

1 **BEFORE THE ARIZONA POWER PLANT**  
2 **AND TRANSMISSION LINE SITING COMMITTEE**

3 IN THE MATTER OF THE  
4 APPLICATION OF TUCSON ELECTRIC  
5 POWER COMPANY, IN  
6 CONFORMANCE WITH THE  
7 REQUIREMENTS OF A.R.S. § 40-360,  
8 ET SEQ., FOR A CERTIFICATE OF  
9 ENVIRONMENTAL COMPATIBILITY  
10 AUTHORIZING THE AEROSPACE  
11 RESEARCH CAMPUS TRANSMISSION  
12 PROJECT FOR A NEW SEGMENT OF 138  
13 KV TRANSMISSION LINE AND A  
14 PROPOSED SWITCHYARD. THE  
15 TRANSMISSION LINE WOULD  
16 BIFURCATE THE APPLICANT'S  
17 EXISTING SONORAN TO SOUTH 138 KV  
18 CIRCUIT (SECTION 4, TOWNSHIP 16  
19 SOUTH, RANGE 14 EAST) AND LOOP  
20 INTO THE PROPOSED FRANCO WASH  
21 SWITCHYARD (SECTION 31, TOWNSHIP  
22 15 SOUTH, RANGE 14 EAST). THE  
23 PROPOSED TRANSMISSION LINE AND  
24 SWITCHYARD WOULD BE LOCATED  
25 WITHIN THE CITY OF TUCSON AND  
26 PIMA COUNTY.

Docket No.L-00000C-23-0284-00227

Case No. 227

**NOTICE OF FILING**

18  
19 Tucson Electric Power Company (“TEP or Applicant”), through undersigned  
20 counsel, provides notice of filing its Application for a Certificate of Environmental  
21 Compatibility (“CEC”) seeking authority to construct an approximately 3-mile 138  
22 kilovolt (“kV”) transmission line to loop the existing TEP 138 kV system to the planned  
23 138 kV Franco Wash Switchyard in Tucson, Pima County, Arizona (“Aerospace  
24 Research Campus Transmission Project” or “the Project”).

25 Pursuant to A.R.S. Sections 40-360 through 40-360.13 and A.A.C. R14-3-201  
26 through R14-3-219, enclosed are 25 copies of the Application. The filing fee required by  
27 A.R.S. Section 40-360.09 is also enclosed.  
28

1            Communications concerning the Application (including data requests) should be  
2 addressed to:

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16                            RESPECTFULLY SUBMITTED this 20th day of October, 2023.

17                            OSBORN MALEDON, P.A.

18                            

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26                            **ORIGINAL** of the foregoing and 25 copies were filed  
27 this 20th day of October, 2023 with:

28                            Utilities Division-Docket Control  
ARIZONA CORPORATION COMMISSION  
1200 W. Washington Street  
Phoenix, Arizona 85007

1 COPIES of the foregoing hand-delivered this day to:

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3 Chairman, Arizona Power Plant and  
4 Transmission Line Siting Committee  
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8 COPIES of the foregoing e-mailed this day to:

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26 By *Patricia A. Palmer*

# **Application for a Certificate of Environmental Compatibility**

## **Aerospace Research Campus Transmission Project**

Prepared for:

**Arizona Power Plant and  
Transmission Line Siting Committee**

Submitted by:

**Tucson Electric Power Company**

**Date: Oct. 20, 2023**

**Case No. 227**

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BEFORE THE  
ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

In the matter of the Application of Tucson Electric Power Company, in conformance with the requirements of A.R.S. § 40-360, et seq., for a Certificate of Environmental Compatibility authorizing the Aerospace Research Campus Transmission Project for a new segment of 138 kV transmission line and a proposed switchyard. The transmission line would bifurcate the Applicant's existing Sonoran to South 138 kV circuit (Section 4, Township 16 South, Range 14 East) and loop into the proposed Franco Wash Switchyard (Section 31, Township 15 South, Range 14 East). The proposed transmission line and switchyard would be located within the City of Tucson and Pima County.

Docket No. L-00000C-23-0284-00227

Case No. 227

APPLICATION FOR  
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

<b>ABF</b>	American Battery Factory
<b>ACC</b>	Arizona Corporation Commission
<b>AM</b>	Amplitude modulation
<b>AN</b>	Audible noise
<b>ANPL</b>	Arizona Native Plant Law
<b>ARC</b>	Aerospace Research Campus
<b>ARHP</b>	Arizona Register of Historic Places
<b>A.R.S.</b>	Arizona Revised Statutes
<b>ASLD</b>	Arizona State Land Department
<b>ASM</b>	Arizona State Museum
<b>AZGFD</b>	Arizona Game and Fish Department
<b>AWLW</b>	Arizona Wildlife Linkages Workgroup
<b>BRE</b>	Biological Resources Evaluation
<b>CDP</b>	Census Designated Place
<b>CEC</b>	Certificate of Environmental Compatibility
<b>Committee</b>	Arizona Corporation Commission Power Plant and Line Siting Committee
<b>dba</b>	A-weighted decibels
<b>EMF</b>	Electric and Magnetic Fields
<b>EPA</b>	Environmental Protection Agency
<b>EPM</b>	Environmental Protection Measures
<b>ERZ</b>	Environmental Resource Zone
<b>ESA</b>	Endangered Species Act
<b>FAA</b>	Federal Aviation Administration
<b>FEMA</b>	Federal Emergency Management Agency
<b>FIRM</b>	Flood Insurance Rate Maps
<b>FM</b>	Frequency Modulation
<b>GIS</b>	Geographic Information System

