Historic Resources

There would be no direct effects to cultural sites as a result of construction of the Proposed Action. Construction of the Proposed Action would result in indirect impacts to the integrity of feeling and setting of cultural resource sites adjacent to the Project Area, if those aspects of integrity contribute to the significance of the site, including cultural landscapes, for as long as the Project structures exist. Temporary impacts to setting and feeling would result from the presence of construction equipment and its associated noise.

Visual Resources

The Proposed Action would create contrast with the existing landscape features. WAPA and APS facilities would create weak to moderate contrast. At the point of interconnection and microwave tower locations, the proposed facilities would mimic the linear and vertical form of existing transmission corridors and communications facilities. Travelers headed in both directions on US 93 at the posted driving speeds would see minimal change in the landscape.

Geometric forms would be introduced into the existing landscape for travelers headed in both directions on SR 97 and residents of the off-grid community west of the proposed transmission line. These viewers would see a new transmission corridor; however, the contrast would not preclude viewers from views of the rugged mountain terrain and Sonoran Desert vegetation.

1. INTRODUCTION

1.1. PROJECT BACKGROUND

Western Area Power Administration (WAPA) is responding to a request from Arizona Public Service Company (APS) to interconnect a proposed 230-kilovolt (kV) transmission line to WAPA's Mead-Perkins 525-kV (MDE-PES) transmission line located near Bagdad in Yavapai County, Arizona (herein called the Project or Proposed Action). The alignment of the proposed transmission line runs approximately 14 miles north-to-south on State Trust lands managed by the Arizona State Land Department (ASLD) as well as private property and is partially collocated with a separate water pipeline project, the Aguila Pipeline (not yet under construction at the time of publishing this Draft Environmental Assessment [EA]), on State Trust Land.

On June 5, 2019, APS submitted its interconnection request to WAPA. APS proposes to build, operate, and maintain a 14-mile long 230-kV transmission line that would run from southeast of the U.S. Route 93 (US) 93 and Arizona State Route (SR) 97 junction to approximately 1 mile west of the SR 97 and SR 96 intersection, near Bagdad (**Figure 1**). The proposed transmission line would interconnect with WAPA's MDE-PES 525-kV transmission line at the south end. As part of the Proposed Action, WAPA would construct, own, and operate a 500-kV switchyard (MPP-Q01) and two microwave towers (169-5 and Pete Smith Peak), and APS would construct, own, and operate two substations (TS-01 and TS-02). APS would also construct a fiber optic cable along the new transmission line of which WAPA would have dedicated capacity and would provide redundant communications with the MPP-Q01 switchyard (**Figure 2**). The proposed transmission line, MPP-Q01 switchyard, TS-01 and TS-02 substations, and the 169-5 microwave tower would be located on State Trust lands and private lands. The microwave tower at Pete Smith Peak would be located within or adjacent to existing communications facilities owned by WAPA on Bureau of Land Management (BLM) lands.

The Proposed Action would reinforce the existing APS transmission system as follows:

- The Project will provide additional firm transmission capability to satisfy APS's current and future electrical load.
- The Project will reinforce the transmission delivery system to provide reliable and increased load-serving capability to support continuing load growth to APS customers.
- The Project will provide supplemental access to the western U.S. interconnected electrical grid that allows APS to purchase power and optimize the terms of its power purchase agreements.
- The Project will achieve compliance with Western Electricity Coordinating Council reliability criteria (see **Section 1.2**) regarding single contingency outages and maintenance of service to customers during system outages.
- The Project will provide future capability to increase the reliability of the APS electrical system by creating a looped transmission system that provides a second transmission path for power supply to APS customers during system disturbances.

- The Project will provide future capability for de-energized maintenance of the existing APS 115-kV facilities, resulting in additional operating flexibility, increased maintenance efficiency, lower overall operating costs, and enhanced worker safety.

On February 22, 2023, WAPA made a determination to prepare an EA for the Proposed Action in accordance with U.S. Department of Energy (DOE) National Environmental Policy Act (NEPA) implementing procedures (10 Code of Federal Regulations [CFR] part 1021). Actions that require an EA include those that entail the "upgrading, rebuilding, or construction of powerlines... more than approximately 10 miles in length outside previously disturbed or developed powerline or pipeline rights-of-way." The Proposed Action fits this action classification since the proposed transmission line is more than 10 miles in length and is outside previously developed powerline or pipeline rights-of-way (ROW).

1.2. PURPOSE AND NEED

1.2.1. Western Area Power Administration

As a federal power-marketing agency within the DOE, WAPA owns, operates, and maintains transmission lines and associated facilities pursuant to its statutory authority under the Federal Power Act.

WAPA's purpose and need is to consider and respond to APS's interconnection request in accordance with the Federal Power Act. This requires WAPA to demonstrate that the request does not degrade transmission system reliability and safety, or adversely affect service to existing customers. WAPA conducts feasibility, system, and facility studies to determine the transmission system upgrades or additions necessary to meet these requirements and accommodate the proposed interconnection.

WAPA is responsible for the reliable operation and maintenance of its transmission system and complying with the North American Electric Reliability Corporation (NERC) Reliability Standards. Accordingly, if WAPA were to approve APS's interconnection request and implement the Proposed Action, redundant communication (fiber optic line, 169-5 and Pete Smith Peak microwave towers) with the MPP-Q01 switchyard would be required for WAPA to comply with the NERC Reliability Standards. NERC requires that transmission operators (in this instance, WAPA) have redundant and diversely routed data exchange infrastructure within the transmission operator's primary control center for the exchange of real-time data. This standard prevents instability, uncontrolled separation, or cascading outages that adversely impact the reliability of the interconnection by ensuring prompt action to prevent or mitigate such occurrences. Therefore, to comply with this standard, redundant communications with the MPP-Q01 switchyard via a fiber-optic line and two microwave towers (169-5 and Pete Smith Peak) are part of the Proposed Action.

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.
- 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 Action requires an EIS or if a FONSI can be prepared.

1.2.2. Cooperating Agencies

WAPA is the lead federal agency in the NEPA process as well as for the Endangered Species Act (ESA) Section 7 process and the National Historic Preservation Act (NHPA) Section 106 process. On April 18, 2023, WAPA invited the BLM to be a cooperating agency in the preparation of this EA because the BLM administers the land underlying the Pete Smith Peak communications facility. Since less than 1 acre of land would be disturbed for the Project microwave tower work on Pete Smith Peak, the BLM did not accept cooperating agency status but was involved throughout the environmental review process.

1.3. PUBLIC AND TRIBAL PARTICIPATION

Pursuant to DOE and Council of Environmental Quality NEPA regulations, WAPA conducted public scoping for the Proposed Action. WAPA initiated a 30-day public comment period for the Project on April 4, 2023, ending on May 12, 2023. WAPA mailed scoping letters to 13 agencies, organizations, and interested parties, 12 tribes, and 25 landowners in the Bagdad area to inform them of the Project and scoping period, and to request input on the Proposed Action. These letters also included notice of a virtual scoping meeting to be held on April 26, 2023. WAPA also published two newspaper advertisements, one in The Wickenburg Sun and one in The Daily Courier, on April 19 and April 23, 2023, respectively, which announced the scoping notice and included information about the virtual scoping meeting. Thirteen people attended the virtual public scoping meeting held on April 26, 2023.

WAPA accepted scoping comments via telephone, email, U.S. mail, and at the virtual scoping meeting. WAPA received a total of five submittals from three individuals, one state government agency, and one federal government agency. During the public scoping meeting, there were five questions/comments received from three individuals and one state government agency representative. No businesses or tribes provided scoping comments or participated in the public scoping meeting.

The topics addressed during scoping included:

- Impacts to environmental justice.
- Impacts to livestock grazing.
- Impacts to sensitive species, including desert tortoise, and other wildlife, biological resources, and habitat.

Refer to **Appendix A** for a detailed scoping summary.

Additionally, in accordance with the NHPA, WAPA separately requested comments on the National Register of Historic Places (NRHP) evaluation finding of no adverse effect for the Project from the 12 tribes consulted during scoping. Two responses from tribes have been received as of the publication date of this Draft EA; one comment indicated concurrence, and the other comment indicated the tribe had no comments on the finding of no adverse effect for the Project. See **Section 4.2** for additional information.

2. PROPOSED ACTION AND ALTERNATIVES

2.1. WAPA'S PROPOSED ACTION

WAPA's Proposed Action consists of responding to an interconnection request from APS, and if approved, entering into an interconnection agreement with APS, and implementing transmission and communication system additions required for the Project as follows:

- **MPP-Q01 Switchyard—**WAPA would construct, own, and operate a new 500-kV switchyard, up to 35 acres in size, containing up to four 500-kV breaker bays, located between the MDE-PES 525-kV line and APS's new TS-01 Substation. The MPP-Q01 switchyard would be the Point of Interconnection (POI) for the Project.
- **Pete Smith Peak Microwave Tower**—WAPA would install and maintain a microwave tower adjacent to the existing communication facilities at Pete Smith Peak to maintain WAPA radio communications with the MPP-Q01 switchyard and TS-01 and TS-02 substations that will be constructed, operated, and maintained by APS (see **Section 2.2** for additional details).
- **169-5 Microwave Tower**— To provide microwave communications to the POI, WAPA would install and maintain a microwave tower approximately 10 miles southeast of the interconnect location, near MDE-PES 525-kV transmission structure 169-5. This tower will be used as a relay station between the MPP-Q01 switchyard and the Pete Smith Peak microwave tower.
- **Fiber Optic Cable along New Transmission Line**— To provide redundant communications to the POI, WAPA would use dedicated capacity on an APS-owned and installed Optical Ground Wire (OGW) fiber optic cable along the new transmission line from the POI to APS's TS-01 substation.

2.2. APS PROPOSED FACILITIES

While APS's facilities are not part of the federal action, they are described alongside the federal actions to aid the analysis.

APS proposes to build, operate, and maintain a 14-mile long 230-kV transmission line and the following components to assist in operating the transmission line:

- Construction, operation and maintenance of an approximately 15-acre substation adjacent to the MPP-Q01 switchyard, to be known as TS-01, which would include up to two 525/230/34.5-kV transformers and associated switch gear.

- Construction, operation and maintenance of an approximately 15-acre substation at the north end of the proposed transmission line, to be known as TS-02, which would include up to two 230/115-kV transformers, up to two 230/69-kV transformers, and associated switch gear.
- Construction, operation and maintenance of a 14-mile-long fiber optic cable along the new transmission line from TS-01 to APS' Bagdad Substation via APS' Willow Lake 115-kV transmission line. WAPA will use dedicated capacity on this cable for redundant communications for the MPP-Q01 switchyard.

2.3. PROJECT LOCATION

The Project Area is located south of the unincorporated community of Bagdad in Yavapai County, Arizona. The MPP-Q01 switchyard and TS-01 substation would be constructed southeast of the US 93 and SR 97 intersection. Exiting the TS-01 substation, the transmission line would head north towards Bagdad. The transmission line would continue to the TS-02 substation, adjacent to the Willow Lake 115-kV transmission line and approximately 1 mile southeast of Bagdad. The first communications tower would be located approximately 10 miles southeast of the MPP-Q01 switchyard at the existing 169-5 tower site associated with WAPA's MDE-PES transmission line; the second would be located within or adjacent to existing WAPA communications facilities on Pete Smith Peak, approximately 25 miles south/southwest of the MPP-Q01 switchyard (**Figure 2**).

The MPP-Q01 switchyard, TS-01 substation, 169-5 microwave tower, and majority of the 230-kV transmission line would be located on State Trust Land managed by the ASLD and zoned as RCU (Residential; Rural) by Yavapai County. Portions of the transmission line and TS-02 substations would be located on private property, and the Pete Smith Peak microwave tower would be located on land administered by the BLM. The transmission line would be partially collocated with a separate water pipeline project, the Aguila Pipeline (not yet under construction at the time of publishing this Draft EA), on State Trust Land.

Altogether, the Project Area includes 267 acres of State Trust Land, less than 1 acre on BLM land, and 37 acres of private lands (total of 305 acres). The point of interconnection to WAPA's transmission system would be located within the 267 acres of State Trust Land, in Section 15, Township 12N, Range 9W.

2.4. SCHEDULE

Should WAPA approve APS's interconnection request and enter into an interconnection agreement, APS plans to construct the Proposed Action from 2026 through 2028 and place it in service by the summer of 2028. WAPA would also plan to complete its construction activities associated with the Proposed Action from 2026 through 2028.

2.5. PROJECT IMPLEMENTATION

2.5.1. Construction

The total anticipated disturbance of the Project Area is approximately 176 acres. Up to 106 acres of permanent disturbance is expected for placement of up to 70 transmission structures, permanent access roads, and supporting facilities. Up to 70 acres of temporary land disturbance is expected from construction activities (**Table 2-1**).

Table 2-1. Project Elements and Estimated New Disturbance

Project Elements	Estimated New Permanent Disturbance Area (acres)	Estimated New Temporary Disturbance Area (acres)
Access Roads and Laydown Yards	30	15
Transmission Structures	10	25
Pulling/Tensioning Areas	N/A	30
Substations and Switchyard	65	N/A
Microwave Towers	<1	N/A
TOTAL	**106**	**70**

Construction activities associated with the Proposed Action include the following:

- APS would install up to 70 steel monopole transmission structures, up to 130 feet in height, with the potential to use steel monopole structures up to 199 feet if engineering conditions require it.
- APS would construct 16 miles of permanent access roads (14 miles along the transmission line and 1 mile on each side for access points) for construction, operation and maintenance of the transmission line. APS will clear the access roads of vegetative cover and will maintain the road prism to provide passage of high clearance vehicles. APS will construct the cut and fill slopes for access roads at the maximum practicable slope ratio to minimize both potential erosion and the area of disturbance.
- APS would construct the TS-01 and TS-02 substations.
- WAPA would construct the MPP-Q01 switchyard and 169-5 and Pete Smith Peak microwave towers.

APS and WAPA would use licensed contractors specializing in transmission line construction and will require approximately 25 personnel on site to complete this work. Equipment used during construction of the Proposed Action is anticipated (but not limited) to include:

- two bucket trucks
- three boom trucks
- nine foremen/crew pickups
- two pressure diggers
- three backhoes
- two steel track sagging dozers
- one front end loader
- two drill rigs
- two water trucks
- two air compressors
- four light plants
- two generators
- one rubber track CAT Challenger
- two service trucks
- four concrete trucks
- one helicopter (limited use)
- one skid steer
- one pole trailer
- two cranes
- one dump truck

Right-of-way boundary staking will be completed by APS prior to any clearing or grading to ensure that no additional impacts are caused outside of the ROW.

Clearing and grading of roads, tower pads, pulling areas, etc. will occur prior to construction and will be completed with the use of backhoes and chainsaws to ensure that all equipment required for pole/line/tower installation can be accommodated. Approximately 176 acres of vegetation will need to be cleared for the Proposed Action. WAPA's Construction Standards, including Construction Standard 13 for environmental quality protection, would be implemented for WAPA's Proposed Action (**Appendix B**).

2.5.1. Operations and Maintenance

APS will inspect the transmission corridor twice per year for any damage to structures, insulators, and conductors. APS will conduct inspections using a four-wheel drive vehicle. For ongoing vegetation management following construction, APS may, as necessary, conduct limited trimming, vegetation removal, or herbicide application along permanent access roads and within the transmission corridor to mitigate fire hazard. APS will not use mechanical mowers within riparian areas; it will only remove or prune riparian vegetation using manual methods. APS will not conduct herbicide application within riparian areas.

WAPA would incorporate the operations and maintenance, including inspections, of the MPP-Q01 switchyard and microwave towers into its existing program. WAPA conducts aerial inspections on its systems up to four times per year and ground inspections once per year. WAPA uses the inspection reports to prioritize any needed repairs. By its nature, this work is episodic.

2.6. NO ACTION ALTERNATIVE

The No Action Alternative provides a baseline against which the impacts of the Proposed Action can be compared. Under the No Action Alternative, WAPA would not approve an interconnection request or enter into an interconnection agreement, nor implement Project-related communication system additions, and APS nor WAPA would construct the transmission line or associated structures.

2.7. ALTERNATIVES CONSIDERED BUT NOT FURTHER EVALUATED

Prior to submitting the interconnection request to WAPA, APS considered multiple alternatives that would meet the underlying need for the Project as defined by APS. Subsequently, during WAPA's evaluation of the Proposed Action, several additional communications alternatives (facilities for redundant communications with the MPP-Q01 switchyard) for the Proposed Action were considered. The alternatives that were considered but eliminated from detailed NEPA evaluation by WAPA are described in the following subsections.

2.7.1. New Transmission Line Alignment and Capacity Alternatives

WAPA Interconnect with New 17-mile APS Alignment

The WAPA Interconnect with New 17-mile APS Alignment alternative consists of a 17-mile 115-kV or 230-kV APS transmission line following the Aguila water pipeline ROW. This alternative would have the southern end of the 17-mile transmission line interconnect with either WAPA's Liberty-Peacock 345-kV line or MDE-PES 525-kV line near the Santa Maria River; the northern end would interconnect with the APS Willow Lake transmission line near Bagdad. This alternative would include the construction of either a new WAPA 500-kV switchyard containing up to four 345-kV breaker bays, or a new WAPA 500-kV switchyard containing up to four 500-kV breaker bays at the southern end of the new transmission line. This alternative would also include the construction of an APS substation (TS-01) at the WAPA interconnect and APS substation (TS-02) at the APS termination.

One advantage of this alternative is that, like the Proposed Action, the 17-mile alignment transcended mostly State Trust Land administered by the ASLD and avoided BLM administered lands which would reduce impacts to federal lands. Another advantage is that the alignment would be co-located with the Aguila water pipeline ROW.

This alternative was dismissed because the Proposed Action is a shorter route (13.8 miles) and has the same advantages as this alternative in that the transmission line avoids BLM land and is co-located with the Aguila water pipeline ROW.

WAPA Interconnect with New 14-mile APS Alignment

The WAPA Interconnect with New 14-mile APS Alignment alternative consists of a 14-mile 115-kV or 230-kV APS transmission line following SR 97 for 7.2 miles and then following along the Aguila pipeline ROW. As with the 17-mile alternative described above, the14-mile transmission line alternative would interconnect with either WAPA's Liberty-Peacock 345-kV line or Westwing-Mead 500-kV line, and the APS Willow Lake 115-kV line. This alternative would include the construction of either a new WAPA 500-kV switchyard containing up to four 345-kV breaker bays, or a new WAPA 500-kV switchyard containing up to four 500-kV breaker bays at the southern end of the new transmission line. This alternative would also include the construction of an APS substation (TS-01) at the WAPA interconnect and an APS substation (TS-02) at the APS termination.

The advantage of this alternative is that it was a shorter length than the 17-mile alignment, it avoided yellow-billed cuckoo (*Coccyzus americanus*) designated critical habitat, and avoided BLM-managed lands, reducing impacts to federal lands. This alignment also avoided Federal Emergency Management Agency (FEMA) floodplains.

This alternative was dismissed because it would require the construction of a 7.2-mile access road before joining the Aguila water pipeline ROW. This option also presented a higher construction cost than the 17-mile alignment.

Four-Vertice Alignment

The Four-Vertice alternative consists of a transmission line alignment with four vertices (bends), 84 transmission structures, and shares approximately 53 percent of the transmission path with the Auila pipeline ROW. APS conducted a transmission scoping analysis to determine the optimal number of vertices for the transmission line while also minimizing the total land area outside of the existing Aguila pipeline ROW. Vertices refer to the number of bends in a transmission line alignment and are achieved with the use of angle poles instead of tangent poles, which are used for straight segments. Angle poles are bigger, more visible, and more expensive; therefore, minimizing them reduces impacts and costs. A Four-Vertice alternative was determined to be the minimum number of vertices while maintaining the majority (53 percent) of the total transmission path length inside of the Aguila pipeline ROW.

This alternative was dismissed from further evaluation because the 10-vertice alignment of the Proposed Action maintains 70 percent of the total transmission path length inside of the Aguila pipeline ROW and consists of no more than 70 transmission structures.

2.7.2. Existing Transmission Line Enhancement Alternative

APS 115-kV Line Enhancement with New Prescott Transformer

The APS 115-kV Line Enhancement with New Prescott Transformer alternative consists of APS enhancing the existing APS 115-kV Willow Lake transmission line. The Willow Lake line runs from the APS Bagdad Substation to the APS Willow Lake Substation near Prescott, Arizona. Upgrading this line would include reconductoring the line by upgrading the wire size for capacity. The line would remain at 115-kV. A third transformer would be added by WAPA at WAPA's adjacent Prescott Substation. APS would upgrade the Bagdad Substation and would potentially need to add a second transformer under this alternative.

The advantage of this alternative is that no new power line or substations would need to be constructed.

This alternative was dismissed from further evaluation because it does not provide the redundancy and level of reliability desired under the purpose and need for this Project. It would also require new work on U.S. Forest Service managed lands which would increase impacts to federal lands. The work required

under this alternative would also involve multiple transmission shutdowns for up to several weeks during reconductoring.

2.7.3. Power Source Alternative

Natural Gas Generator

The Natural Gas Generator alternative consists of APS constructing a new natural gas-powered generator near Bagdad, rather than constructing or upgrading any new transmission lines or substations.

The advantage of this alternative is that no new transmission lines or substations would need to be constructed.

This alternative was dismissed from further evaluation because there is an insufficient natural gas supply available in Bagdad for this alternative to satisfy the purpose of and need for this Project.

2.7.4. Communication Alternatives

WAPA considered various communication alternatives to allow line-of-sight radio or fiber optic communication to the proposed WAPA interconnect location, per WAPA's requirement for redundant communication to the MPP-Q01 switchyard. WAPA considered the following communication alternatives:

- Moving the interconnect location to a nearby high elevation point along the existing WAPA transmission line.
- Installing buried fiber optic line along a proposed alignment from the proposed interconnect to the existing fiber optic line associated with APS Willow Lake transmission line with line of site to a WAPA communication tower.
- Running fiber optic cable from the proposed interconnect to the existing microwave tower near Wikieup or Peacock Mountains.
- Running fiber optic cable from Mead to Phoenix, along WAPA's transmission line, with a tie-in at the interconnect location.

These communication alternatives were eliminated from further consideration due to feasibility, cost, environmental impacts, and land management concerns.

2.8. PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

WAPA developed a list of past, present, and reasonably foreseeable future actions that, when combined with impacts from the Proposed Action, would have a potential for impacts resulting in cumulative effects. Because planned projects are not always carried to completion, only those projects which are funded and anticipated to have on-site impacts within 10 years were included.

The first reasonably foreseeable future action is WAPA's Routine Transmission Line Maintenance and Minor Construction Program. This program consists of routine operations and maintenance activities by WAPA including, but not limited to, inspections, cleanings, repairs, replacements, modifications, testing, calibrations, upgrades, vegetation management, demolitions, disposals, and installations of equipment, structures, conductors, fencing, access roads, structure pads, communications equipment, laydown yards, fiber optic cable, erosion control devices, grounding systems, spacer/dampers, guy anchors, transformers, and hardware (WAPA 2020).

The other reasonably foreseeable future action is WAPA's replacement of the Pete Smith Peak communications building due to its advanced age. WAPA has identified this need and is in the preliminary stages of studying replacement options. As part of the future Pete Smith Peak communications building replacement project, WAPA may add communications equipment within the new facility such as a new generator and batteries. WAPA is also considering upgrading the existing 20-foot-tall communications tower to a taller one.

APS has no reasonably foreseeable future actions in the vicinity of the Project Area.

Freeport McMoRan Bagdad Inc. is planning to construct a new water pipeline (at the time of the publishing of this Draft EA, the pipeline is not yet under construction), the Aguila Pipeline, which will be established underground and connect its Bagdad Mine to the planned Aguila Wellfield near Aguila, Maricopa County, Arizona. The length of the proposed pipeline corridor is approximately 53 miles and is located entirely on ASLD and private lands. The entire length of the Proposed Action transmission line parallels the Aguila Pipeline, with approximately 70 percent of the total transmission path length collocated with the pipeline alignment. Separate ROWs would be obtained for each project, and while those ROWs may be coincident with each other, neither would be exclusive in access or use. The Aguila Pipeline is entirely privately funded, has separate and independent utility from the Proposed Action, and is not dependent on power from the Proposed Action transmission line. The Aguila Pipeline project is not a connected action under NEPA; however, it is a reasonably foreseeable future action, therefore, cumulative impacts from the Aguila Pipeline in the Project Area are analyzed in this EA.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. INTRODUCTION

The affected environment and the environmental impacts of the Proposed Action and No Action Alternatives on the resources identified for analysis are described in this section. The resource issues addressed in this EA were developed using comments received from the public, tribes, and agencies during internal and external scoping (**Table 3-1**). Resource issues considered but dismissed from further analysis are described in **Section 3.3**.

Table 3-1. Resource Issues Carried Forward for Analysis

Issue Topic	Analysis Issues
Biological Resources, including vegetation and special status species	– Vegetation loss – Impacts to special status species and habitat – Impacts to avian species, including migratory birds and bald and golden eagles – Impacts to Sonoran Desert tortoise
Historic Resources	– Impacts to historic properties
Visual Resources	– Impacts to views from U.S. 93, SR 97, SR 96 and a rural community west of the Project transmission line

3.2. IMPACT ANALYSIS METHODOLOGY

The affected environment for each resource consists of the physical area that bounds the environmental, economic, biological, or cultural resources of interest that would likely be impacted by the Proposed Action and No Action alternatives. The affected environment is described for each resource analyzed based on primary and secondary data sources, and, for some resources, field observations. The affected environment also serves as the baseline from which to evaluate likely changes or impacts resulting from the Proposed Action and No Action Alternatives.

Environmental consequences, or impacts, were defined as modifications to the affected environment by implementing the Proposed Action or No Action Alternative. Impacts can be beneficial or adverse, result from the Proposed Action directly or indirectly, can be temporary, long-term, permanent, or cumulative in nature, and can be described in intensity as negligible, minor, moderate, and major. The impact terminology used throughout this analysis is defined in **Table 3-2**. The impact analysis was conducted on either a quantitative or qualitative basis, depending on available data or the nature of the impact, and the severity of the impact is established in the context of the affected environment. A direct and indirect analysis area is provided for each resource in the sections below.

To determine cumulative effects that would result from implementing the Proposed Action or No Action Alternatives, WAPA reviewed the known past, present, and reasonably foreseeable future proposed projects in the vicinity of the Project Area and considered their temporary and long-term incremental effects on the local environment. The geographic analysis area considered for cumulative effects varies by resource issue.

Table 3-2. Impact Analysis Methodology

Impact Category	Terminology	Definition
Type	Beneficial	A positive change in the condition of appearance of the resource or a change that moves the resource toward a desired condition.
	Adverse	A negative change that moves the resource away from a desired condition or detracts from its appearance or condition.
	Direct	An effect on a resource which is caused by the action and occurs at a particular time and place.
	Indirect	An effect on a resource which is caused by the action and is later in time or farther removed in distance but is still reasonably foreseeable.
	Cumulative	Impacts to resources which result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions.
Duration	Short-term/ Temporary	Impact occurring during the construction period (4-6 months) or for a limited time thereafter (generally less than 1 or 2 years).
	Long-term/ Permanent	Impact lasts beyond the construction period, and the resources may not regain their pre-construction conditions for a longer period of time.
Intensity	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.

3.3. RESOURCES CONSIDERED BUT NOT FURTHER EVALUATED

Resource issues dismissed from further evaluation, either because they are not present in the Project Area or because no measurable impacts would occur, are described briefly in **Table 3-3**.

Table 3-3. Resource Issues Dismissed from Further Evaluation

Issue Topic	Rationale for Dismissal
Air Quality	National Ambient Air Quality Standards (NAAQS) are set by the EPA Office of Air Quality Planning and Standards. Ambient air quality standards define the allowable concentrations of criteria pollutants in ambient air. The State of Arizona has incorporated the NAAQS by reference and does not have any additional ambient air quality standards. During construction, the Proposed Action would create short-term air pollutant emissions from equipment exhaust, vehicle exhaust from travel to and from the Project site, and fugitive dust from soil disturbance. Emissions resulting from the Proposed Action were calculated in **Appendix C** and would be negligible, temporary and transient in nature. Construction of the Proposed Action is not expected to cause an exceedance of the NAAQS. Operations-related emissions from the Proposed Action would result from annual inspection activities including exhaust from on-road inspection vehicles and fugitive dust from travel on paved and unpaved roads; as well as as-needed maintenance activities including exhaust from maintenance vehicles and construction equipment as well as fugitive dust from travel on paved and unpaved roads. Impacts on air qualities from the operation of the Proposed Action, however, would be negligible and not cause an exceedance of the NAAQS. Because the Project would reinforce the existing APS transmission system; no new power generation is being proposed and therefore no additional air impacts from new power generation would occur.
Agriculture/Prime and Unique Farmlands	No active farming occurs in the Project Area and soils in the Project Area are not designated prime or unique farmland (Soil Survey Staff 2023, accessed online June 12, 2023). Therefore, the Project would result in no adverse impact to agriculture/prime and unique farmlands.
Climate Change	Climate change is a far-reaching and long-term issue that would affect the Project Area, its resources, and management beyond the scope of this assessment. Although many effects of climate change are considered known or likely to occur, specific impacts to the Project Area cannot be determined precisely at our current level of understanding. Much depends on the rate at which temperature would continue to rise and whether global emissions of greenhouse gases (GHGs) can be mitigated before serious ecological thresholds are reached. GHG emissions were estimated for the Proposed Action and were compared to annual Arizona emissions and U.S. emissions. The Proposed Action is not expected to cause significant methane or nitrous oxide emissions. Estimated Project Life Total GHG emissions from the Proposed Action are estimated at 12,890.6 metric tons (MT) (**Appendix C**), which is equivalent to the emissions from 2,869 passenger vehicles driven for one year (EPA 2022, accessed May 30, 2023). This amount is well below the 25,000 MT threshold set for reporting from stationary sources by the EPA and is insubstantial compared to state (97.612 million metric tons [MMT] in 2020), and national (6,340.23 MMT in 2021) emissions (EPA 2023, accessed May 30, 2023). Reductions in Proposed Action emissions could have a negligible beneficial effect in terms of directly reducing the adverse impacts of human-forced climate change.

Issue Topic	Rationale for Dismissal
Environmental Justice	Low-income and minority populations are present within the vicinity of the Project Area (**Appendix D**); however, no adverse impacts would disproportionately burden minority or low-income populations. During public scoping, two residents of the rural offgrid community approximately 0.5 mile west of the proposed transmission line commented that their community currently has no access to utility-level power (**Appendix A**). Per their comments, the community has a year-round population of approximately 25 residents, with an additional 10 seasonal residents; and residents consist mainly of ranchers, miners, construction workers, school children, and retirees/elderly. These residents noted that their community has suffered extremely high energy cost to generate electricity via gasoline, diesel, propane, and solar systems. Few, they report, can run air conditioning, water pressure pumps, or coolers, causing distress (including, in some cases, hospitalization for heat exhaustion and stroke) during the summer months when temperatures reach up to 116 degrees Fahrenheit. Their comments requested that the proposed Project be expanded to include the distribution of power to the community. To serve customers at the typical residential level, the Project would require significant investment including the addition of at least one new substation that would include transformers to covert the electricity to levels necessary for residential service. While there are no plans at this time to add a substation in this area, APS provided information and resources to those rural residents who commented during the public scoping period for the Project. The resources included points of contact and various ways to request power from APS for their community, as well as resources for rural development loans.
Indian Trust Assets	Indian Trust Assets are legal assets associated with rights or property held in trust by the U.S. for the benefit of federally recognized Indian Tribes or individual tribal members. The U.S., as trustee, protects and maintains the specific rights reserved by, or granted to, Indian Tribes or individuals by treaties, statutes, and executive orders. There are no known Indian Trust Assets within the Project Area, therefore the Project would not result in adverse effects to any Indian Trust Asset.
Livestock Grazing/Rangeland Health/ Wild Horses and Burros	Grazing occurs on ASLD lands in the vicinity of the Project Area. Cattle, wild horses and burros may be present in the vicinity of the Project Area. During construction, livestock, wild horses and burros may be temporarily displaced from the ASLD lands in the Project Area; they would be expected to disperse onto adjacent public rangelands. As there are large areas of ASLD lands to the west and east of the Project Area that would provide similar grazing conditions as within the Project Area, impacts would be temporary and negligible. APS will work with local ranchers to ensure that fences and gates are maintained appropriately.
Invasive and Noxious Weeds	Some invasive and/or noxious weeds are present in previously disturbed areas, including along existing roads and drainages. Vegetation would be cleared prior to construction. Ground-disturbing activities can create conditions that could increase the potential for introduction and/or establishment of invasive or noxious plants. However, because WAPA and APS would comply with all federal, state, and local weed control regulations, including the Project conservation measures listed in **Appendix E**, the potential for spread of invasive and/or noxious weeds would be very low.
Geology and Mineral Resources	There are no geological or mineral resources within the Project Area; therefore, the Project would not result in adverse effects to these resources.

Issue Topic	Rationale for Dismissal
Groundwater	During construction, APS and WAPA would use a minimal amount of water for dust suppression which would be sourced and driven in from Bagdad. The amount of groundwater used during construction is negligible compared to the millions of acre-feet in the larger regional aquifer; therefore, regional groundwater flow or drawdown of groundwater elevation would not occur. There would be no water use associated with operations of the transmission line or supporting facilities; therefore, no long-term impacts to groundwater quantity would occur. No hazardous materials would be generated during construction or operation of the Project. It is unlikely that accidental spills or leaks of materials from equipment used during construction or operation would result in water quality impacts. In the event of a leak or spill of material such as engine oil, fuel or lubricants, APS and/or WAPA would quickly contain and remove all spilled material so none would enter the groundwater.
Intentional Destructive Acts	The Project presents an unlikely target for an act of terrorism or sabotage, with an extremely low probability of attack.
Special Management Areas, including Wilderness and Areas of Critical Environmental Concern	No special management areas occur within the Project Area; therefore, the Project would not result in adverse effects to these resources.
Surface Waters	Most major infrastructure will be located outside of water features, including the MPP-Q01 switchyard, TS-01 substation, 169-5 microwave tower, and structures associated with the 230-kV transmission line. The Project would avoid alteration of any drainages by constructing support poles outside of drainages and avoiding discharge of fill within drainages or the immediately adjacent upland areas. Permanent primitive and temporary access roads may cross drainages within the Project Area; however, the crossings would be the minimum width for vehicle access, and any disturbance to vegetation along the washes would also be limited to the minimum footprint. Additionally, all construction materials will be free of toxic materials in toxic amounts and will not adversely affect surface water quality in or downstream of construction sites and access routes. With these conditions, no impacts are anticipated to surface water features.
Recreation	No formal recreation opportunities exist on the ASLD, BLM, or private lands within the Project Area, therefore, the Project would not result in adverse effects to recreation resources.
Land Use	No land use conflicts were identified for the Project. The transmission line, MPP-Q01 switchyard, TS-01 and TS-02 substations, and 169-5 microwave tower would all be constructed on ASLD land, and the Pete Smith Peak microwave tower would be constructed adjacent to existing communications facilities within an existing WAPA ROW on BLM land. No Yavapai County rezoning or conditional use permits would be needed for the Project.
Military and Civilian Aviation	The proposed transmission structures associated with the Project would not be located on or near an airport or within the slope of an airport runway. Further, transmission structures are not considered covered towers and therefore not subject to marking requirements established by the Federal Aviation Administration (FAA) Extension, Safety, and Security Act of 2016. The microwave towers at 169-5 and Pete Smith Peak are considered covered towers and would be less than 200 feet in height and marked and lit in accordance with the regulations of the FAA.
Soils	Impacts to soils in the Project Area, including soil compacting and soil erosion by wind and water, would occur from construction and operation of the Project. Soil resources conservation measures to minimize impacts to soils, including those for stormwater, erosion, and fugitive dust control, would be implemented as part of the Project conservation measures and Project Storm Water Pollution Prevention Plan, therefore, the Project would not result in adverse effects to soils.

Issue Topic	Rationale for Dismissal
Fire and Fuels Management	Vegetation within the transmission line ROW and around Project components would be cleared or managed to reduce wildfire hazards. Conservation measures and emergency preparedness measures would be implemented during construction and operation to reduce fire potential. Additionally, proposed facilities would be built to reduce the risk of starting fires, and equipment for controlling or containing potential fires would be included. Therefore, the Project would not result in adverse effects to fire and fuels management.
Noise	Noise increases associated with the Proposed Action will be limited to construction and maintenance activities. Increased noise from construction, maintenance, and inspection activities of the Proposed Action are expected to be temporary and localized. Noise attenuates with distance and substantial increases in noise levels will be limited to areas within approximately 1,000 feet of the Project Area (USDOT 2006). The nearest sensitive receptors, including ranches and urban residences, are approximately 1,900 - 4,000 feet away from the Project Area. Negligible noise increases are expected to occur from vehicle traffic associated with annual inspections. Therefore, adverse impacts from Project-related noise are not expected to occur.
Public Health and Safety	Temporary air quality impacts from dust may pose a health and safety impact to sensitive populations during construction, maintenance, and inspection activities. These impacts are transient and localized and are not expected to pose a significant health and safety threat.
Public Land Access	The Proposed Action will take place on private and State Trust land and would not impede access to any public lands.
Socioeconomics	The Proposed Action will sustain jobs for maintenance and inspection personnel and will temporarily sustain jobs for construction workers. It would not impact other job sectors. Because the Proposed Action takes place largely within State Trust land, it is not expected to impact housing, tax benefits, or property values.
Transportation	Construction activities would result in a temporary and negligible increase in traffic to the construction site. Maintenance and inspection vehicle traffic would be infrequent and minimal, and thus would not pose a significant impact.
Tribal Resources	No Tribal Resources are documented within the Project Area. Scoping letters were mailed to representatives of 12 tribes to inform them of the proposed Project and scoping period; no tribes provided scoping comments or participated in the public scoping meeting (**Appendix A**).

3.4. BIOLOGICAL RESOURCES

Section 3.4 analyzes impacts of the Proposed Action and No Action Alternative on the biological resource issues identified during scoping, including impacts to general vegetation and special-status plants and animals, such as ESA species and migratory birds. Additional information is considered in the Biological Assessment (BA; **Appendix E**).

WAPA studied a minimum 500-foot radius around all components of the Project Area for direct, indirect, and cumulative impacts to biological resources (Analysis Area; **Figure 3**). Site visits documented habitat conditions within and in the vicinity of the Analysis Area, and a description of conditions specific to the Analysis Area is included in **Appendix E**. These conditions were used to determine the habitat present, and whether habitats present could support listed threatened, endangered, and/or special status species.

WAPA determined that the Proposed Action would have no effect on any ESA listed species or critical habitat, therefore Section 7 consultation is not required.

3.4.1. Affected Environment

Vegetation

The majority of the Analysis Area is broadly mapped within the Arizona Upland subdivision of the Sonoran desertscrub biotic community (The Nature Conservancy 2012). This subdivision consists of widely scattered trees and columnar cactuses approaching low-cover woodlands with understory shrubs. The primary species present in this subdivision are Mexican paloverde (*Parkinsonia aculeata*), desert ironwood (*Olneya tesota*), velvet mesquite (*Prosopis velutina*), whitethorn acacia (*Vachellia constricta*), and ocotillo (*Fouquieria splendens*); understory plants include creosotebush (*Larrea tridentata*) and triangle-leaf bursage (*Ambrosia deltoidea*). Saguaro (*Carnegiea gigantea*) and diverse cholla (*Cylindropuntia* spp.) and other cactuses are also common (Shreve and Wiggins 1964).

Discrete and non-contiguous patches of riparian scrubland vegetative communities occur along drainages associated with Bridle Creek and the Santa Maria River. As described by Brown (1994), the riparian scrubland vegetation community is an assemblage of riparian obligate species, either native or introduced invasive species that occur along drainages with surface or shallow subsurface water across the Southwest. Representative species associated with this community in the Analysis Area include Goodding's willow (*Salix gooddingii*), Fremont's cottonwood (*Populus fremontii*), Arizona sycamore (*Platanus wrightii*), seep willow (*Baccharis salicifolia*), desertbroom (*B. sarothroides*), shortleaf baccharis (*B. brachyphylla*), netleaf hackberry (*Celtis reticulata*), western soapberry (*Sapindus saponaria*), Thurber's desert honeysuckle (*Anisacanthus thurberi*), honey mesquite (*Prosopis glandulosa*), sugar sumac (*Rhus ovata*), desert tobacco (*Nicotiana obtusifolia*), cattail (*Typha* sp.), sedges (*Carex* spp.), spiny and slender rushes (*Juncus acutus and J. tenuis*), and common reed (*Phragmites australis*), as well as the invasive saltcedar (*Tamarix* spp.) (Hilgart Wilson 2019).