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<b>GLO</b>	General Land Office
<b>HDMS</b>	Heritage Data Management System
<b>IBA</b>	Important Bird Area
<b>IPaC</b>	Information for Planning and Consultation
<b>KOP</b>	Key Observation Point
<b>kV</b>	Kilovolt
<b>Ldn</b>	Weighted day night average noise level
<b>Leq</b>	1-hour equivalent noise level
<b>MBTA</b>	Migratory Bird Treaty Act
<b>mG</b>	Milligauss
<b>NESC</b>	National Electrical Safety Code
<b>NIEHS</b>	National Institute of Environmental Health Sciences
<b>NRHP</b>	National Register of Historic Places
<b>PCRFC</b>	Pima County Regional Flood Control District
<b>Project</b>	Aerospace Research Campus Transmission Project
<b>ROW</b>	Right-of-way
<b>SHPO</b>	State Historic Preservation Office
<b>TAA</b>	Tucson Airport Authority
<b>TEP</b>	Tucson Electric Power
<b>USDOT</b>	U.S. Department of Transportation
<b>USGS</b>	U.S. Geological Survey
<b>UPRR</b>	Union Pacific Railroad
<b>USFWS</b>	U.S. Fish and Wildlife Service
<b>WAPA</b>	Western Area Power Administration
<b>WHO</b>	World Health Organization

## **A. INTRODUCTION**

Pursuant to Arizona Revised Statutes (“A.R.S.”) § 40-360 *et seq.*, Tucson Electric Power Company (“TEP”), a subsidiary of UNS Energy, submits this application for a Certificate of Environmental Compatibility (“CEC”) granting authority to construct the Aerospace Research Campus Transmission Project (“Project”).

### **A.1 *PROJECT OVERVIEW***

The Project will consist of building a new 138 kilovolt (“kV”) transmission line approximately 3 miles in length to loop the existing TEP 138 kV system to the planned 138 kV Franco Wash Switchyard in Tucson, Pima County, Arizona.

The proposed route will be co-located on monopole structures with existing TEP 46 kV sub-transmission lines. The 46 kV lines are currently installed on the north side of East Old Vail Connection Road in a double-circuit configuration. One of the 46 kV circuits will be transferred to new Project structures that will be installed north of the existing 46 kV line. These new and existing monopoles will house both lines, with the new 138 kV conductor strung on one side and the existing 46 kV conductor on the other.

The Project will cross private, county, and state land owned by the Arizona State Land Department (“ASLD”). TEP plans to obtain rights-of-way (“ROWs”) and easements in corridors up to 100 feet wide for construction, and operation and maintenance.

### **A.2 *STUDY AREA DEVELOPMENT***

TEP identified a Project Study Area to help define the area of notification of members of the public and governmental officials, the area in which preliminary environmental studies were conducted for the Project, and the area where a potential transmission line route would be considered. The Study Area boundaries were determined by identifying the beginning and end points of the Project, identifying high level opportunities and constraints for a transmission line in the vicinity of those beginning, middle, and end points, and applying a spatial buffer around those areas.

See Exhibit A-3 for the Project location and Project Study Area.

### **A.3 *PROJECT NEED***

This Project was developed in response to a request to provide electric service to new commercial businesses at the Aerospace Research Campus (“ARC”), including American Battery Factory’s (“ABF”) planned headquarters and first battery cell gigafactory in the United States. The factory will produce lithium-ion phosphate battery cells.

The planned 138 kV Franco Wash Switchyard would allow the ARC to interconnect with TEP’s existing 138 kV transmission system that runs from the Sonoran Substation to the South Loop Substation.

This Project will create a 138 kV transmission loop to serve the ARC reliably, thereby supporting economic development and job creation in the Tucson community, as described in the TEP 2023-2032 Ten Year Transmission Plan.



#### **A.4 PROJECT PURPOSE AND BENEFITS**

As stated above, the Project will support new commercial businesses at the ARC, including ABF’s official headquarters and its first battery cell gigafactory in the United States (ABF, 2022). The Project will also support new aerospace development and other supply chain industries planned for the 500-acre ARC business campus (AZ Republic, 2023), with no impact on service reliability for other customers.

#### **A.5 ENVIRONMENTAL STUDIES AND ROUTE SELECTION PROCESS OVERVIEW**

After considering input from stakeholders and the public, TEP performed a comprehensive evaluation process to identify route segments for the Project and narrowed that selection to a proposed route that is compatible with the environmental factors outlined in A.R.S. § 40-360.06. As described in the Siting Study found in Exhibit B-1, TEP implemented the selection process in sequential steps. This evaluation process started with the determination of a preliminary Study Area and continued with an analysis of opportunities and constraints for the placement of the transmission line and related facilities. The intent of this analysis was to identify opportunities for locating the line, such as paralleling or using existing utility corridors or other linear features such as road ROW, and to avoid sensitive areas in which the Project could have especially high impacts on existing land use and biological, cultural, and/or visual resources.

Next, TEP identified preliminary route segments that when combined would establish a route, or alternative routes, for the Project. TEP examined in greater detail the overall impact these segments would have on the above-mentioned resources. This research included field visits and reviews of relevant land use planning documents. The method used to determine possible route corridors to interconnect the ARC with TEP’s existing 138 kV transmission system involved five phases: (1) Pre-analysis; (2) Data Inventory; (3) Suitability Assessment; (4) Compatibility Analysis; and (5) Concept Evaluation. Each phase relied heavily on geospatial analysis<sup>1</sup> and public and stakeholder outreach efforts.

#### **A.6 PUBLIC INVOLVEMENT OVERVIEW**

Public participation is a vital part of TEP’s environmental planning process for siting transmission lines; therefore, TEP conducted comprehensive public involvement and communication activities as a part of the route selection process discussed. These activities started in June 2023 with efforts to notify and inform the public, agencies, community leaders, and other affected stakeholders about the need for and benefits of the Project. Public involvement activities continued through September 2023 and included one stakeholder group meeting, two in-person open houses, regular updates to the online project webpage, and individual meetings with Tucson Airport Authority (“TAA”) and WAPA. Through the public involvement process, TEP gathered feedback on the proposed segments and overall Project.

Throughout the evaluation process, the public and stakeholders were given opportunities to comment through a variety of methods. A bilingual newsletter and postcard were sent to notify stakeholders and the public of the project, announce the public open houses, advertise the project website, and solicit feedback. A bilingual telephone information line and project webpage with an online comment form were

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<sup>1</sup>Geospatial analysis is the gathering, display, and manipulation of imagery, GPS, satellite photography and historical data, described explicitly in terms of geographic coordinates as they are applied to geographic models.

used to receive comments in English and Spanish. Exhibit J contains a comprehensive overview of TEP's outreach for the Project.

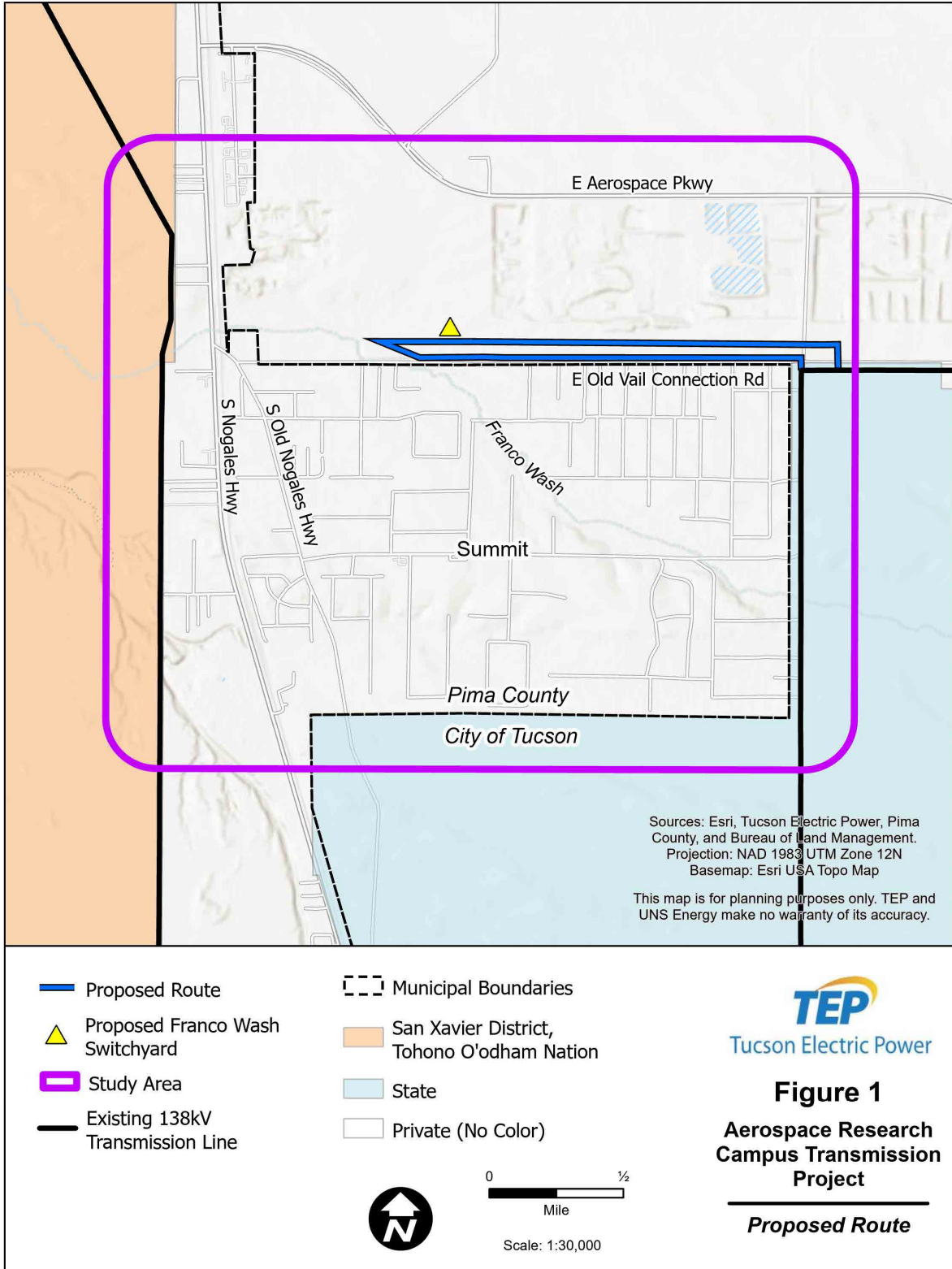
#### **A.7 CONCLUSION**

The CEC requested in this application balances the need for reliable, affordable energy with the desire to minimize impacts on Arizona's environment and ecology. The Project is environmentally compatible and will allow TEP to serve the ARC and new aerospace development and other supply chain industries planned for the business campus without impacting service reliability for other customers. As such, TEP respectfully requests that the Committee grant, and the Arizona Corporation Commission ("ACC") approve, a CEC for the proposed route presented in this application.