Pete Smith Peak, where one of the two communications tower is proposed, is broadly mapped with the Interior Chaparral biotic community (The Nature Conservancy 2012). This vegetation unit is characterized by steep decomposing granitic slopes and relatively high shrub abundance. Characteristic vegetation includes Sonoran scrub oak (*Quercus turbinella*), Parish goldeneye (*Bahiopsis parishii*), eastern Mojave buckwheat (*Eriogonum fasciculatum*), narrowleaf goldenbush (*Ericameria linearifolia*), and catclaw mimosa (*Mimosa biuncifera*) (Hilgart Wilson 2019).

Special-Status Species, Including Migratory Birds

The various vegetation communities within the Analysis Area provide suitable habitat for a number of special-status species which are either known to be present or have the potential to be present.

ESA Listed Species

Four ESA listed or candidate for listing species and their critical habitat were evaluated for the potential to occur within the Analysis Area (**Appendix E**) based on scoping comments received from the USFWS and Arizona Game and Fish Department (AZGFD; **Appendix A**). Two species were determined to have potential to occur within the Analysis Area—the listed threatened, yellow-billed cuckoo (*Coccyzus americanus)* and the candidate monarch butterfly (*Danaus plexippus*). Northern Mexican gartersnake (*Thamnophis eques megalops*) was determined to have no potential to occur within the Analysis Area because there is no suitable aquatic habitat for this species and the Analysis Area is outside its known distribution. Southwestern willow flycatcher (*Empidonax traillii extimus*) was determined to have no potential to occur within the Analysis Area because the Proposed Action lacks the dense canopy cover from emergent riparian vegetation, large volume of foliage, and persistent saturated soil preferred by this species (**Appendix E**).

In Arizona, yellow-billed cuckoos are associated with lowland riparian woodlands where Fremont cottonwood, willow, velvet ash (*Fraxinus velutina*), Arizona walnut (*Juglans major*), mesquite, and tamarisk are dominant (USFWS 2013). This species also uses mesquite bosques and smaller stands of isolated cottonwoods mixed with mesquite (Halterman, Johnson, and Holmes 2016a, 2016b), and areas of upland-associated vegetation along drainages dominated by oaks and junipers (*Juniperus* spp.) (WestLand 2016). Western yellow-billed cuckoos may migrate along riparian corridors and surrounding upland vegetation (Hughes 2020). It is more common in the southern, central and the extreme northeastern portions of Arizona, but occurs throughout the state where suitable habitat exists (AZGFD 2022). The Analysis Area does not have the dense, contiguous canopy preferred for nesting habitat but may be used as a stopover habitat for migration among areas of denser tamarisk, cottonwood and willow. No critical habitat for this species occurs within the Analysis Area.

The status of the monarch butterfly in the Analysis Area is not well documented, however, the Analysis Area landscape contains flowering plants that may provide forage opportunities for adult monarch butterflies. There is also potential for milkweeds to occur within the Analysis Area, providing potential habitat

for monarch caterpillars, however, none have been documented in the Analysis Area to date (The Xerces Society for Invertebrate Conservation 2023; accessed online May 8, 2023).

Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA), which prohibits ”take” of any migratory bird or active nest, except as permitted by regulation. Migratory birds are broadly defined within the MBTA as species that cross international borders at any point during their life cycle, and therefore applies to most native bird species in North America. The USFWS identifies six migratory bird species described as birds of particular concern for the Project because they either occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the Project Area. The USFWS identifies BCC as species, subspecies, and/or populations of migratory birds that, without additional conservation actions, are likely to become candidates for listing under the ESA. These birds nest in vegetation, burrows, and cavities (such as in saguaros).

The six birds of particular concern for the Project as described by the USFWS Information for Planning and Consultation (IPaC) query report are black-chinned sparrow (*Spizella atrogularis*), Costa’s hummingbird (*Calypte costae*), Gila woodpecker (*Melanerpes uropygialis*), gilded flicker (*Colaptes chrysoides*) rufous-winged sparrow (*Aimophila carpalis*), and golden eagle (*Aquila chrysaetos*).

Bald and Golden Eagles

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos)* are protected under the Bald and Golden Eagle Protection Act (BGEPA), which prohibits ”take” of these species and/or their parts, including feathers, nests, or eggs, except as permitted by regulation.

Bald eagle breeding is concentrated in coastal areas, along rivers, lakes or reservoirs. This species typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Bald eagles prefer areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, and small aquatic and terrestrial mammals. Fish are preferred prey, but carrion is used extensively whenever encountered. This species nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Bald eagles winter primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2020). The Analysis Area lacks suitable breeding or foraging habitat for this species and bald eagles therefore are unlikely to occur within the Analysis Area.

Golden eagles breed in a wide variety of open habitats, with nests typically on cliffs, and avoids heavily forested areas (Katzner et al. 2020). In Arizona, this species prefers pinyon-juniper woodlands and Sonoran desertscrub. Golden eagles construct large nests on cliff ledges, rock outcrops, tall trees or, rarely, transmission towers (Driscoll 2005). Golden eagles are known to forage within 4.4 miles of the nest (Tesky 1994), generally in open habitats where prey is available (Katzner et al. 2020). The microwave tower at

Pete Smith Peak provides suitable breeding and surrounding foraging habitat for this species, and golden eagles have been documented within 2 miles of this portion of the Analysis Area.

Sonoran Desert Tortoise

The Sonoran desert tortoise (SDT; *Gopherus morafkai*) is protected under a Candidate Conservation Agreement (USFWS et al. 2015). A Candidate Conservation Agreement is a formal, voluntary agreement between the USFWS and one or more parties to address the conservation needs of candidate for ESA listing species or species that may become candidates in the near future. Evaluation and mitigation of potential Project impacts to SDT was requested by the AZGFD during the public scoping process and is further addressed in **Section 3.4.2**.

In the Sonoran desert, SDT usually occurs on rocky slopes in desertscrub to semidesert grassland, as well as along washes. The Analysis Area provides suitable habitat for this species, and SDT has been documented within 3 miles of the Proposed Action.

3.4.2. Environmental Consequences

No Action

Under the No Action Alternative, the Project would not be developed and would not disturb vegetation, or special-status species or their habitats (including migratory birds); therefore, there would be no impacts to biological resources in the Analysis Area.

Proposed Action

Vegetation

Under the Proposed Action, vegetation would be removed, mowed, or trimmed along permanent and temporary access roads, along the transmission and distribution lines, and within the footprint of supporting facilities. Implementation of the Proposed Action would result in vegetation removal within approximately 176 acres (**Table 3-4**). Permanent vegetation removal would occur within approximately 106 acres for transmission structures, permanent access roads, the MPP-Q01 switchyard, TS-01 and TS-02 substations, and the microwave towers at the 169-5 communications site and Pete Smith Peak. The remaining 70 acres of disturbance would be temporary, for the construction and use of temporary access roads and pulling locations. Following construction, temporarily disturbed areas will be reseeded with seeding mixes containing milkweed seed, where appropriate. Opportunistic regrowth of vegetation within the transmission line ROW is also expected to occur. Regrowth would be trimmed back periodically in accordance with current APS transmission line safety and upkeep standards. Vegetation would be primarily treated using a combination of selective mowing (for ground cover vegetation) and trimming (for shrubs and trees); full tree removal would occur only as needed and no riparian trees (e.g., cottonwoods, willows) would be removed.

Table 3-4. Temporary and Permanent Vegetation Disturbance Areas for the Proposed Action

Project Element	WAPA Estimated New Permanent Disturbance Area (acres)	WAPA Estimated New Temporary Disturbance Area (acres)	APS Estimated New Permanent Disturbance Area (acres)	APS Estimated Temporary Disturbance Area (acres)
Arizona Upland subdivision of Sonoran Desertscrub	15	0	90	65
Riparian Scrubland	0	0	0	5
Interior Chapparal	<1	0	0	0
TOTAL	**16**	**0**	**90**	**70**

Herbicide application may be implemented as part of ongoing vegetation management following construction to mitigate fire hazard within the transmission line corridor. All herbicide application will be conducted in accordance with the conservation measures detailed in **Appendix E**.

Special-Status Species, Including Migratory Birds

During construction, as well as intermittently during operations and maintenance, noise and activity, such as noise from equipment, removal of vegetation, or trimming of vegetation, might temporarily displace individual wildlife near the Project Area. This short-term disturbance would have a negligible impact on individual wildlife. Construction and operation of the Proposed Action would also result in the permanent removal of 106 acres of suitable habitat for a number of special-status species. Special-status species that may use the Project Area for foraging or breeding would experience long-term impacts as a result of disturbance and loss of habitat. Clearing and grading of the Project Area would remove habitat elements potentially used for nesting (such as saguaro, dense shrubs, or burrows). Potential impacts to monarch butterfly include the removal and reduction of vegetation that may serve as a nectar source for migrating butterflies. Potential impacts to yellow-billed cuckoo include the trimming of riparian vegetation, resulting in alteration of vegetative composition or suitable habitat structure. Potential impacts to migratory birds and bald and golden eagles include noise and activity during the breeding season, causing abandonment of an active nest with eggs or nestlings. Potential impacts to SDT include habitat loss (including potential destruction of dens), potential disturbance from noise and activity, and risk for direct mortality from ground disturbance and vehicle strikes.

Though impacts to species may occur, large expanses of habitat of similar quality and composition are immediately adjacent to the Project Area and because this is a linear project, affected individuals would be able to shift use to these adjacent areas with minimal change from their current usage.

Conservation Measures

As part of the Proposed Action, WAPA and APS would implement conservation measures for biological resources (**Appendix E**). These conservation measures include pre-construction surveys for monarch butterflies and milkweed, migratory bird nests, and SDT prior to surface disturbance. Construction and ground disturbance activities within 500 feet of riparian areas will occur between October 1 and March 1, outside of typical bird breeding and nesting season and outside the period that yellow-billed cuckoos are present in the

Southwest. Additionally, work would not be conducted within 1 mile of the line of site of any active golden eagle nest during the golden eagle breeding season from February 1 to July 15.

Additional conservation measures for SDT include:

- APS will relocate any SDT found within the Project Area that do not vacate the Project Area on their own in a reasonable amount of time, following AZGFD guidelines for monitoring and handling of SDT. SDT would only be handled by qualified individuals with a Scientific Activity License from the AZGFD.
- A field representative would be trained to properly handle, relocate, and report on SDT detections; would ensure compliance of all SDT conservation measures; and be a contact for crews if an SDT is encountered.
- The field representative would train crews on proper herbicide handling and application within SDT habitat.
- Field crews would be trained to inspect under and around vehicles before moving them and vegetation before spraying.
- Field crews shall maintain clean project sites and remove all trash to avoid subsidizing Sonoran desert tortoise predator populations.

With the implementation of these measures, it is unlikely that the Proposed Action would result in direct mortality of individual species during construction. During operations, APS would implement SDT conservation measures to reduce the risk of direct mortality from vehicle strikes along access roads; therefore, a long-term, direct impact to SDT individuals is not anticipated.

Following construction, temporarily disturbed areas would be reseeded with seeding mixes as described above. For operation and ongoing maintenance of the Project, limited trimming, vegetation removal, or herbicide application may be necessary to mitigate fire hazard. No mechanical mowers will be used within riparian areas; riparian vegetation will only be removed or pruned using manual methods. No herbicide application will be conducted within riparian areas. With the implementation of these measures, long-term impacts to vegetation in the Project Area would be minor.

With the implementation of the conservation measures described above and in **Appendix E**, long-term impacts to special-status species would be negligible and unlikely to result in population-level effects.

Cumulative Impacts

The Analysis Area has been affected by past and current land use practices, including transportation, grazing, and existing utility corridors, some of which have resulted in the loss or degradation of vegetation and habitat and contributed to current conditions. Reasonably foreseeable future actions identified for the Project include routine operation and maintenance of WAPA's transmission lines and ROWs, and replacement of the Pete Smith Peak communications facilities by WAPA, which may include limited

vegetation management including mowing or herbicide applications and is not expected to result in adverse impacts to biological resources that would contribute to an adverse cumulative impact. Additionally, the Aguila Pipeline project is located in the vicinity of the Project Area and would require vegetation clearing. The pipeline would be buried and is not expected to contribute to an adverse cumulative impact to the region. Pipeline construction would temporarily impact local traffic, noise, and the visual setting of the Analysis Area, but since pipeline construction is not currently projected to occur at the same time as the Proposed Action, therefore not contributing to cumulative impacts of the Proposed Action, its impacts are not further analyzed in conjunction with those generated by the Proposed Action.

3.5. HISTORIC RESOURCES

Section 3.5 describes the area of potential effect (APE) for historic properties and examines the potential effects, including damage, loss, degradation, or other disturbance to historic properties under the Proposed Action and No Action Alternative.

As defined in 36 CFR § 800.16.l.1, “the term “historic properties” refers to any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria. Properties deemed significant for their contribution to broad patterns of history, prehistory, architecture, engineering, and culture are eligible for listing on the NRHP and are afforded consideration under the NHPA. However, analysis of impacts to cultural resources that may not be eligible for listing on the NRHP are also included.

To be eligible for listing on the NRHP, a property must be significant under one or more of four evaluation criteria:

- Criterion A: The property is associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: The property is associated with the lives of persons significant in our past.
- Criterion C: The property embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: The property has yielded, or may be likely to yield, information important in prehistory or history.

A property must be able to convey its significance through the retention of specific aspects of integrity, such as location, design, materials, setting, workmanship, feeling, and association. In general, properties less than 50 years of age, unless of exceptional importance, are not eligible for listing on the NRHP.

Additionally, the Project is subject to compliance with Section 106 of the NHPA of 1966, as amended (16 USC 470 et seq.). Section 106 (36 CFR Part 800, as amended August 5, 2004) requires federal agencies

to consider the effects of their undertakings on historic properties and consult with the State Historic Preservation Office (SHPO). In addition, Section 106 and the American Indian Religious Freedom Act (AIRFA) of 1978 specify that federal agencies consider Native American concerns.

3.5.1. Affected Environment

As defined in the regulations for Section 106 of the NHPA (36 CFR Part 800.16[d]), the APE refers to the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties," is "influenced by the scale and nature of an undertaking," and "may be different for different kinds of effects caused by the undertaking." The APE for the Project consists of the 305-acre total footprint of the transmission line corridor, MPP-Q01 switchyard, TS-01 and TS-02 substations, the Pete Smith Peak communications site, and 169-5 microwave tower.

To identify historic properties that may be impacted by the Project, WestLand archaeologists conducted cultural resources studies consisting of detailed records reviews (including AZSITE cultural resources records and records housed at the Archaeological Records Office of the Arizona State Museum [ASM] and the BLM) and intensive pedestrian surveys of the APE. The entirety of the APE has been surveyed for cultural resources by WestLand and other entities between 2013 and 2024 (**Table 3-5**). Cultural resource surveys within the APE have been performed in support of other projects, including the Aguila Pipeline, as well as for the Proposed Action. The goals of the cultural resource field surveys were to:

- Identify and record all cultural resources, including prehistoric sites, historic sites 50 years or older, and traditional cultural properties.
- Identify areas not surveyable and why (e.g., density of vegetation, degree of slope).
- Update documentation for previously recorded sites.
- Evaluate the significance of cultural resources and make recommendations for listing on the NRHP.

Table 3-5. Cultural Resources Surveys and Associated Reports within and in the Vicinity of the Proposed Action

Report	Published Date	Sites	Sites within the Proposed Action APE	Jurisdiction
Class III Cultural Resources Survey of 16,831.24 Acres of State Land in Advance of Proposed Purchase and Geotechnical Testing by Freeport-McMoRan Bagdad Inc., East of Bagdad, Yavapai County, Arizona	August 31, 2018	3 determined eligible 57 recommended eligible 14 recommended ineligible 11 unevaluated 1 determined ineligible	None	Private ASLD
Class III Cultural Resources Survey of 32.6 Linear Miles Across State Land for a Proposed Corridor Re-Route for the Bagdad to Aguila Water Line in Yavapai County, Arizona	August 18, 2021	4 eligible 2 ineligible 2 not relocated	None	ASLD
Addendum Report: Class III Cultural Resource Survey of 9.8 Linear Miles Across State Land for a Proposed Corridor Re-Route for the Bagdad to Aguila Water Line in Yavapai County, Arizona	November 4, 2021	2 not eligible	None	ASLD
A Cultural Resources Inventory of the Proposed Bagdad Waterline in Maricopa and Yavapai Counties, Arizona	September 29, 2022	53 recommended or determined eligible 24 recommended or determined not eligible	2	ASLD
A Cultural Resources Supplemental Inventory for the Arizona Public Service MPP-Q01 Interconnection Project in Yavapai County, Arizona	March 24, 2023	None	None	ASLD
A Cultural Resources Inventory of 91.7 Acres of Proposed Access Roads in Support of the Aguila-Bagdad Waterline, Yavapai County, Arizona	March 20, 2024	4 eligible 1 ineligible 1 unevaluated	None	ASLD
A Cultural Resources Inventory of 0.15 Acres and a Historical In-use Structure Inventory of an Additional 2.73 Acres on Pete Smith Peak, La Paz County, Arizona	April 12, 2024	1 ineligible	None	BLM
End-of-fieldwork Report: Archaeological Data Recovery for Seven Sites on ASLD Lands for the Proposed Aguila-Bagdad Waterline, Yavapai County, Arizona	April 15, 2024	7 recovered 3 unevaluated	None	Private ASLD

Two cultural sites (AZ M:12:55[ASM]; AZ M:12:59[ASM]) are partially located within the APE for the Proposed Action. The AZ M:12:59[ASM] is a historic road that crosses the transmission line corridor north of the TS-01 and MPP-Q01 area. The transmission line corridor overlaps with the site boundaries of the AZ M:12:55[ASM] at the southern terminus of the corridor, which includes historic components that are unevaluated, and a prehistoric component that was recommended ineligible.

Additionally, WestLand contacted 12 federally recognized tribes on behalf of WAPA and APS during the public scoping process (**Appendix A**). No responses were received from tribes. No Traditional Cultural Properties (TCPs) have been identified in the vicinity of the Project.

3.5.2. Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing transmission lines, substations, and towers would remain operational and existing facilities would not be constructed or expanded. The Proposed Action would not be constructed; therefore, no new ground disturbance or construction-related direct or indirect effects to historic properties would occur and there would be no impacts to historic properties.

Proposed Action

There would be no impacts to any potential NRHP-eligible archaeological sites under the Proposed Action. Transmission structures and associated facilities, including temporary and permanent access roads, would be constructed to avoid NRHP-eligible or unevaluated sites.

Short-term impacts may include the potential for surface and subsurface disturbance of unknown historic properties during construction of the Proposed Action. Through implementation of the resource protection measures, WAPA and APS would ensure that impacts to historic properties are avoided to the greatest extent possible. Although it is possible that undiscovered historic properties exist in the APE (e.g., buried archaeological sites), implementing the resource protection measures would also help to ensure that adverse impacts to such resources are avoided to the greatest extent possible. Resource protection measures applicable to historic properties are as follows:

- The boundaries of eligible or unevaluated sites adjacent to and with the APE would be flagged by a qualified archaeologist prior to ground disturbing activities to prevent incidental impacts to the portions of these sites outside and within the APE.
- Prior to the start of Project activities, all field personnel would receive worker's environmental awareness training on historic properties that includes procedures to follow should unanticipated archaeological resources be discovered or should human remains and/or funerary objects be encountered.
- The archaeological monitor will make a good faith effort to recover unanticipated archaeological resources, human remains and/or funerary objects should those be discovered during excavation. Initially, the backdirt potentially containing archaeological resources, human remains, and possible

funerary objects will be segregated from the other backdirt using the excavator. This backdirt, up to a total estimated volume of 2 cubic meters per monopole, will be sifted through a ⅛-inch mesh screen. Human remains, artifacts, and specimens captured by the screen will be collected and packaged in an appropriate manner. Recovered artifacts that are considered probable or possible funerary objects will be identified as such in the field documentation.

- In the event that unanticipated archaeological resources are discovered during construction, operation, or maintenance of the Project, all activities must cease in the immediate vicinity of the discovery.

Construction would result in long-term indirect impacts to the integrity of feeling and setting of cultural resource sites adjacent to the Project Area, if those aspects of integrity contribute to the significance of the site, including cultural landscapes, for as long as the Project structures exist. However, these sites occur within areas adjacent to existing transmission infrastructure, and the addition of the proposed transmission line and supporting facilities is not anticipated to alter the existing feeling and setting (see **Section 3.6** for additional analysis of visual resource impacts from the Project). Further, temporary impacts to setting and feeling would result from the presence of construction equipment and associated noise.

The access roads associated with Proposed Action could potentially provide access for dispersed recreation/off highway vehicle (OHV) travel beyond the proposed transmission line corridor, which could result in alteration, degradation, or damage to historic properties. However, lands surrounding the Project Area are not permitted for public recreational use (private and ASLD lands), except for the land surrounding the Pete Smith Peak communications site (BLM lands); however, this site would be accessed using an existing road and this BLM land is not formally designated for recreational uses.

Overall, direct impacts to historic properties would be avoided. Indirect impacts to historic properties would be reduced or mitigated through implementation of the resource protection measures. In the event that unanticipated cultural resources are identified during construction or operations and maintenance, then applicable procedures for their evaluation, avoidance, and/or mitigation would be followed.

Cumulative Impacts

The Project Area and immediate vicinity has been affected by past and current land use practices, including transportation, grazing, and existing utility corridors, some of which have resulted in the relocation and recovery of archaeological resources, and contributed to current conditions. The only reasonably foreseeable future actions identified for the Project involve routine maintenance of WAPA's transmission corridors and structures, and replacement of the Pete Smith Peak communications facilities by WAPA. These actions are not expected to result in adverse impacts to historic properties that would contribute to an adverse cumulative impact. Although the in-use building to be replaced at Pete Smith Peak is of historic age, it is a register-ineligible feature and therefore its replacement will have no effects to historic properties. Historic properties within the Aguila Pipeline corridor were previously mitigated through recording and data recovery. Since the powerline has no impact to historic properties, there will be no cumulative impact to

historic resources in the Project Area. Other developments such as community development and other renewable energy development may affect historic properties in the vicinity. Although the extent of these disturbances is not readily quantifiable, much of the vicinity of the Project Area remains undeveloped, and there is the potential for it to contain historic properties that have yet to be discovered and recorded. The majority of the identified reasonably foreseeable future actions in the area have provided or could provide occasions to conduct studies that would likely not occur otherwise. Potential impacts to public land managed by federal and state agencies would be considered for projects proposed in the future, and measures to avoid, reduce, or mitigate impacts on important historic properties are likely to be implemented.

The Project, in combination with other reasonably foreseeable projects, could result in cumulative direct and indirect impacts to historic properties. The construction, operations and maintenance, and decommissioning of the Project would have a negligible contribution to cumulative effects to historic properties.

3.6. VISUAL RESOURCES

Section 3.6 analyzes impacts of the Proposed Action and No Action Alternative on visual resources, including impacts to the off-grid rural residential community west of SR 97 and impacts to views from US 93.

3.6.1. Affected Environment

The Analysis Area for direct, indirect, and cumulative impacts is a 5-mile radius around the proposed transmission line alignment, which is the approximate maximum distance from which a casual observer could distinguish the elements of the Proposed Action.

Analysis Area Setting

The Analysis Area is characterized by rugged mountains in the Sonoran Desert, with tan and gray rock that is sparsely covered with native vegetation. Vegetation varies in vibrancy in form with tall vertical bright green saguaro cacti and ocotillo, yellow-green creosotebush and paloverde, and short, dull yellow perennial grasses in the herbaceous layer. Ribbons of green riparian vegetation parallel the Bridle Creek at its confluence with the South Fork of the Santa Maria River near the southern terminus of the proposed transmission line. Ranging from mountainous terrain to rolling or rugged hills, the Analysis Area includes lava-capped mesas and narrow, deeply incised canyons. The Analysis Area's viewshed is enclosed by the Harcuvar Mountains to the south; the Grayback Mountains to the west; and the McCloud Mountains to the east. These mountains appear to have minimal vegetation and a rough, angular, amorphous shape, composed of warm, deep browns and reds. Notable peaks within the viewshed include the towering Thorn and Whitecap Peaks, which amount to 3,485 and 3,890 feet above mean sea level, respectively. Development and structures in the valley include existing transmission infrastructure, roads, one-story rural residential and ranching related structures, US 93, and SR 97 and 96. These structures stark white and black colors, smooth textures, angular outlines, and stark patterns contrast with the natural environment within the Analysis Area.

The primary views of the Analysis Area are via travel routes and rural residential areas. US 93 passes east-west through the Analysis Area. This roadway connects small towns like Wickenburg to large metropolitan areas including Phoenix and Las Vegas, Nevada. Primary viewers are typically traveling through the Analysis Area. SR 97 connects with US 93, traveling north-south through the Analysis Area and up to the small mining town of Bagdad. This portion of US 93, Joshua Forest Scenic Road (Wikieup to Wickenburg) is designated by the Arizona Department of Transportation as a scenic road (ADOT n.d.). Along SR 97 is a small off-grid rural residential community without assured access to water or electricity. Residents of this community have a direct view of the proposed transmission line to the east of their community. Approximately 10 to 20 residences are located within this community. Within the Analysis Area, near the northern terminus of the proposed transmission line is SR 96 and the Town of Bagdad.

3.6.2. Environmental Consequences

Methodology and Assumptions

A viewshed of the Analysis Area was created using a geographic information system (GIS) approach to model the “seen area” or viewshed from which the Proposed Action would be visible based on elevation and landform. The model does not account for vegetation, structures, and other landscape elements that would obstruct views. The viewshed analysis was used to assist in identification of key observation points (KOPs) that represent common or sensitive points from which the Proposed Action could be viewed. The viewshed and location of the five KOPs are shown in **Figure 5**. The five visual simulations from the selected KOPs are shown in **Appendix F**.

No Action Alternative

Under the No Action Alternative, there would be no visual changes in the landscape; therefore, there would be no impacts to visual resources in the Analysis Area.

Proposed Action

The Proposed Action would create contrast (i.e., anticipated impact) with the existing landscape features. WAPA and APS facilities would create weak to moderate contrast. At the interconnect and microwave tower locations, the Proposed Action would mimic the linear and vertical form of existing transmission corridors and communications facilities. Travelers headed in both directions on US 93 at the posted driving speeds would see minimal change in the landscape.

Geometric forms would be introduced into the existing landscape for travelers headed in both directions on SR 97 and residents of the small rural community west of the proposed transmission line. These viewers would see a new transmission corridor; however, the contrast would not preclude viewers from views of the rugged mountain terrain and Sonoran Desert vegetation.

Key Observation Point 1

Key Observation Point 1 is located on the west side of US 93 approximately 1 mile southeast of the proposed 169-5 microwave tower location, looking southwest towards Pete Smith Peak. The existing WAPA MDE-PES 525-KV transmission corridor is visible in the foreground, amidst sparsely vegetated Sonoran desertscrub. The 169-5 microwave tower is visible towards the far right of the simulation, mimicking the linear and vertical form of the existing transmission corridor. The existing communications facilities and proposed microwave tower at Pete Smith Peak are not visible to the unassisted eye from this location. From KOP 1, the Project presents a minor contrast against the existing natural and built landscape.

Key Observation Point 2

Key Observation Point 2 is located on the west side of US 93 approximately 1 mile south of the southern terminus of the proposed transmission line, TS-01 substation, and MPP-Q01 switchyard. This KOP looks northwest toward TS-01. The existing WAPA MDE-PES 525-kV transmission corridor runs east-west through this area. US 93 and the proposed transmission line and TS-01 substation are visible in the foreground of the simulation, amidst sparsely vegetated Sonoran desertscrub. The linear, vertical form of the proposed line and substation are consistent with the current structures associated with WAPA's existing MDE-PES 525-kV transmission line. The Proposed Action does not preclude the current view of rolling hills and rugged mountains, with Thorn Peak visible in the far background. From KOP 2, the Project presents a minor to moderate contrast against the existing natural and built landscape.

Key Observation Point 3

Key Observation Point 3 is located on the north side of SR 97, at one of the rural roads leading to the small rural community west of the proposed transmission line, looking east. Rolling and rugged desert hills are visible in the foreground, sparsely vegetated with Sonoran desertscrub vegetation. The vertical linear form of the Proposed Action contrasts with the existing landscape features in the simulation; however, the proposed infrastructure does not preclude viewers from views of the more distant mountainous terrain and desert vegetation. The proposed Project is intermittently screened from KOP 3 by vegetation and terrain, breaking up the strong lines and contrasting forms of the Project. From KOP 3, the Project presents a moderate contrast against the existing natural and built landscape.

Key Observation Point 4

Key Observation Point 4 is located on the south side of SR 97, looking west towards the Proposed Action approximately 0.3 miles away. SR 97 and sparsely vegetated Sonoran desertscrub are visible in the foreground of the simulation, with the linear geometric features of the proposed transmission corridor in the midground contrasting with the natural landscape and smooth mountainous terrain in the background. The proposed infrastructure, however, does not preclude viewers from more distant views of the mountainous terrain and desert vegetation. From KOP 4 the Project presents a moderate contrast against the existing natural and built landscape.

Key Observation Point 5

Key Observation Point 5 is located on the west side of SR 96, approximately 1 mile south of the northern terminus of the proposed transmission line and TS-02 substation, looking southeast as the proposed transmission corridor crosses the highway. SR 96 bisects the rolling terrain and Sonoran desertscrub vegetation. While the vertical form of the Proposed Action creates contrast with the natural landscape in the simulation, the linear form is consistent with the stark linear features associated with the existing transportation corridor. From KOP 5, the Project presents a minor to moderate contrast against the existing natural and built landscape.

Cumulative Impacts

Past and present land uses, primarily transportation and ranching, in the cumulative impacts area of analysis for visual resources have resulted in the current landscape character of the area as described in **Section 3.6.1**. While implementation of the Proposed Action would introduce new electrical infrastructure into the region, any additional visual impact is expected to be minor as the landscape already contains transmission and transportation corridors and the resulting contrast structures. The reasonably foreseeable future actions identified are not anticipated to contribute to additional impacts to visual resources in the Project Area.

4. COORDINATION AND CONSULTATION

4.1. AGENCY COORDINATION

WAPA invited BLM to be a cooperating agency for this Project, however, BLM did not accept cooperating agency status.

During public scoping for this Project, WAPA and/or APS also contacted the following agencies.

- Federal Agencies
  - Bureau of Land Management, Lake Havasu Field Office
  - Bureau of Land Management, Kingman Field Office
  - U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office
  - Bureau of Reclamation, Lower Colorado Region Office
  - U.S. Environmental Protection Agency, Region 9

- State Agencies
  - Arizona Game and Fish Department
  - Arizona Department of Environmental Quality
  - Arizona Corporation Commission / Arizona Power Plant and Transmission Line Siting Commission
  - Arizona Department of Transportation

- County and Municipal Government
  - Maricopa County
  - Mohave County
  - Yavapai County
  - Town of Wickenburg

4.2. TRIBAL CONSULTATION

Twelve federally recognized tribes were contacted on behalf of WAPA and APS during the public scoping process (**Appendix A**), however, no responses were received.

Additionally, in accordance with the NHPA, WAPA separately requested comments on the National Register of Historic Places evaluation finding of no adverse effect for the Project from the 12 tribes consulted during scoping. Two responses from tribes have been received as of the publication date of this Draft EA; one comment from the Tohono O'odham nation indicated concurrence on the finding of no adverse effect for the Project. The second comment from the Yavapai-Apache Nation of Camp Verde indicated they had no comments on the finding of no adverse effect for the Project. Any additional responses or correspondence with tribes will be detailed in the Final EA.

5. APPLICABLE LAWS, REGULATIONS, AND OTHER REQUIREMENTS

Federal, state, and local agencies have jurisdiction over certain aspects of the proposed interconnection, transmission infrastructure, and other supporting facilities. Major federal, state, and local agencies and their respective permit/authorizing responsibilities are summarized in **Table 5-1**.

Table 5-1. Permit/Authorizing Responsibilities

Authorizing Action/Applicable Regulation	Responsible Agency
Interconnection/Transmission Service Agreement	WAPA
NEPA	WAPA
Clean Air Act	EPA; ADEQ
Right-of-Way Grant	ASLD
National Historic Preservation Act	WAPA; Arizona SHPO
Native American Graves Protection and Repatriation Act	WAPA
American Indian Religious Freedom Act	WAPA
Construction Stormwater Permit	ADEQ, Arizona Division of Water Quality, Storm Water Program
Clean Water Act	U.S. Army Corps of Engineers
Safety Plan	Arizona Division of Occupational Safety and Health
Migratory Bird Treaty Act	USFWS; WAPA
Bald and Golden Eagle Protection Act	USFWS; WAPA
Endangered Species Act	USFWS; WAPA

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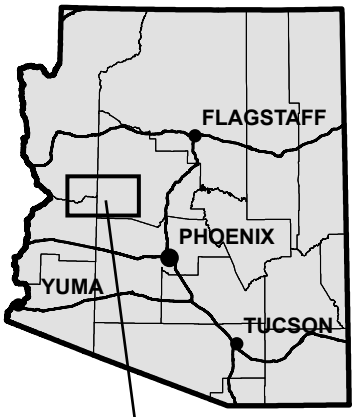
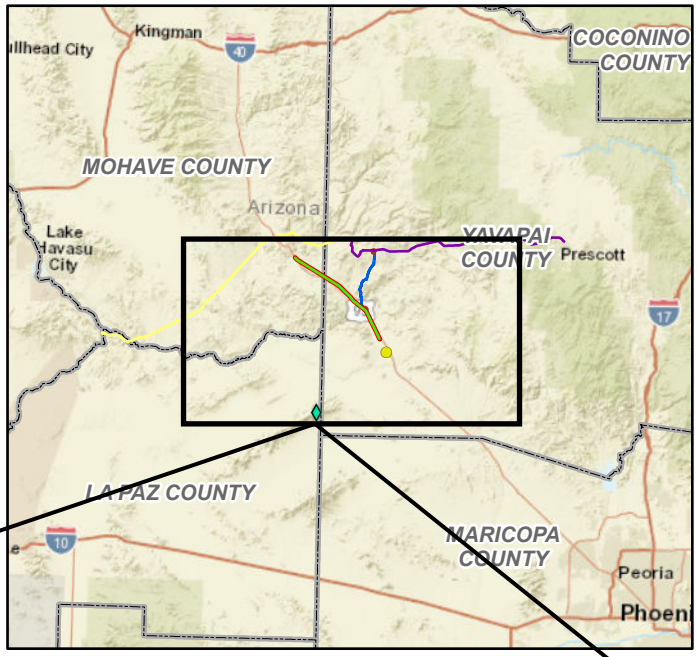
FIGURES

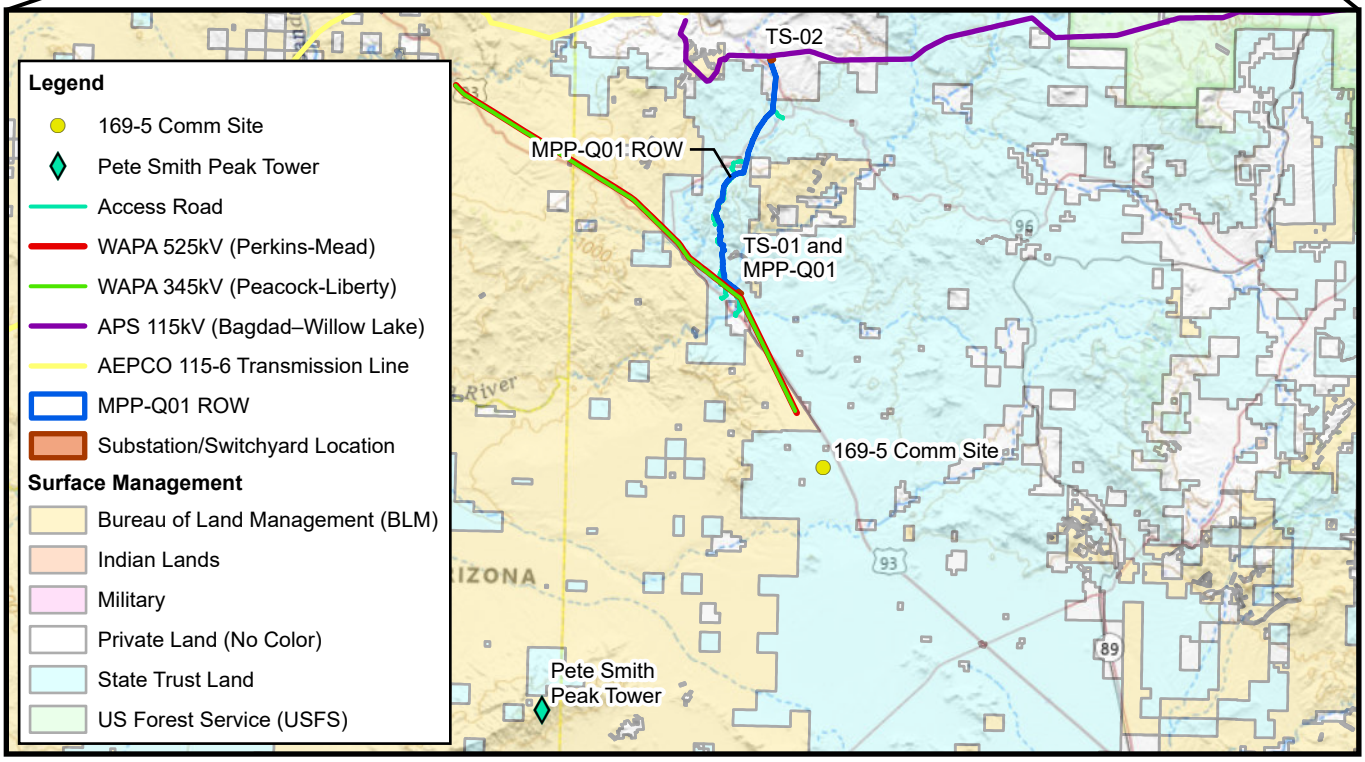
ARIZONA



PROJECT VICINITY



Approximate Scale 1 inch equals 40 miles



Portions of La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Surface Management: BLM 2022, WRI Modified 2023
Data Source: APS
Image Source: ArcGIS Online, World Street and USGS Topo Maps

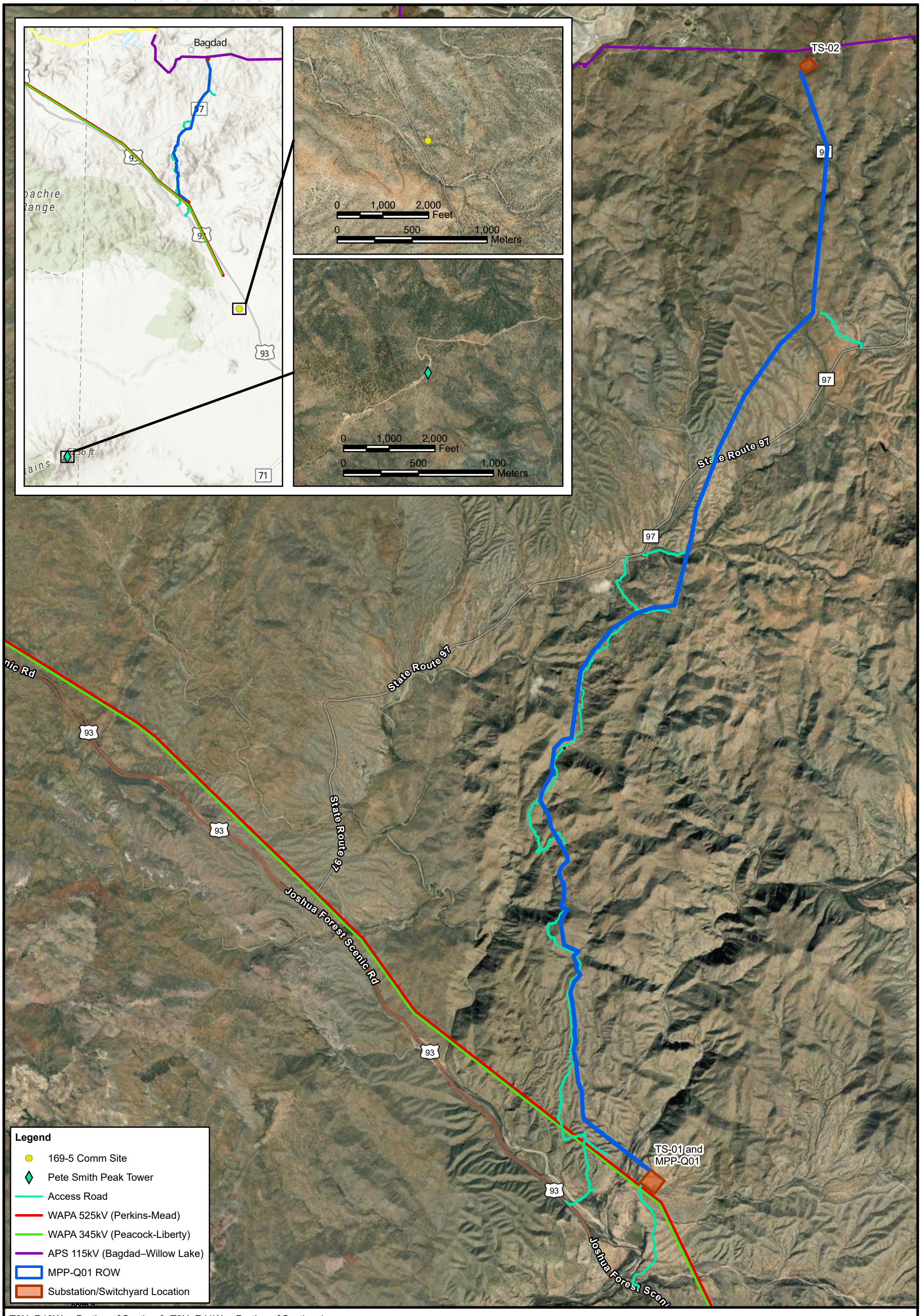
MPP-Q01 INTERCONNECT PROJECT

Environmental Assessment

VICINITY MAP
Figure 1

N
0 5 10 Miles
0 10 20 Kilometers

WestLand Engineering & Environmental Services



T8N, R10W, a Portion of Section 6, T8N, R11W, a Portion of Section 1,
T11N, R8W, a Portion of Section 33,
T12N, R9W, Portions of Sections 4, 9, 10, and 15,
T13N, R9W, Portions of Sections 2, 10, 11, 15, 21, 22, 27, 28, 33, and 34,
T14N, R9W, Portions of Sections 12, 13, 24, 25, 35, and 36,
La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Image Source: Maxar 2018-2022

WestLand Engineering & Environmental Services

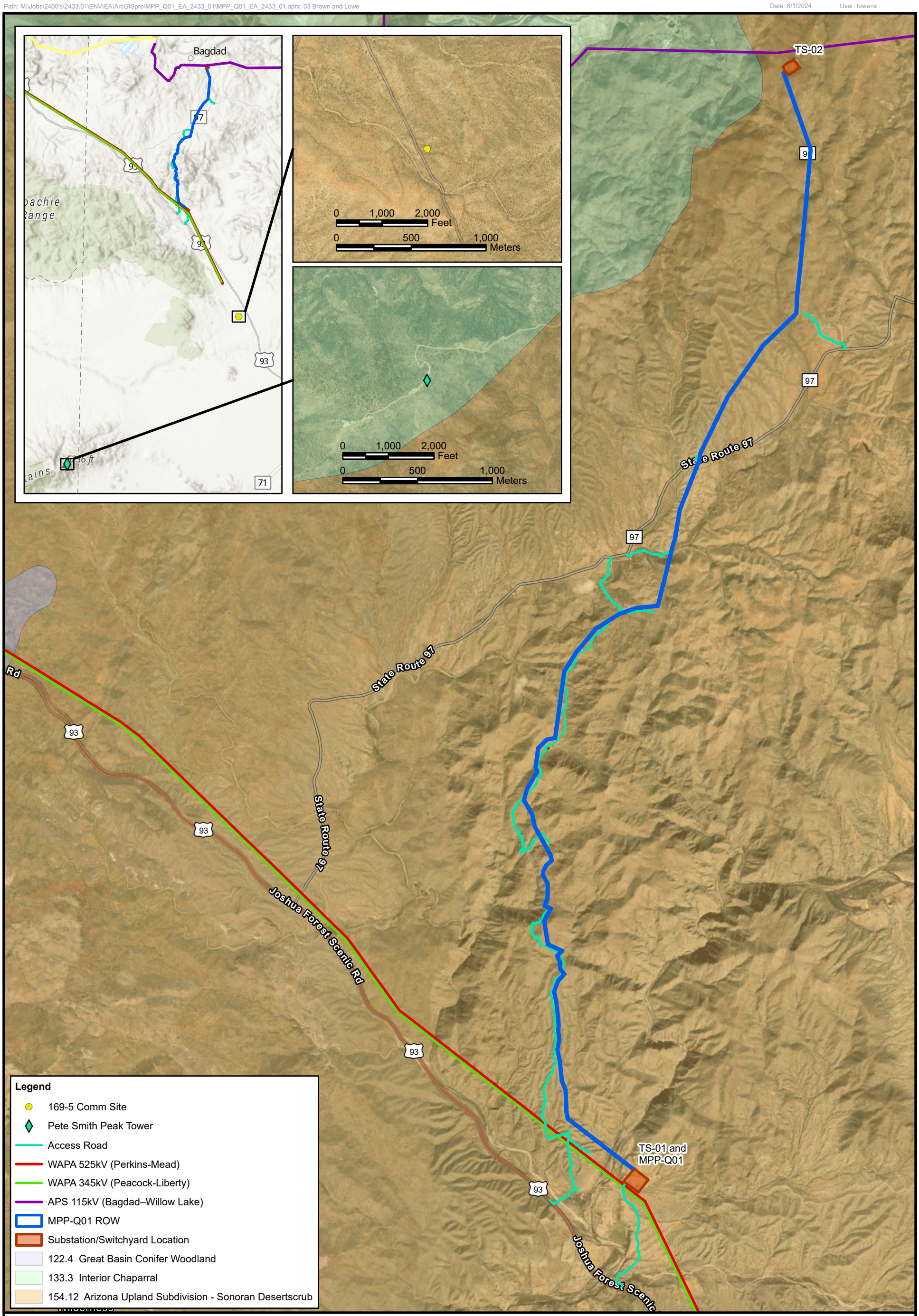
N 0 0.5 1 Miles
0 1 2 Kilometers

MPP-Q01 INTERCONNECT PROJECT

Environmental Assessment

AERIAL OVERVIEW

Figure 2



T8N, R10W, a Portion of Section 6, T8N, R11W, a Portion of Section 1,
T11N, R8W, a Portion of Section 33,
T12N, R9W, Portions of Sections 4, 9, 10, and 15,
T13N, R9W, Portions of Sections 2, 10, 11, 15, 21, 22, 27, 28, 33, and 34,
T14N, R9W, Portions of Sections 12, 13, 24, 25, 35, and 36,
La Paz and Yavapai Counties, Arizona, Projection: NAD 1983 UTM Zone 12N
Data Source: Brown and Lowe's Biotic Communities of the Southwest (1980),
Image Source: Maxar 2018-2022

WestLand Engineering & Environmental Services

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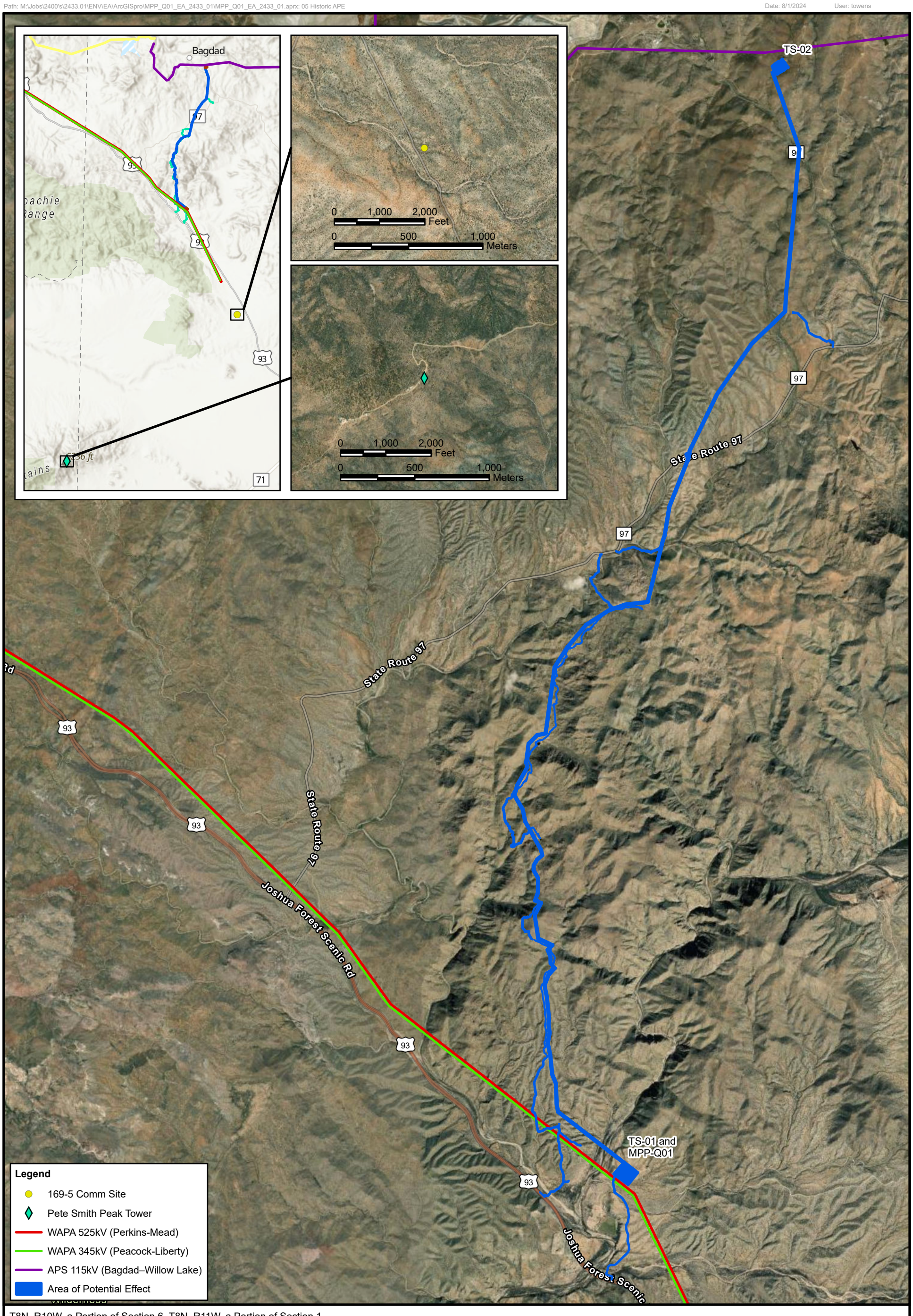
0 1 2 Kilometers

MPP-Q01 INTERCONNECT PROJECT

Environmental Assessment

BROWN AND LOWE MAPPING

Figure 3



T8N, R10W, a Portion of Section 6, T8N, R11W, a Portion of Section 1,
T11N, R8W, a Portion of Section 33,
T12N, R9W, Portions of Sections 4, 9, 10, and 15,
T13N, R9W, Portions of Sections 2, 10, 11, 15, 21, 22, 27, 28, 33, and 34,
T14N, R9W, Portions of Sections 12, 13, 24, 25, 35, and 36,
La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Image Source: Maxar 2018-2022

WestLand Engineering & Environmental Services

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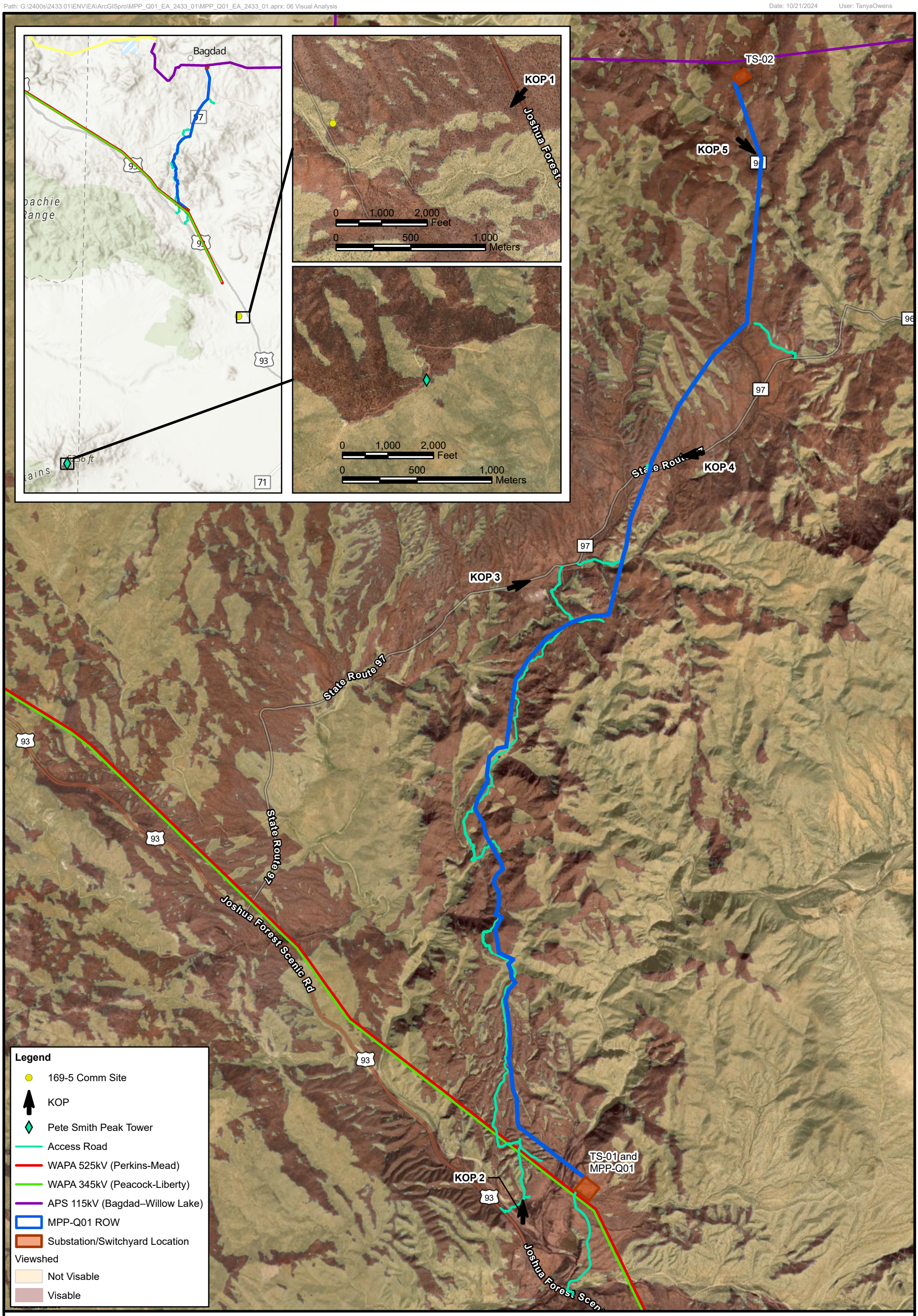
MPP-Q01 INTERCONNECT PROJECT

Environmental Assessment

HISTORIC RESOURCES AREA OF POTENTIAL EFFECT

Figure 4



T8N, R10W, a Portion of Section 6, T8N, R11W, a Portion of Section 1,
T11N, R8W, a Portion of Section 33,
T12N, R9W, Portions of Sections 4, 9, 10, and 15,
T13N, R9W, Portions of Sections 2, 10, 11, 15, 21, 22, 27, 28, 33, and 34,
T14N, R9W, Portions of Sections 12, 13, 24, 25, 35, and 36,
La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Image Source: Maxar 2018-2022

WestLand Engineering & Environmental Services

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MPP-Q01 INTERCONNECT PROJECT

Environmental Assessment

VIEWSHED

Figure 5

APPENDIX A
Public Scoping Summary

Scoping Summary
MPP-Q01 Interconnection Project (DOE/EA-2208)

Prepared for: Western Area Power Administration

Prepared by: WestLand Engineering & Environmental Services

Date: July 28, 2024

Project Number: 2433.01

1. INTRODUCTION

Western Area Power Administration (WAPA) is responding to a request from Arizona Public Service (APS) to interconnect a proposed 115- or 230-kilovolt (kV) transmission line near Bagdad in Yavapai County, Arizona, to its electrical transmission system. APS proposes to build, operate, and maintain a 14-mile long 115- or 230-kV transmission line on State Trust land managed by the Arizona State Land Department (ASLD) as well as on private property. In addition to the transmission line, construction and operation of this power infrastructure includes the following components:

- Construction of the MPP-Q01 500-kV switchyard, to be owned, operated, and maintained by WAPA;
- Installation of four 500-kV breaker bays at MPP-Q01, to be owned, operated, and maintained by WAPA;
- Construction, operation, and maintenance of a substation adjacent to MPP-Q01, to be known as TS-01, which would include up to two transformers (either 525/115/34.5 kV or 525/230/34.5 kV) and associated switch gear;
- Construction, operation, and maintenance of a substation adjacent to the existing Willow Lake 115-kV line, to be known as TS-02, which would include up to two 230/115-kV transformers, up to two 115/69-kV or 230/69-kV transformers, and associated switch gear;
- Construction of two microwave towers—one near structure MDE-PES 169-5, approximately 10 miles southeast of the interconnection location, and one adjacent to the existing communication facilities at Pete Smith Peak to maintain WAPA radio communications with the switchyard, to be owned, operated, and maintained by WAPA; and
- Construction of a fiber optic cable along the new transmission line from TS-01 to APS' Bagdad Substation via APS' Willow Lake 115-kV transmission line. WAPA will use dedicated capacity on this cable for redundant communications for the switchyard.

WAPA conducted both public scoping and internal agency scoping to identify issues warranting study during National Environmental Policy Act (NEPA) evaluation of the proposed project.

2. PUBLIC SCOPING

WAPA initiated a 30-day public comment period for the proposed project on April 4, 2023, ending on May 12, 2023. Scoping letters were mailed to 13 agencies, organizations, and interested parties; 12 tribes; and 25 landowners in the project area to inform them of the proposed project and scoping period, and to request input on the federal action. WAPA published two newspaper advertisements announcing the scoping notice and a virtual scoping meeting—one in The Wickenburg Sun and one in The Daily Courier, on April 19 and April 23, 2023, respectively. Thirteen people attended the virtual public scoping meeting held on the internet using the Zoom teleconference platform on April 26, 2023.

WAPA accepted scoping comments via telephone, email, U.S. mail, and at the virtual scoping meeting. They received a total of five submittals from three individuals, one state government agency, and one federal government agency. During the public scoping meeting, there were five questions received from three individuals and one state government agency representative. No businesses or tribes provided scoping comments or participated in the public scoping meeting.

In total, 27 comments were identified from the five submittals and public scoping meeting. The comments were evaluated to identify the primary and secondary issues represented, and coded accordingly. Comments received concerned mainly conservation measures for minimizing impacts to biological resources and sensitive species. Environmental justice was the other topic brought forth by multiple commenters, specifically regarding the underserved rural community west of the proposed transmission line. No comments expressed general opposition or support for the project. Table 1 identifies the primary and secondary issues identified during the public scoping period, and the number of comments received for each issue.

Table 1. Primary Issue Codes and Comments Identified during Public Scoping

Primary Issue	Secondary Issue	Number of Coded Comments*
Environmental Justice	Underserved Community	2
Livestock Grazing	Coordination with Ranchers	1
Biological Resources	Desert Tortoise	1
	Habitat Conservation Measures	9
	Avian and Transmission Line	2
	Wildlife Conservation Measures	5
Sensitive Species	Yellow-billed Cuckoo	2
	Southwestern Willow Flycatcher	1
	Northern Mexican Gartersnake	1
	Monarch Butterfly	1
	Migratory Birds	1
	Bald and Golden Eagles	1

* Note that most submittal documents addressed multiple topics, resulting in a comment count well over the five submittals received.

Summary of Virtual Public Scoping Meeting

At the virtual public scoping meeting, WAPA staff and representatives from APS presented an overview of the project and NEPA process to members of the public and agency representatives. Topics of interest expressed at the public meeting included construction timing, coordination with ranchers and grazing allottees, and plans for biological resource surveys.

Summary of Written Comments from Agencies

The Arizona Game and Fish Department (AGFD) and U.S. Fish and Wildlife Service (USFWS) submitted comments regarding the project. AGFD's comments addressed potential biological issues, including potential impacts to Sonoran desert tortoise (*Gopherus morafkai*) and yellow-billed cuckoo (*Coccyzus americanus*). Other AGFD comments included recommendations and best management practices for minimizing impacts to wildlife and habitat. USFWS's comments addressed potential biological issues, including potential impacts to Endangered Species Act (ESA) listed species yellow-billed cuckoo, southwestern willow flycatcher (*Empidonax traillii extimus*), Northern Mexican gartersnake (*Thamnophis eques megalops*), and a candidate species for listing, the monarch butterfly (*Danaus plexippus*). USFWS's comments also included recommendations and best management practices for minimizing impacts to protected species and their habitat.

Summary of Written Comments from Tribes

No comments were received from any tribes.

Summary of Written Comments from Individuals and Businesses

Individuals who submitted comments included local residents in the vicinity of the project. Topics addressed in these comments included the underserved rural community west of the proposed transmission line. The majority of the comments received from individuals were inquiries requesting electrical service to this underserved community, as well as requests for maps for this project and the Aguila Pipeline project that will follow a similar alignment.

3. INTERNAL AGENCY SCOPING

WAPA reviewed the public scoping comments and solicited input from internal technical specialist staff to assess other issues pertaining to the project. No additional internal agency scoping issues were raised. The list of resource issues carried forward for detailed analysis and the list of resource issues considered but dismissed from further evaluation are detailed in Chapter 3 of the draft Environmental Assessment.

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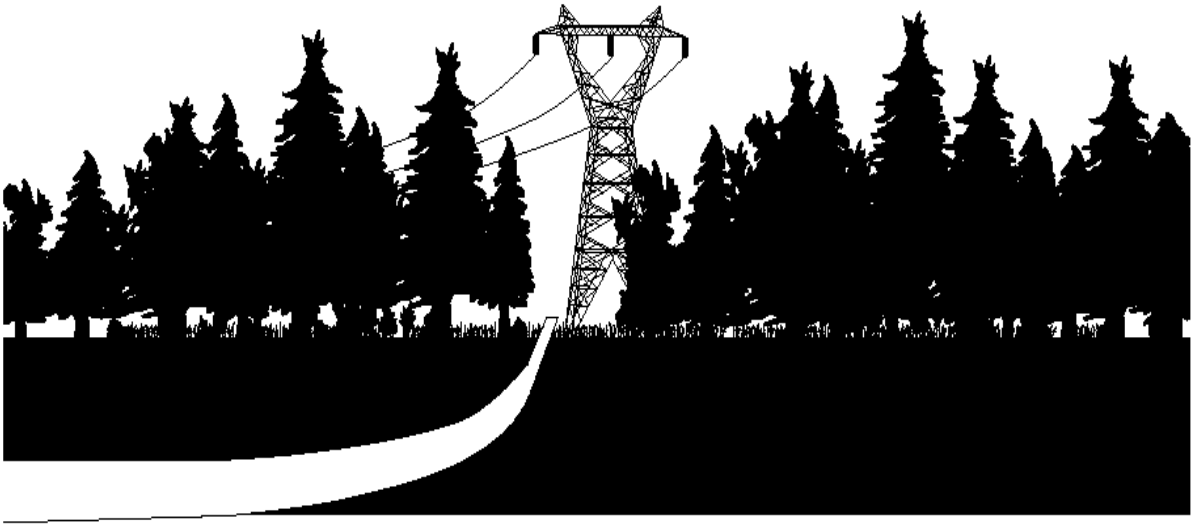
APPENDIX B
WAPA's Construction Standard
13 Environmental Quality Protection

Western Area
Power Administration

CONSTRUCTION STANDARDS

STANDARD 13
ENVIRONMENTAL QUALITY PROTECTION



March 2021

SAFETY
A HABIT TO LIVE BY

Table of Contents

SECTION 13.1 – REQUIRED SUBMITTALS, REPORTS AND PLANS

1. FINAL PAYMENT: For each section below, final payment will be withheld until the referenced submittal, report or plan is received by the COR.

SECTION 13.2 – CONTRACTOR FURNISHED DATA

1. RECYCLED MATERIALS QUANTITY REPORT: Submit quantities of recycled materials listed in Section 13.7, “Recycled Materials Quantities”, to the COR and WAPA’s Environmental Department prior to submittal of final invoice.

2. RECOVERED AND BIOBASED MATERIAL PRODUCTS REPORT: Provide the COR and WAPA’s Environmental Department the following information for purchases of items listed in Section 13.8, “Use of Recovered Material and Biobased Material Products”.

   (1) Quantity and cost of listed items with recovered or biobased material content and quantity and cost of listed items without recovered or biobased material content prior to submittal of final invoice.

   (2) Written justification of listed items if recovered material or biobased material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

3. REFRIGERANT RECEIPT: The Contractor must provide a record of all refrigerant usage, recycling or disposal on WAPA HVAC systems to the COR and WAPA’s Environmental Department. In the event refrigerant is either charged into or removed and reclaimed from a WAPA HVAC system, the Contractor must provide either a record of usage or a receipt from the Environmental Protection Agency (EPA)-certified refrigerant reclaimer including whether it was either added to or reclaimed from the equipment, the date and the amount and type of refrigerant used to the COR and WAPA’s Environmental Department prior to submittal of final invoice.

4. WASTE MATERIAL QUANTITY REPORT: Submit quantities of total project waste material disposal as listed below to the COR and WAPA’s Environmental Department prior to submittal of final invoice in accordance with Section 13.9.8, “Waste Material Quantity Report”.

   (1) Unregulated Wastes (i.e., trash): Volume in cubic yards or weight in pounds.

   (2) Hazardous or Universal Wastes: Weight in pounds.

   (3) Polychlorinated Biphenyl (PCB) Wastes: Weight in pounds.

   (4) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).

5. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN (Plan): Submit the Plan as described in Section 13.11.2, “Spill Prevention Notification and Cleanup Plan”, to the COR and WAPA’s Environmental Department for review and comment 14-days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations.

6. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Submit the Plan as described in Section 13.11.3, “Tanker Oil Spill Prevention and Response Plan”, to the COR and WAPA’s Environmental Department for review and comment 14-days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations.

7. PESTICIDE USE PLAN: Submit a plan as described in Section 13.12.3, “Pesticide Use Plan”, to the COR and WAPA’s Environmental Department for review and comment 14-days prior to the date of intended pesticide application. Review of the plan is for the purpose of determining

compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations. Within seven (7)-days after application, submit a written report in accordance with Standard 2 – Sitework, Section 2.1.1_5, "Soil-Applied Herbicide".

8. TREATED WOOD UTILITY POLES AND CROSSARMS RECYCLING – CONSUMER INFORMATION SHEET RECEIPT: Submit treated wood utility poles and crossarms - consumer information sheet receipts to the COR and WAPA's Environmental Department prior to submittal of final invoice (see 13.13, "Treated Wood Utility Poles and Crossarms Recycling or Disposal").

9. PREVENTION OF AIR POLLUTION: Submit a copy of permits, if required, as described in 13.14, "Prevention of Air Pollution" to the COR and WAPA's Environmental Department 14-days prior to the start of work.

10. EMISSIONS OF COVERED INSULATING GASES (E.G., SULFUR HEXAFLUORIDE (SF_6) GAS, PERFLUOROCARBON (PFC) GAS): A receipt from the covered insulating gas supplier stating that the gas was reclaimed, the amount of covered insulating gas and the date must be submitted to the COR and WAPA's Environmental Department prior to submittal of final invoice in accordance with Section 13.14.4(3), "Certificates of Disposal and Receipts".

11. ASBESTOS LICENSES OR CERTIFICATIONS: Submit a copy of licenses, certifications, Demolition and Renovation Notifications and Permits for asbestos work as described in 13.15, "Handling and Management of Asbestos Containing Material" to the COR and WAPA's Environmental Department 14-days prior to starting work. Submit copies of certificates of disposal and/or receipts for waste to the COR and WAPA's Environmental Department prior to submittal of final invoice.

12. LEAD PAINT NOTICES: Submit a copy of lead paint notices with Contractor and recipient signatures as described in 13.16, "Material with Lead-based Paint" to the COR and WAPA's Environmental Department prior to submittal of final invoice. Submit copies of certificates of disposal and/or receipts for waste to the COR and WAPA's Environmental Department prior to submittal of final invoice.

13. WATER POLLUTION PERMITS: Submit copies of any water pollution permits as described in 13.17, "Prevention of Water Pollution" to the COR and WAPA's Environmental Department 14-days prior to start of work.

14. PCB TEST REPORT: Submit a PCB test report to the COR and WAPA's Environmental Department as described in 13.18, "Testing, Draining, Removal and Disposal of Oil-filled Electrical Equipment", prior to draining, removal or disposal of oil or oil-filled equipment that is designated for disposal.

15. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled or reprocessed as described in 13.18, "Testing, Draining, Removal and Disposal of Oil-filled Electrical Equipment", to the COR and WAPA's Environmental Department prior to submittal of final invoice.

16. OSHA PCB TRAINING RECORDS: Submit employee training documentation records to the COR and WAPA's Environmental Department 14-days prior to the start of work as described in 13.19.1.

17. CLEANUP WORK MANAGEMENT PLAN: Submit a Cleanup Work Management Plan as described in 13.19, "Removal of Oil-contaminated Material" to the COR and WAPA's Environmental Department for review and comment 14-days prior to the start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not

relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations.

18. POST CLEANUP REPORT: Submit a Post-Cleanup Report as described in 13.19, “Removal of Oil-contaminated Material” to the COR and WAPA’s Environmental Department prior to submittal of final invoice.

SECTION 13.3 – ENVIRONMENTAL REQUIREMENTS

Comply with Federal, State and local environmental laws and regulations. The sections in this Standard further specify the requirements.

SECTION 13.4 – LANDSCAPE PRESERVATION

1. GENERAL: Preserve landscape features in accordance with the contract clause titled “Protection of Existing Vegetation, Structures, Equipment, Utilities and Improvements”. Exercise care to preserve the natural landscape and conduct activities to prevent any unnecessary destruction, scarring or defacing of the natural surroundings in the project vicinity. Except where clearing is required for permanent works, approved construction roads or excavation operations, vegetation must be preserved and must be protected from damage by project operations and equipment.

2. CONSTRUCTION ROADS: Location, alignment and grade of construction roads shall be subject to the COR's approval. When no longer required, surfaces of construction roads must be scarified to facilitate natural revegetation, provide for proper drainage and prevent erosion. If re-vegetation is required, use seed mixtures as recommended by Natural Resources Conservation Service or other land managing agency as appropriate.

3. CONSTRUCTION FACILITIES: Shop, office, material lay down and material and equipment storage areas and yard areas must be located and arranged in a manner to preserve trees and vegetation to the maximum practicable extent and prevent impact on sensitive riparian areas and flood plains. Storage and construction buildings, including concrete footings and slabs, must be removed from the site prior to contract completion. The area will be re-graded as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural revegetation, provide for proper drainage and prevent erosion or transport of sediment and pollutants. If re-vegetation is required, use seed mixtures as recommended by Natural Resources Conservation Service or other land managing agency as appropriate.

SECTION 13.5 – PRESERVATION OF CULTURAL AND PALEONTOLOGICAL RESOURCES

1. GENERAL: Do not, at any time, remove, disturb or otherwise alter cultural artifacts or paleontological resources (fossils). Cultural artifacts may be of scientific or cultural importance and include, but are not limited to bones, pottery, projectile points (arrowheads), other stone or metal tools, surface features (stone circles, rock piles, etc.), glass, metal, ceramic or other historic objects, structures and buildings (including ruins). Paleontological resources can be of scientific importance and include mineralized animals and plants or trace fossils such as footprints. Both cultural and paleontological resources are protected by Federal Regulations during Federal construction projects. The Contractor must restrict all ground disturbing activities to areas reviewed/investigated and approved for WAPA by the Federal Preservation Officer (FPO) or Regional Preservation Officer (RPO), as appropriate, and as specified in accordance with Standard 1 – General Requirements, Sections 1.3.1 Rights-of-way and 1.3.2 Access to the Work and Haul Routes.

2. KNOWN CULTURAL OR PALEONTOLOGICAL SITES: The Contractor must ensure that all construction activities avoid the boundaries of specific cultural, historic or scientific sites. Following issuance of notice to proceed, WAPA will provide drawings or maps that indicate the area(s) of avoidance in relation to the project area. Prior to any construction activity, the avoidance area(s) must be marked on the ground in a manner approved by the COR and WAPA's Environmental Department in conjunction with the FPO or RPO. When avoidance is not possible, the Contractor must provide WAPA a 90-day notice of their inability to avoid the identified area(s). WAPA will consult with the appropriate authorities and the Contractor will not be permitted to work within or near the boundaries of the avoidance area(s)until the FPO or RPO approves of the work and the COR directs the Contractor to proceed. The Contractor must instruct employees and subcontractors that vehicular or equipment access within these avoidance areas is prohibited. If access is absolutely necessary, the Contractor must first obtain approval from the COR in conjunction with the FPO or RPO. WAPA will remove the markings during or following final cleanup.

3. WORKING WITH CULTURAL, PALEONTOLOGICAL OR TRIBAL MONITORS: For some project work, WAPA requires an archaeological, paleontological or tribal monitor(s) at or near cultural or paleontological site locations. The Contractor, its employees and subcontractors must work with the monitor(s) to ensure that sensitive areas are avoided. The monitor(s) must meet with the Contractor, its employees and subcontractors each morning to go over the day's work. The monitor(s) will also conduct awareness training for the Contractor, its employees and subcontractors prior to any work in the field. Untrained personnel must not be allowed in the construction area. For sensitive areas requiring a monitor(s), the Contractor may not access those areas without a monitor being present.

4. UNKNOWN CULTURAL OR PALEONTOLOGICAL SITES: On rare occasions cultural or paleontological sites, including buried human remains, may be inadvertently discovered during excavation or other earth-moving or other construction activities.

   (1) Reporting: If evidence of a cultural or paleontological site is discovered, cease all work within a 200-foot radius immediately and notify the COR, and FPO or RPO, of the location and nature of the findings. If a monitor(s) is present, the monitor(s) should also be notified. Work within that radius may not be resumed until directed to do so by the COR.

   (2) Care of Evidence: Protect the area. Do not remove, handle, alter or damage artifacts fossils or other objects uncovered during construction activities.

5. SPECIAL CONSIDERATIONS: Refer to Division 13 of the Project Specifications for site-specific requirements including, but not limited to, known and unknown cultural or paleontological resources and the treatment of inadvertently discovered human remains. Disturbance of human remains is covered in most states by statutes that generally preempt Federal regulations. Those requirements are described in the Division 13 specifications.

SECTION 13.6 – NOXIOUS WEED CONTROL

Comply with Federal, State and local noxious weed control regulations. At Contractor's expense, obtain required permits and conduct required notifications. Provide a "clean vehicle policy" while entering and leaving construction areas to prevent transport of noxious weed plants and/or seed. Transport only construction vehicles that are free of mud and vegetation debris to staging areas and the project right-of-way. All seed mixes and mulch used for reclamation activities will be certified weed-free.

SECTION 13.7 – RECYCLED MATERIALS QUANTITIES

1. GENERAL: All materials generated from the project that can be recycled, must be recycled. Record quantities of material by category that is salvaged, recycled, reused or reprocessed, including, but not limited to:

   (1) Transformers, Breakers: Weight without oil in pounds or metric tons.

   (2) Scrap Metals: Weight in pounds or metric tons. Examples include, but are not limited to:

      1) Aluminum Conductor – Steel Reinforced (ACSR).
      2) Stainless Steel.
      3) Copper.
      4) Iron/Steel.
      5) Aluminum.
      6) Lead.
      7) Zinc.
      8) Other Metals.

   (3) Precious Metals (e.g., Silver, Gold, Platinum): Weight in pounds or metric tons.

   (4) Oil: Gallons (separate by type - less than 2-parts per million (ppm) PCB, 2- to 50-ppm PCB, and 50 or greater ppm PCB).

   (5) Gravel, Asphalt or Concrete: Weight in pounds or metric tons.

   (6) Batteries: Weight in pounds or metric tons.

   (7) Treated Wood Utility Poles and Crossarms: Weight in pounds or metric tons.

   (8) Wood Construction Material: Weight in pounds or metric tons.

   (9) Cardboard: Weight in pounds or metric tons.

   (10) Porcelain/Ceramic Insulators: Weight in pounds or metric tons.

   (11) Glass: Weight in pounds or metric tons.

   (12) Fluorescent Bulbs: Weight in pounds or metric tons.

   (13) Ballasts: Weight in pounds or metric tons.

   (14) Mercury-Containing Equipment (MCE): Weight in pounds or metric tons.

   (15) Antifreeze and Freon: Weight in pounds or metric tons.

   (16) Tires: Weight in pounds or metric tons.

   (17) Plastic: Weight in pounds or metric tons.

   (18) Solvent: Weight in pounds or metric tons.

   (19) Construction and Demolition (C&D) Debris: Weight in pounds or metric tons.

2. RECYCLED MATERIAL QUANTITY REPORT: Submit quantities (pounds, metric tons, gallons) of all recycled material by category to the COR and WAPA's Environmental Department within 30-days of recycling and prior to submittal of final invoice.

SECTION 13.8 – USE OF RECOVERED MATERIAL AND BIOBASED MATERIAL PRODUCTS

1. RECOVERED MATERIAL PRODUCTS: If the products listed below or other products listed at https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program are obtained as part of this project, purchase the items with the highest recovered material content possible unless recovered material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

   Examples include, but are not limited to:

   (1) Building Insulation Products.

   (2) Carpet.

   (3) Carpet cushion.

   (4) Cement and Concrete Containing; coal fly ash, ground granulated blast furnace slag, cenospheres or silica fume.

   (5) Consolidated and reprocessed latex paint.

   (6) Floor Tiles.

   (7) Flowable fill.

   (8) Laminated Paperboard.

   (9) Modular threshold ramps.

   (10) Nonpressure pipe.

   (11) Patio Blocks.

   (12) Railroad grade crossing surfaces.

   (13) Roofing materials.

   (14) Shower and restroom dividers/partitions.

   (15) Signage.

   (16) Structural Fiberboard.

2. BIOBASED MATERIAL PRODUCTS: If the products listed at https://www.biopreferred.gov/BioPreferred/faces/pages/ProductCategories.xhtml are obtained as part of this project, purchase the items with the highest biobased content possible and no less than the percent indicated for each product unless biobased material products are not available: 1) competitively within a reasonable time frame, 2) meeting reasonable performance standards as defined in the Standards or Project Specifications, or 3) at a reasonable price.

   NOTE: All station service and pole mounted transformers will be bio-based oil. WAPA large transformers will be evaluated on a best value basis using life cycle cost analysis.

3. RECOVERED MATERIAL AND BIOBASED MATERIAL PRODUCTS REPORT: Provide the COR and WAPA's Environmental Department the following information for purchases of those items listed above:

   Quantity and cost of listed items with recovered or biobased material content and quantity and cost of listed items without recovered or biobased material content prior to submittal of final invoice.

   Written justification of listed items if recovered material or biobased material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

SECTION 13.9 – DISPOSAL OF WASTE MATERIAL

1. GENERAL: Dispose or recycle waste material in accordance with applicable Federal, State and local regulations and ordinances. In addition to the requirements of the Contract Clause "Cleaning Up", remove all waste material from the construction site. No waste will be left on WAPA property, right-of-way or easement. Burning or burying of waste material is not permitted.

2. HAZARDOUS, UNIVERSAL AND NON-HAZARDOUS WASTES: Manage and dispose hazardous, universal and non-hazardous wastes in accordance with local, State and Federal regulations.

3. USED OIL: Used oil generated from the Contractor activities must be managed and disposed in accordance with used oil regulations.

4. RECYCLABLE MATERIAL: Reduce wastes, including excess WAPA material, by recycling, reusing or reprocessing. Examples of recycling, reusing or reprocessing includes, but is not limited to, reprocessing of solvents; recycling cardboard; and salvaging scrap metals.

5. REFRIGERANTS AND RECEIPTS: Refrigerants from air conditioners, water coolers, refrigerators, ice machines and vehicles must be reclaimed with certified equipment operated by certified technicians if the item is to be disposed. Refrigerants must be reclaimed and not vented to the atmosphere. A receipt from the reclaimer stating that the refrigerant was reclaimed, the amount and type of refrigerant and the date must be submitted to the COR and WAPA's Environmental Department prior to submittal of final invoice.

6. HALONS: Equipment containing halons that must be tested, maintained, serviced, repaired or disposed must be handled according to EPA requirements and by technicians trained according to those requirements.

7. SULFUR HEXAFLUORIDE (SF_6)/PERFLUOROCARBONS: All covered insulating gases (e.g., SF_6 gas and other PFCs) must be reclaimed and must not be vented to the atmosphere. See Section 13.14.4(3). After use, all covered insulating gas cylinders must be returned to the manufacturer.

8. WASTE MATERIAL QUANTITY REPORT: Submit quantities and types of all materials disposed of as part of the project to the COR and WAPA's Environmental Department prior to submittal of final invoice.