#### **A.8 REFERENCES**

ABF. (2022, Dec 6). American Battery Factory Selects Tucson, Arizona as Site for its First Battery Cell Gigafactory in United States. AFB Press Release.

AZ Republic. (2023, Sep 14). Construction Plans Delayed for Lithium Phosphate Battery Factory in Tucson. *Arizona Republic*.



**Figure 1. Proposed Route**

## **B. APPLICATION FOR CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY**

(Pursuant to A.R.S. §§ 40-360.03 and 40-360.06)

### ***B.1 Project Information***

1. Name and address of Applicant:

Tucson Electric Power Company  
88 East Broadway Blvd, Tucson, AZ 85701  
PO Box 711, Tucson, AZ 85702

2. Name, address and telephone number of a representative of Applicant who has access to technical knowledge and background information concerning this application, and who will be available to answer questions or furnish additional information:

Adriana Mariñez  
Project Manager, Transmission Line Siting  
Tucson Electric Power Company  
88 East Broadway Blvd, Tucson, AZ 85701  
PO Box 711, Tucson, AZ 85702  
Phone: (520) 528-1512

3. Dates on which Applicant filed a Ten-Year Plan in compliance with A.R.S. § 40-360.02, and designate each such filing in which the facilities for which this application is made were described. If they have not been previously described in a Ten-Year Plan, state the reasons therefore:

The Project was first identified in TEP's Ten-Year Plan Transmission Projects for Years 2023-2032, filed in January 2023 under Docket No. E-99999A-23-0016.

4. Description of transmission line:

- i. Nominal voltage for which the lines are designed; description of the proposed structures and switchyards or substations; purpose for constructing:

Nominal Voltage

The nominal voltage of the transmission line is 138 kV.

Description of Structures

The proposed route will be co-located on monopole structures with existing TEP 46 kV sub-transmission lines. The 46 kV lines are currently installed on the north side of East Old Vail Connection Road in a double-circuit configuration. One of the 46 kV circuits will be transferred to new Project structures that will be installed north of the existing 46 kV line. The new and existing monopoles will house both lines, with the new 138 kV conductor strung on one side and the existing 46 kV conductor on the other. The new structures will be tubular, weathering steel monopole structures and the conductors will

have a non-specular finish to reduce visibility. The structures will typically be 60 to 120 feet above ground, with the taller structures required for site specific clearance issues.

#### Description of Substation and Switchyards

The Project originates at a bifurcation of the Sonoran to South Loop 138 kV circuit and terminates at the planned Franco Wash Switchyard. The Franco Wash Switchyard will be located on private land and is planned to be in service by the end of 2026.

See Exhibits G-1 through G-2 for typical structures, Exhibit G-3 for switchyard general arrangement, and Exhibit G-4 for visual simulations of the transmission line.

#### Project Purpose

The project will support new commercial businesses at the ARC, including ABF's official headquarters and its first battery cell gigafactory in the United States. It will also support new aerospace development and other supply chain industries planned for the 500-acre business campus without impacting service reliability for other customers.

- ii. *Description of geographic points between which the transmission line will run; Straight-line distance between such geographic points; Length of the transmission line for each alternate route:*

#### Description of Geographic Points

Franco Wash Switchyard is planned for construction north of East Old Vail Connection Road, between South Old Nogales Highway and South Country Club Road. The 138 kV transmission line is planned for construction within an existing utility corridor north of East Old Vail Connection Road between the planned Franco Wash Switchyard and South Country Club Road.

#### Straight-line Distance

The straight-line distance of the proposed looped route from the existing transmission line to the planned Franco Wash Switchyard is approximately 3 miles.

- iii. *Nominal width of right-of-way required; nominal length of span; typical height of supporting structures above ground; minimum height of conductor above ground:*

#### Nominal Width of Right-of-Way

Where the structures will be repurposed, the line will be located within the existing 35-foot-wide ROW. In areas of new construction, TEP plans to acquire up to a 100-foot-wide ROW. TEP is requesting a 500-foot-wide siting corridor for the approved route.

#### Nominal Length of Span

The nominal length of span is 600 feet.

Typical Height of Supporting Structures

Supporting structures will range from 60 feet to 120 feet above grade for the transmission lines. While uncommon, poles 120 feet above grade may be required to maintain National Electric Safety Code (“NESC”) clearance criteria.

Minimum Height of Conductor

The minimum height of the 138 kV transmission line conductor above existing grade will be 25 feet at maximum sag.

*iv. Estimated costs of the proposed transmission line route:*

Variations in cost depend upon duration of construction and quantity of materials required, as well as mitigation of existing conflicts and acquisition of land rights. The total transmission line cost is anticipated to range between \$6 and \$8 million.

*v. Description of proposed route and switchyard locations. (If application contains alternative routes, list routes in order of applicant’s preference with a summary of reasons for such order of preference and any changes such alternative routes would require in the plans reflected in (i) through (iv) hereof):*

The Proposed Route in the application was selected based on the results of a Siting Study, which was conducted in coordination with stakeholders and the public. Please see Exhibit B-1 for the Aerospace Research Campus Transmission Project Siting Study.

**Description of Switchyard Location**

The proposed Franco Wash Switchyard is located approximately 0.6 miles east of South Nogales Highway, north of East Old Vail Connection Road. The switchyard will be situated on approximately three acres.

**Description of Proposed Route**

The proposed route originates near the intersection of East Old Vail Connection Road and South Country Club Road, angling north before turning to parallel the road for 1.5 miles where it will connect with the proposed Franco Wash Switchyard. The line will exit the switchyard and turn east along East Old Vail Connection Road 1.5 miles to South Country Club Road, where it will connect to the existing 138 kV line.

*vi. For each alternative route for which application is made, list the ownership percentages of land traversed by the entire route (federal, state, Indian, private, etc.):*

Land ownership percentages are shown in Table 1.

**Table 1. Land Ownership Percentages**

<b>PROPOSED ROUTE</b>	<b>PRIVATE*</b>	<b>PIMA COUNTY</b>	<b>ASLD</b>
Proposed Route	68.6%	29.4%	2%

\*Percent ownership based on total length of route and the 100-foot-wide ROW.

5. List the areas of jurisdiction [as defined in A.R.S. § 40-360(1)] affected by each alternative site or route and designate those proposed sites or routes, if any, which are contrary to the zoning ordinances or master plans of any of such areas of jurisdiction.

All portions of the Project are within the City of Tucson. The Proposed Route is compatible with local land use plans and zoning.

6. Describe any environmental studies applicant has performed or caused to be performed in connection with this application or intends to perform or cause to be performed in such connection, including the contemplated date of completion.

TEP has conducted geographical reviews and environmental studies, including field studies and impact assessments, to support this application. Information and reports on these study efforts are contained in the following exhibits:

- Exhibit A Location and Land Use Maps
- Exhibit B Environmental Studies
- Exhibit C Areas of Biological Wealth
- Exhibit D Biological Resources
- Exhibit E Scenic Areas, Historic Sites and Structures, and Archaeological Sites
- Exhibit F Recreational Purposes and Aspects
- Exhibit G Concepts of Proposed Facilities
- Exhibit H Existing Plans
- Exhibit I Anticipated Noise and Interference with Communication Signals
- Exhibit J Special Factors (Includes Public Involvement)

**EXHIBIT A**

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## EXHIBIT A: LOCATION AND LAND USE MAPS

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1. *Where commercially available, a topographic map, 1:250,000 scale, showing the proposed plant site and the adjacent area within 20 miles thereof. If application is made for alternative plant sites, all sites may be shown on the same map, if practicable, designated by applicant's order of preference.*
2. *Where commercially available, a topographic map, 1:62,500 scale, or each proposed plant site, showing the area within two miles thereof. The general land use plan within this area shall be shown on the map, which shall also show the areas of jurisdiction affected and any boundaries between such areas of jurisdiction. If the general land use plan is uniform throughout the area depicted, it may be described in the legend in lieu of an overlay.*
3. *Where commercially available, a topographic map, 1:250,000 scale, showing any proposed transmission line route of more than 50 miles in length and the adjacent area. For routes of less than 50 miles in length, use a scale of 1:62,500. If application is made for alternative transmission line routes, all routes may be shown on the same map, if practicable, designated by applicant's order of preference.*
4. *Where commercially available, a topographic map, 1:62,500 scale, of each proposed transmission line route of more than 50 miles in length showing that portion of the route within two miles of any subdivided area. The general land use plan within the area shall be shown on a 1:62,500 map required for Exhibit A-3, and for the map required by this Exhibit A-4, which shall also show the areas of jurisdiction affected and any boundaries between such areas of jurisdiction. If the general land use plan is uniform throughout the area depicted, it may be described in the legend in lieu of on an overlay.*

<b>EXHIBIT</b>	<b>CONTENTS</b>
A-1	n/a
A-2	n/a
A-3	Transmission Project – Location
A-4	Transmission Project – Land Use