    (1) Non-Hazardous Municipal Solid Waste (MSW) (i.e., trash): Description of waste and volume in cubic yards or weight in pounds.

    (2) Hazardous Wastes: Hazardous waste description, hazardous waste code and weight in pounds or volume in gallons.

    (3) Universal Wastes: Universal Waste category and weight in pounds.

    (4) PCB Wastes: Weight in pounds.

    (5) Industrial Wastes: Description of waste and weight in pounds.

    (6) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).

SECTION 13.10 – CONTRACTOR'S LIABILITY FOR REGULATED MATERIAL INCIDENTS

1. GENERAL: The Contractor is solely liable for all expenses related to spills, mishandling or incidents of regulated material attributable to his actions or the actions of his subcontractors. This includes all response, investigation, cleanup, disposal, permitting, reporting and requirements from applicable environmental regulation agencies.

2. SUPERVISION: The actions of the Contractor employees and subcontractors must be properly managed at all times on WAPA property or while transporting WAPA's (or previously owned by WAPA) regulated material and equipment.

SECTION 13.11 – POLLUTANT SPILL PREVENTION, NOTIFICATION AND CLEANUP

1. GENERAL: Provide measures to prevent spills of pollutants and respond appropriately if a spill occurs. A pollutant includes any hazardous or non-hazardous substance that when spilled, will contaminate soil, surface water or groundwater. This includes any solvent, fuel, oil, paint, pesticide, engine coolants and similar substances.

2. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN: Provide the Plan to the COR and WAPA's Environmental Department for review and comment 14-days prior to start of work. Review of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations. Include the following in the Plan:

   (1) Spill Prevention Measures: Describe the work practices or precautions that will be used at the jobsite to prevent spills. These may include engineered or manufactured techniques such as installation of berms around fuel and oil tanks; storage of fuels, paints and other substances in spill proof containers; and management techniques such as requiring workers to handle material in certain ways.

   (2) Notification: Most States and the EPA require by regulation that anyone who spills certain types of pollutants in certain quantities notify them of the spill within a specific time period. Some of these agencies require written follow up reports and cleanup reports. Include in the Plan the types of spills for which notification would be made, the agencies notified, the information the agency requires during the notification and the telephone numbers for notification.

   (3) Employee Awareness Training: Describe employee awareness training procedures that will be implemented to ensure personnel are knowledgeable about the contents of the Plan and the need for notification.

   (4) Commitment of Manpower: Equipment and Material. Identify the arrangements made to respond to spills, including the commitment of manpower, equipment and material.

   (5) If applicable, address all requirements of 40 C.F.R. Part 112 pertaining to Spill Prevention, Control and Countermeasures (SPCC) Plans.

3. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Provide a Tanker Oil Spill Prevention and Response Plan as required by the Department of Transportation if oil tankers with volume of 3,500-gallons or more are used as part of the project. Submit the Tanker Oil Spill Prevention and Response Plan to the COR and WAPA's Environmental Department for review and comment 14-days prior to start of work. Review of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations.

SECTION 13.12 – PESTICIDES

1. GENERAL: The term “pesticide” includes herbicides, insecticides, rodenticides and fungicides. Pesticides must only be used in accordance with their labeling and applied by appropriately certified applicators.

2. EPA REGISTRATION: Use only EPA-registered pesticides that are approved for the intended use and location. Follow all applicable label directions.

3. PESTICIDE USE PROPOSAL: Provide a pesticide use proposal that contains: 1) pesticide(s) proposed (include mixtures and surfactants), 2) treatment site, 3) intended rate of application, 4) a copy of labels and Safety Data Sheets and 5) a copy of required applicator certifications. Submit the pesticide use proposal to the COR and WAPA’s Environmental Department for review and comment 14-days prior to the date of intended application. Review of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations. Within seven (7)-days after application, submit a written final report to the COR and WAPA’s Environmental Department, including the pesticide applicators report, in accordance with Standard 2 – Sitework, Section 2.1.1 5. “Soil-Applied Herbicide, (4) Final Report”.

SECTION 13.13 – TREATED WOOD UTILITY POLES AND CROSSARMS RECYCLING OR DISPOSAL

Whenever practicable, treated wood utility poles and crossarms removed during the project must be recycled or transferred to the public for some uses. Treated wood utility poles and crossarms transferred to a recycler, landfill or the public must be accompanied by a written consumer information sheet for treated wood as provided by WAPA. Obtain a receipt, part of the consumer information sheet, from the recipient indicating that they have received, read and understand the consumer information sheet. Treated wood products transferred to right-of-way landowners must be moved off the right-of-way. Treated wood product scrap, poles and crossarms that cannot be donated or reused must be properly disposed in a landfill that accepts treated wood and has signed WAPA's consumer information sheet receipt. Submit treated wood utility poles and crossarms consumer information receipts to the COR and WAPA's Environmental Department prior to submittal of final invoice.

SECTION 13.14 – PREVENTION OF AIR POLLUTION

1. GENERAL: Ensure that construction activities and the operation of equipment are undertaken to reduce the emission of air pollutants. Submit a copy of permits for construction activities, if required (e.g., "non-attainment" areas, State implementation plans or Class I air-sheds), from Federal, State or local agencies to the COR and WAPA's Environmental Department 14-days prior to the start of work. The Contractor must fulfill the conditions under any applicable locally prepared Environmental Impact Statements (EISs) or Environmental Assessments (EAs) conducted for the project under the National Environmental Protection Act (NEPA).

2. MACHINERY AIR EMISSIONS: The Contractor and subcontractor machinery must have and must use the air emissions control devices required by Federal, State or local Regulation or ordinance.

3. DUST ABATEMENT: Dust must be controlled. Oil must not be used as a dust suppressant. Dust suppressants must be approved by the COR and WAPA's Environmental Department prior to use.

4. SULFUR HEXAFLUORIDE (SF_6)/PERFLUOROCARBONS (PFCs) EMISSIONS:

   (1) General: WAPA complies with State, Federal and local regulations regarding Mandatory Greenhouse Gas Reporting 40 C.F.R. Part 98. The Contractor must provide the information required by this section to the COR and WAPA's Environmental Department as described. Additional requirements may be required for projects in the State of California. The Contractor must meet the additional requirements and provide any additional information as required by the State of California to the COR and WAPA's Environmental Department as described in Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 3.1 (17 CCR § 95350 – 95359.1).

   (2) The Contractor must record quantities of all covered insulating gases (e.g., SF_6 gas and other PFCs), including:

      1) Nameplate capacity in pounds of the covered insulating gas containing equipment.

      2) Record pounds of the covered insulating gas stored in containers, before transferring into energized equipment. Record the serial numbers of the cylinders/containers from which the gas is transferred.

      3) Record pounds of the covered insulating gas left in containers, after transferring into energized equipment. Record the serial numbers of the cylinders/containers from which the gas is transferred.

      4) Pounds of covered insulating gas purchased from equipment manufacturers or distributors. Record the serial numbers of the purchased cylinders/containers.

      5) Pounds of covered insulating gas returned to suppliers. Record the serial numbers of the returned cylinders/containers.

      6) Scales used to weigh cylinders must be accurate to within ±2-pounds and must have current calibration sticker.

   (3) Contractor Field Quality Testing and Covered Insulating Gas Handling:

      1) The Contractor must test all functions to verify correct operation and conduct a leak test. No gas leakage of covered insulating gases must be allowed from any equipment or storage containers.

2) Atmospheric venting of covered insulating gas is not allowed.

3) The Contractor must use cylinders with a current certified hydrostatic test certificate.

4) The Contractor must remove all empty covered insulating gas cylinders and return to supplier.

(4) Certificates of Disposal and Receipts for Covered Insulating Gas:

1) The Contractor can use WAPA's Reporting Form for reporting quantities listed above.

2) The Contractor must return all used covered insulating gas cylinders to supplier and provide receipts from the supplier.

3) The Contractor must submit all covered insulating gas Reporting Forms and copies of receipts to the COR and to WAPA's Environmental Department prior to submittal of final invoice.

5. PROTECTION OF STRATOSPHERIC OZONE: The Contractor must comply with all State, Federal and local regulations regarding ozone depleting substances and the Protection of Stratospheric Ozone, including, but not limited to 40 C.F.R. Part 82. Contractors performing work on HVAC systems must be trained and certified according to the regulations, and releases of ozone depleting substances to the atmosphere must be prevented. The Contractor must provide reclaimed refrigerant receipts to the COR and WAPA's Environmental Department in accordance with section 13.2.3 of this document.

SECTION 13.15 – HANDLING AND MANAGEMENT OF ASBESTOS CONTAINING MATERIAL

1. GENERAL: Obtain the appropriate Federal, State, Tribal or local licenses or certifications prior to disturbing any regulated asbestos-containing material. If a building or portion of a building will be demolished or renovated, obtain an Asbestos Notice of and Permit for Demolition and Renovation from the State or Tribal Department of Environmental Quality, Division of Air Quality (or equivalent). The building(s) must be inspected by a State-Certified or Tribal accepted Asbestos Building Inspector. The inspector must certify the presence and condition of asbestos, or non-presence of asbestos, on site as directed on the State or Tribal Demolition and Renovation Notice/Permit. The inspections must be performed and notifications must be submitted whether asbestos is present or not. Submit a copy of licenses, certifications, Demolition and Renovation Notifications and Permits for asbestos work to the COR and WAPA's Environmental Department 14- days prior to work. Ensure: 1) worker and public safety requirements are fully implemented and 2) proper handling, transportation and disposal of asbestos containing material.

2. TRANSPORTATION OF ASBESTOS WASTE: Comply with Department of Transportation, EPA, and State and local requirements when transporting asbestos wastes.

3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificates of disposal for waste if the waste is a hazardous waste or receipts from a landfill approved to accept asbestos if the waste is a non-hazardous waste. Submit copies to the COR and WAPA's Environmental Department prior to submittal of final invoice.

SECTION 13.16 – MATERIAL WITH LEAD-BASED PAINT

1. GENERAL: Comply with all applicable Federal, State and local regulations concerning work with lead-based paint, disposal of material painted with lead-based paint and management of these materials. OSHA and General Industry Standards apply to worker safety and right-to-know issues. Federal EPA and State agencies regulate waste disposal and air quality issues.

2. TRANSFER OF PROPERTY: If lead-based paint containing equipment or material is to be given away or sold for reuse, scrap or reclaiming, the Contractor must provide a written notice to the recipient of the material stating that the material contains lead-based paint and the Hazardous Waste regulations may apply to the waste or the paint in some circumstances. The new owner must also be notified that they may be responsible for compliance with OSHA requirements if the material is to be cut, sanded, abraded or stripped of paint. Submit a copy of lead paint notices with the Contractor and recipient signatures to the COR and WAPA's Environmental Department prior to submittal of final invoice.

3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificates of disposal for waste if the waste is a hazardous waste or receipts from a landfill if the waste is a non-hazardous waste. Submit copies to the COR and WAPA's Environmental Department prior to submittal of final invoice.

SECTION 13.17 – PREVENTION OF WATER POLLUTION

1. GENERAL: Ensure that surface and groundwater is protected from pollution caused by construction activities and comply with applicable regulations and requirements. Ensure that streams, waterways and other courses are not obstructed or impaired unless the appropriate Federal, State or local permits have been obtained.

2. PERMITS: The Contractor must ensure that:

   (1) A National Pollutant Discharge Elimination System (NPDES) permit is obtained from the US EPA or State as appropriate if the disturbed construction area equals 1-acre or more. The Contractor is responsible for preparation and implementation of the associated Storm Water Pollution Prevention Plan (SWPPP). Disturbed areas include staging, parking, fueling, stockpiling and any other construction related activities. Refer to https://www.epa.gov/npdes/npdes-stormwater-program for directions and forms.

   (2) A dewatering permit is obtained from the appropriate agency if required for construction dewatering activities.

   (3) Copies of permits and plans, approved by the appropriate regulating agencies, are submitted to the COR and WAPA's Environmental Department 14-days prior to start of work.

3. EXCAVATED MATERIAL AND OTHER CONTAMINANT SOURCES: Control runoff from excavated areas and piles of excavated material, construction material or wastes (to include truck washing and concrete wastes) and chemical products such as oil, grease, solvents, fuels, pesticides and pole treatment compounds. Excavated material or other construction material must not be stockpiled or deposited near or on streambanks, lake shorelines, ditches, irrigation canals or other areas where run-off could impact the environment.

4. MANAGEMENT OF WASTE CONCRETE OR WASHING OF CONCRETE TRUCKS: Do not permit the washing of concrete trucks or disposal of excess concrete in any ditch, canal, stream or other surface water. Concrete wastes must be disposed in accordance with all Federal, State and local regulations. Concrete wastes must not be disposed of on any WAPA property, right-of-way easement or on any streets, roads or property without the owner's consent.

5. STREAM CROSSINGS: Crossing of any stream or other waterway must be done in compliance with Federal, State and local regulations. Crossing of some waterways may be prohibited by landowners, Federal or State agencies or require permits.

SECTION 13.18 – TESTING, DRAINING, REMOVAL AND DISPOSAL OF OIL-FILLED ELECTRICAL EQUIPMENT

1. SAMPLING AND TESTING OF INSULATING OIL FOR PCB CONTENT: Sample and analyze the oil of electrical equipment (which includes storage tanks) for PCB's. Use analytical methods approved by EPA and applicable State regulations. Decontaminate sampling equipment according to documented good laboratory practices (these can be Contractor developed or EPA standards). Use only laboratories approved by WAPA. The COR will furnish a list of approved laboratories.

2. PCB TEST REPORT: Provide PCB test reports that contain the information below for disposing of oil-filled electrical equipment. Submit the PCB test report for COR and WAPA's Environmental Department approval prior to draining, removal or disposal of oil or oil-filled equipment that is designated for disposal.

   (1) Name and address of the laboratory.

   (2) Copies of Chain of Custody Form(s).

   (3) Description of the electrical equipment (e.g. transformer, breaker).

   (4) Serial number for the electrical equipment.

   (5) Date sampled.

   (6) Date tested.

   (7) PCB contents in parts per million (ppm) by Aroclor type.

   (8) Unique identification number of container into which the oil was drained (i.e., number of drum, tank, tanker, etc.)

3. OIL CONTAINING PCB: Comply with the Federal regulations pertaining to PCBs found at Title 40, Part 761 of the U.S. Code of Federal Regulations (40 C.F.R. Part 761).

4. REMOVAL AND DISPOSAL OF INSULATING OIL AND OIL-FILLED ELECTRICAL EQUIPMENT: Once the PCB content of the oil has been identified from laboratory results, the oil must be transported and disposed, recycled or reprocessed according to 40 C.F.R. Part 761 (if applicable), Resource Conservation and Recovery Act (RCRA) "used oil" and other applicable regulations. Used oil may be transported only by EPA-registered used oil transporters. The oil must be stored in containers that are labeled "Used Oil." Use only transporters and disposal sites approved by WAPA.

5. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled or reprocessed to the COR and WAPA's Environmental Department prior to submittal of final invoice.

SECTION 13.19 – REMOVAL OF OIL-CONTAMINATED MATERIAL

1. GENERAL: Removing oil-contaminated material includes excavating, stockpiling, testing, transporting, cleaning and disposing of these materials. Personnel working with PCBs must be trained in accordance with OSHA requirements. Submit employee training documentation records to the COR and WAPA's Environmental Department 14-days prior to the start of work.

2. CLEANUP WORK MANAGEMENT PLAN: Provide a Cleanup Work Management Plan that has been approved by applicable Federal, State or local environmental regulation agencies. Submit the plan to the COR and WAPA's Environmental Department for review and comment 14-days prior to the start of work. Review of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State and local regulations. The plan must address onsite excavation of contaminated soil and debris and include the following:

   (1) Identification of contaminants and areas to be excavated.
   (2) Method of excavation.
   (3) Level of personnel/subcontractor training.
   (4) Safety and health provisions.
   (5) Sampling requirements including quality control, laboratory to be used.
   (6) Management of excavated soils and debris.
   (7) Decontamination procedures for personnel and equipment.
   (8) Disposal methods, including transportation to disposal.

3. EXCAVATION AND CLEANUP: Comply with the requirements of Title 40, Part 761 of the U.S. Code of Federal Regulations (40 C.F.R. Part 761).

4. TEMPORARY STOCKPILING: Excavated material, stockpiled onsite during construction, must be stored on plastic with appropriate thickness and covered to prevent wind and rain erosion at a location designated by the COR.

5. SAMPLING AND TESTING: Sample contaminated debris and areas of excavation to ensure that contamination is removed. Use personnel with experience in sampling and, in particular, with experience in PCB cleanup if PCBs are involved. Use analytical methods approved by EPA and applicable State regulations.

6. TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL: The Contractor must be responsible and liable for the proper loading, transportation and disposal of contaminated material according to Federal, State and local requirements. Use only transporters and disposal sites approved by WAPA.

7. POST CLEANUP REPORT: Provide a Post-Cleanup Report that describes the cleanup of contaminated soils and debris. Submit the report to the COR and WAPA's Environmental Department prior to submittal of final invoice. The report must contain the following information:

   (1) Site map showing the areas cleaned.

   (2) Description of the operations involved in excavating, storing, sampling, testing and disposal.

   (3) Sampling and analysis results including 1) Name and address of the laboratory, 2) sample locations, 3) sample dates, 4) analysis dates, 5) contents of contaminant (e.g. PCB or total petroleum hydrocarbons) in ppm.

   (4) Certification by the Contractor that the cleanup requirements were met.

(5) Copies of any manifests, bills of lading and disposal certificates.

(6) Copies of correspondence with regulatory agencies that support completion of the cleanup.

SECTION 13.20 – CONSERVATION OF BIOLOGICAL RESOURCES

1. GENERAL: The Endangered Species Act of 1973 prohibits "take" of threatened or endangered animal and plant species, as well as destruction of designated critical habitat. "Take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or attempt to engage in any such conduct with a protected animal or plant or any part thereof, or attempt to do any of those things without a permit from the U.S. Fish and Wildlife Service. Federal law also prohibits "take" of birds or collection of bird parts or nests protected by the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. Contractor and subcontractor personnel will take precautions to avoid harming animals and plants, restricting all ground disturbing activities to areas specified in accordance with Standard 1 – General Requirements, Sections 1.3.1 Rights-Of-Way and 1.3.2 Access to the Work and Haul Routes.

2. MIGRATORY BIRDS: The Migratory Bird Treaty Act of 1918 protects migratory bird species, their nests and eggs from injury or death. Impacts to migratory bird nests will be avoided during nesting season(s) identified in Division 13 of the Project Specifications. If construction activities occur during nesting, WAPA will survey the construction area for active migratory bird nests prior to work and will establish appropriate buffers around any nests that may potentially be disturbed. If work must be conducted within these buffers, the COR may choose to delay work until the nest is no longer active or utilize a provision within WAPA's Special Purpose Utility permit.

3. BALD AND GOLDEN EAGLES: The Bald and Golden Eagle Protection Act of 1940 protects bald and golden eagles from take and collection. In addition, eagle nests are protected by specific buffer distances that will be identified in Division 13 of the Project Specifications. Unlike the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act even protects nests of eagles while they are inactive.

4. KNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT: Following issuance of the Notice to Proceed and prior to the start of construction, WAPA will provide information on presence and distribution, as well as avoidance and minimization information, for relevant protected species and habitat. Non-trained personnel will not be allowed in the construction area. Marked avoidance areas will be maintained throughout the duration of work until the COR approves their removal. If access within an avoidance area is absolutely necessary, Contractor and subcontractor personnel must first obtain written permission from the COR before any work is performed within the avoidance area. NOTE: a WAPA and other Federal or State government or tribal agency biologist may be required to accompany Contractor or subcontractor personnel.

5. UNKNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT: On rare occasion, an unknown protected species or habitat may be discovered during the project. When evidence of a protected species or habitat is discovered within the project area, Contractor and subcontractor personnel will immediately notify the COR and provide the location and nature of the findings. The Contractor and subcontractor personnel will immediately stop all activity within 100-feet of the protected species or habitat and will not re-start activity until directed to do so by the COR.

6. SPECIAL CONSIDERATIONS: Refer to Division 13 of the Project Specifications for site-specific requirements including, but not limited to, protected species, habitats, migratory birds and eagles.

APPENDIX C
Air Emissions Inventory

Western Area Power Administration
MPP-Q01 Interconnection Project
DOE-EA-2208

Project Emissions Summary												
	PM_{10}		$PM_{2.5}$		SO_2		NOx		CO		VOC	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Fugitives	33.24	31.81	4.84	3.94	0.08	0.062	13.35	10.01	98.10	82.53	5.55	4.42
Total	**33.24**	**31.81**	**4.84**	**3.94**	**0.08**	**0.062**	**13.35**	**10.01**	**98.10**	**82.53**	**5.55**	**4.42**

Hazardous Air Pollutants (HAPs)

Pollutants	Emissions ton/yr
Benzene	0.0391
Toluene	0.01701
Xylenes	0.01185
Formaldehyde	0.04730
Actealdehyde	0.030685
Acrolein	0.003712
Naphthalene	0.00370
Total	**0.1534**

Green House Gases (GHGs)

Pollutants	Emissions	
	lb/yr	ton/yr
CO_2	29,761,724	14,881
Total Annual GHG	29,761,724	14,881
Total CO_2 equivalent (metric tons)		**13,500**

Air Pollution Emission Inventory
Master List of All Sources and Pollutants

Emission Unit Description	**Pollutants**
Emission Sources	
Light Plant	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Generator	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Auxillary Air Compressor	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
4x4 Backhoe or Excavator	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Steel Track Sagging Dozer	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Front End Loader (CAT 980 or similar)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Drill Rig	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Digger Derrick	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Bucket Trucks, Ranging from 55’ to 105’	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
38T – 45T Boom Truck	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Rough Terrain Crane (size may range from 65T to 150T)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
All Terrain Crane (size may range from 120T to 240T)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Water Truck	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Skid Steer	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Rubber Track CAT Challenger	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Service Truck	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
1T Pickup	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
1T – 2T Flatbed Trucks	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Semi Tractors, 4x4 or 6x6	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Concrete Truck	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Fuel Truck (for helicopter)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
1/2T Pickup	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
3/4T Pickup	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2
Helicopter (for stringing rope)	PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, CO_2

Western Area Power Administration
MPP-Q01 Interconnection Project
DOE/EA-2208

Project Information and Assumptions			
Factor	**Value**	**Units**	**Source**
Silt content of road surface material (s) - Project Roads	4.30	%	AP-42, Table 11.9-3
Surface material moisture content (M) - Project Roads	2.4	%	AP-42, Table 11.9-4
Vehicle Speed in Project Area	25	mph	Arizona Public Service
Sulfur Content of fuel Burned (S) - Diesel	0.0015	%	EPA Limits S content to 15 ppm starting (7/2010)
Diesel Fuel Heating Value	137,000	Btu/gal	AP-42, Appendix A
Diesel Brake-Specific Fuel Value	7,000	Btu/hp-hr	Ap-42 default for diesel engines
Diesel Fuel Density	7.09	lbs/gal	
Gasoline Fuel Heating Value	116,090	Btu/gal	AP-42, Appendix A
Gasoline Brake-Specific Fuel Value	7,000	Btu/hp-hr	Ap-42 default for gasoline engines
Gasoline Fuel Density	6.07	lbs/gal	
Number of drill holes	66	holes /yr	Arizona Public Service
One Way Distance to Water Source	10.0	miles	Arizona Public Service
One Way Distance on Dirt to Project Site	7.5	miles	Arizona Public Service
Emission Unit Specific Information			
Emission Sources			
Light Plant			
Availability of Individual Units	20%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	1.2	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	300	hours/year	Arizona Public Service
Hourly Fuel Consumption	1.5	gal/hour	Arizona Public Service
Annual Fuel Consumption	456	gal/year	Calc. - hours/year * gal/hour
Horsepower	30	hp	Arizona Public Service
No. Units	4	Unit	Arizona Public Service
Generator			
Availability of Individual Units	80%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	7.7	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,920	hours/year	Arizona Public Service
Hourly Fuel Consumption	3.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	7,296	gal/year	Calc. - hours/year * gal/hour
Horsepower	75	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Auxillary Air Compressor			
Availability of Individual Units	40%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	2.0	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	500	hours/year	Arizona Public Service
Hourly Fuel Consumption	3.0	gal/hour	Arizona Public Service
Annual Fuel Consumption	1,520	gal/year	Calc. - hours/year * gal/hour
Horsepower	60	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service
4x4 Backhoe or Excavator			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.5	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,125	hours/year	Arizona Public Service
Hourly Fuel Consumption	4.9	gal/hour	Arizona Public Service
Annual Fuel Consumption	5,513	gal/year	Calc. - hours/year * gal/hour
Horsepower	97	hp	Arizona Public Service
No. Units	3	Unit	Arizona Public Service
Steel Track Sagging Dozer			
Availability of Individual Units	65%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	2.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	650	hours/year	Arizona Public Service
Hourly Fuel Consumption	7.9	gal/hour	Arizona Public Service
Annual Fuel Consumption	5,109	gal/year	Calc. - hours/year * gal/hour
Horsepower	155	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Front End Loader (CAT 980 or similar)			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	3.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	900	hours/year	Arizona Public Service
Hourly Fuel Consumption	20.9	gal/hour	Arizona Public Service
Annual Fuel Consumption	18,810	gal/year	Calc. - hours/year * gal/hour
Horsepower	412	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service
Drill Rig			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.8	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,200	hours/year	Arizona Public Service
Hourly Fuel Consumption	22.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	27,396	gal/year	Calc. - hours/year * gal/hour
Horsepower	450	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service
Digger Derrick			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	17.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	38,340	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Bucket Trucks, Ranging from 55' to 105'			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	17.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	38,340	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

38T – 45T Boom Truck			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	19.3	gal/hour	Arizona Public Service
Annual Fuel Consumption	41,645	gal/year	Calc. - hours/year * gal/hour
Horsepower	380	hp	Arizona Public Service
No. Units	3	Unit	Arizona Public Service

Rough Terrain Crane (size may range from 65T to 150T)			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	90%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	5.4	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,350	hours/year	Arizona Public Service
Hourly Fuel Consumption	16.2	gal/hour	Arizona Public Service
Annual Fuel Consumption	21,911	gal/year	Calc. - hours/year * gal/hour
Horsepower	320	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

All Terrain Crane (size may range from 120T to 240T)			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.8	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,200	hours/year	Arizona Public Service
Hourly Fuel Consumption	28.7	gal/hour	Arizona Public Service
Annual Fuel Consumption	34,392	gal/year	Calc. - hours/year * gal/hour
Horsepower	565	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

Water Truck			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	21.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	46,570	gal/year	Calc. - hours/year * gal/hour
Horsepower	425	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Skid Steer			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	2.4	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	600	hours/year	Arizona Public Service
Hourly Fuel Consumption	19.0	gal/hour	Arizona Public Service
Annual Fuel Consumption	11,412	gal/year	Calc. - hours/year * gal/hour
Horsepower	375	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

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Rubber Track CAT Challenger			
Availability of Individual Units	65%		Arizona Public Service
Utilization of Individual Units	50%		Arizona Public Service
Maximum Daily Hours of Operation	10	hours/day	Arizona Public Service
Actual Daily Hours of Operation	3.3	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	813	hours/year	Arizona Public Service
Hourly Fuel Consumption	13.7	gal/hour	Arizona Public Service
Annual Fuel Consumption	11,131	gal/year	Calc. - hours/year * gal/hour
Horsepower	270	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

Service Truck			
Availability of Individual Units	90%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	8.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,160	hours/year	Arizona Public Service
Hourly Fuel Consumption	5.0	gal/hour	Arizona Public Service
Annual Fuel Consumption	10,800	gal/year	Calc. - hours/year * gal/hour
Horsepower	300	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

1T Pickup			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	9.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,400	hours/year	Arizona Public Service
Hourly Fuel Consumption	17.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	42,600	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

1T – 2T Flatbed Trucks			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	9.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,400	hours/year	Arizona Public Service
Hourly Fuel Consumption	17.8	gal/hour	Arizona Public Service
Annual Fuel Consumption	42,600	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Semi Tractors, 4x4 or 6x6			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	60%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	7.2	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,800	hours/year	Arizona Public Service
Hourly Fuel Consumption	21.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	38,808	gal/year	Calc. - hours/year * gal/hour
Horsepower	425	hp	Arizona Public Service
No. Units	2	Unit	Arizona Public Service

Concrete Truck			
Availability of Individual Units	40%		Arizona Public Service
Utilization of Individual Units	100%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.8	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,200	hours/year	Arizona Public Service
Hourly Fuel Consumption	21.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	25,872	gal/year	Calc. - hours/year * gal/hour
Horsepower	425	hp	Arizona Public Service
No. Units	4	Unit	Arizona Public Service

Fuel Truck (for helicopter)			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	100%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	4.8	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	1,200	hours/year	Arizona Public Service
Hourly Fuel Consumption	15.2	gal/hour	Arizona Public Service
Annual Fuel Consumption	18,264	gal/year	Calc. - hours/year * gal/hour
Horsepower	300	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

1/2T Pickup			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	9.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,400	hours/year	Arizona Public Service
Hourly Fuel Consumption	19.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	47,040	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	3	Unit	Arizona Public Service

3/4T Pickup			
Availability of Individual Units	100%		Arizona Public Service
Utilization of Individual Units	80%		Arizona Public Service
Maximum Daily Hours of Operation	12	hours/day	Arizona Public Service
Actual Daily Hours of Operation	9.6	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	2,400	hours/year	Arizona Public Service
Hourly Fuel Consumption	19.6	gal/hour	Arizona Public Service
Annual Fuel Consumption	47,040	gal/year	Calc. - hours/year * gal/hour
Horsepower	350	hp	Arizona Public Service
No. Units	4	Unit	Arizona Public Service

Helicopter (for stringing rope)			
Availability of Individual Units	60%		Arizona Public Service
Utilization of Individual Units	60%		Arizona Public Service
Maximum Daily Hours of Operation	8	hours/day	Arizona Public Service
Actual Daily Hours of Operation	2.9	hours/day	Calc. - % availability * %utilization * max. hours
Annual Hours of Operation	720	hours/year	Arizona Public Service
Hourly Fuel Consumption	49.4	gal/hour	Arizona Public Service
Annual Fuel Consumption	35,539	gal/year	Calc. - hours/year * gal/hour
Horsepower	952	hp	Arizona Public Service
No. Units	1	Unit	Arizona Public Service

Emission Sources

Emission Factors Source: Tier 4 EPA Emission Factors and EPA Nonroad Engine Emission limits
**Diesel Emission Factors (EFs) from Table 3.3-1 of AP-42 for Gasoline (<250 HP) and Diesel Ind. Eng. (<600 HP)*
**Diesel Emission Factors (EFs) from Table 3.4-1 of AP-42 for large Ind. Eng. (>600 HP)*

Emission Unit	***Rating (hp)***	***Emission Factors (g/hp-hr)***				
		PM	**SO_2***	**NOx**	**CO**	**VOC***
4x4 Backhoe or Excavator	97	0.02	0.002	0.30	3.70	0.14
Steel Track Sagging Dozer	155	0.02	0.002	0.30	3.70	0.14
Front End Loader (CAT 980 or similar)	412	0.02	0.002	0.30	3.70	0.14
Drill Rig	450	0.02	0.002	0.30	3.70	0.14
Digger Derrick	350	0.02	0.002	0.30	3.70	0.14
Bucket Trucks, Ranging from 55’ to 105’	350	0.02	0.002	0.30	2.60	0.14
38T – 45T Boom Truck	380	0.02	0.002	0.30	3.70	0.14
Rough Terrain Crane (size may range from 65T to 150T)	320	0.02	0.002	0.30	3.70	0.14
All Terrain Crane (size may range from 120T to 240T)	565	0.02	0.002	0.30	2.60	0.14
Water Truck	425	0.02	0.002	0.30	2.60	0.14
Skid Steer	375	0.02	0.002	0.30	2.60	0.14
Rubber Track CAT Challenger	270	0.02	0.002	0.30	2.60	0.14
Service Truck	300	0.02	0.002	0.30	2.60	0.14
1T Pickup	350	0.02	0.002	0.30	2.60	0.14
1T – 2T Flatbed Trucks	350	0.02	0.002	0.30	2.60	0.14
Semi Tractors, 4x4 or 6x6	425	0.02	0.002	0.30	2.60	0.14
Concrete Truck	425	0.02	0.002	0.30	2.60	0.14
Fuel Truck (for helicopter)	300	0.02	0.002	0.30	2.60	0.14
1/2T Pickup	350	0.02	0.002	0.30	2.60	0.14
3/4T Pickup	350	0.02	0.002	0.30	2.60	0.14
Helicopter (for stringing rope)	952	0.02	0.006	0.30	2.60	0.14
Light Plant	30	0.22	0.002	5.60	4.10	1.14
Generator	75	0.22	0.002	3.50	3.70	1.14
Auxillary Air Compressor	60	0.22	0.002	3.50	3.70	1.14

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Emission Unit	*Operational Hours (hr/yr)*	*Fuel Usage (gal/hr)*	*Number of Units*	**Fuel Based Output (hp-hr/yr)**
4x4 Backhoe or Excavator	1,125	5	3	323,663
Steel Track Sagging Dozer	650	8	2	199,981
Front End Loader (CAT 980 or similar)	900	21	1	368,139
Drill Rig	1,200	23	2	1,072,358
Digger Derrick	2,160	18	2	1,500,737
Bucket Trucks, Ranging from 55’ to 105’	2,160	18	2	1,500,737
38T – 45T Boom Truck	2,160	19	3	2,445,145
Rough Terrain Crane (size may range from 65T to 150T)	1,350	16	1	428,820
All Terrain Crane (size may range from 120T to 240T)	1,200	29	1	673,101
Water Truck	2,160	22	2	1,822,867
Skid Steer	600	19	1	223,349
Rubber Track CAT Challenger	813	14	1	217,854
Service Truck	2,160	5	2	422,743
1T Pickup	2,400	18	2	1,667,486
1T – 2T Flatbed Trucks	2,400	18	2	1,667,486
Semi Tractors, 4x4 or 6x6	1,800	22	2	1,519,056
Concrete Truck	1,200	22	4	2,025,408
Fuel Truck (for helicopter)	1,200	15	1	357,453
1/2T Pickup	2,400	20	3	2,761,920
3/4T Pickup	2,400	20	4	3,682,560
Helicopter (for stringing rope)	720	49	1	685,399
Light Plant	300	2	4	35,698
Generator	1,920	4	2	285,586
Auxillary Air Compressor	500	3	2	59,497

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Emission Unit	*Emissions*									
	PM		**SO_2**		**NOx**		**CO**		**VOC**	
	lb/hr	**ton/yr**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**
4x4 Backhoe or Excavator	0.010	0.005	0.001	0.001	0.190	0.107	2.347	1.320	0.089	0.050
Steel Track Sagging Dozer	0.010	0.003	0.001	0.000	0.203	0.066	2.510	0.816	0.095	0.031
Front End Loader (CAT 980 or similar)	0.014	0.006	0.002	0.001	0.271	0.122	3.337	1.501	0.126	0.057
Drill Rig	0.030	0.018	0.004	0.002	0.591	0.355	7.289	4.374	0.276	0.165
Digger Derrick	0.023	0.025	0.003	0.003	0.460	0.496	5.667	6.121	0.214	0.232
Bucket Trucks, Ranging from 55’ to 105’	0.023	0.025	0.003	0.003	0.460	0.496	3.983	4.301	0.214	0.232
38T – 45T Boom Truck	0.037	0.040	0.005	0.006	0.749	0.809	9.234	9.973	0.349	0.377
Rough Terrain Crane (size may range from 65T to 150T)	0.011	0.007	0.001	0.001	0.210	0.142	2.591	1.749	0.098	0.066
All Terrain Crane (size may range from 120T to 240T)	0.019	0.011	0.003	0.002	0.371	0.223	3.215	1.929	0.173	0.104
Water Truck	0.028	0.030	0.004	0.004	0.558	0.603	4.837	5.224	0.260	0.281
Skid Steer	0.012	0.004	0.002	0.001	0.246	0.074	2.134	0.640	0.115	0.034
Rubber Track CAT Challenger	0.009	0.004	0.001	0.000	0.177	0.072	1.537	0.624	0.083	0.034
Service Truck	0.006	0.007	0.001	0.001	0.129	0.140	1.122	1.212	0.060	0.065
1T Pickup	0.023	0.028	0.003	0.004	0.460	0.551	3.983	4.779	0.214	0.257
1T – 2T Flatbed Trucks	0.023	0.028	0.003	0.004	0.460	0.551	3.983	4.779	0.214	0.257
Semi Tractors, 4x4 or 6x6	0.028	0.025	0.004	0.003	0.558	0.502	4.837	4.354	0.260	0.234
Concrete Truck	0.056	0.033	0.008	0.005	1.116	0.670	9.675	5.805	0.521	0.313
Fuel Truck (for helicopter)	0.010	0.006	0.001	0.001	0.197	0.118	1.707	1.024	0.092	0.055
1/2T Pickup	0.038	0.046	0.005	0.006	0.761	0.913	6.596	7.916	0.355	0.426
3/4T Pickup	0.051	0.061	0.007	0.008	1.015	1.218	8.795	10.554	0.474	0.568
Helicopter (for stringing rope)	0.031	0.011	0.013	0.005	0.630	0.227	5.457	1.964	0.294	0.106
Light Plant	0.058	0.009	0.001	0.000	1.469	0.220	1.076	0.161	0.299	0.045
Generator	0.072	0.069	0.001	0.001	1.148	1.102	1.213	1.165	0.374	0.359
Auxillary Air Compressor	0.058	0.014	0.001	0.000	0.918	0.230	0.971	0.243	0.299	0.075
Total	**0.68**	**0.52**	**0.08**	**0.06**	**13.35**	**10.01**	**98.10**	**82.53**	**5.55**	**4.42**

Emission Sources

HAP Emissions

Emission Factors Source: AP-42 (5th Ed.) §3.3, Table 3.3-2, Uncontrolled Diesel Engines, 10/96 (<600 HP)

Emission Factors Source: AP-42 (5th Ed.) §3.4, Table 3.4-3 and 3.4-4, Uncontrolled Diesel Engines, 10/96 (>600 HP)

Emission Unit	***Activity (MMBtu/hr)***
4x4 Backhoe or Excavator	0.67
Steel Track Sagging Dozer	1.08
Front End Loader (CAT 980 or similar)	2.86
Drill Rig	3.13
Digger Derrick	2.43
Bucket Trucks, Ranging from 55’ to 105’	2.43
38T – 45T Boom Truck	2.64
Rough Terrain Crane (size may range from 65T to 150T)	2.22
All Terrain Crane (size may range from 120T to 240T)	3.93
Water Truck	2.95
Skid Steer	2.61
Rubber Track CAT Challenger	1.88
Service Truck	0.69
1T Pickup	2.43
1T – 2T Flatbed Trucks	2.43
Semi Tractors, 4x4 or 6x6	2.95
Concrete Truck	2.95
Fuel Truck (for helicopter)	2.09
1/2T Pickup	2.69
3/4T Pickup	2.69
Helicopter (for stringing rope)	6.76
Light Plant	0.21
Generator	0.52
Auxillary Air Compressor	0.42

	<600 hp	>600 hp
HAP	**Emission Factors (lbs/MMBtu)**	**Emission Factors (lbs/MMBtu)**
Benzene	9.33E-04	7.76E-04
Toluene	4.09E-04	2.81E-04
Xylenes	2.85E-04	1.93E-04
Formaldehyde	1.18E-03	7.89E-05
Acetaldehyde	7.67E-04	2.52E-05
Acrolein	9.25E-05	7.88E-06
Naphthalene	8.48E-05	1.30E-04