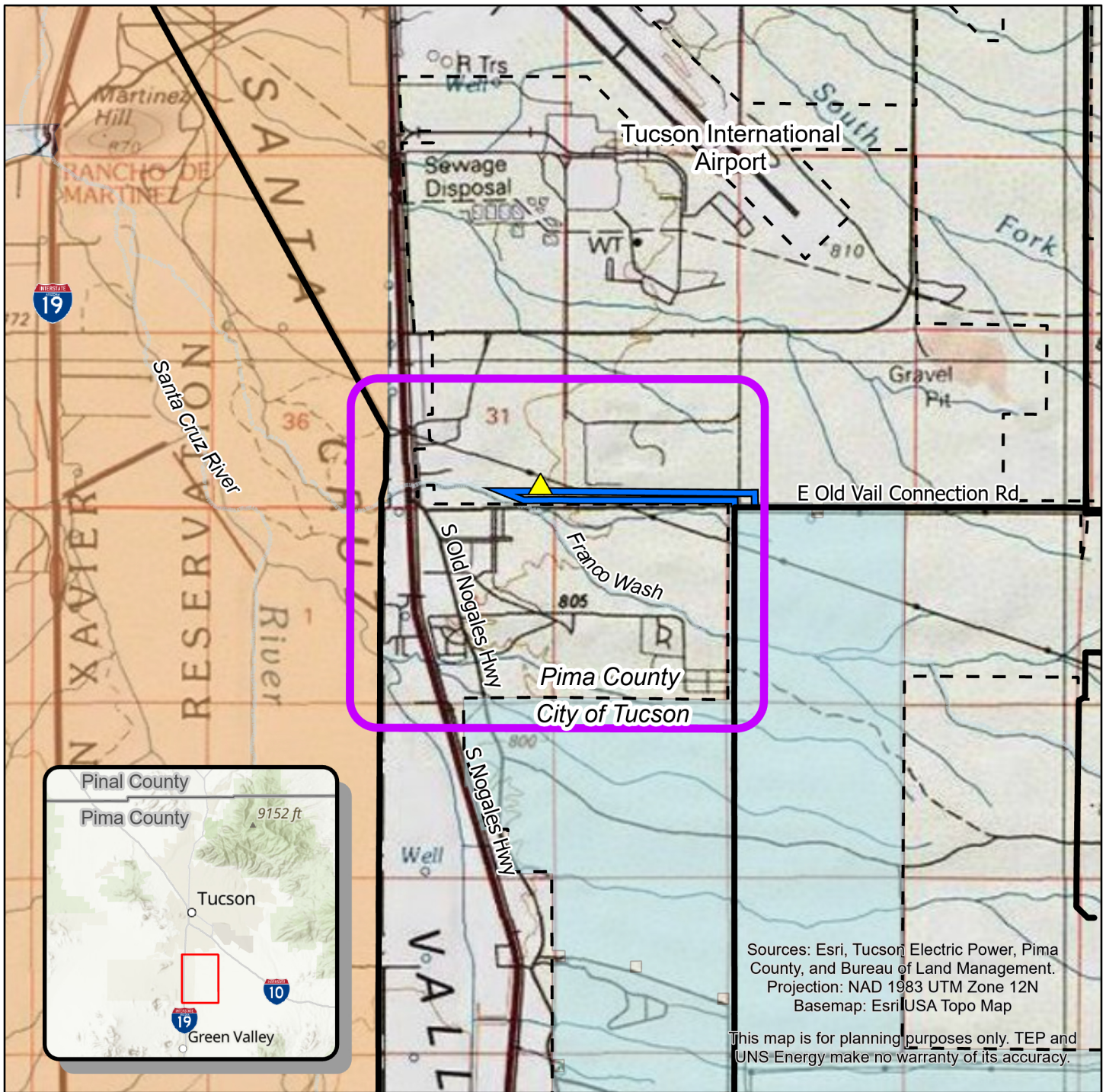
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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

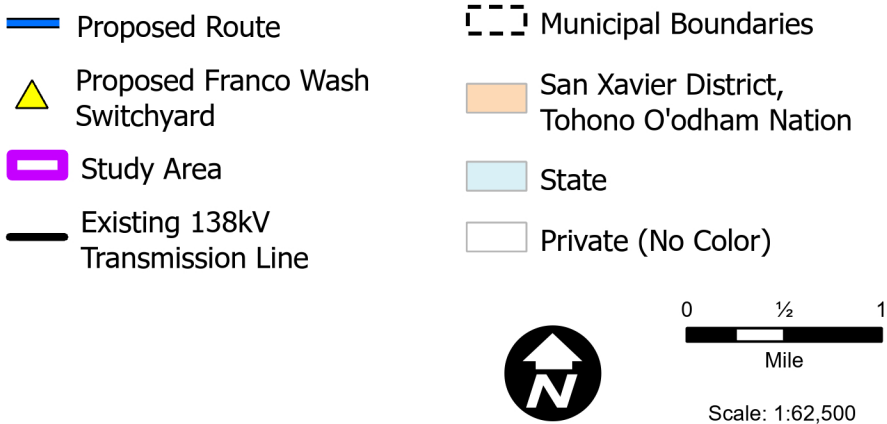
**Exhibit A-3**

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Sources: Esri, Tucson Electric Power, Pima County, and Bureau of Land Management.  
 Projection: NAD 1983 UTM Zone 12N  
 Basemap: Esri USA Topo Map

This map is for planning purposes only. TEP and UNS Energy make no warranty of its accuracy.



**Exhibit A-3**  
**Aerospace Research Campus Transmission Project**

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**Location**

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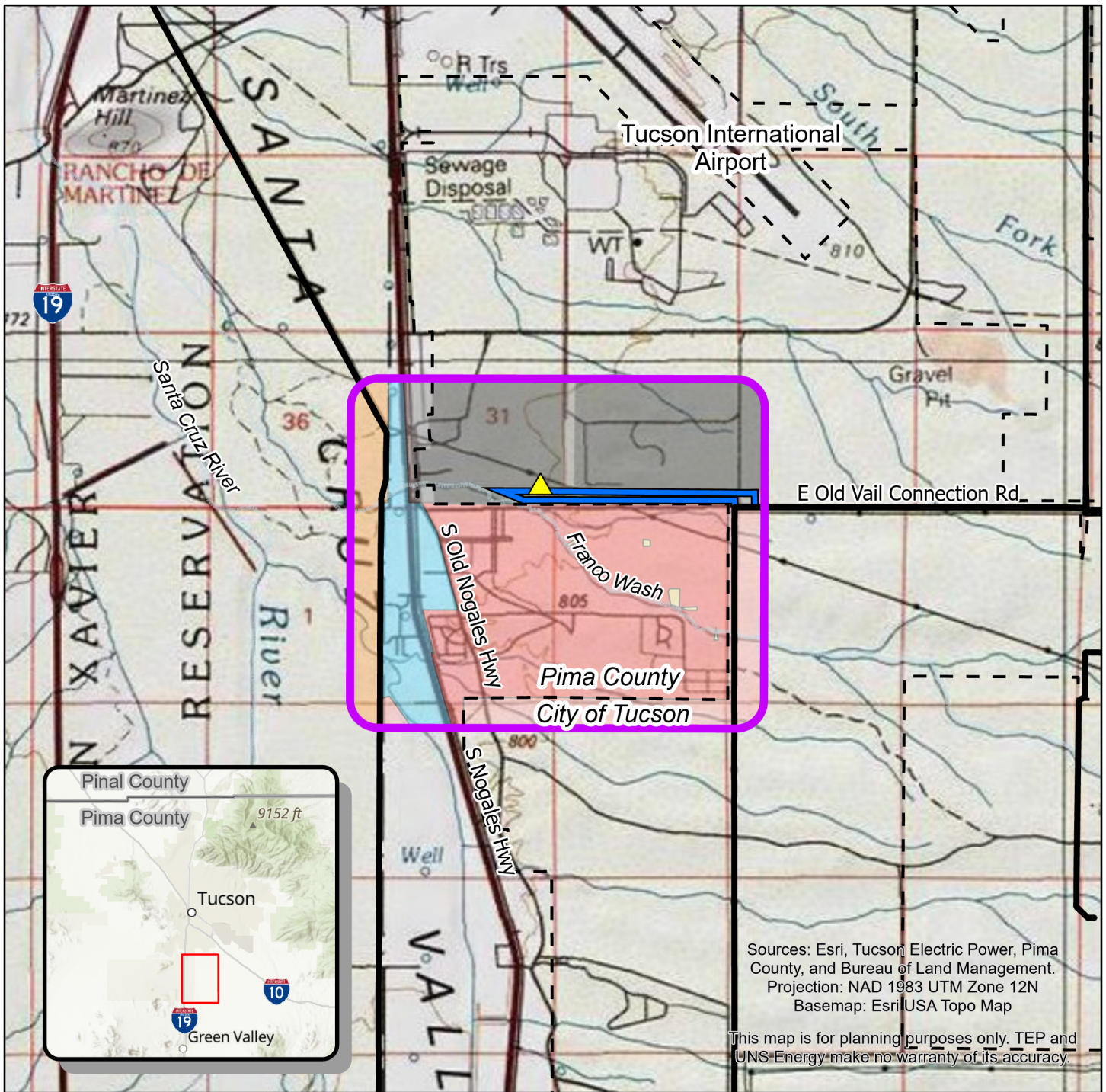
**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit A-4**















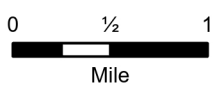
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Sources: Esri, Tucson Electric Power, Pima County, and Bureau of Land Management.  
 Projection: NAD 1983 UTM Zone 12N  
 Basemap: Esri USA Topo Map

This map is for planning purposes only. TEP and UNS Energy make no warranty of its accuracy.

-  Proposed Route
-  Proposed Franco Wash Switchyard
-  Study Area
-  Existing 138kV Transmission Line
-  Municipal Boundaries
-  San Xavier District, Tohono O'odham Nation
-  Low Density Residential
-  Medium Density Residential
-  Mixed Use Commercial
-  Resource Conservation
-  Light Industrial
-  Heavy Industrial



Scale: 1:62,500



**Exhibit A-4**  
**Aerospace Research**  
**Campus Transmission**  
**Project**

**Land Use**

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**EXHIBIT B**

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## EXHIBIT B: ENVIRONMENTAL STUDIES

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As stated in Arizona Administrative Code R14-3-219 of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee, Exhibits to Application, Exhibit B:

*“Attach any environmental studies which applicant has made or obtained in connection with the proposed site(s) or route(s). If an environmental report has been prepared for any federal agency or if a federal agency has prepared an environmental statement pursuant to Section 102 of the National Environmental Policy Act, a copy shall be included as a part of this exhibit.”*

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B.2 Environmental Planning Process.....	B-2
B.3 Environmental Statements .....	B-2
B.3.1 US Fish and Wildlife Service (“USFWS”) .....	B-2
B.3.2 U.S. Army Corps of Engineers (“USACE”).....	B-2
B.3.3 Federal Aviation Administration (“FAA”).....	B-2

### **B.1 Introduction**

In 2023, TEP conducted a study to identify preliminary segments and later the proposed route (see Siting Study in Exhibit B-1). The Siting Study is the foundation of detailed studies about the Project environment. All information about the analysis conducted is located in the Siting Study itself. Additional Project studies address biological resources, the built environment, cultural resources, and visual resources.