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Emission Unit	*HAP Emissions*						
	Benzene	**Toluene**	**Xylenes**	**Formaldehyde**	**Acetaldehyde**	**Acrolein**	**Naphthalene**
	ton/yr	**ton/yr**	**ton/yr**	**ton/yr**	**ton/yr**	**ton/yr**	**ton/yr**
4x4 Backhoe or Excavator	3.52E-04	1.54E-04	1.08E-04	4.46E-04	2.90E-04	3.49E-05	3.20E-05
Steel Track Sagging Dozer	3.27E-04	1.43E-04	9.97E-05	4.13E-04	2.68E-04	3.24E-05	2.97E-05
Front End Loader (CAT 980 or similar)	1.20E-03	5.27E-04	3.67E-04	1.52E-03	9.88E-04	1.19E-04	1.09E-04
Drill Rig	1.75E-03	7.68E-04	5.35E-04	2.21E-03	1.44E-03	1.74E-04	1.59E-04
Digger Derrick	2.45E-03	1.07E-03	7.48E-04	3.10E-03	2.01E-03	2.43E-04	2.23E-04
Bucket Trucks, Ranging from 55’ to 105’	2.45E-03	1.07E-03	7.48E-04	3.10E-03	2.01E-03	2.43E-04	2.23E-04
38T – 45T Boom Truck	2.66E-03	1.17E-03	8.13E-04	3.37E-03	2.19E-03	2.64E-04	2.42E-04
Rough Terrain Crane (size may range from 65T to 150T)	1.40E-03	6.14E-04	4.28E-04	1.77E-03	1.15E-03	1.39E-04	1.27E-04
All Terrain Crane (size may range from 120T to 240T)	2.20E-03	9.64E-04	6.71E-04	2.78E-03	1.81E-03	2.18E-04	2.00E-04
Water Truck	2.98E-03	1.30E-03	9.09E-04	3.76E-03	2.45E-03	2.95E-04	2.71E-04
Skid Steer	7.29E-04	3.20E-04	2.23E-04	9.22E-04	6.00E-04	7.23E-05	6.63E-05
Rubber Track CAT Challenger	7.11E-04	3.12E-04	2.17E-04	9.00E-04	5.85E-04	7.05E-05	6.47E-05
Service Truck	6.90E-04	3.03E-04	2.11E-04	8.73E-04	5.67E-04	6.84E-05	6.27E-05
1T Pickup	2.72E-03	1.19E-03	8.32E-04	3.44E-03	2.24E-03	2.70E-04	2.47E-04
1T – 2T Flatbed Trucks	2.72E-03	1.19E-03	8.32E-04	3.44E-03	2.24E-03	2.70E-04	2.47E-04
Semi Tractors, 4x4 or 6x6	2.48E-03	1.09E-03	7.58E-04	3.14E-03	2.04E-03	2.46E-04	2.25E-04
Concrete Truck	1.65E-03	7.25E-04	5.05E-04	2.09E-03	1.36E-03	1.64E-04	1.50E-04
Fuel Truck (for helicopter)	1.17E-03	5.12E-04	3.57E-04	1.48E-03	9.60E-04	1.16E-04	1.06E-04
1/2T Pickup	3.01E-03	1.32E-03	9.18E-04	3.80E-03	2.47E-03	2.98E-04	2.73E-04
3/4T Pickup	3.01E-03	1.32E-03	9.18E-04	3.80E-03	2.47E-03	2.98E-04	2.73E-04
Helicopter (for stringing rope)	1.89E-03	6.84E-04	4.70E-04	1.92E-04	6.13E-05	1.92E-05	3.16E-04
Light Plant	2.91E-05	1.28E-05	8.90E-06	3.69E-05	2.40E-05	2.89E-06	2.65E-06
Generator	4.66E-04	2.04E-04	1.42E-04	5.90E-04	3.83E-04	4.62E-05	4.24E-05
Auxillary Air Compressor	9.71E-05	4.26E-05	2.97E-05	1.23E-04	7.99E-05	9.63E-06	8.83E-06
Total	**3.91E-02**	**1.70E-02**	**1.18E-02**	**4.73E-02**	**3.07E-02**	**3.71E-03**	**3.70E-03**

Emission Sources

GHG Emissions

(Source: Federal Register (2010). Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, page 25,330 (PDF) (407 pp). IPCC (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2 (Energy). Intergovernmental Panel on Climate Change, Geneva, Switzerland

Diesel EF_{CO2} *22.44* $lbCO_2/gal$

Emission Unit	**CO_2 Emission Factors (lb/gal)**	**CO_2**	
		lb/yr	**ton/yr**
4x4 Backhoe or Excavator	22.44	3.71E+05	1.86E+02
Steel Track Sagging Dozer	22.44	2.29E+05	1.15E+02
Front End Loader (CAT 980 or simila	22.44	4.22E+05	2.11E+02
Drill Rig	22.44	1.23E+06	6.15E+02
Digger Derrick	22.44	1.72E+06	8.60E+02
Bucket Trucks, Ranging from 55' to	22.44	1.72E+06	8.60E+02
38T – 45T Boom Truck	22.44	2.80E+06	1.40E+03
Rough Terrain Crane (size may rang	22.44	4.92E+05	2.46E+02
All Terrain Crane (size may range fr	22.44	7.72E+05	3.86E+02
Water Truck	22.44	2.09E+06	1.05E+03
Skid Steer	22.44	2.56E+05	1.28E+02
Rubber Track CAT Challenger	22.44	2.50E+05	1.25E+02
Service Truck	22.44	4.85E+05	2.42E+02
1T Pickup	22.44	1.91E+06	9.56E+02
1T – 2T Flatbed Trucks	22.44	1.91E+06	9.56E+02
Semi Tractors, 4x4 or 6x6	22.44	1.74E+06	8.71E+02
Concrete Truck	22.44	2.32E+06	1.16E+03
Fuel Truck (for helicopter)	22.44	4.10E+05	2.05E+02
1/2T Pickup	22.44	3.17E+06	1.58E+03
3/4T Pickup	22.44	4.22E+06	2.11E+03
Helicopter (for stringing rope)	22.44	7.97E+05	3.99E+02
Light Plant	22.44	4.09E+04	2.05E+01
Generator	22.44	3.27E+05	1.64E+02
Auxillary Air Compressor	22.44	6.82E+04	3.41E+01
Total		**2.98E+07**	**1.49E+04**

Drilling Sources - Core Drills

(Emission Factor Source: AP-42 (5th Ed.) Section 11.9, Table 11.9-4 (Overburden Drilling 7/98))

EF_{TSP} =	1.30	lbs/hole	
EF_{PM10} = 0.52 x EF_{TSP} =	0.676	lbs/hole	Assumes TSP/PM10 =2
$EF_{PM2.5}$ = 0.03 x EF_{TSP} =	0.039	lbs/hole	AP-42 Table 11.9-1 Scaling Factors
Number of drill holes =	66	holes/yr	
Operating Hours =	4.8	hours/day	
	250	days/year	
	1,200	hours/year	

Emission Unit	PM_{10} Emission Factor (lbs/hole)	$PM_{2.5}$ Emission Factor (lbs/hole)	Holes Drilled (holes/yr)	Emission Controls		PM_{10} Emissions (lbs/hr)	PM_{10} Emissions (tons/yr)	$PM_{2.5}$ Emissions (lbs/hr)	$PM_{2.5}$ Emissions (tons/yr)
				ECF	Technology				
Drilling	0.68	0.04	66	80%	Water & Dust Skirting	0.0074	0.0045	0.00043	0.00026

Dozing

(Emission Factors Source: AP-42 (5th Ed.) §11.9, Table 11.9-1: Overburden Dozing, 7/98, footnotes d and e)

EF_{PM10} (lbs/hr) = $0.75 * 1 * (s^{1.5}) / (M^{1.4})$

$EF_{PM2.5}$ (lbs/hr) = $0.105 * 5.7 * (s^{1.2}) / (M^{1.3})$

Where:
s = material silt content (%)
M = material moisture content (%)

Emission Unit	Silt Content (%)	Moisture Content (%)	PM_{10} Emission Factor (lbs/hour)	$PM_{2.5}$ Emission Factor (lbs/hour)	Hours Dozing (hrs/yr)	Emission Controls		PM_{10} Emissions (lbs/hr)	PM_{10} Emissions (tons/yr)	$PM_{2.5}$ Emissions (lbs/hr)	$PM_{2.5}$ Emissions (tons/yr)
						ECF	Technology				
Dozer	4.3	2.40	1.96	1.10	650	0%	Uncontrolled	1.96	0.638	1.10	0.359

Fugitive Emissions - Unpaved Roads

Emission Factors Source: AP-42 Section 13.2.2 Unpaved Roads, 11/06 (13.2.2.2 Emission Calculation and Correction Parameters)

$$E = k * (s/12)^a * (W/3)^b \quad (1a)$$

E = size specific EF (lb/VMT)
k = particle size multiplier (g/VMT)
s = surface material silt content (%)
W = average weight of vehicle (tons)
a = particle size constant
b = particle size constant

PM_{10}							
		k (g/VMT)	s (%)	W (tons)	a	b	E (lb/VMT)
Project Roads		1.5	4.30	1	0.9	0.45	0.3633

$PM_{2.5}$							
		k (g/VMT)	s (%)	W (tons)	a	b	E (lb/VMT)
Project Roads		0.15	4.30	1	0.9	0.45	0.0363

	Number of	Emission Factor lb/VMT		One way							PM10 Emissiosns		PM2.5 Emissiosns	
	Units	PM10	PM2.5	Miles	Trips/Day	Unit VMT	VMT/Day	Hours/Day	Hours/Year	% Control	Lbs/Hr	Tons/year	Lbs/Hr	Tons/year
Water Truck	2	0.3633	0.0363	7.5	2	15	30	9	2,160	0	2.52	2.72	0.25	0.27
Service Truck	2	0.3633	0.0363	7.5	2	15	30	9	2,160	0	2.52	2.72	0.25	0.27
1T Pickup	2	0.3633	0.0363	7.5	2	15	30	10	2,400	0	2.27	2.72	0.23	0.27
1T – 2T Flatbed Trucks	2	0.3633	0.0363	7.5	2	15	30	10	2,400	0	2.27	2.72	0.23	0.27
Concrete Truck	4	0.3633	0.0363	7.5	2	15	30	5	1,200	0	9.08	5.45	0.91	0.54
1/2T Pickup	3	0.3633	0.0363	7.5	3	15	45	10	2,400	0	5.11	6.13	0.51	0.61
3/4T Pickup	4	0.3633	0.0363	7.5	3	15	45	10	2,400	0	6.81	8.17	0.68	0.82
										Total	**30.59**	**30.65**	**3.06**	**3.07**

APPENDIX D
EJScreen Reports

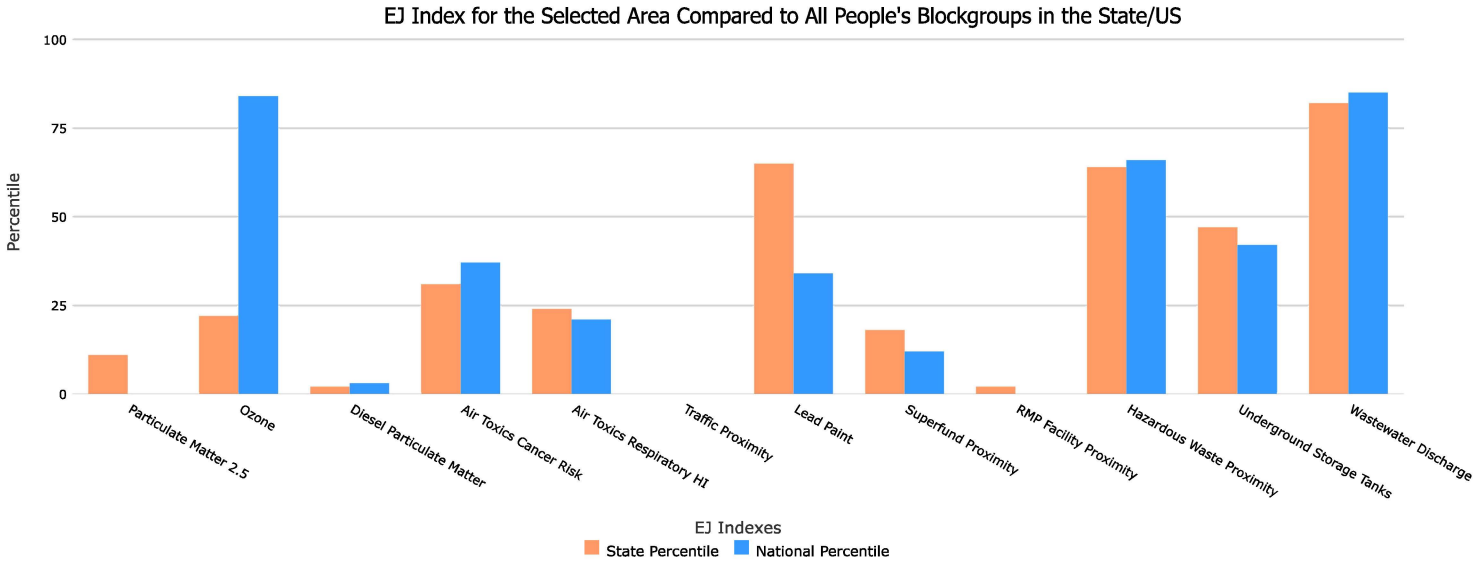
Save as PDF

EJScreen Report (Version 2.12)

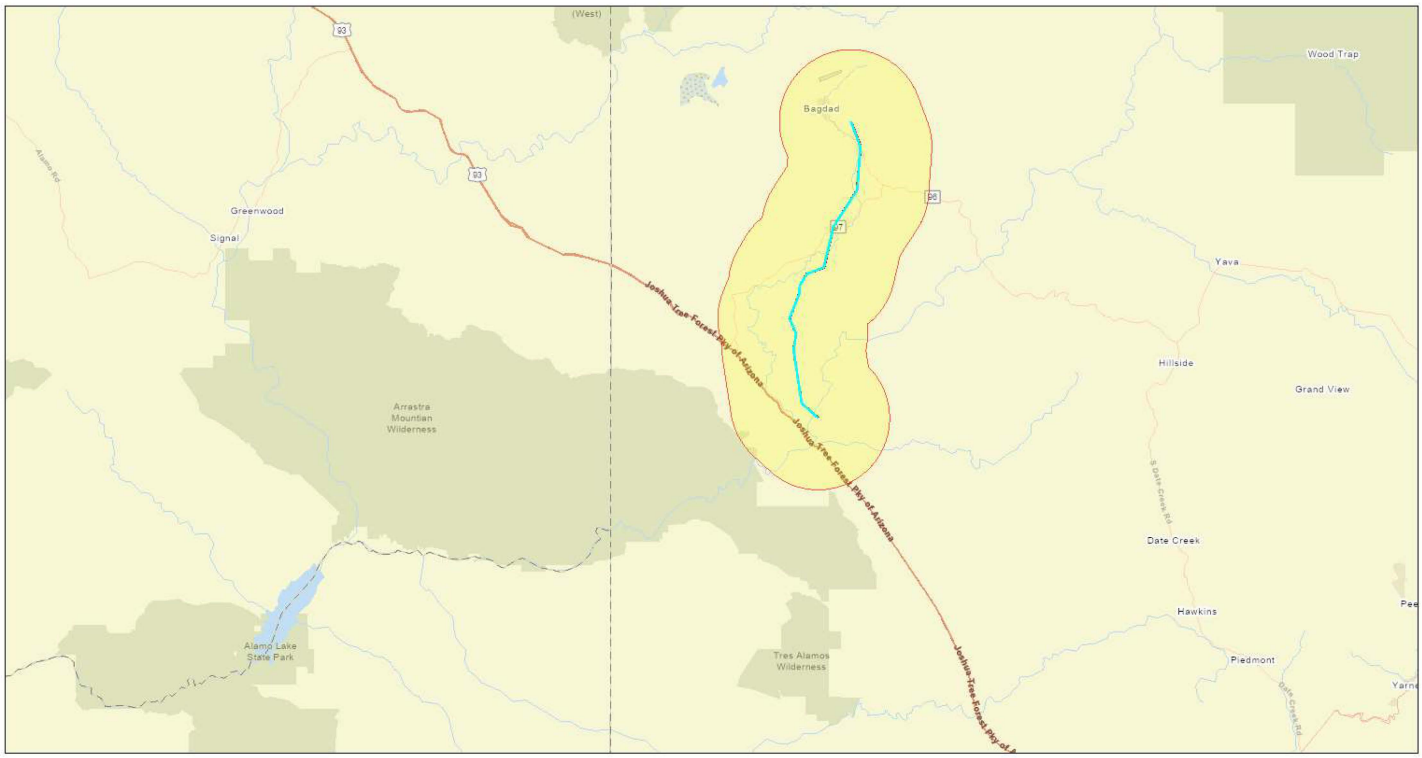
3 miles Ring around the Corridor
ARIZONA, EPA Region 9
Approximate Population: 2,457
Input Area (sq. miles): 110.34
MPP-Q01

Selected Variables	Percentile in State	Percentile in USA
Environmental Justice Indexes		
Particulate Matter 2.5 EJ Index	11	0
Ozone EJ Index	22	84
Diesel Particulate Matter EJ Index*	2	3
Air Toxics Cancer Risk EJ Index*	31	37
Air Toxics Respiratory HI EJ Index*	24	21
Traffic Proximity EJ Index	0	0
Lead Paint EJ Index	65	34
Superfund Proximity EJ Index	18	12
RMP Facility Proximity EJ Index	2	0
Hazardous Waste Proximity EJ Index	64	66
Underground Storage Tanks EJ Index	47	42
Wastewater Discharge EJ Index	82	85

EJ Indexes - The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator



*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update. (https://www.epa.gov/haps/air-toxics-data-update)



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	1

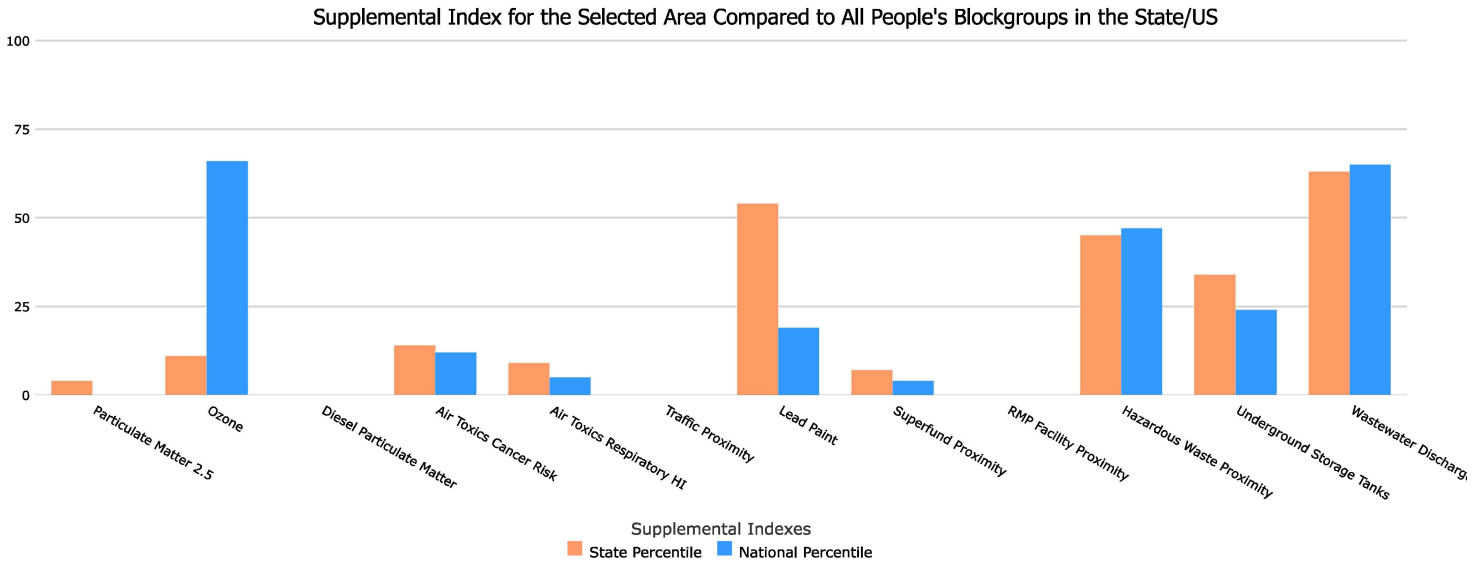
Selected Variables	Value	State		USA	
		Avg.	%tile	Avg.	%tile
Pollution and Sources					
Particulate Matter 2.5 ($\mu g/m^3$)	5.01	7.24	6	8.67	0
Ozone (ppb)	51.8	54.2	14	42.5	90
Diesel Particulate Matter* ($\mu g/m^3$)	0.0224	0.318	1	0.294	<50th
Air Toxics Cancer Risk* (lifetime risk per million)	20	32	29	28	<50th
Air Toxics Respiratory HI*	0.2	0.37	21	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	0.012	570	0	760	0
Lead Paint (% Pre-1960 Housing)	0.02	0.08	56	0.27	18
Superfund Proximity (site count/km distance)	0.012	0.077	11	0.13	6
RMP Facility Proximity (facility count/km distance)	0.0099	0.62	1	0.77	0
Hazardous Waste Proximity (facility count/km distance)	1	1.4	52	2.2	56
Underground Storage Tanks ($count/km^2$)	0.0035	1.7	30	3.9	0
Wastewater Discharge (toxicity-weighted concentration/m distance)	1.8	6.7	84	12	94
Socioeconomic Indicators					
Demographic Index	38%	38%	58	35%	62
Supplemental Demographic Index	9%	15%	28	15%	27
People of Color	45%	46%	58	40%	63
Low Income	32%	33%	54	30%	57
Unemployment Rate	0%	6%	0	5%	0
Limited English Speaking	3%	4%	65	5%	67
Less Than High School Education	1%	12%	11	12%	10
Under Age 5	19%	6%	98	6%	98
Over Age 64	5%	18%	14	16%	9
Low Life Expectancy	0%	19%	0	20%	0

EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using

reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

Selected Variables	Percentile in State	Percentile in USA
Supplemental Indexes		
Particulate Matter 2.5 Supplemental Index	4	0
Ozone Supplemental Index	11	66
Diesel Particulate Matter Supplemental Index*	0	0
Air Toxics Cancer Risk Supplemental Index*	14	12
Air Toxics Respiratory HI Supplemental Index*	9	5
Traffic Proximity Supplemental Index	0	0
Lead Paint Supplemental Index	54	19
Superfund Proximity Supplemental Index	7	4
RMP Facility Proximity Supplemental Index	0	0
Hazardous Waste Proximity Supplemental Index	45	47
Underground Storage Tanks Supplemental Index	34	24
Wastewater Discharge Supplemental Index	63	65

Supplemental Indexes - The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on low-income, limited English speaking, less than high school education, unemployed, and low life expectancy populations with a single environmental indicator.



This report shows the values for environmental and demographic indicators, EJScreen indexes, and supplemental indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. For additional information, see: www.epa.gov/environmentaljustice

EJScreen Report (Version 2.11)

1 mile Ring Centered at 34.254458,-113.098791, ARIZONA, EPA Region 9

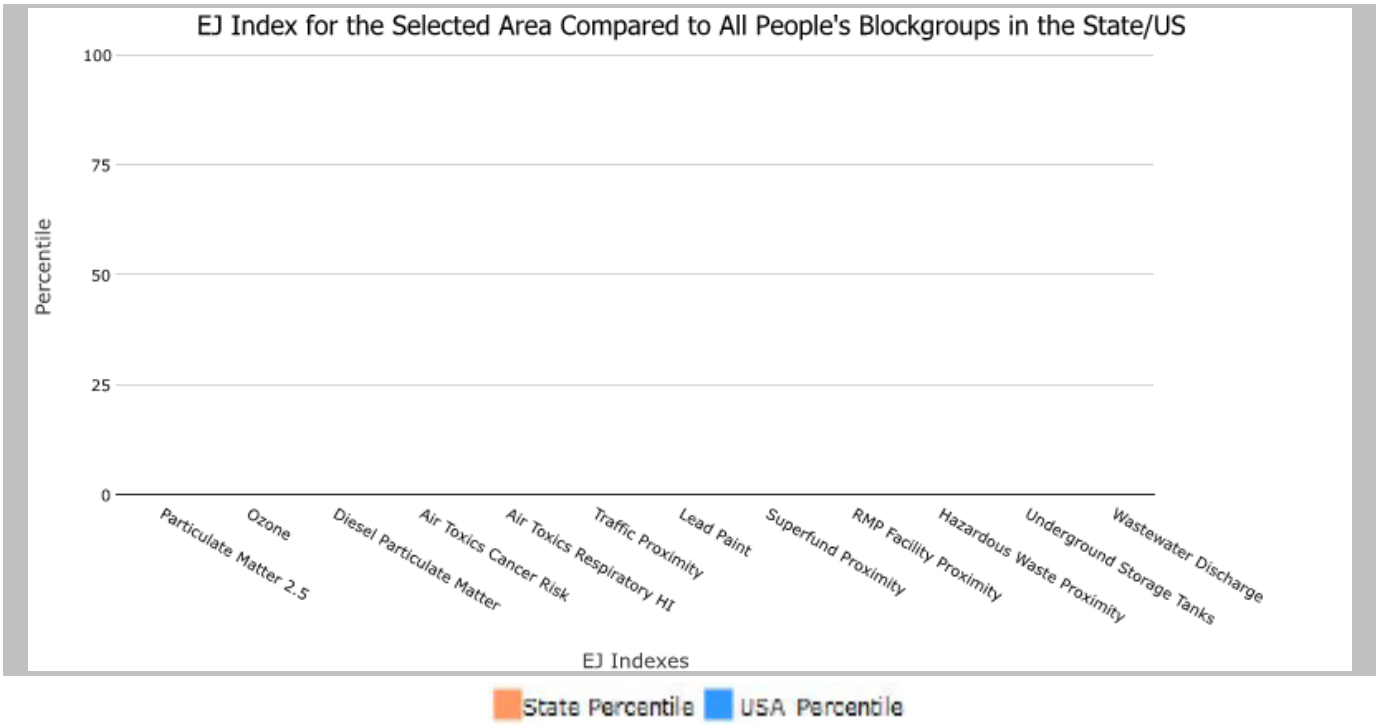
Approximate Population: 0

Input Area (sq. miles): 3.14

169-5

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
Particulate Matter 2.5 EJ index	N/A	N/A
Ozone EJ index	N/A	N/A
Diesel Particulate Matter EJ index*	N/A	N/A
Air Toxics Cancer Risk EJ index*	N/A	N/A
Air Toxics Respiratory HI EJ index*	N/A	N/A
Traffic Proximity EJ index	N/A	N/A
Lead Paint EJ index	N/A	N/A
Superfund Proximity EJ index	N/A	N/A
RMP Facility Proximity EJ index	N/A	N/A
Hazardous Waste Proximity EJ index	N/A	N/A
Underground Storage Tanks EJ index	N/A	N/A
Wastewater Discharge EJ index	N/A	N/A

EJ Indexes - The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.



*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

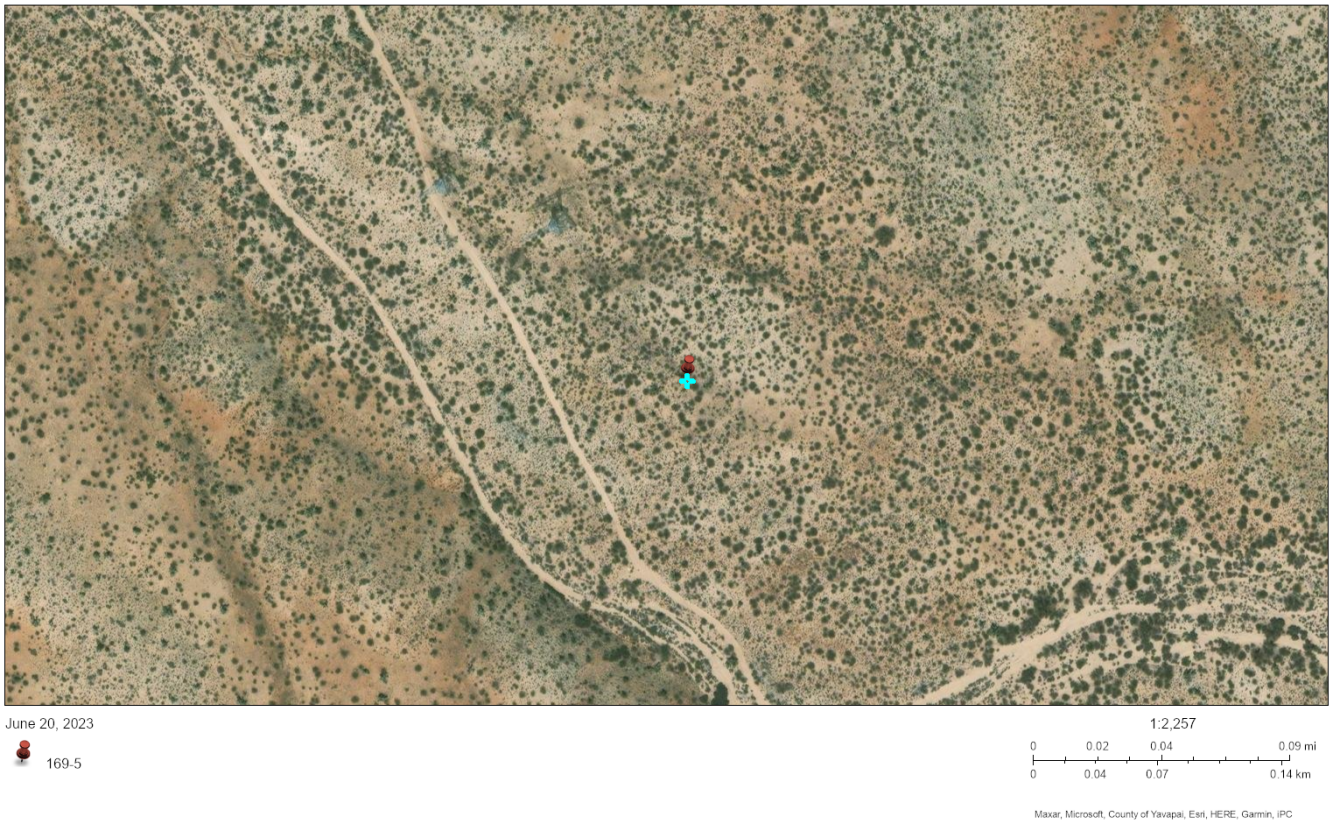
EJScreen Report (Version 2.11)

1 mile Ring Centered at 34.254458,-113.098791, ARIZONA, EPA Region 9

Approximate Population: 0

Input Area (sq. miles): 3.14

169-5



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.11)

1 mile Ring Centered at 34.254458,-113.098791, ARIZONA, EPA Region 9

Approximate Population: 0

Input Area (sq. miles): 3.14

169-5

Selected Variables	Value	State Avg.	%ile in State	USA Avg.	%ile in USA
Pollution and Sources					
Particulate Matter 2.5 (µg/m^3)	N/A	7.24	N/A	8.67	N/A
Ozone (ppb)	N/A	54.2	N/A	42.5	N/A
Diesel Particulate Matter* (µg/m^3)	N/A	0.318	N/A	0.294	N/A
Air Toxics Cancer Risk* (lifetime risk per million)	N/A	32	N/A	28	N/A
Air Toxics Respiratory HI*	N/A	0.37	N/A	0.36	N/A
Traffic Proximity (daily traffic count/distance to road)	N/A	570	N/A	760	N/A
Lead Paint (% Pre-1960 Housing)	N/A	0.08	N/A	0.27	N/A
Superfund Proximity (site count/km distance)	N/A	0.077	N/A	0.13	N/A
RMP Facility Proximity (facility count/km distance)	N/A	0.62	N/A	0.77	N/A
Hazardous Waste Proximity (facility count/km distance)	N/A	1.4	N/A	2.2	N/A
Underground Storage Tanks (count/km^2)	N/A	1.7	N/A	3.9	N/A
Wastewater Discharge (toxicity-weighted concentration/m distance)	N/A	6.7	N/A	12	N/A
Socioeconomic Indicators					
Demographic Index	N/A	38%	N/A	35%	N/A
Supplemental Demographic Index	N/A	15%	N/A	15%	N/A
People of Color	N/A	46%	N/A	40%	N/A
Low Income	N/A	33%	N/A	30%	N/A
Unemployment Rate	N/A	6%	N/A	5%	N/A
Limited English Speaking Households	N/A	4%	N/A	5%	N/A
Less Than High School Education	N/A	12%	N/A	12%	N/A
Under Age 5	N/A	6%	N/A	6%	N/A
Over Age 64	N/A	18%	N/A	16%	N/A
Low Life Expectancy	N/A	19%	N/A	20%	N/A

EJScreen Report (Version 2.11)

1 mile Ring Centered at 34.254458,-113.098791, ARIZONA, EPA Region 9

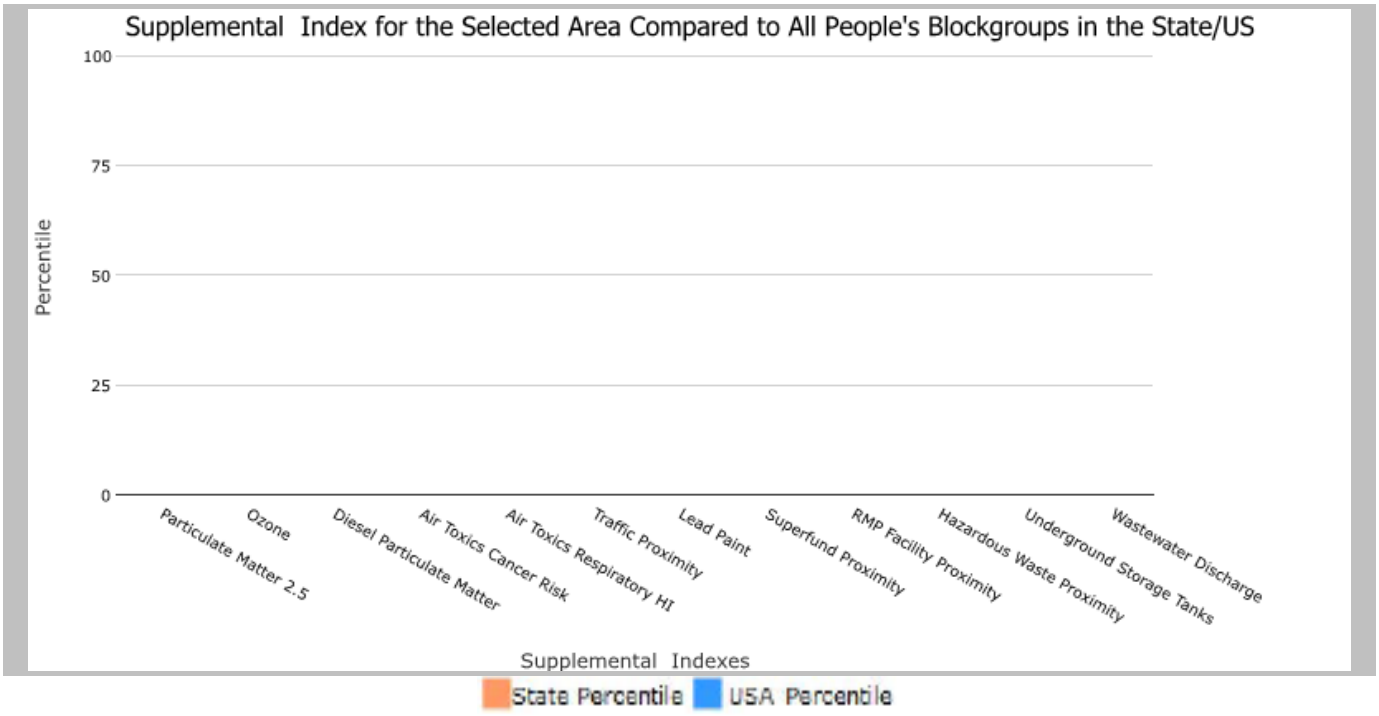
Approximate Population: 0

Input Area (sq. miles): 3.14

169-5

Selected Variables	State Percentile	USA Percentile
Supplemental Indexes		
Particulate Matter 2.5 Supplemental Index	N/A	N/A
Ozone Supplemental Index	N/A	N/A
Diesel Particulate Matter Supplemental Index*	N/A	N/A
Air Toxics Cancer Risk Supplemental Index*	N/A	N/A
Air Toxics Respiratory HI Supplemental Index*	N/A	N/A
Traffic Proximity Supplemental Index	N/A	N/A
Lead Paint Supplemental Index	N/A	N/A
Superfund Proximity Supplemental Index	N/A	N/A
RMP Facility Proximity Supplemental Index	N/A	N/A
Hazardous Waste Proximity Supplemental Index	N/A	N/A
Underground Storage Tanks Supplemental Index	N/A	N/A
Wastewater Discharge Supplemental Index	N/A	N/A

Supplemental Indexes - The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on low-income, limited English speaking, less than high school education, unemployed, and low life expectancy populations with a single environmental indicator.



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Save as PDF

EJScreen Report ()

The area is too small or sparsely populated, or these data are not available in the national dataset. Cannot generate an EJScreen chart or report.

EJ Indexes - The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator

State Percentile National Percentile

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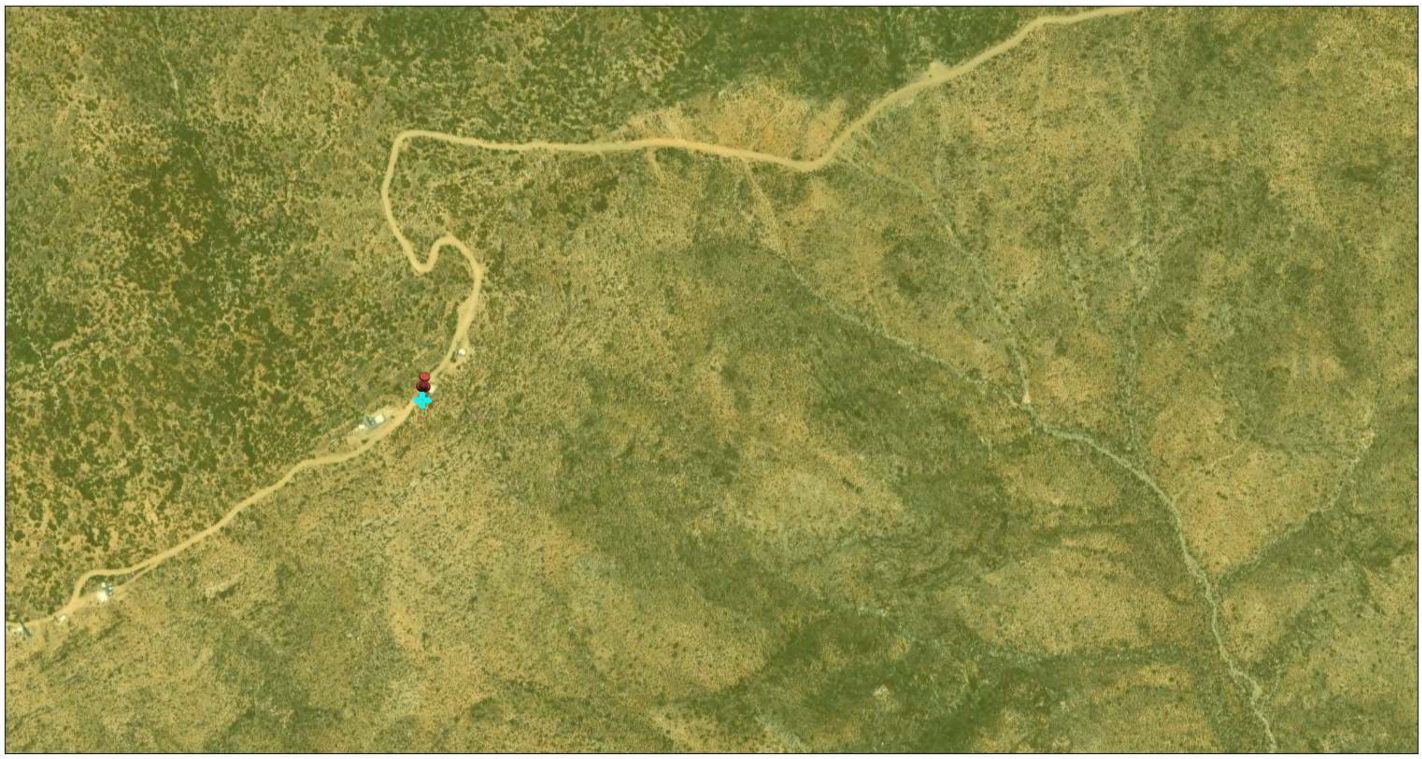

June 20, 2023

PSP

1:4,514

0 0.04 0.09 0.18 mi

0 0.07 0.15 0.3 km

Esri, HERE, Garmin, iPC, Maxar

EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

Supplemental Indexes - The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on low-income, limited English speaking, less than high school education, unemployed, and low life expectancy populations with a single environmental indicator.

This report shows the values for environmental and demographic indicators, EJScreen indexes, and supplemental indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. For additional information, see: www.epa.gov/environmentaljustice

APPENDIX E
Biological Assessment

Biological Assessment of the MPP-Q01 Interconnection Project

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August 8, 2024

WestLand Engineering & Environmental Services

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Appendices

1. INTRODUCTION

WestLand Engineering & Environmental Services (WestLand) was retained by Arizona Public Service (APS; Proponent) to prepare a Biological Assessment (BA) on behalf of Western Area Power Administration (WAPA) for the MPP-Q01 Interconnection Project (the Proposed Action). The Proposed Action consists of building, operating, and maintaining a 14-mile 115-kilovolt (kV) or 230-kV transmission line near Bagdad, Yavapai County, Arizona (**Figure 1**). The line will interconnect with WAPA's Mead-Perkins 525-kV transmission line at the southern end and with APS' Willow Lake 115-kV line at the northern end. Associated facilities that will be built, operated, and maintained by APS include two substations. Additionally, APS will construct a switchyard at the WAPA interconnect location, to be owned, operated, and maintained by WAPA. WAPA will construct, operate, and maintain two microwave towers: one approximately 10 miles southeast of the interconnect location and one approximately 25 miles southwest of the interconnect location at the existing Pete Smith Peak communication facilities. APS will install fiber optic cable along the new transmission line, of which WAPA will have dedicated capacity to allow for communication redundancy. The Proposed Action occurs primarily on privately owned and state trust land managed by the Arizona State Land Department (ASLD). The microwave tower at Pete Smith Peak will be constructed within an existing WAPA right-of-way (ROW) on Bureau of Land Management (BLM) managed lands.

The purpose of this BA is to determine the potential for species designated by the U.S. Fish and Wildlife Service (USFWS) as endangered, threatened, proposed for listing, or candidate for listing under the Endangered Species Act (ESA) to occur in the vicinity of the Proposed Action and evaluate potential effects of the Proposed Action on these species and their critical habitat. To evaluate potential effects to species outside of immediate working areas, e.g., effects from construction noise, a 500-ft buffer around the transmission corridor and supporting structures was evaluated (Action Area; **Figure 2**).

The remainder of this BA is organized into the following sections: a description of the Proposed Action (**Section 2**), the environmental setting of the Action Area, including current conditions and land uses (**Section 3**), the methods (**Section 4**) and results (**Section 5**) of the ESA species screening and effects analysis, and the references cited (**Section 6**).

2. PROPOSED ACTION

2.1. CONSULTATION HISTORY

No USFWS ESA Section 7 consultation efforts have taken place to date for the Proposed Action.

2.2. CONSTRUCTION AND MAINTENANCE ACTIVITIES

The Proposed Action will occur along an approximately 14-mile transmission line segment on private and ASLD lands near Bagdad, as well as at existing WAPA communications facilities on Pete Smith Peak (**Figure 2**). The total anticipated disturbance is approximately 176 acres. Up to 106 acres of permanent

disturbance is expected for placement of up to 70 poles, permanent access roads, and supporting facilities. Up to 70 acres of temporary land disturbance is expected from construction activities (**Table 1**).

Table 1. Project Elements and Estimated New Disturbance

Project Element	Estimated New Permanent Disturbance Area (acres)	Estimated New Temporary Disturbance Area (acres)
Access Roads and Laydown Yards	30	15
Transmission Structures	10	25
Pulling/Tensioning Areas	N/A	30
Substations and Switchyard	65	N/A
Microwave Towers	<1	N/A
TOTAL	**106**	**70**

Construction activities associated with the Proposed Action include:

- The installation of up to 70 poles, up to 130 ft in height;
- Construction of approximately 16 miles of permanent access roads (14 miles along the transmission line and 1 mile on each side for access points) for construction, operation and maintenance of the transmission line; and
- Construction of one switchyard, two substations, and two microwave towers.

APS will use a licensed contractor specializing in transmission line construction and will require approximately 25 personnel to complete this work. Equipment used during construction of the transmission line and supporting facilities is anticipated (but not limited) to include two bucket trucks, three boom trucks, nine foremen/crew pickups, two pressure diggers, three backhoes, two steel track sagging dozer, one front end loader, two drill rigs, two water trucks, two air compressors, four light plants, two generators, one rubber track CAT Challenger, two service trucks, four concrete trucks, one helicopter (limited use), one skid steer, one pole trailer, two cranes, and one dump truck. ROW staking will be completed prior to any clearing or grading to ensure that no additional impacts are caused outside of the ROW.

Clearing and grading will occur prior to construction. Grading will be completed with the use of backhoes, and clearing will be completed with chainsaws, to ensure that all equipment required for pole/line/tower installation can be accommodated. Approximately 176 acres of vegetation is expected to be cleared, mowed, or trimmed for the Proposed Action.

2.3. ENVIRONMENTAL PROTECTION MEASURES

To eliminate or minimize the impact of the Proposed Action on the environment, APS has developed Environmental Protection Measures to 1) minimize impacts to vegetation and wildlife, 2) control erosion and sedimentation and protect water quality, and 3) limit the spread of noxious weeds.

2.3.1. Minimize Impacts to Vegetation and Wildlife

Project construction plans were designed to limit the temporal and spatial extent of impacts. To limit the spatial degree of disturbance, vehicle parking, equipment laydown, and storage will occur in previously disturbed areas such as roads, road shoulders, and parking pullouts to the extent practicable. Temporarily disturbed lands will be returned to pre-project contours and reseeded with a native seed mix following the completion of construction.

No riparian trees or shrubs (e.g., cottonwood, willow, seepwillow, etc.) will be removed during construction; however, limited trimming may be necessary. Mechanical mowers will not be used within riparian vegetation; all riparian vegetation will be pruned using manual methods. Construction and ground disturbance activities within 500 feet of riparian areas will occur between October 1 and March 1, outside of typical bird breeding and nesting season and outside the period that the threatened, yellow-billed cuckoo (YBC; *Coccyzus americanus*) is typically present in the Southwest.

For ongoing vegetation management following construction, limited trimming, vegetation removal, or herbicide application may be necessary to mitigate fire hazard. No mechanical mowers will be used within riparian areas; riparian vegetation will only be removed or pruned using manual methods. No herbicide application will be conducted within riparian areas.

To further reduce potential impacts to YBC, all-terrain vehicles (ATVs) will not be driven within 50 meters of riparian vegetation during the period when this species is typically present in the Southwest (May 15 to September 30), except on roads that are open to the public.

To minimize potential impacts to the ESA candidate species monarch butterfly (*Danaus plexippus*), APS will implement best practice conservation measures including milkweed surveys prior to construction, avoiding removal of milkweed during the growing season where practicable, and reseeding temporarily disturbed areas with seeding mixes containing milkweed seed, where appropriate.

2.3.2. Control Erosion and Sedimentation and Protect Water Quality.

APS will use transmission industry Best Management Practices (BMPs) for the Proposed Action to control erosion and sedimentation and protect water quality during and after construction, and APS will provide WAPA with a copy of the Stormwater Pollution Prevention Plan (SWPPP) for the Proposed Action. SWPPP inspections will be conducted weekly during construction activities and during or immediately after rainfall events. Erosion control measures and devices will be installed and maintained to minimize soil erosion and runoff and prevent excess sediment transport from the construction area to nearby drainages including Bridle Creek. Any fuel spills will be addressed by APS' Spill Prevention, Control and Countermeasures (SPCC) Plan. Trimmed and chipped vegetation will be broadcast on disturbed areas to aid in soil stabilization.

2.3.3. Limit the Spread of Invasive Plants

To prevent the introduction of invasive species, all earthmoving and hauling equipment will be washed prior to entering or exiting the construction site and the contractor will inspect all construction equipment and remove all attached debris, including plant parts, soil and mud, prior to the equipment entering or exiting the Action Area.

3. ACTION AREA

The Action Area is defined as "*all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action*." (50 CFR §402.02).

3.1. ACTION AREA DETERMINATION

Construction activities will occur within the 100-foot-wide ROW of the proposed transmission line as well as within the footprint of appurtenant facilities (**Figure 2**). Noise from construction and maintenance activities will extend beyond the ROW and will include chainsaw use for trimming vegetation along access routes and at pole placement locations as needed for equipment access and fire safety, and periodic tree and shrub trimming or removal (except removal of riparian trees) at structures and along the ROW to maintain the safety and reliability of the line. Chainsaw usage, which produces an average of approximately 84 A-weighted decibels (dBA) at 50 feet (USDOT 2006), is expected to occur on an as-needed basis in select areas and over short durations. Because these temporary activities have the potential to impact wildlife that may occur outside of the ROW and immediate working areas, the Action Area is defined as a 500-foot (152-meter) buffer area around the proposed transmission line ROW and supporting structures (**Figure 2**). This Action Area extent was selected based on attenuation of the loudest construction and maintenance-related noise levels (chainsaw, digger truck, boom truck) to approximately 67 dBA at the Action Area boundary, not accounting for additional attenuation from vegetation trimming. A recent study of noise effects on nesting riparian birds in the Southwest found that simulated construction noise at 85 dBA as close as 165 feet from the nest did not result in disturbance to nesting activities (Dillon and Moore 2020).

Ongoing land use in the Action Area includes ranching, grazing, rural residence, and transportation. U.S. Route 93 (US 93) runs perpendicular to the proposed transmission line approximately 0.25 mile west of the interconnect location. Arizona State Route (SR) 97 runs generally parallel to, and at times crosses, the proposed transmission line along the length of the line. There are multiple existing utility corridors in the Action Area, including the WAPA Mead-Perkins 525-kV transmission line and the APS Willow Lake 115-kV transmission line. The proposed microwave tower at Pete Smith Peak will be constructed within existing WAPA communications facilities.

3.2. POTENTIAL EFFECTS

Potential effects of the Proposed Action are related to vegetation removal, noise and vibration, and increased traffic associated with pole installation, access road and supporting facilities construction, and

transmission corridor maintenance activities. The potential effects related to these activities are described in greater detail as follows.

3.2.1. Vegetation Removal

Vegetation will be removed (except full removal of riparian trees), mowed, or trimmed along permanent and temporary access roads, along the transmission and distribution lines, and within the footprint of supporting facilities. After construction, vegetation within the transmission line ROW will be trimmed back periodically in accordance with current APS transmission line safety and upkeep standards. Vegetation will be treated primarily using a combination of selective mowing (for ground cover vegetation) and trimming (for shrubs and trees); full tree removal will occur only as needed and no riparian trees (e.g., cottonwoods, willows) will be removed. The Proposed Action will result in vegetation removal within approximately 176 acres. All vegetation removal will occur during daylight hours to reduce disturbances to nocturnal species and to avoid displacing roosting birds.

Herbicide application may be implemented as part of ongoing vegetation management following construction to mitigate fire hazard within the transmission line corridor. No herbicide application will be conducted in riparian areas.

3.2.2. Noise and Vibration

The Proposed Action will result in noise and vibration emanating from the vehicles and equipment needed to construct access roads and the transmission poles, install the optical ground wire (OPGW), and perform ancillary project-related tasks. All construction activities will take place during daylight hours within or in the immediate vicinity of the project ROW to reduce disturbances to nocturnal species and maintain periods of low anthropogenic noise. Ambient noise and vibration levels in areas near operating equipment will be elevated, but levels will decrease with distance due to attenuation (ISO 1996).

3.2.3. Traffic

The Proposed Action will result in a minor increase in traffic volume during construction to accommodate access to, from, and throughout the construction site. The increased construction-related traffic will be limited primarily to daytime hours[1] and will occur primarily along US 93 and SR 97 (**Figure 2**). Limiting traffic during low-visibility periods will reduce the potential for vehicle collisions with wildlife and will limit disturbances to nocturnal wildlife. Increased traffic along existing and new unpaved transmission line access roads will be limited to routine inspections and maintenance twice a year and will occur at low speeds (<20 mph).

[1] Persons commuting to the site may include travel during pre-dawn hours.

3.3. ENVIRONMENTAL SETTING

The Action Area is located on ASLD land, private land, and BLM managed land in Yavapai County, Arizona. The 500-kV MPP-Q01 switchyard, adjacent TS-01 substation, 169-5 microwave tower, and the majority of the proposed transmission line will be located on State Trust Land. The communications tower constructed at Pete Smith Peak will be located on BLM land. The northernmost portion of the transmission line and the TS-01 substation will be constructed on private land near Bagdad. Land use in the Action Area includes transportation, rural residential, and ranching and grazing, with existing transmission lines at the northern and southern terminus of the proposed transmission line. The communications tower at Pete Smith Peak will be constructed within existing WAPA communications facilities.

The majority of the Action Area is within the Arizona Upland subdivision of the Sonoran desertscrub biotic community (The Nature Conservancy 2012). This subdivision consists of widely scattered trees and columnar cactuses approaching low-cover woodlands with understory shrubs. The primary species present in this subdivision are Mexican paloverde (*Parkinsonia aculeata*), desert ironwood (*Olneya tesota*), velvet mesquite (*Prosopis velutina*), whitethorn acacia (*Vachellia constricta*), and ocotillo (*Fouquieria splendens*); understory plants including creosotebush (*Larrea tridentata*) and triangle-leaf bursage (*Ambrosia deltoidea*). Saguaro (*Carnegiea gigantea)* and diverse cholla (*Cylindropuntia* spp.) and other cactuses are also common (Shreve and Wiggins 1964).

Discrete and non-contiguous patches of riparian scrubland vegetative communities occur along drainages associated with Bridle Creek. As described by Brown (1994), the riparian scrubland vegetation community is an assemblage of riparian obligate species, either native or introduced invasive species that occur along drainages with surface or shallow subsurface water across the Southwest. Representative species associated with this community in the Action Area include Goodding's willow (*Salix gooddingii*), Fremont's cottonwood (*Populus fremontii*), Arizona sycamore (*Platanus wrightii*), seep willow (*Baccharis salicifolia*), desertbroom (*B. sarothroides*), shortleaf baccharis (*B. brachyphylla*), netleaf hackberry (*Celtis reticulata*), western soapberry sumac (*Sapindus saponaria*), Thurber's desert honeysuckle (*Anisacanthus thurberi*), honey mesquite (*Prosopis glandulosa*), sugar sumac (*Rhus ovata*), desert tobacco (*Nicotiana obtusifolia*), cattail (*Typha* sp.), sedges (*Carex* spp.), spiny and slender rushes (*Juncus acutus and J. tenuis*), and common reed (*Phragmites australis*), as well as the invasive saltcedar (*Tamarix* spp.) (Hilgart Wilson 2019).

Pete Smith Peak, where one of the two communications tower is proposed, is within an interior chaparral biotic community (The Nature Conservancy 2012). This vegetation community is characterized by relatively high shrub abundance, and steep slopes within this area are composed of eroding granite. Characteristic vegetation includes Sonoran scrub oak (*Quercus turbinella*), Parish goldeneye (*Bahiopsis parishii*), eastern Mojave buckwheat (*Eriogonum fasciculatum*), narrowleaf goldenbush (*Ericameria linearifolia*), and catclaw mimosa (*Mimosa biuncifera*) (Hilgart Wilson 2019).

The Action Area ranges in elevation from 1,802 feet above mean sea level (ft amsl) at the southern terminus of the proposed transmission line, to 3,909 ft amsl at the northern terminus. The Pete Smith Peak communication tower would occur at 5,123 ft amsl, and the 169-5 microwave tower would occur at 2,808 ft amsl. Soils within the Action Area primarily consist of Badland (15.8%), Cave-Continental gravelly sandy loams, 2- to 30-percent slopes (16.9%), Cellar soils, 20- to 60-percent slopes (17%), Moano very rocky loam, 15- to 30-percent slopes (18.3%), and Rock land, low rainfall (15.8%) (Soil Survey Staff 2022, accessed online November 2, 2022).

The proposed transmission line crosses the North Fork of the Santa Maria River which, in this area, is classified by the Arizona Department of Environmental Quality (ADEQ) as intermittent.

4. METHODS

4.1. SPECIES SCREENING ANALYSIS

A screening analysis was completed to evaluate the potential for ESA covered species (Endangered, Threatened, Proposed, and Candidate Species) or their proposed or designated critical habitat to occur within the Action Area. ESA species and their critical habitat considered for evaluation included those identified in a USFWS Arizona Ecological Services Field Office Information, Planning, and Conservation (IPaC) System online query report generated for the Action Area (**Appendix A**), which included YBC, Northern Mexican gartersnake (*Thamnophis eques megalops*), and monarch butterfly; as well as southwestern willow flycatcher (*Empidonax traillii extimus*), which was identified in the USFWS letter for the Proposed Action dated May 24, 2023 (**Appendix D**). No designated or proposed critical habitat occurs within the Action Area.

The determinations of potential for ESA covered species to occur within the Action Area were based on a review of:

- The natural history and known geographical and elevational ranges of the species.
- Results of an Arizona Game and Fish Department (AGFD) Heritage Data Management System (HDMS) online environmental review tool query that provided records of ESA species within 3 miles of the Proposed Action (**Appendix B**).
- Other occurrence records in published or grey literature, including citizen science data, such as eBird.
- Review of a YBC habitat suitability study completed by WestLand in 2015 (WestLand 2015).
- Data provided by the USFWS Critical Habitat Portal online mapping tool (**Appendix A**).

The criteria used to determine the potential of occurrence of each species included in this screening analysis are defined as follows:

Present: The species has been observed to occur within the Action Area, the Action Area is within the known range and distribution of the species, and habitat characteristics required by the species are present.

Possible: There are no known records of the species within the Action Area, but the known, current distribution of the species includes the Action Area and the required habitat characteristics of the species appear to be present in the Action Area. Given the uncertainty associated with species identification and accuracy of the location of observations from eBird and other citizen science databases, observations associated with citizen science databases are evidence that a species is possible within the Action Area.

Unlikely: The known, current distribution of the species does not include the Action Area, but the distribution of the species is close enough such that the Action Area may be within the dispersal or foraging distance of the species, and they may show up as transients. The habitat characteristics required by the species may be present in the Action Area.

None: The Action Area is outside of the known distribution of the species, or the habitat characteristics required by the species are not present.

4.2. SPECIES EFFECTS ANALYSIS

Effects to ESA species were analyzed for the Proposed Action. Three potential effects determinations were considered for ESA-listed species.

- **No effect**
- **May affect, not likely to adversely affect**
- **May affect, likely to adversely affect**

Three potential effects determinations were considered for ESA candidate species.

- **No effect**
- **May affect, not likely to jeopardize**
- **May affect, likely to jeopardize**

5. SPECIES SCREENING AND EFFECTS ANALYSIS RESULTS

5.1. ESA SPECIES ELIMINATED FROM FURTHER ANALYSIS

As detailed in **Table 2**, Northern Mexican gartersnake and southwestern willow flycatcher have no potential to occur within the Action Area and the Proposed Action will therefore have **No effect** on these species. **Table 2** provides an overview of the federal protection status; known suitable habitat, elevation, range, and distribution information; potential to occur within the Action Area; and rationale for the “no effect” determination for this species. Because there is no potential for occurrence of this species in the Action Area, the species was eliminated from further analysis in this document.

Table 2. Species and Critical Habitat Eliminated from Further Analysis

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur and Effects Determination
Thamnophis eques megalops Northern Mexican gartersnake	Threatened (USFWS 2014c); designated critical habitat (U.S. Fish and Wildlife Service 2021a)	This species is strongly associated with water due to its primarily aquatic prey base and is heavily dependent on fish species. Occurs near or in ponds, cienegas, lowland river riparian forests and woodlands, and upland stream gallery forests. Avoids steep mountain canyons. Most abundant in densely vegetated habitat. Associated with a variety of biotic communities including Sonoran Desertscrub, Semidesert Grasslands, Interior Chaparral, Madrean Evergreen Woodland and into the lower reaches of Petran Montane Conifer Forest (AGFD 2012, USFWS 2013a). Northern Mexican gartersnakes may be found up to one mile (or more) away from water, using terrestrial habitat for brumation, digestion, or for thermoregulatory needs such as developing young (Jeff Servoss, USFWS pers. comm. to D. Cerasale, April 18, 2016). Elevation: 130–8,497 ft (USFWS 2014c) but is most common below 5,000 ft (AGFD 2012).	Occurs in Arizona and New Mexico, U.S. (USFWS 2014c). Although it is poorly known, the range extends into Mexico and is thought to include Sonora, Chihuahua, Durango, Coahuila, Zacatecas, Guanajuato, Nayarit, Hidalgo, Jalisco, San Luis Potosí, Aguascalientes, Tlaxcala, Puebla, México, Michoacán, Oaxaca, Veracruz, and Querétaro (AGFD 2012).	Occurs in fragmented populations south of Hwy I-40. There are five populations where individuals are reliably detected and include Page Springs and Bubbling Ponds State Fish Hatcheries along Oak Creek, lower Tonto Creek, the upper Santa Cruz River in the San Rafael Valley, the Bill Williams River and the upper and middle Verde River. This species is irregularly detected along the Agua Fria River, Little Ash Creek, the Black River, Big Bonito Creek, Redrock Canyon, Sonoita Creek, Scotia Canyon, Parker Canyon, Las Cienegas National Conservation Area and Cienega Creek Natural Preserve, Buenos Aires National Wildlife Refuge, Bear Creek, San Pedro River, Babocomari River and Cienega, Canelo Hills-Sonoita Grasslands Area, and the San Bernardino National Wildlife Refuge. The species is likely extirpated from the Lower Colorado River, the Lower Salt River, Sycamore Creek (Yavapai and Coconino counties), and the Lower Santa Cruz River (USFWS 2014c).	**Potential to Occur:** None. **Critical Habitat:** The Action Area does not occur within designated critical habitat for this species. **Project Effects Determination:** No effect. **Justification:** The Action Area is outside of the known distribution of this species and does not occur within designated critical habitat. There are no perennial waters within the Action Area. There are no AGFD HDMS occurrence records within 3 miles (**Appendix B**).
Empidonax traillii extimus Southwestern willow flycatcher	Endangered (USFWS 1995b); designated critical habitat (USFWS 2013c).	Southwestern willow flycatcher Breeds in successional stands of dense riparian vegetation composed of trees and shrubs along rivers or lakes (AGFD 2002e, USFWS 2013c). In Arizona, this species occurs between 75 and 9,180 ft amsl (AGFD 2002e). Migrates along riparian habitats, including those with shorter or more sparse vegetation or smaller patches than would be suitable for nesting (USFWS 2013c). This species is a long-distance neotropical migrant and winters in habitats outside of the U.S. (Sedgwick 2020). Elevation: In Arizona, 75–9,180 ft (AGFD 2002e).	This species is a long-distance neotropical migrant (Sedgwick 2020). Breeds in Arizona, California, Colorado, New Mexico, Nevada, Texas and Utah, U.S. Winters in southern Mexico and south to northern South America (USFWS Sedgwick 2020, 2013c).	Breeds in localized populations along the Big Sandy River, Bill Williams River, Cienega Creek, Colorado River in the Grand Canyon and south of Yuma, Empire Gulch, Salt River, Verde River, Gila River, Hassayampa River, Little Colorado River, the headwaters of the Little Colorado River near Greer and Eagar, Salt River, San Francisco River, San Pedro River, Santa Maria River, middle to lower San Pedro River, upper San Francisco River near Alpine, Tonto Creek, Verde River, and the Virgin River (AGFD 2002e, USFWS 2013c).	**Potential to Occur:** None. **Critical Habitat:** The Action Area does not occur within designated critical habitat for this species. **Project Effects Determination:** No effect. **Justification:** The Action Area lacks the dense canopy cover from emergent riparian vegetation, large volume of foliage, and persistent saturated soil preferred by this species. There are no AGFD HDMS occurrence records within 3 miles (**Appendix B**).

5.2. SPECIES ANALYZED IN DETAIL

The following species are analyzed in detail because of their potential to occur in the vicinity of the Action Area:

- Monarch butterfly: candidate (USFWS 2020a).
- Yellow-billed cuckoo: threatened (USFWS 2014b) and designated critical habitat (USFWS 2021).

These species and critical habitats are evaluated further in **Sections 5.2.1 through 5.2.2**.

5.2.1. Monarch Butterfly

5.2.1.1. Species Biology

Adult monarch butterflies are relatively large and conspicuous lepidoptera, with bright orange wings surrounded by a black border and covered with black veins (BISON-M 2015, USFWS 2020c). During breeding season (generally, July to September south of Tucson) monarchs lay their eggs on their obligate milkweed host plant, primarily *Asclepias* spp. (The Xerces Society for Invertebrate Conservation 2021). Larvae develop through five larval instars (intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators (BISON-M 2015). The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately 2 to 5 weeks; overwintering adults enter reproductive diapause (suspended reproduction) and live 6 to 9 months. In many regions where monarchs are present, monarchs breed year-round. Individual monarchs in temperate climates such as western North America undergo long-distance migration and live for an extended period. In the fall in western North America, monarchs begin migrating to overwintering sites. This migration can take monarchs distances of over 3,000 kilometers and last for over 2 months (USFWS 2020c).

5.2.1.2. Species Status

Rangewide

The monarch butterfly is currently a candidate species for listing under the ESA (USFWS 2020a). Monarchs are globally distributed throughout 90 countries, islands, and island groups. USFWS delineated 31 historical populations, of which 27 are extant and four have unknown status (USFWS 2020c). Outside of the two migratory North American populations, the health of the remaining 29 populations is undeterminable due to limited information available on population trends and stressors. At least 15 of these populations are considered at risk for extinction due to climate change related sea level rise or unsuitably high temperatures. The two North American populations, both migratory, are located east and west of the Rocky Mountains. These populations have been monitored at their respective overwintering sites in Mexico and California since the mid-1990s (USFWS 2020c). Though populations are observed to fluctuate year-to-year with environmental conditions, monitoring data indicate long-term declines in population abundance at the overwintering sites in both populations. The primary drivers affecting the two North American migratory

populations are loss and degradation of habitat (primarily from conversion of grasslands to agriculture, widespread use of herbicides, logging/thinning at overwintering sites in Mexico, senescence and incompatible management of overwintering sites in California, urban development, and drought), continued exposure to insecticides, and effects of climate change (USFWS 2020c).

Action Area

The status of the monarch butterfly in the Action Area is not well documented. There are no records of this species within 3 miles of the Action Area (**Appendix B**). However, major river corridors, particularly the Colorado River, have been identified as potential migration routes.

A variety of nectar plants have been identified as food sources during migration, including flowering velvet mesquites in the spring migration period (Morris, Kline, and Morris 2015). The Action Area landscape contains flowering plants that may provide forage opportunities for adult monarch butterflies. There is also potential for milkweeds to occur within the Action Area, providing potential habitat for monarch caterpillars; however, none have been documented in the Action Area to date (The Xerces Society for Invertebrate Conservation 2023, accessed online May 8, 2023).

5.2.1.3. Critical Habitat and Potential Habitat

No critical habitat for monarch butterfly has been proposed or designated by USFWS. Potential foraging and migration habitat occurs in the Action Area. Monarch caterpillars feed on plants in the milkweed subfamily and adults forage for nectar on a wide variety of flowers and this species can be found wherever milkweed occurs. Overwintering populations use the leaves, branches and trunks of large trees within forested groves (Jepsen et al. 2015). In Arizona, monarchs are found at all elevations, and breeding and migratory populations occur throughout the state. Some adults overwinter in the low deserts of Arizona in areas where food resources are abundant. These areas are generally represented by urban environments including Yuma, Phoenix and Tucson (Morris, Kline, and Morris 2015). The Action Area contains potential foraging habitat for migrating monarchs, primarily flowering velvet mesquite and seepwillow during the spring migration period (April – May). Milkweed has not been detected in the Action Area, nor are there historic records for milkweed within the vicinity of the Action Area (The Xerces Society for Invertebrate Conservation 2023).[2]

5.2.1.4. Effects Analysis

Direct Effects

Direct effects of the Proposed Action on this species are limited to the removal of vegetation that may serve as a nectar source for migrating monarch butterflies. Vegetation will be cleared, mowed, or trimmed over approximately 176 acres of Sonoran desertscrub habitat to provide access along the transmission and distribution line corridors and to accommodate the supporting facilities. Pre-construction milkweed surveys

[2] The Xerces Society for Invertebrate Conservation was accessed online November 2, 2023.

will be conducted, and identified patches of milkweed will be avoided where practicable. Overall, the extent of vegetation removal related to the Proposed Action represents a small reduction in available nectar food sources relative to the abundance of these vegetation communities in the Action Area. Therefore, no direct impacts to individual monarch butterflies from construction-related vegetation removal, noise, vibration, or vehicle/equipment use are anticipated.

Indirect Effects

Indirect effects of the Proposed Action include the reduction of potential foraging resources in the Action Area for migrating monarch butterflies following construction. Vegetation will be trimmed, mowed, or removed along permanent access roads to allow periodic inspection and maintenance of the line and pole structures. Recovery/regrowth of vegetation is anticipated to occur, and temporarily disturbed areas will be reseeded with seeding mixes containing milkweed seed, where appropriate.

Interdependent and Interrelated Effects

The Proposed Action has independent utility, and no interdependent effects are identified. No interrelated effects will occur other than those already described as direct or indirect effects of the Proposed Action.

Cumulative Effects of State and Private Actions within the Action Area

Non-federal activities within the Action Area include vehicular traffic on US 93 and SR 97 and Arizona Department of Transportation (ADOT) roadway maintenance activities, existing utility corridor maintenance activities, and livestock grazing on nearby state and private lands. Vehicular traffic on US 93 and SR 97 represents the baseline condition. No increase in traffic will result from the Proposed Action. Livestock grazing on state or private lands near the Action Area will not increase above the baseline condition as a result of the Proposed Action.

5.2.1.5. Determination of Effects

The Proposed Action will result in clearing, mowing, and/or trimming of vegetation in an area of up to 176 acres. This will primarily affect potential foraging habitat for monarch butterflies and is not anticipated to affect high value breeding or overwintering habitats. Milkweed surveys will be conducted within the Action Area prior to construction and identified patches of milkweed will be avoided to the extent practicable. The spatial footprint of the Proposed Action will not substantially alter potential monarch presence within and usage of the Action Area. The availability of areas of riparian and upland vegetation within and adjacent to the Action Area over the larger landscape will continue to provide potentially suitable foraging habitat for this species. Because it will not result in long-term degradation of monarch habitat or increase potential take of individuals, the Proposed Action will have **No effect** on the monarch butterfly.

5.2.2. Yellow-billed Cuckoo

5.2.2.1. Species Biology

The YBC is a neotropical migrant, traveling between wintering grounds in Central and South America and breeding grounds in North America (AGFD 2011). Arrival and nesting of cuckoos typically coincides with seasonal availability of prey. Western YBC appears to stage in southern Arizona and northern Mexico pre- and post-migration. In New Mexico, cuckoos have been observed foraging up to 0.5 mile (0.8 km) from nest sites. Home range is highly variable, but averages 42.8 acres (19.5 ha) to 104.5 acres (24.3 ha), depending on location, breeding status, and gender (Sechrist et al. 2013). Yellow-billed cuckoo tends to be "secretive," and males and females are sexually monomorphic (Halterman 2009). Breeding often coincides with outbreaks of cicadas and tent caterpillars and cuckoos may lay more eggs in prey-abundant years (AGFD 2011).

5.2.2.2. Species Status

Rangewide

The western Distinct Population Segment (DPS) of YBC was listed as threatened under the ESA in 2014 (USFWS 2014b). This species is a long-distance neotropical migrant (Hughes 2020). At the species level, it breeds throughout temperate North America south to Mexico and the Greater Antilles (Hughes 2020). The western DPS breeds west of the Continental Divide and the watershed boundary between the Rio Grande and Pecos River and the Chihuahuan Desert. The USFWS considers the historical breeding range to include southern British Columbia, Canada and in the U.S., Washington, Idaho, Nevada, Oregon, Utah, western Colorado, southwestern Wyoming, California, Arizona, western New Mexico, and Texas. Breeding range extends into the Cape Region of Baja California Sur, Sonora, Sinaloa, western Chihuahua and northwestern Durango, Mexico (USFWS 2014b). This species winters in South America, east of the Andes and typically south of the Amazon Basin in southern Brazil, Paraguay, Uruguay, eastern Bolivia and northern Argentina (USFWS 2014b).

Action Area

In Arizona, YBC is associated with lowland riparian woodlands where Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk are dominant (USFWS 2013b). This species also uses mesquite bosques and smaller stands of isolated cottonwoods mixed with mesquite (Halterman, Johnson, and Holmes 2016a, b), and areas of upland-associated vegetation along drainages dominated by oaks and junipers (WestLand 2016). This species typically occurs at elevations less than 6,600 feet (AGFD 2011). Western YBC may migrate along riparian corridors and surrounding upland vegetation (Hughes 2020). It is more common in the southern, central and the extreme northeastern portion of Arizona, but occurs throughout the state where suitable habitat exists (AGFD 2011).

The Action Area generally lacks suitable riparian habitat for this species; however, discrete and non-contiguous patches of riparian scrubland vegetative communities occur along drainages associated with Bridle Creek and the Santa Maria River near the southern terminus of the proposed transmission line.

In the area where the Action Area crosses Bridle Creek, cottonwood and willow are present, but the trees are widely scattered. Within the Action Area's intersection with Bridle Creek near its confluence with the Santa Maria River, less than 0.5 acre of riparian vegetation is present, and is found in non-contiguous narrow bands of Goodding's willow, tamarisk, and seep willow (WestLand 2015). The flow regime of this portion of the Santa Maria River is heavily influenced by precipitation runoff, best described as spatially and temporally intermittent, rather than a "perennial river…that support[s] the expanse of vegetation characteristics needed by breeding western [yellow-billed cuckoo]" (USFWS 2014a). The area does not have the dense, contiguous canopy preferred for nesting habitat, but may be used as a stopover habitat for migration among areas of denser tamarisk, cottonwood and willow. There have been no detections of YBC within 3 miles of the Action Area (**Appendix B**). Citizen science records indicate that YBC is frequently detected approximately 10 miles downstream from the interconnect location on the Santa Maria River, near its confluence with the Big Sandy River and Alamo Lake (eBird 2023, accessed online May 11, 2023).

5.2.2.3. Effects Analysis

Direct Effects

No direct effects to YBC will occur because project activities including vegetation removal and noise and vibration associated with operation of construction equipment and vehicles will occur outside the period when this species would typically have the potential to be present in the Action Area.

Vegetation within the Action Area consists predominantly of Sonoran desertscrub. Widely scattered cottonwood and willow trees occur along the short portion of the Action Area's intersection with Bridle Creek. No riparian trees or shrubs (e.g., cottonwood, willow, seepwillow, etc.) will be removed; however, limited trimming of branches may be necessary and will occur outside of the timeframe that YBC is typically present in the Southwest (October – May).

Indirect Effects

Indirect effects to YBC could occur if a substantial amount of vegetation is lost, resulting in alteration of vegetative composition or habitat structure. While limited trimming of riparian vegetation may be necessary, no herbicide application will occur within riparian areas, and recovery/re-growth is expected to occur.

Interdependent and Interrelated Effects

The Proposed Action has independent utility, and no interdependent effects are identified. No interrelated effects will occur other than those already described as direct or indirect effects of the Proposed Action.

Cumulative Effects of State and Private Actions within the Action Area

Non-federal activities within the Action Area include vehicular traffic on US 93 and SR 97 and ADOT roadway maintenance activities, existing utility corridor maintenance activities, and livestock grazing on nearby state and private lands. Vehicular traffic on US 93 and SR 97 represents the baseline condition. No increase in traffic will result from the Proposed Action and construction-related traffic within riparian areas

will occur outside period when the yellow-billed cuckoo is typically present in the Southwest. Livestock grazing on state or private lands near the Action Area will not increase above the baseline condition.

5.2.2.4. Determination of Effects

The Bridle Creek riparian corridor within the Action Area provides potential migration habitat, but no potential nesting or foraging habitat, for YBC. No riparian trees or shrubs (e.g., cottonwood, willow, seepwillow, etc.) will be removed; however, limited trimming may be necessary. These activities will occur outside of the period when this species is most likely to be present in the Southwest, therefore, no direct effects to individual YBC will occur. Based on the limited extent of vegetation removal within riparian areas, and the unlikely potential for YBC to occur, no indirect effects are anticipated to occur. Therefore, the Proposed Action is anticipated to have **No effect** on YBC.

5.2.3. Yellow-billed Cuckoo Critical Habitat

Critical habitat was proposed in 2020 and designated in 2021 considering three physical or biological features (PBFs) essential for the species (USFWS 2020b, 2021):

1. **Rangewide breeding habitat**—Riparian woodlands across the western DPS; Southwestern breeding habitat, primarily in Arizona and New Mexico: Drainages with varying combinations of riparian, xeroriparian, and/or non-riparian trees and large shrubs. This physical or biological feature includes breeding habitat found throughout the western DPS range as well as additional breeding habitat characteristics unique to the Southwest.
2. **Adequate prey base**—Presence of prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies, moth larvae, spiders), lizards, or frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.
3. **Hydrologic processes**—The movement of water and sediment in natural or altered systems that maintains and regenerates breeding habitat. This physical or biological feature includes hydrologic processes found in rangewide breeding habitat as well as additional hydrologic processes unique to the Southwest in southwestern breeding habitat.

A small portion of the Action Area was proposed as critical habitat by USFWS (Unit 13: Upper Santa Maria River, Yavapai County, Arizona) in 2014 (79 FR 48548-48652), but was not ultimately designated. The nearest designated critical habitat for YBC is approximately 12 miles southwest of the interconnect location, at the confluence of the Big Sandy and Santa Maria Rivers with Alamo Lake. Therefore, the Proposed Action will have **No Effect** on YBC critical habitat.

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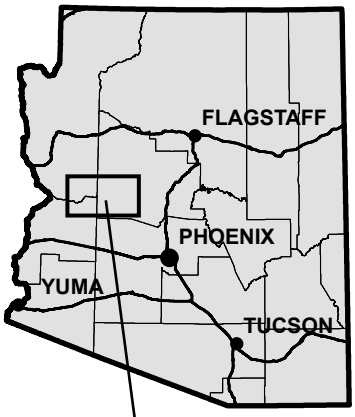
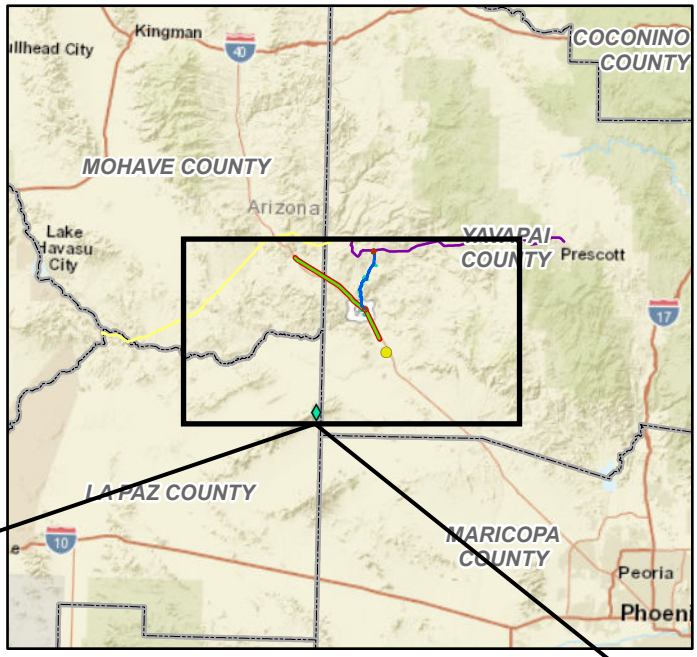
FIGURES

ARIZONA



PROJECT VICINITY



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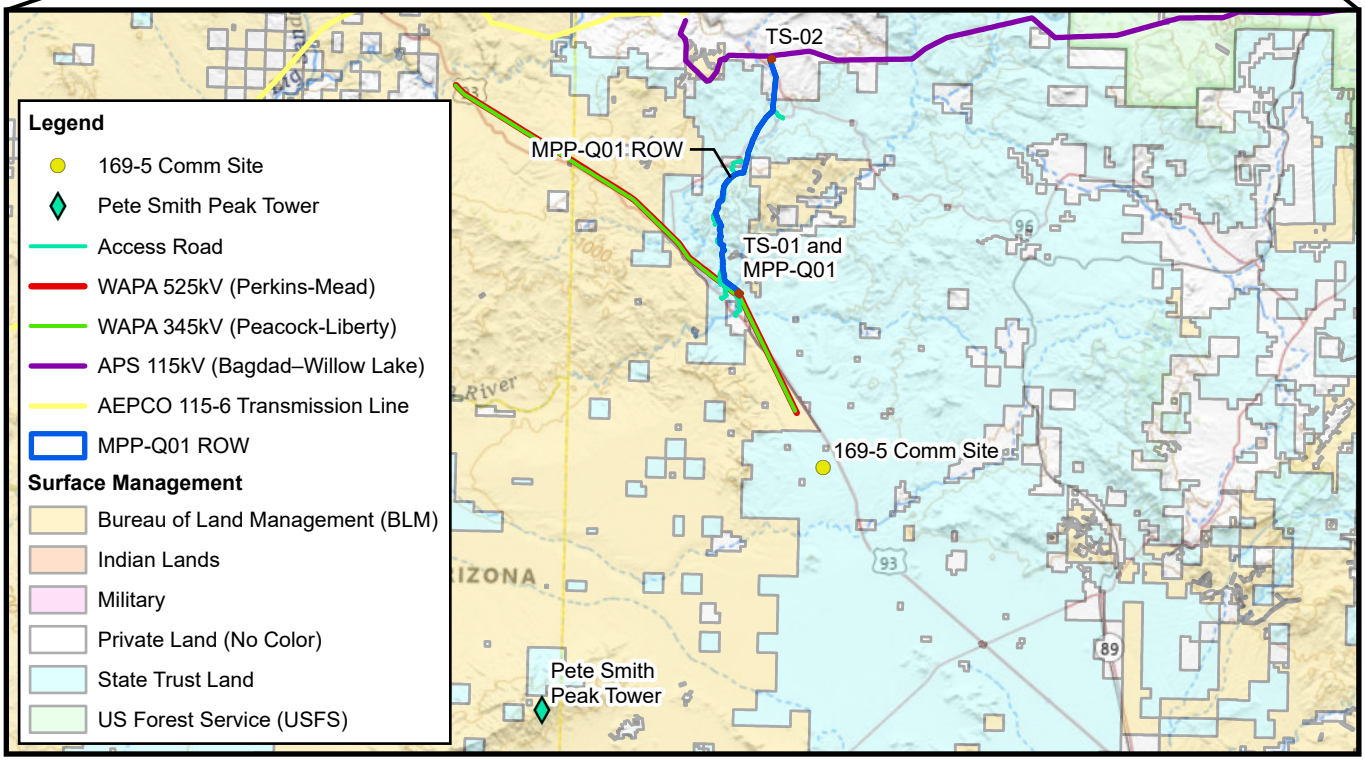

Portions of La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Surface Management: BLM 2022, WRI Modified 2023
Data Source: APS
Image Source: ArcGIS Online, World Street and USGS Topo Maps

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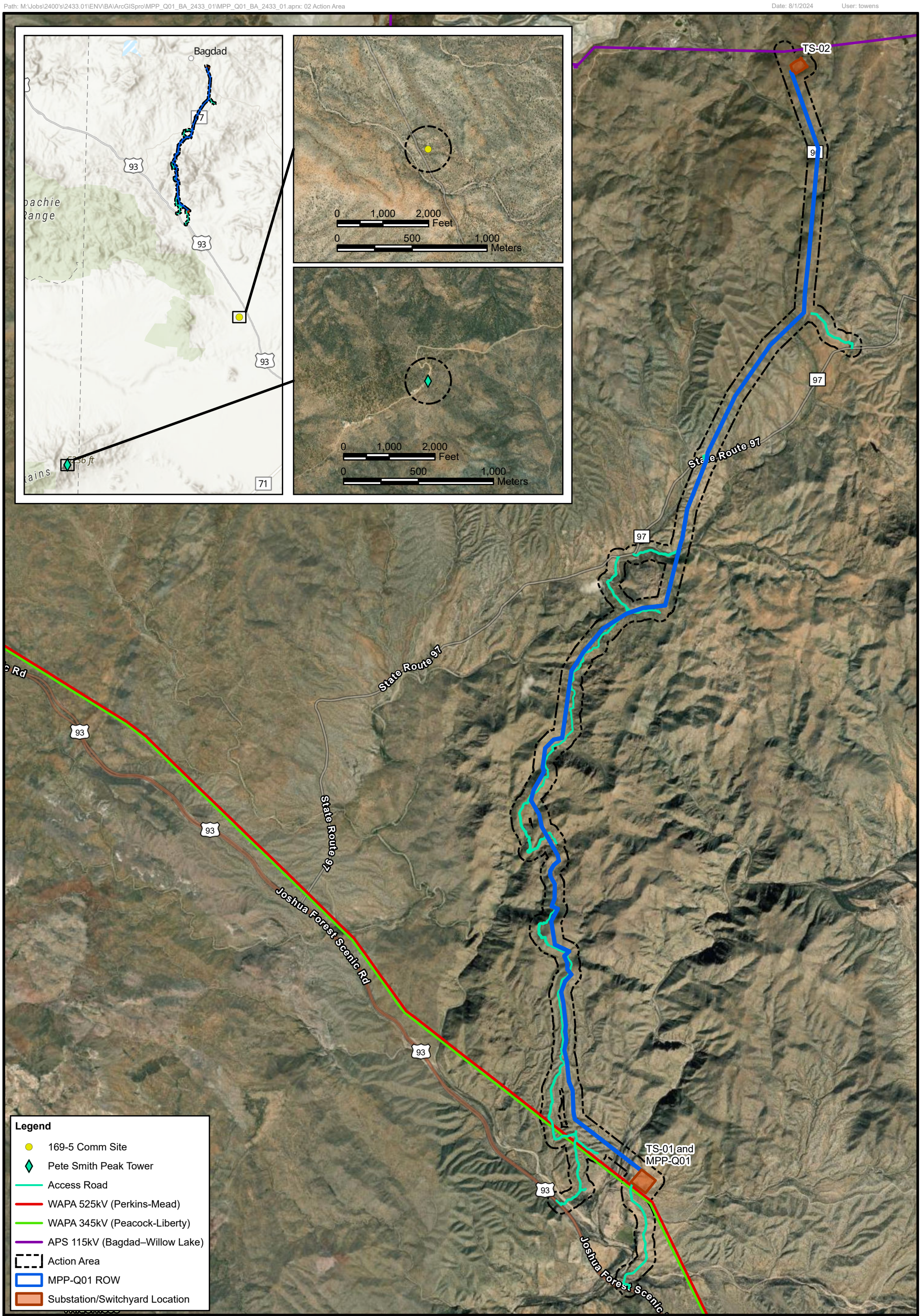
MPP-Q01 INTERCONNECT PROJECT

Biological Assessment

VICINITY MAP
Figure 1

WestLand Engineering & Environmental Services



Portions of La Paz and Yavapai Counties, Arizona
Projection: NAD 1983 UTM Zone 12N
Image Source: Maxar 2018-2022

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WestLand Engineering & Environmental Services

MPP-Q01 INTERCONNECT PROJECT

Biological Assessment

ACTION AREA

Figure 2

APPENDIX A
USFWS IPaC Online Query

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
Phone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer To: May 09, 2023
Project Code: 2022-0083563
Project Name: APS Bagdad Transmission Line

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that *may* occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and it's critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological metrics, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.
If the Federal action agency determines that listed species or critical habitat *may be affected* by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual

or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream affects. If the Federal action agency determines that the action may jeopardize a *proposed* species or may adversely modify *proposed* critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 *et seq.*). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (*Athene cunicularia hypugaea*). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see https://www.fws.gov/law/bald-and-golden-eagle-protection-act and https://www.fws.gov/program/eagle-management).

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: https://www.fws.gov/program/migratory-bird-permit. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation.

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources, please visit this link or visit https://www.fws.gov/program/national-

wildlife-refuge-system to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928/556-2160 or John_Nystedt@fws.gov.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafkai*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (https://www.azgfd.com/wildlife/planning/projevalprogram/).

We appreciate your concern for threatened and endangered species. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If we may be of further assistance, please contact our Flagstaff office at 928/556-2118 for projects in northern Arizona, our general Phoenix number 602/242-0210 for central Arizona, or 520/670-6144 for projects in southern Arizona.

Sincerely,
/s/

Heather Whitlaw
Field Supervisor
Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
(602) 242-0210

PROJECT SUMMARY

Project Code: 2022-0083563
Project Name: APS Bagdad Transmission Line
Project Type: Department of Energy Operations
Project Description: Construction of a transmission line and supporting facilities
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@34.474623199999996,-113.18288006825824,14z

Counties: Yavapai County, Arizona

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

REPTILES

NAME	STATUS
Northern Mexican Gartersnake *Thamnophis eques megalops* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7655	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black-chinned Sparrow *Spizella atrogularis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Costa's Hummingbird *Calypte costae* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10

NAME	BREEDING SEASON
Gila Woodpecker *Melanerpes uropygialis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5960	Breeds Apr 1 to Aug 31
Gilded Flicker *Colaptes chrysoides* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2960	Breeds May 1 to Aug 10
Rufous-winged Sparrow *Aimophila carpalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Sep 30

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

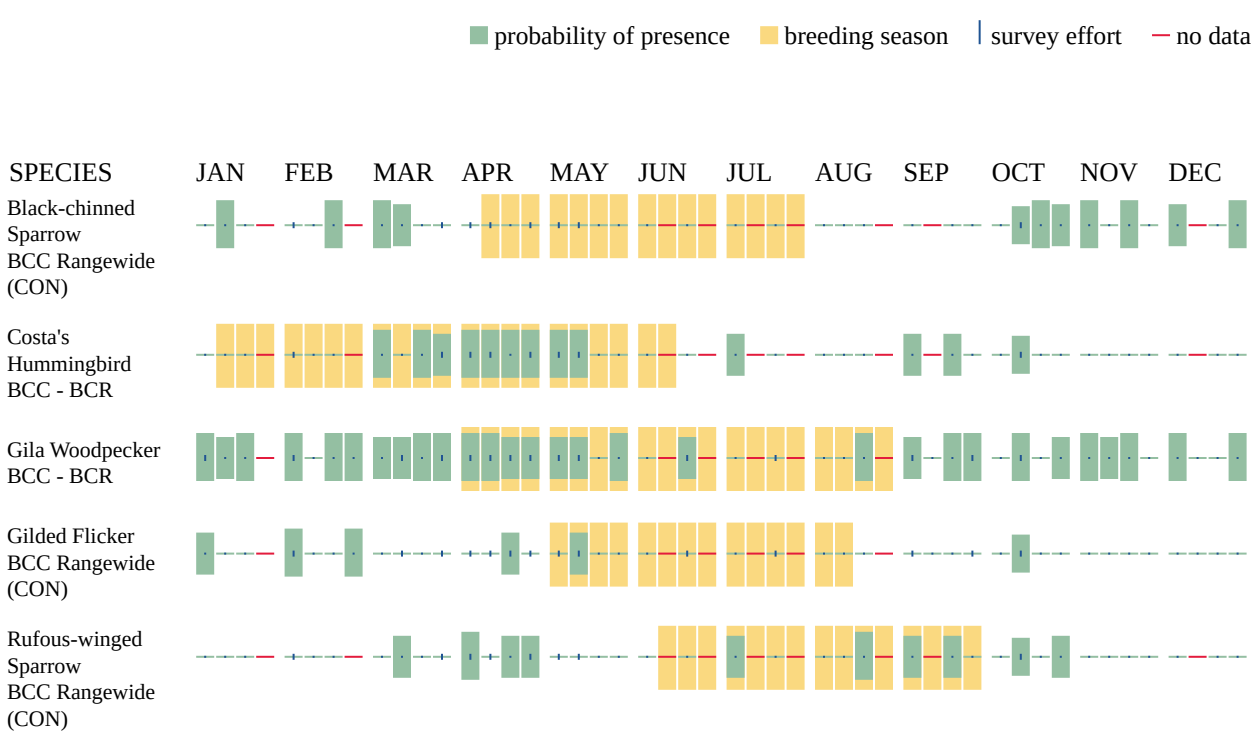
Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point

within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no

data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPAC USER CONTACT INFORMATION

Agency: WestLand Engineering and Environmental Services
Name: Catherine Esquer
Address: 4001 E Paradise Falls Dr
City: Tucson
State: AZ
Zip: 85712
Email cesquer@westlandresources.com
Phone: 5202272253

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Western Area Power Administration

APPENDIX B
AGFD HDMS Online Review

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
APS Bagdad Transmission Line

User Project Number:
2433.01

Project Description:
Construction of transmission line and supporting facilities

Project Type:
Energy Storage/Production/Transfer, Energy Transfer, Power line/electric line (new)

Contact Person:
Catherine Esquer

Organization:
WestLand Engineering and Environmental Services

On Behalf Of:
CONSULTING

Project ID:
HGIS-17238

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

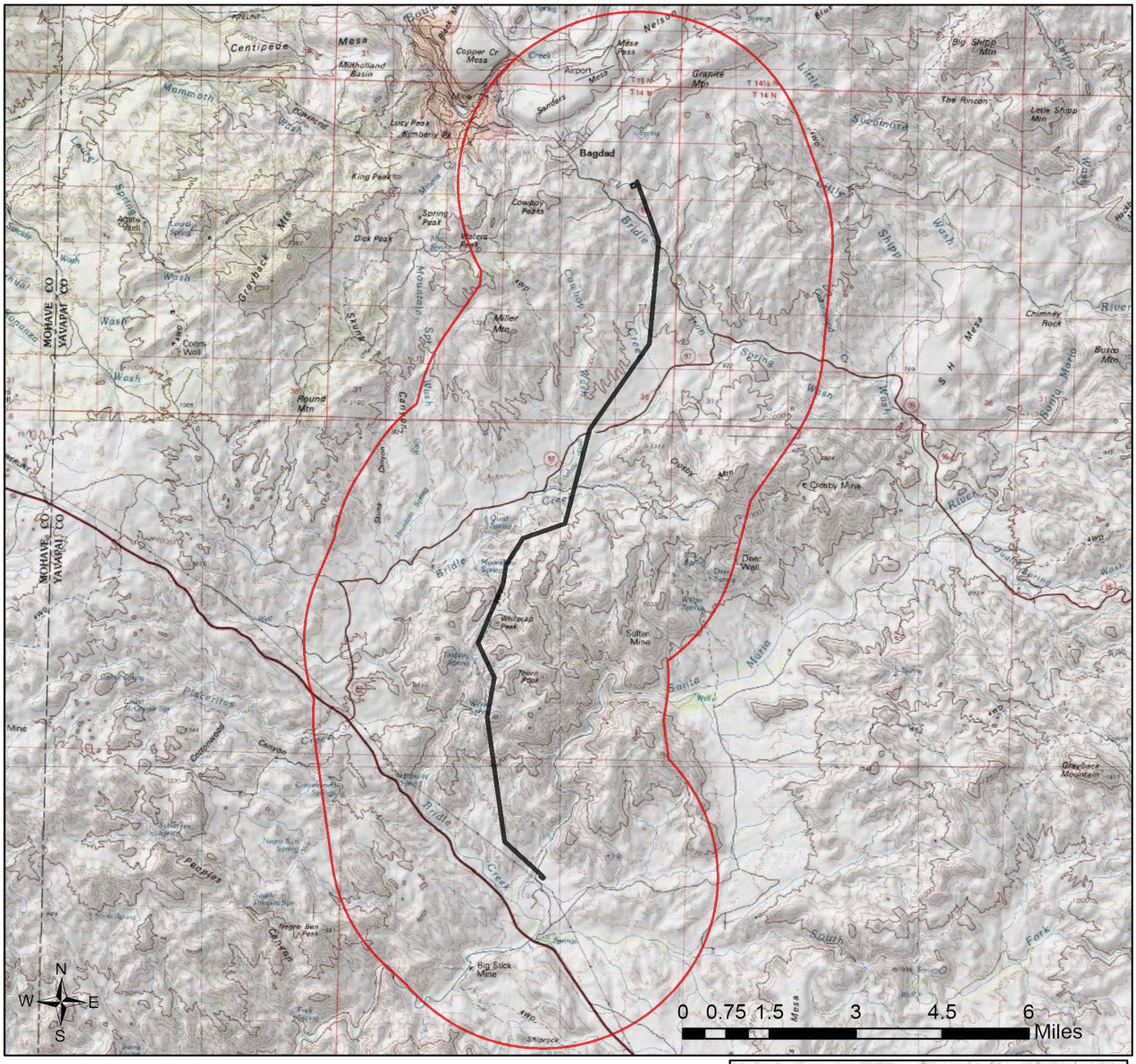
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

APS Bagdad Transmission Line

USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 341.37

Lat/Long (DD): 34.4783 / -113.1761

County(s): Yavapai

AGFD Region(s): Kingman; Yuma

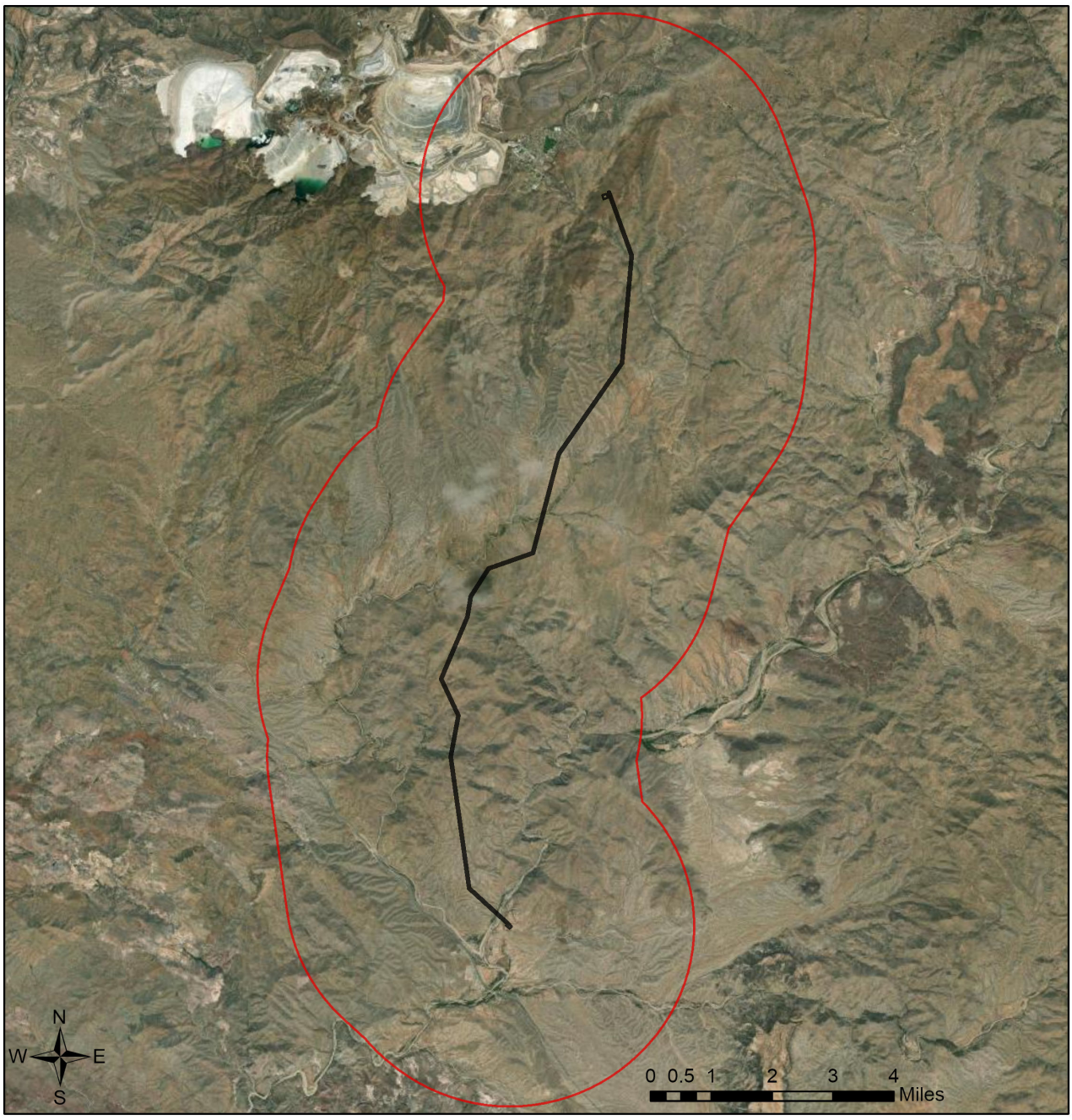
Township/Range(s): T12N, R9W; T13N, R9W; T14N, R9W

USGS Quad(s): BAGDAD; THORN PEAK

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

APS Bagdad Transmission Line

Web Map As Submitted By User



Buffered Project Boundary
Project Boundary

Project Size (acres): 341.37
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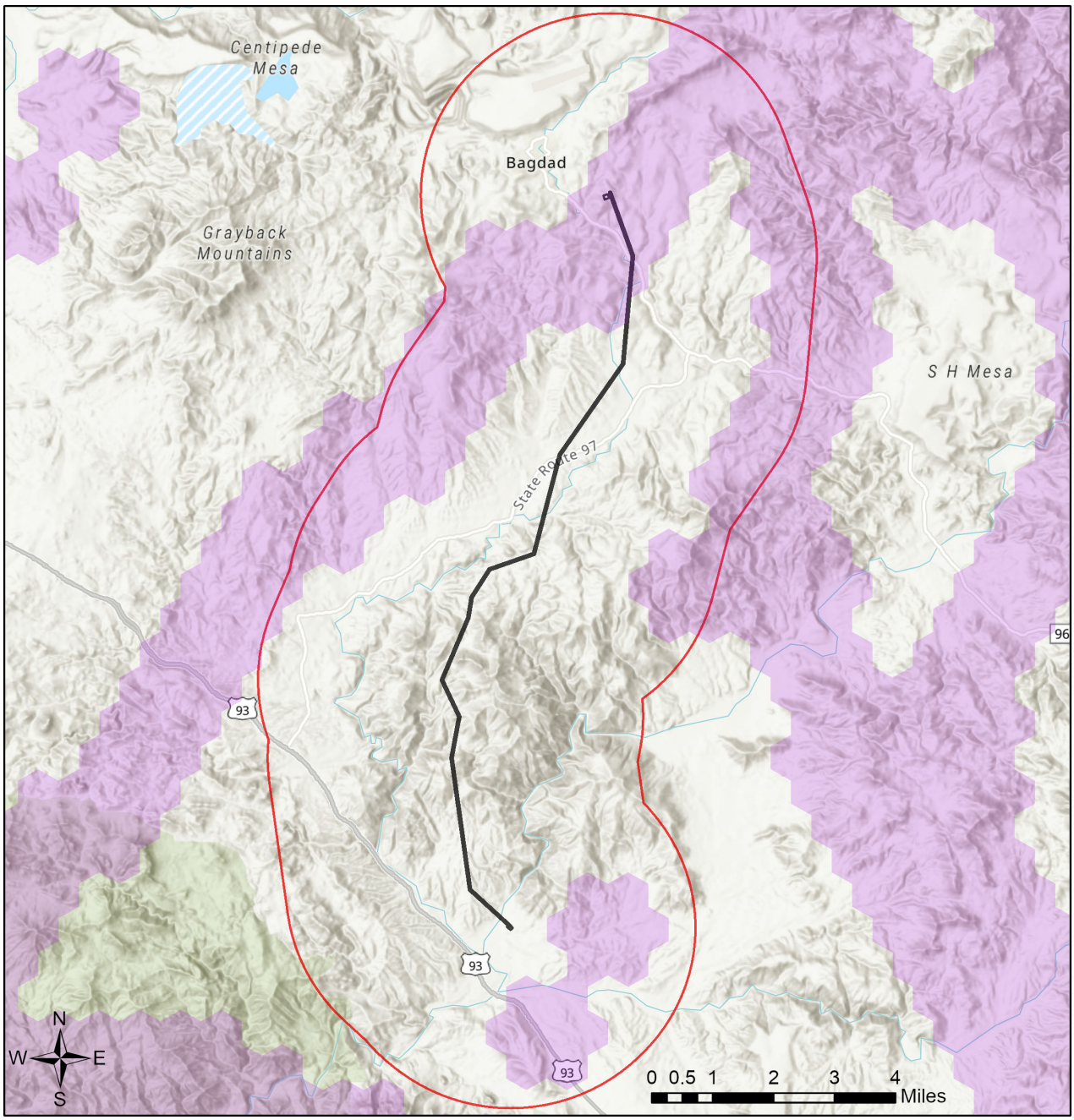
USGS Quad(s): BAGDAD; THORN PEAK

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

APS Bagdad Transmission Line

Important Areas



- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 341.37

Lat/Long (DD): 34.4783 / -113.1761

County(s): Yavapai

AGFD Region(s): Kingman; Yuma

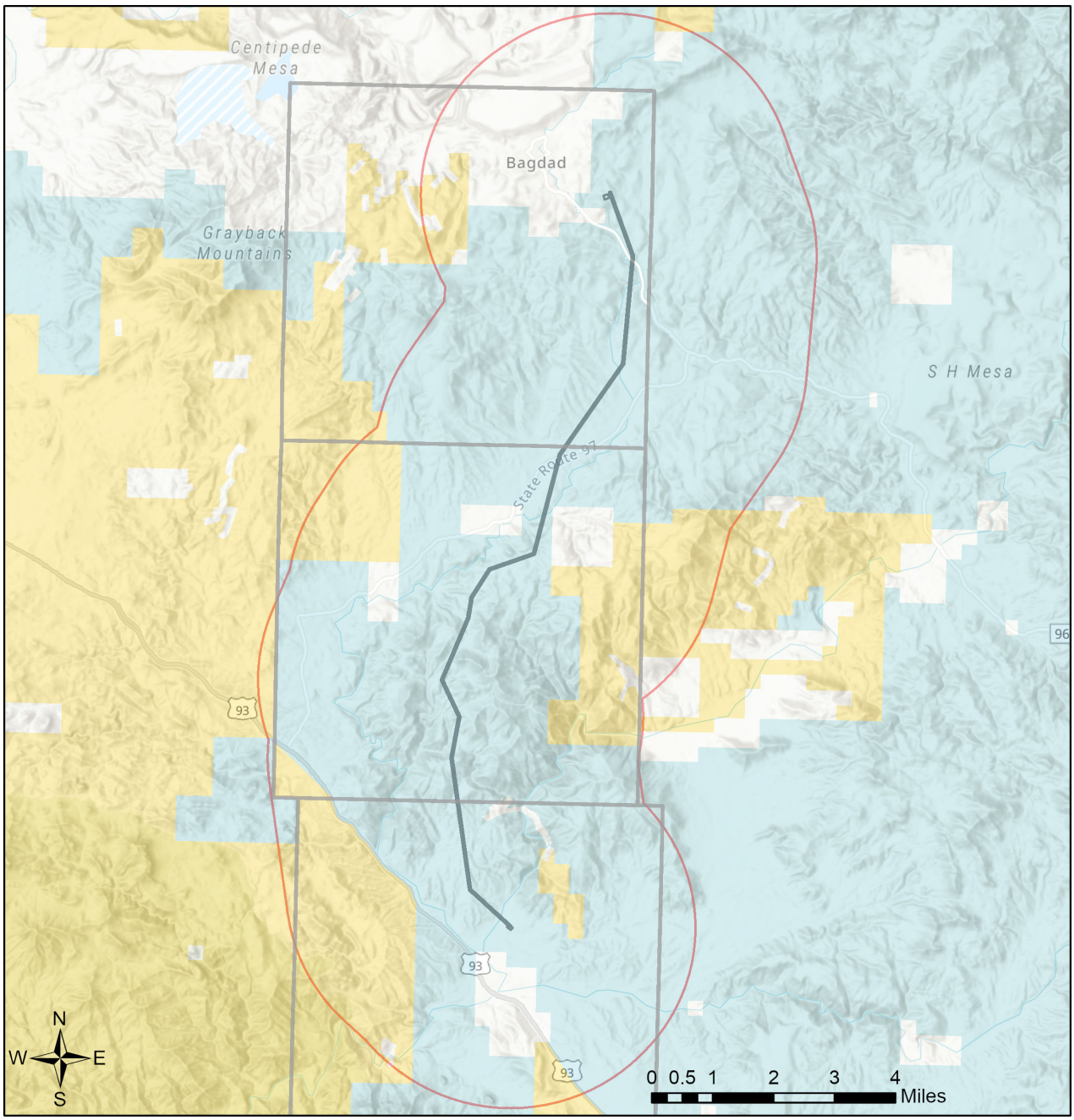
Township/Range(s): T12N, R9W; T13N, R9W; T14N, R9W

USGS Quad(s): BAGDAD; THORN PEAK

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

APS Bagdad Transmission Line

Township/Ranges and Land Ownership



- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Ranges

Project Size (acres): 341.37

Lat/Long (DD): 34.4783 / -113.1761

County(s): Yavapai

AGFD Region(s): Kingman; Yuma

Township/Range(s): T12N, R9W; T13N, R9W; T14N, R9W

USGS Quad(s): BAGDAD; THORN PEAK

Special Status Species Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Abutilon parishii	Pima Indian Mallow	SC	S	S	SR	
Anaxyrus microscaphus	Arizona Toad	SC		S		1B
Bat Colony						
Cicindela oregona maricopa	Maricopa Tiger Beetle	SC				
Gila robusta	Roundtail Chub	SC	S	S		1A
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Important Connectivity Zone	Wildlife Connectivity					

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Agosia chrysogaster	Longfin Dace	SC		S		1B
Aix sponsa	Wood Duck					1B
Ammospermophilus harrisii	Harris' Antelope Squirrel					1B
Anaxyrus microscaphus	Arizona Toad	SC		S		1B
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Aspidoscelis flagellicauda	Gila Spotted Whiptail					1B
Baeolophus ridgwayi	Juniper Titmouse					1C
Botaurus lentiginosus	American Bittern					1B
Buteo regalis	Ferruginous Hawk	SC		S		1B
Buteo swainsoni	Swainson's Hawk					1C
Buteogallus anthracinus	Common Black Hawk					1C
Calypte costae	Costa's Hummingbird					1C
Catostomus clarkii	Desert Sucker	SC	S	S		1B
Catostomus insignis	Sonora Sucker	SC	S	S		1B
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
Colaptes chrysoides	Gilded Flicker			S		1B
Coluber bilineatus	Sonoran Whipsnake					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Crotalus cerberus	Arizona Black Rattlesnake					1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1A
Gila robusta	Roundtail Chub	SC	S	S		1A
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Incilius alvarius	Sonoran Desert Toad					1B
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		1B
Lasiurus blossevillii	Western Red Bat		S			1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Lontra canadensis sonora	Southwestern River Otter	SC				1B
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Melanerpes uropygialis	Gila Woodpecker					1B
Melospiza lincolnii	Lincoln's Sparrow					1B
Melozone aberti	Abert's Towhee		S			1B
Micrathene whitneyi	Elf Owl					1C
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myiarchus tyrannulus	Brown-crested Flycatcher					1C
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Oreoscoptes montanus	Sage Thrasher					1C
Oreothlypis luciae	Lucy's Warbler					1C
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Setophaga petechia	Yellow Warbler					1B
Sphyrapicus nuchalis	Red-naped Sapsucker					1C
Sphyrapicus thyroideus	Williamson's Sapsucker					1C
Spizella atrogularis	Black-chinned Sparrow					1C
Spizella breweri	Brewer's Sparrow					1C
Sturnella magna	Eastern Meadowlark					1C
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Toxostoma lecontei	LeConte's Thrasher			S		1B
Troglodytes pacificus	Pacific Wren					1B

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vireo vicinior	Gray Vireo		S			1C
Vulpes macrotis	Kit Fox	No Status				1B

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Ovis canadensis nelsoni	Nelson Desert Bighorn Sheep					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Ursus americanus	American Black Bear					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Energy Storage/Production/Transfer, Energy Transfer, Power line/electric line (new)

Project Type Recommendations:
Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select “See What’s Here” for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

For any powerlines built, proper design and construction of the transmission line is necessary to prevent or minimize risk of electrocution of raptors, owls, vultures, and golden or bald eagles, which are protected under state and federal laws. Limit project activities during the breeding season for birds, generally March through late August, depending on species in the local area (raptors breed in early February through May). Conduct avian surveys to determine bird species that may be utilizing the area and develop a plan to avoid disturbance during the nesting season. For underground powerlines, trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herpetofauna (snakes, lizards, tortoise) from entering ditches. In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated.

Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (https://www.fws.gov/office/arizona-ecological-services).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Project Location and/or Species Recommendations:
HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf starts on page 44

HDMS records indicate that one or more **Listed, Proposed, or Candidate** species or **Critical Habitat** (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at https://www.fws.gov/office/arizona-ecological-services or:

Phoenix Main Office
9828 North 31st Avenue #C3
Phoenix, AZ 85051-2517
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

HDMS records indicate that **Sonoran Desert Tortoise** have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at: https://www.azgfd.com/wildlife/nongamemanagement/tortoise/

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***.
The **Statewide Wildlife Connectivity Assessment's Important Connectivity Zones** (ICZs) represent general areas throughout the landscape which contribute the most to permeability of the whole landscape. ICZs may be used to help identify, in part, areas where more discrete corridor modeling ought to occur. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd.wp/wp-content/uploads/0001/01/23120719/ALIWCA_Final_Report_Perkl_2013_lowres.pdf.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
169-5 Comms Site

User Project Number:
2433.01

Project Description:
Communication structure

Project Type:
Communication, Antenna and/or communication dish installation, New structure/cell tower

Contact Person:
Catherine Esquer

Organization:
WestLand Engineering and Environmental Services

On Behalf Of:
OTHER_FED

Project ID:
HGIS-17405

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

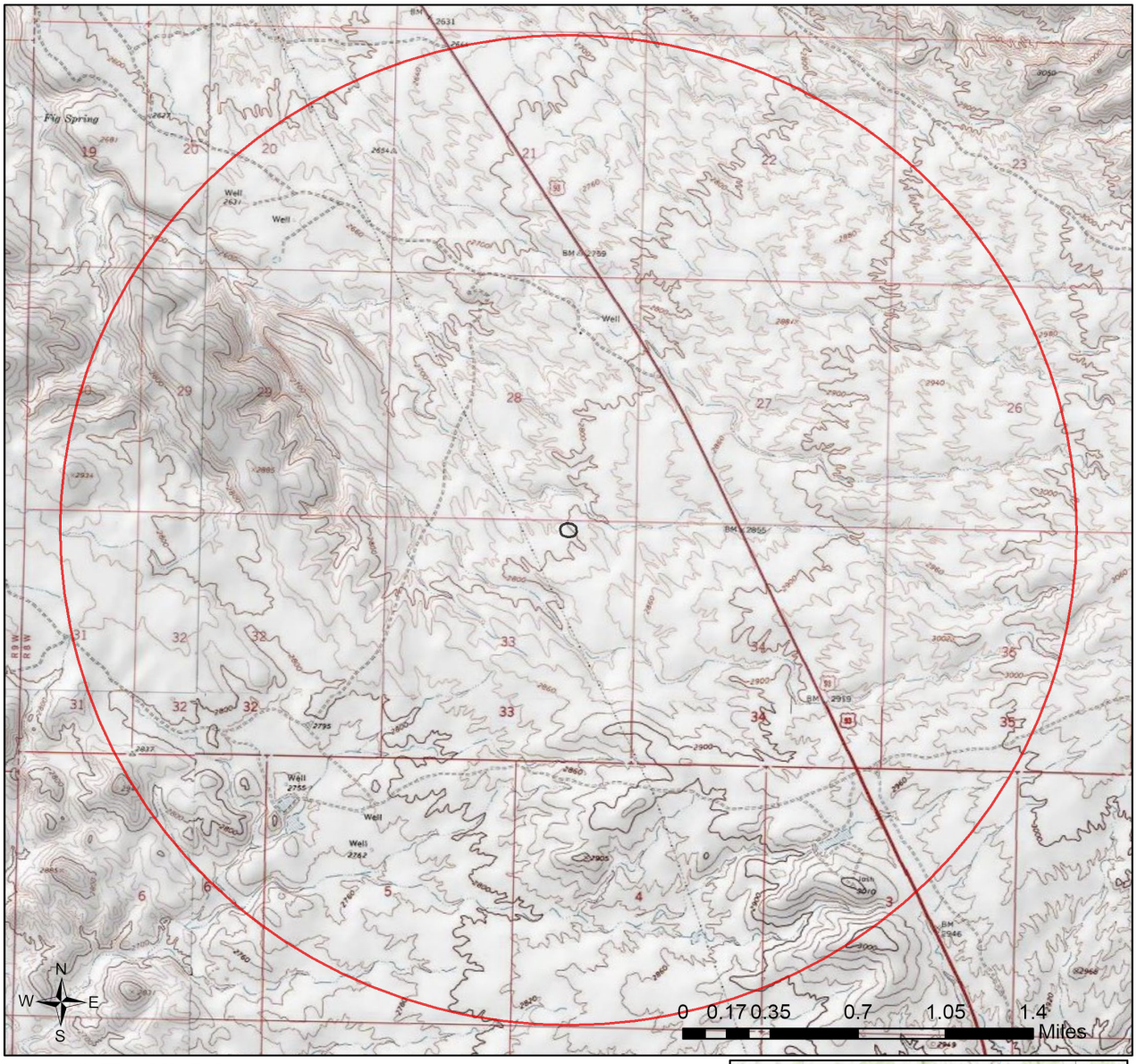
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

169-5 Comms Site

USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 1.91

Lat/Long (DD): 34.2601 / -113.1000

County(s): Yavapai

AGFD Region(s): Yuma

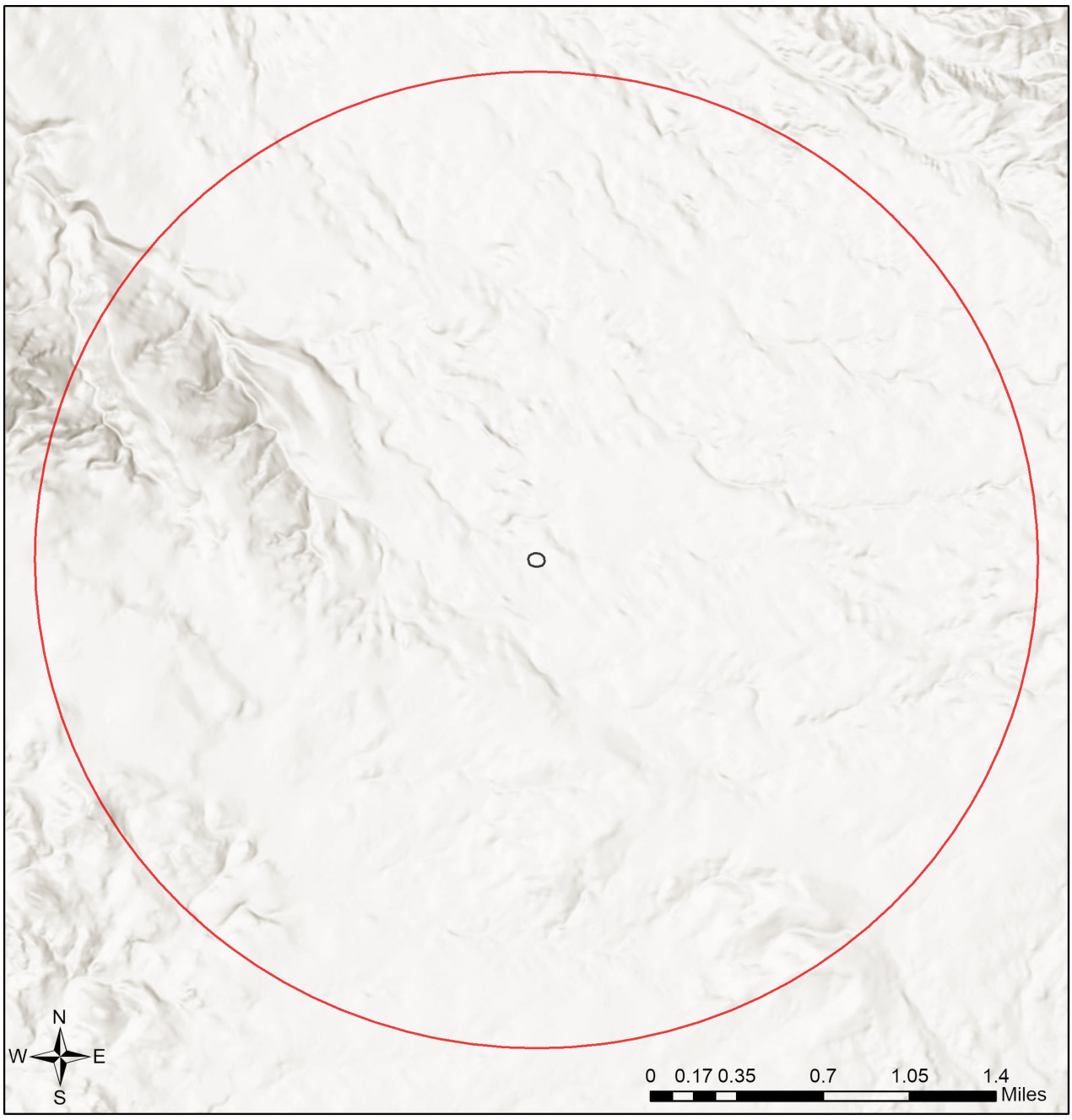
Township/Range(s): T11N, R8W

USGS Quad(s): MALPAIS MESA

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

169-5 Comms Site

Web Map As Submitted By User



Buffered Project Boundary

Project Boundary

Project Size (acres): 1.91

Lat/Long (DD): 34.2601 / -113.1000

County(s): Yavapai

AGFD Region(s): Yuma

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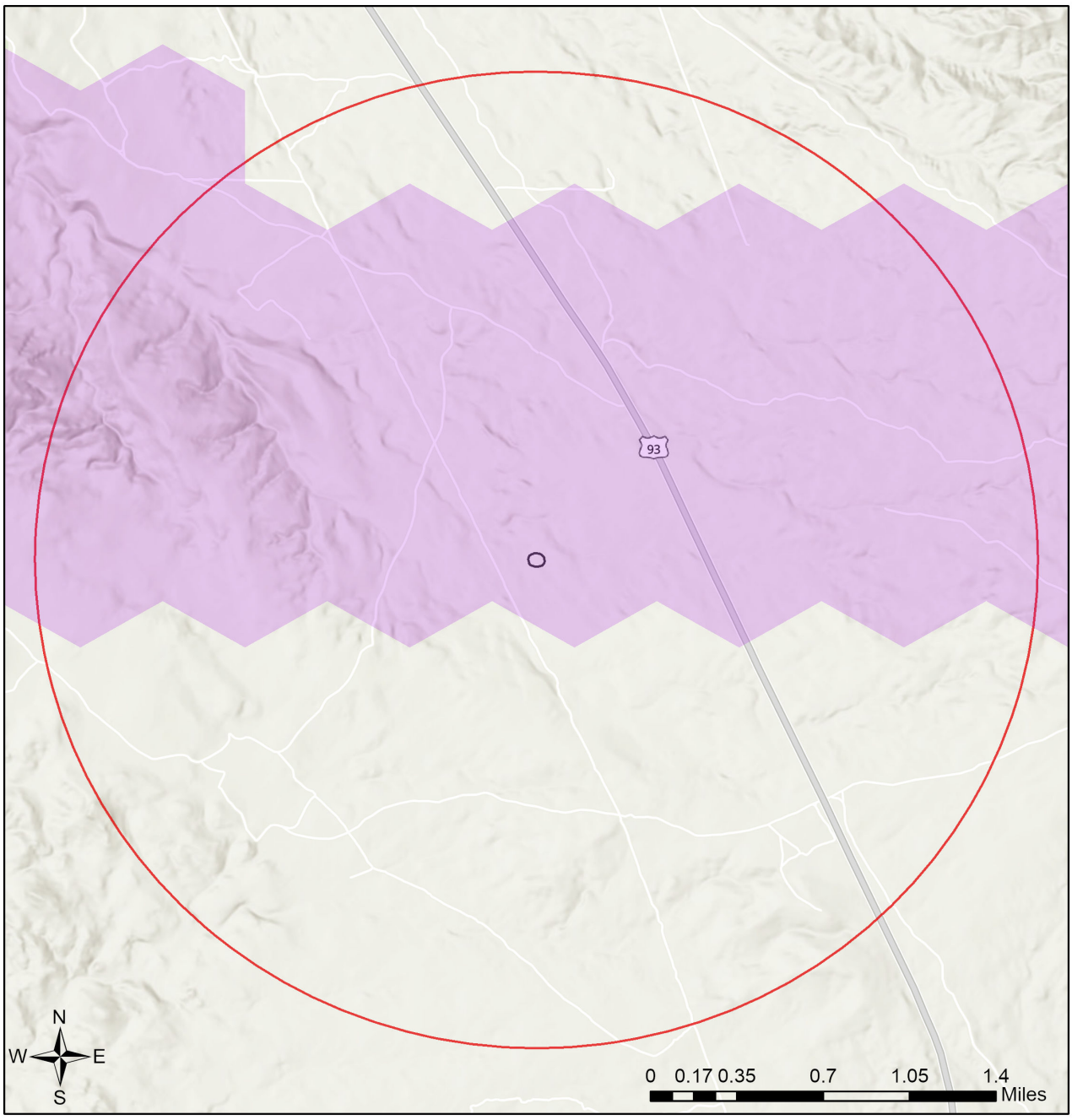
169-5 Comms Site

Important Areas



- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 1.91

Lat/Long (DD): 34.2601 / -113.1000

County(s): Yavapai

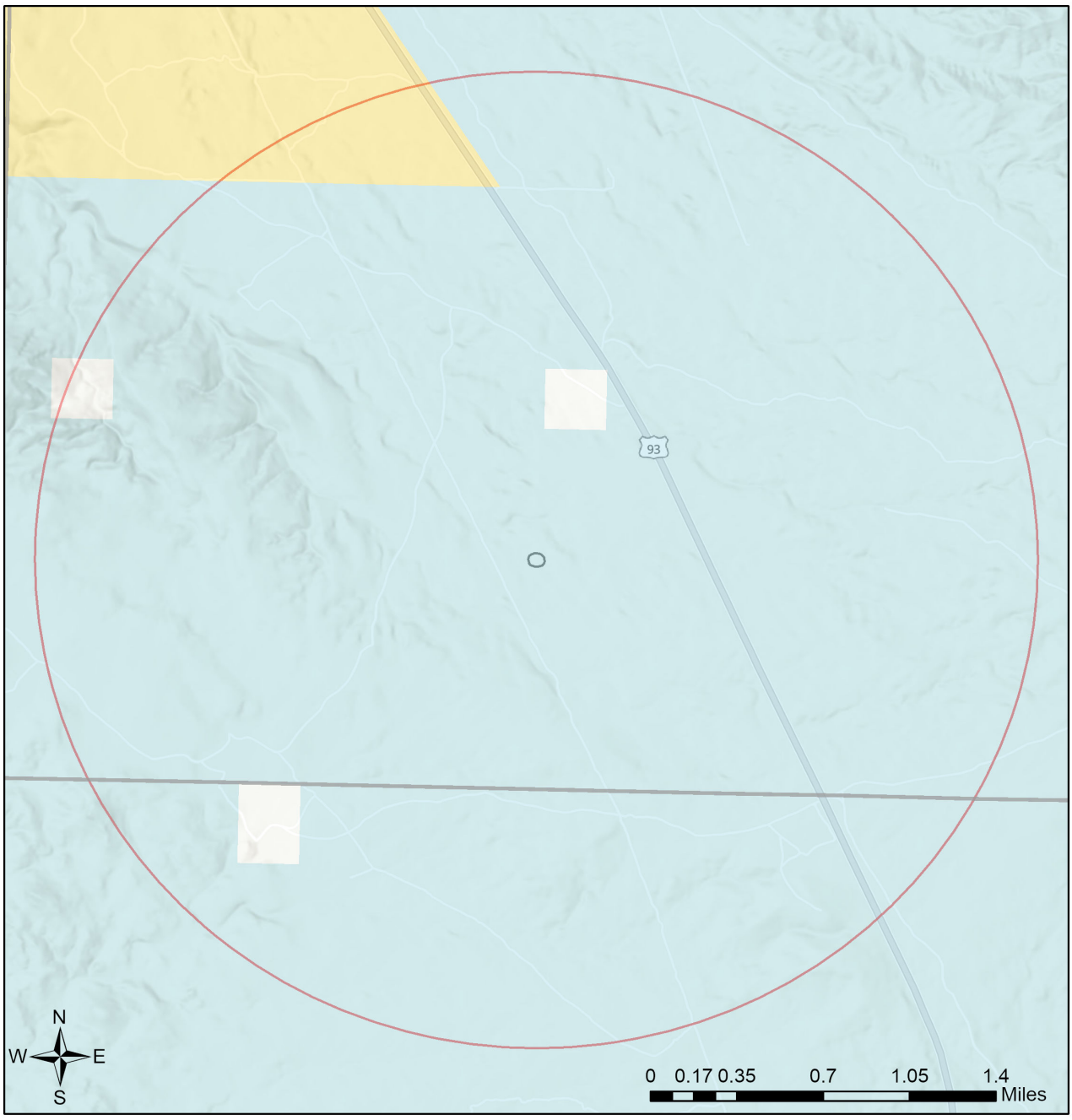
AGFD Region(s): Yuma

Township/Range(s): T11N, R8W

USGS Quad(s): MALPAIS MESA

169-5 Comms Site

Township/Ranges and Land Ownership



- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Ranges

Project Size (acres): 1.91

Lat/Long (DD): 34.2601 / -113.1000

County(s): Yavapai

AGFD Region(s): Yuma

Township/Range(s): T11N, R8W

USGS Quad(s): MALPAIS MESA

Special Status Species Documented within 2 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Echinomastus johnsonii	Johnson's Fishhook Cactus				SR	

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Important Connectivity Zone	Wildlife Connectivity					

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Ammospermophilus harrisii	Harris' Antelope Squirrel					1B
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Calypte costae	Costa's Hummingbird					1C
Colaptes chrysoides	Gilded Flicker			S		1B
Coluber bilineatus	Sonoran Whipsnake					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1A
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Incilius alvarius	Sonoran Desert Toad					1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Melanerpes uropygialis	Gila Woodpecker					1B
Micrathene whitneyi	Elf Owl					1C
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myiarchus tyrannulus	Brown-crested Flycatcher					1C
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Oreoscoptes montanus	Sage Thrasher					1C

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Oreothlypis luciae	Lucy's Warbler					1C
Panthera onca	Jaguar	LE				1A
Spizella breweri	Brewer's Sparrow					1C
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vulpes macrotis	Kit Fox	No Status				1B

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Communication, Antenna and/or communication dish installation, New structure/cell tower

Project Type Recommendations:
Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Consider tower designs and/or modifications that reduce or eliminate impacts to migratory birds (i.e. free standing, minimally lighted structures).

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select “See What’s Here” for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (https://www.fws.gov/office/arizona-ecological-services).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Project Location and/or Species Recommendations:
HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf starts on page 44

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***.
The **Statewide Wildlife Connectivity Assessment's Important Connectivity Zones** (ICZs) represent general areas throughout the landscape which contribute the most to permeability of the whole landscape. ICZs may be used to help identify, in part, areas where more discrete corridor modeling ought to occur. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd.wp/wp-content/uploads/0001/01/23120719/ALIWCA_Final_Report_Perkl_2013_lowres.pdf.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
Pete Smith Peak

User Project Number:
2433.01

Project Description:
New communication structure at existing facility

Project Type:
Communication, Cell or communication tower including access roads, New tower

Contact Person:
Catherine Esquer

Organization:
WestLand Engineering and Environmental Services

On Behalf Of:
OTHER_FED

Project ID:
HGIS-19187

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. Arizona Wildlife Conservation Strategy (AWCS), specifically Species of Greatest Conservation Need (SGCN), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

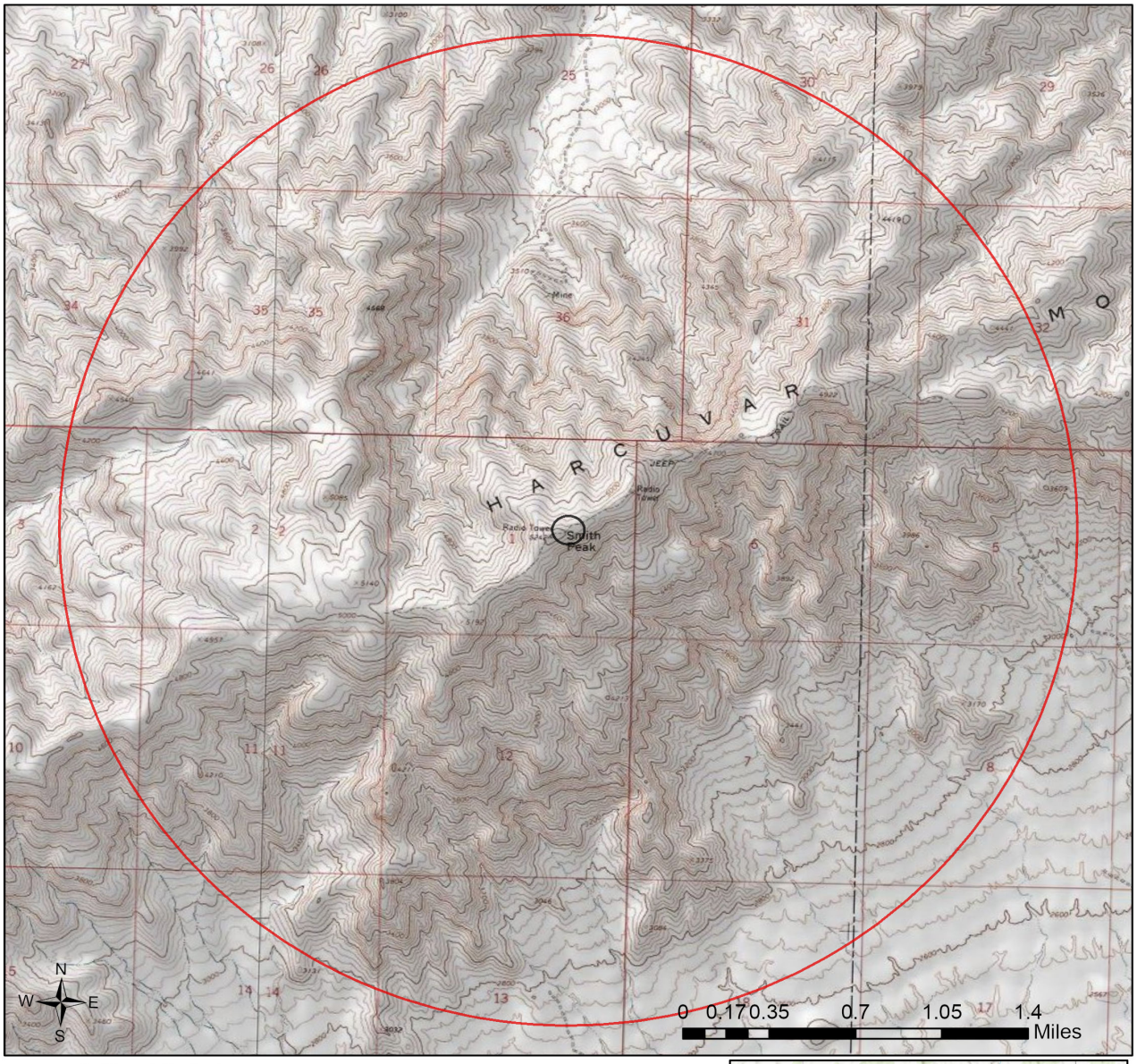
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

Pete Smith Peak

USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 7.76

Lat/Long (DD): 34.0654 / -113.3546

County(s): La Paz

AGFD Region(s): Yuma

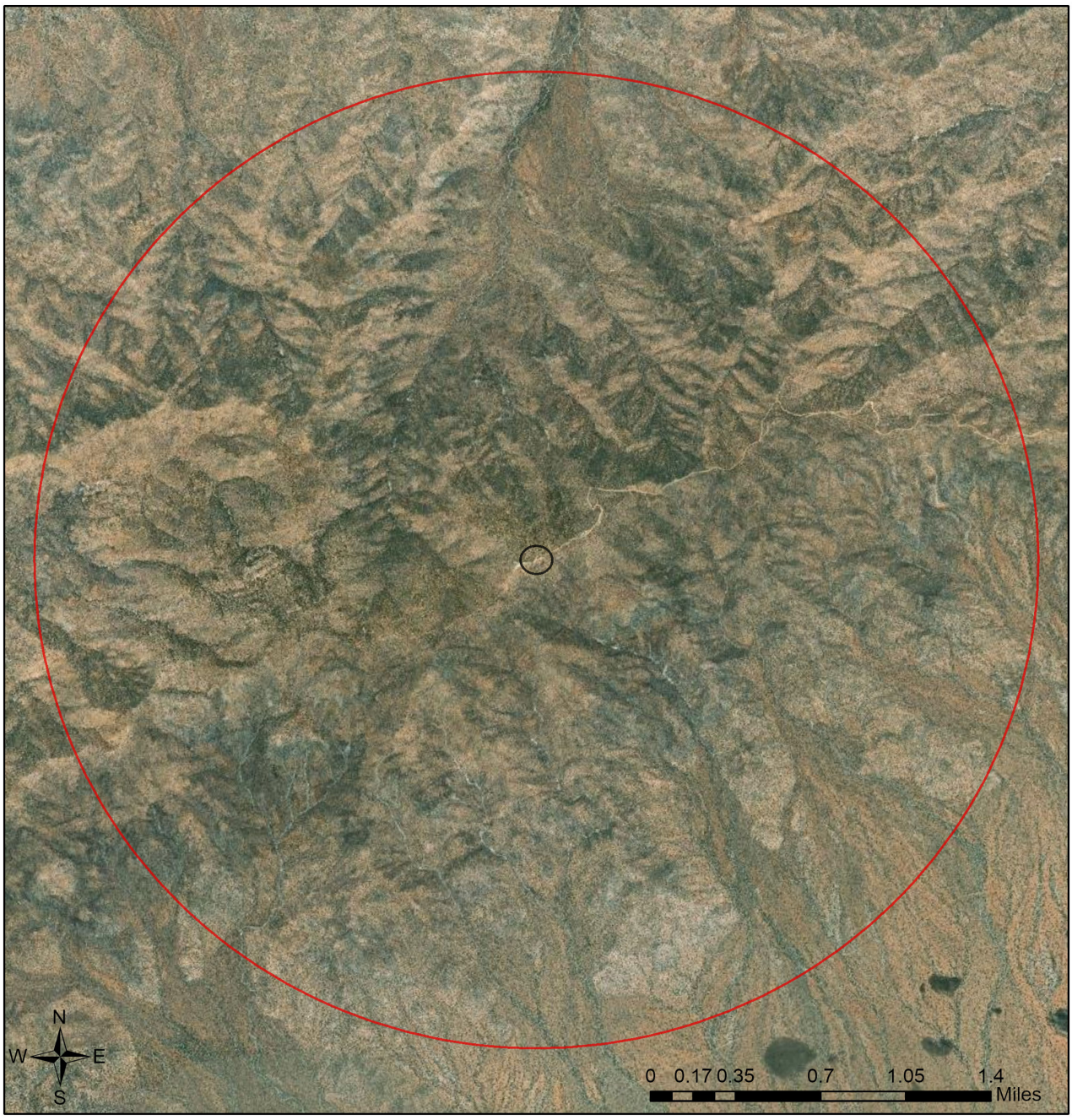
Township/Range(s): T8N, R11W

USGS Quad(s): SMITH PEAK

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Pete Smith Peak

Web Map As Submitted By User



Buffered Project Boundary

Project Boundary

Project Size (acres): 7.76

Lat/Long (DD): 34.0654 / -113.3546

County(s): La Paz

AGFD Region(s): Yuma

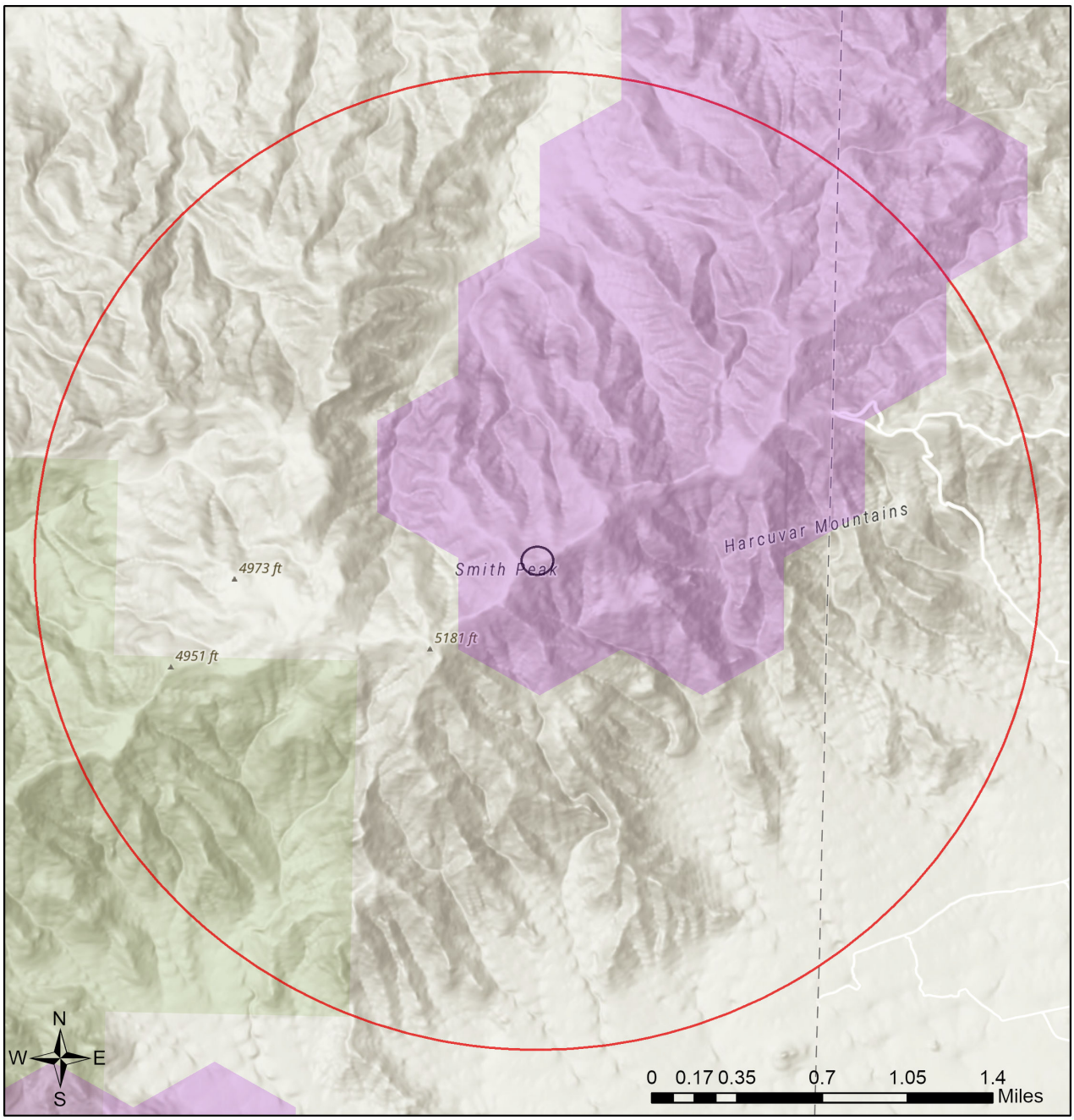
Township/Range(s): T8N, R11W

USGS Quad(s): SMITH PEAK

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Pete Smith Peak

Important Areas



- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 7.76

Lat/Long (DD): 34.0654 / -113.3546

County(s): La Paz

AGFD Region(s): Yuma

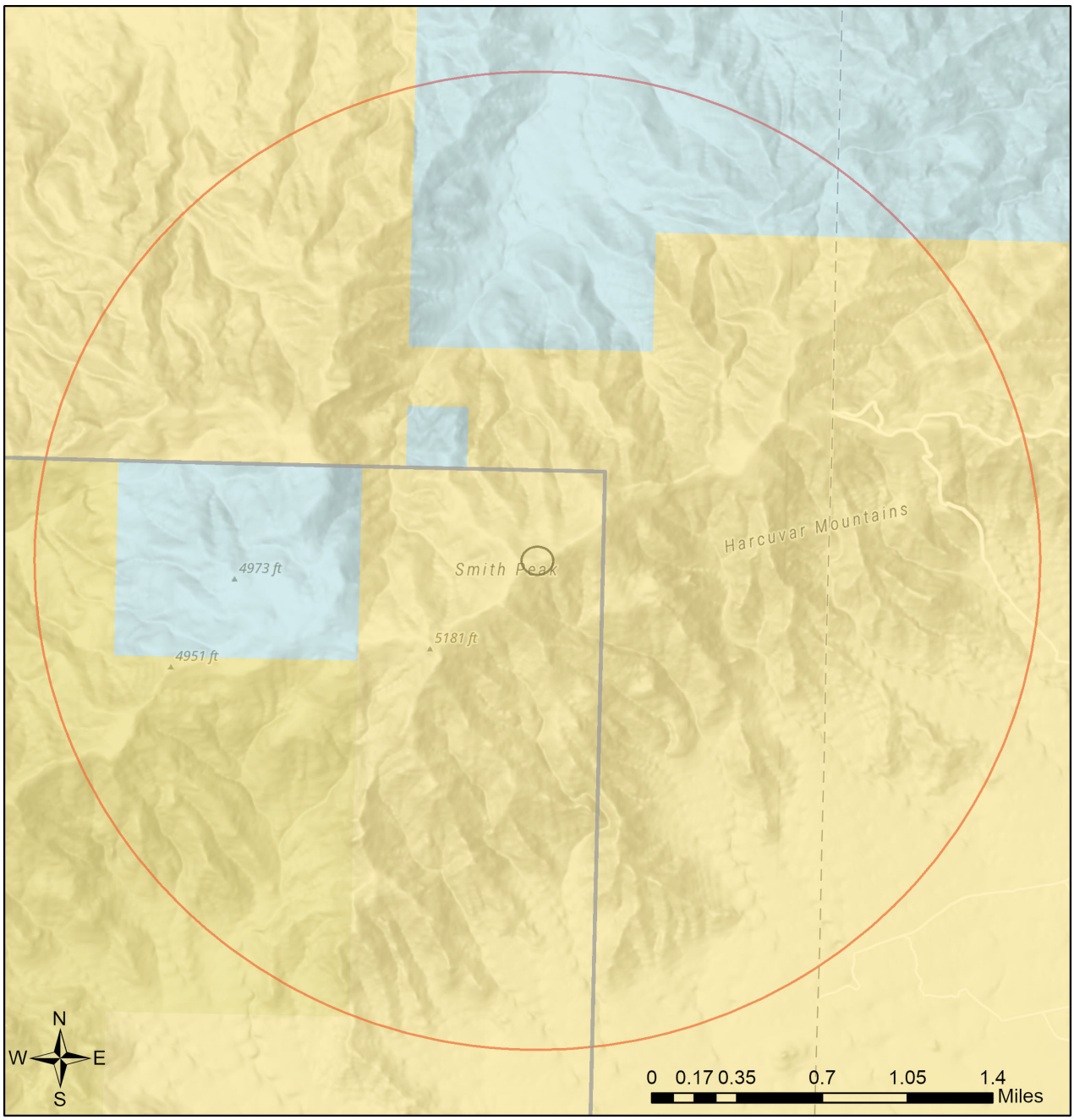
Township/Range(s): T8N, R11W

USGS Quad(s): SMITH PEAK

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Pete Smith Peak

Township/Ranges and Land Ownership



- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Ranges

Project Size (acres): 7.76

Lat/Long (DD): 34.0654 / -113.3546

County(s): La Paz

AGFD Region(s): Yuma

Township/Range(s): T8N, R11W

USGS Quad(s): SMITH PEAK

Special Status Species Documented within 2 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aquila chrysaetos	Golden Eagle	BGA		S		2
Lichanura roseofusca	Rosy Boa					
Mammillaria viridiflora	Varied Fishhook Cactus				SR	

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Important Connectivity Zone	Wildlife Connectivity					

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aquila chrysaetos	Golden Eagle			S		2
Asio otus	Long-eared Owl					2
Auriparus flaviceps	Verdin					2
Calypte costae	Costa's Hummingbird					2
Campylorhynchus brunneicapillus	Cactus Wren					2
Colaptes chrysoides	Gilded Flicker			S		2
Coluber bilineatus	Sonoran Whipsnake					2
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1
Empidonax wrightii	Gray Flycatcher					2
Eumops perotis californicus	Greater Western Bonneted Bat					
Falco mexicanus	Prairie Falcon					2
Falco peregrinus anatum	American Peregrine Falcon					
Falco sparverius	American Kestrel					2
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1
Lanius ludovicianus	Loggerhead Shrike	SC				2
Lasiurus xanthinus	Western Yellow Bat		S			2
Megascops kennicottii	Western Screech-owl					
Melanerpes uropygialis	Gila Woodpecker					2
Myotis thysanodes	Fringed Myotis	SC				2
Myotis velifer	Cave Myotis	SC		S		2
Myotis yumanensis	Yuma Myotis	SC				2
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					2
Phrynosoma solare	Regal Horned Lizard					2
Pooecetes gramineus	Vesper Sparrow					2

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Spizella breweri	Brewer's Sparrow					2
Tadarida brasiliensis	Brazilian Free-tailed Bat					

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Ovis canadensis mexicana	Mexicana Desert Bighorn Sheep					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Communication, Cell or communication tower including access roads, New tower

Project Type Recommendations:
Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Consider tower designs and/or modifications that reduce or eliminate impacts to migratory birds (i.e. free standing, minimally lighted structures).

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select “See What’s Here” for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (https://www.fws.gov/office/arizona-ecological-services).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Project Location and/or Species Recommendations:
HDMS records indicate that one or more native plants listed on the **Arizona Native Plant Law and Antiquities Act** have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf starts on page 44

HDMS records indicate that one or more **Listed, Proposed, or Candidate** species or **Critical Habitat** (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at https://www.fws.gov/office/arizona-ecological-services or:

Phoenix Main Office
9828 North 31st Avenue #C3
Phoenix, AZ 85051-2517
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***.
The **Statewide Wildlife Connectivity Assessment's Important Connectivity Zones** (ICZs) represent general areas throughout the landscape which contribute the most to permeability of the whole landscape. ICZs may be used to help identify, in part, areas where more discrete corridor modeling ought to occur. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd.wp/wp-content/uploads/0001/01/23120719/ALIWCA_Final_Report_Perkl_2013_lowres.pdf.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

APPENDIX C
Representative Photographs

Photo 1.

Representative Arizona Upland Subdivision of Sonoran Desertscrub, near the proposed interconnect location and southern terminus of the proposed transmission line. This vegetation community makes up the majority of the Action Area.

Photo 2.

Representative riparian scrubland associated with Bridle Creek within the Action Area along the proposed transmission line ROW.

Photo 3.

North Fork of the Santa Maria River, north of its confluence with Bridle Creek, looking West. Large patch of upland-associated shrub habitat west of the river channel. Mesquite and burrobrush dominant, with sparse canopy cover.

Photo 4.

North Fork of the Santa Maria River, north of its confluence with Bridle Creek, looking Southwest. Upland-associated shrub species (burrobrush and desert broom) dominant with Goodding's willow and seep willow sparsely distributed along the river channel.

Photo 5.

Representative photo of Sonoran desertscrub habitat at the proposed 169-5 microwave tower location.

Photo 6.

Existing Pete Smith Peak communications facilities, where a new microwave tower is proposed. This area contains the Interior Chapparal vegetation community.

APPENDIX D
USFWS Letter Re: WAPA MPP-Q01 Interconnection Project

United States Department of the Interior
Fish and Wildlife Service
Arizona Ecological Services Office
9828 North 31st Avenue, Suite C3
Phoenix, Arizona 85051
Telephone: (602) 242-0210 Fax: (602) 242-2513

In reply refer to:
AESO/SE
2023-0078714-NEPA-001

May 24, 2023

Matthew Pollock, NEPA Document Manager
Western Area Power Administration, Desert Southwest Region
Post Office Box 6457
Phoenix, Arizona 85005

RE: WAPA MPP-Q01 Interconnection Project

Dear Matthew Pollock:

Thank you for the opportunity to provide comments during the scoping process for the MPP-Q01 Interconnection Project. We received your scoping letter on April 7, 2023, via email. Western Area Power Administration (WAPA) is proposing to approve Arizona Public Service's (APS) interconnection request and enter into an agreement associated with constructing a new transmission line that would interconnect with the Mead-Perkins 525 kilovolt (kV) transmission line, operated, and maintained by WAPA. APS proposes to build, operate, and maintain a 14-mile (22.5-kilometer) long 115 kV or 230 kV transmission line from southeast of the intersection of U.S. Route 93 and State Route (SR) 97, north to approximately one mile (1.6 kilometers) west of the SR 97 and SR 96 intersection near Bagdad, Arizona. Additionally, the project involves constructing a 500 kV switchyard, two substations, and a microwave tower, and installing a fiber optic cable along the proposed transmission line.

The project area includes 267 acres (108 hectares [ha]) of State Trust Land managed by the Arizona State Land Department, less than one acre (less than 0.04 ha) of land managed by the Bureau of Land Management, and 37 acres (15 ha) of private lands. The proposed route of the transmission line would cross the Santa Maria River one time and a tributary, Bridle Creek, four times.

The project area contains potential habitats for several species protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). Species that occur or potentially occur in the riparian areas of the project area are the threatened western yellow-billed cuckoo (*Coccyzus americanus*; cuckoo), the endangered southwestern willow flycatcher (*Empidonax*

traillii extimus; flycatcher), the threatened northern Mexican gartersnake (*Thamnophis eques megalops*; gartersnake), and the monarch butterfly (*Danaus plexippus*; monarch), a candidate species. Cuckoos and flycatchers may use riparian habitat in the project area for migration, breeding, foraging, and commuting. Gartersnakes may use riparian habitat in the project area during all stages in their lifecycle. Monarchs may breed on milkweeds and feed on nectar from milkweeds and other flowering plants in the project area.

We offer the following comments on the proposed action:

- We recommend minimizing effects on natural habitat by collocating the project with existing linear infrastructure (*e.g.*, roads, other utilities) as much as practicable.
- We recommend minimizing riparian habitat removal during project construction to minimize potential effects to cuckoo, flycatchers, and gartersnakes.
- We recommend designing the project such that maintenance of the transmission line would minimize potential effects to cuckoo, flycatcher, and gartersnake habitat.
- We recommend timing construction and maintenance activities in and near potential cuckoo and flycatcher habitat to avoid disturbing these species during the breeding season (May 15 to September 30 for cuckoo and April 15 to August 15 for flycatcher).
- We recommend minimizing ground disturbance in riparian habitat during project construction and maintenance to minimize potential effects to gartersnakes.
- We recommend considering the potential for migratory bird collisions with the new transmission line and implementing appropriate measures. Additional information on these measures is on the Beneficial Practices: Power Lines website.
- We recommend using native plants in restoration areas and, when appropriate, considering including plants to benefit native pollinators.
- We recommend avoiding the use of pesticides during maintenance activities to minimize effects to monarchs and other pollinators. If avoidance is not practicable, we recommend minimizing their use by implementing non-chemical pest management and timing management to avoid when monarchs are likely using the area and when flowers are blooming. Additional information is available on the Timing Management in Monarch Breeding Habitat website.

Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act of 1940 (Eagle Act; 16 U.S.C. 668-668d). The MBTA prohibits the intentional taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, without authorization of the U.S. Fish and Wildlife Service (FWS). The Eagle Act prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, including their parts, nests, or eggs. If this project may affect migratory birds and/or eagles, we recommend seeking our technical assistance to identify available conservation measures that you may be able to incorporate into your project.

You can find more information on the MBTA and available permits on the FWS Migratory Bird Program website. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) published in the Federal Register on June 5, 2007, as well at the

Conservation Assessment and Strategy for the Bald Eagle in Arizona (Southwestern Bald Eagle Management Committee website).

In keeping with our trust responsibilities to American Indian Tribes, by copy of this letter we are notifying Tribes that this proposed action may affect and encourage you to invite the Bureau of Indian Affairs to participate in the review of your proposed action. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

We appreciate the opportunity to provide comments and look forward to continued cooperation and coordination with you. Please refer to the consultation number, 2023-0078714-NEPA-001 in future correspondence concerning this project. If you require further assistance or you have any questions, please contact Jessica Miller (Jessica_Miller@fws.gov) or Shaula Hedwall (Shaula_Hedwall@fws.gov).

Sincerely,

for Heather Whitlaw
Field Supervisor

cc (electronic):
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Regional Supervisor, Arizona Game and Fish Department, Kingman, AZ
Wildlife Biologist, Bureau of Land Management, Kingman, AZ (Attn: Joelle Acton)
Assistant Field Supervisor, U.S. Fish and Wildlife Service, Phoenix, AZ
Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Flagstaff, AZ (Attn: Greg Beatty)
Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Tucson, AZ (Attn: Meaghan Conway)
Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Tucson, AZ (Attn: Jeff Servoss)
Director, Cultural Resource Center, Chemehuevi Tribe, Havasu Lake, CA
Director, Hopi Cultural Preservation Office, Hopi Tribe, Kykotsmovi, AZ
Director, Tribal Historic Preservation Office, Hualapai Tribe, Peach Springs, AZ
Director, Aha Kakav Cultural Society, Fort Mohave Indian Tribe, Mohave Valley, AZ
Director, Historic Preservation and Archaeology Department, San Carlos Apache Tribe, San Carlos, AZ
Director, Apache Cultural Program, Yavapai-Apache Nation, Camp Verde, AZ
Director, Yavapai Cultural Program, Yavapai-Apache Nation, Camp Verde, AZ
Tribal Secretary, Havasupai Tribe, Supai, AZ
Environmental Protection Officer, Environmental Quality Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ

APPENDIX F
Visual Simulations

Photo 1. View from Key Observation Point 1 located on the west side of US 93 approximately 1 mile southeast of the proposed 169-5 microwave tower location, looking southwest towards Pete Smith Peak. Proposed Project structures are not visible.

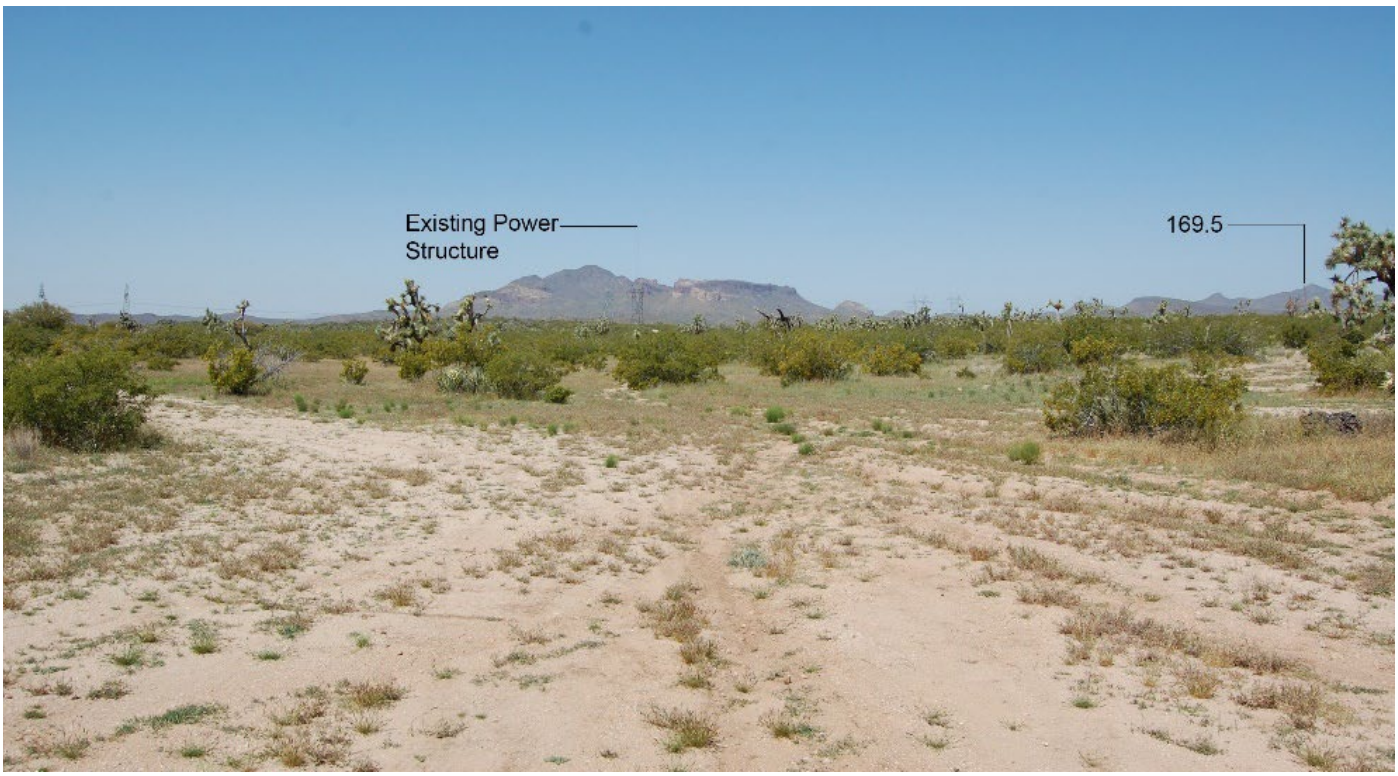


Photo 2. View from Key Observation Point 1 with the 169-5 Microwave Tower visible.

Photo 3. View from Key Observation Point 2 is located on the west side of US 93 approximately 1 mile south of the southern terminus of the proposed transmission line, TS-01 substation, and MPP-Q01 switchyard. Proposed Project structures are not visible.

Photo 4. View from Key Observation Point 2 with the proposed Project structures visible.

Photo 5. View from Key Observation Point 3 is located on the north side of SR 97, at one of the rural roads leading to the "wildcat" community west of the proposed transmission line, looking east. Proposed Project structures are not visible.

Photo 6. View from Key Observation Point 3 with the proposed Project structures visible.

Photo 7. View from Key Observation Point 4 is located on the south side of SR 97, looking west towards the proposed transmission line approximately 0.3 mile away. Proposed Project structures are not visible.

Photo 8. View from Key Observation Point 4 with the proposed Project structures visible.

Photo 9. View from Key Observation Point 5 is located on the west side of SR 96, approximately 1 mile south of the northern terminus of the proposed transmission line and TS-02 substation, looking southeast as the proposed transmission corridor crosses the highway. Proposed Project structures are not visible.

Photo 10. View from Key Observation Point 5 with the proposed Project structures visible.