Study results are reported in exhibits as follows:

- Areas of biological wealth are addressed in Exhibit C
- Biological Resources are addressed in Exhibit D
- Scenic areas, historic sites and structures, and archaeological sites are addressed in Exhibit E
- Recreational purposes and aspects are addressed in Exhibit F
- Concepts of proposed facilities and Visual Simulations/Analysis are included in Exhibit G
- Existing Plans are presented in Exhibit H
- Anticipated noise and interference with communication signals are included in Exhibit I
- Special Factors are addressed in Exhibit J

## **B.2 Environmental Planning Process**

The result of the processes outlined in the Siting Study is the proposed route presented in this application (Exhibit B-2).

## **B.3 Environmental Statements**

### **B.3.1 US Fish and Wildlife Service (“USFWS”)**

The results of the Biological Resources Evaluation (“BRE”) indicate that two special status species have the potential to occur in the Study Area: the endangered Pima pineapple cactus with the potential to occur of “Present,” and the candidate species monarch butterfly with the potential to occur of “Unlikely.” The “Unlikely” designation means that construction of the transmission line may impact individual butterflies, but it is unlikely to result in a loss of viability or result in a trend toward federal listing. No Pima pineapple cactus would be impacted as the individual cactus observed in the Project area was deceased. Given the small spatial extent and limited disturbance during construction, the Project is not anticipated to impact the species.

A presence/absence survey of western burrowing owl habitat and surveys to detect and avoid nesting birds are recommended prior to construction. A “No Effect” determination was recommended for this Project regarding its potential impacts to special status species (WestLand, 2023) (See Exhibit C-2). No formal or informal consultation with USFWS is anticipated to be required.

### **B.3.2 U.S. Army Corps of Engineers (“USACE”)**

TEP assessed whether the Project is likely to impact USACE potentially jurisdictional waters, wetlands, or navigable waters in the study area. There are no surface waters or wetlands mapped or observed within the Project Area. An unnamed ephemeral drainage is delineated immediately south of the transmission line that falls within the Study Area (WestLand, 2023). All drainages would be spanned or paralleled by the Project; therefore, there would be no impact to wetlands or Waters of the U.S. No permits will be required from USACE.

### **B.3.3 Federal Aviation Administration (“FAA”)**

TEP will apply to the FAA for an obstruction evaluation of the new transmission line towers, if required, once the proposed route is approved and designed. Initial analysis has determined that there will be no impacts to FAA controlled airspace.

**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit B-1**



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# Siting Study

Aerospace Research Campus  
Transmission Project

October 2023

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## INTRODUCTION

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Tucson Electric Power Company (“TEP”), a subsidiary of UNS Energy Corporation, is developing plans for a new 138 kV transmission line totaling approximately 3 miles in length. The line will loop the existing TEP 138 kV system to the planned 138 kV Franco Wash Switchyard (“Switchyard”) in Tucson, Arizona.

The Aerospace Research Campus Transmission Project (“Project”) will support new commercial businesses at the Aerospace Research Campus (“ARC”), including American Battery Factory’s (“ABF”) official headquarters and its first battery cell gigafactory in the United States. It will also support new aerospace development and other supply chain industries planned for the 500-acre business campus without impacting service reliability for other customers.

The Project will cross private land and land owned by the Arizona State Land Department (“ASLD”). TEP plans to obtain rights-of-way (“ROW”) and easements for up to 100 feet for the construction, operation, and maintenance of the Project.

## OBJECTIVE AND METHOD

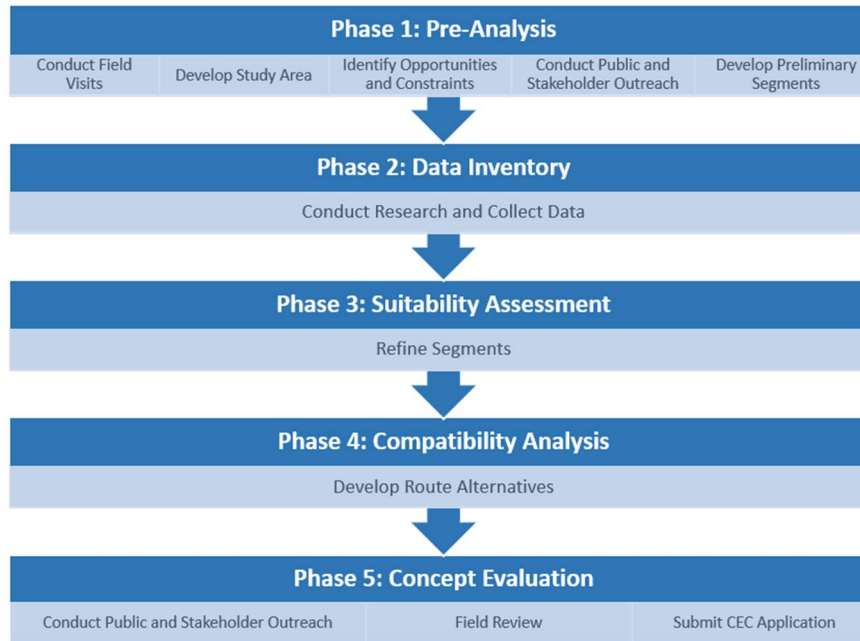
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The objective of this study is to determine a proposed route to loop the existing 138 kV system to the planned 138 kV Franco Wash Switchyard to serve the ARC. The following demonstrates the underlying process.

The method TEP used to select the proposed route includes five basic phases, as outlined in Figure 1.

# AEROSPACE RESEARCH CAMPUS TRANSMISSION PROJECT SITING STUDY

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**Figure 1. Siting Process**

## PHASE 1: PRE-ANALYSIS

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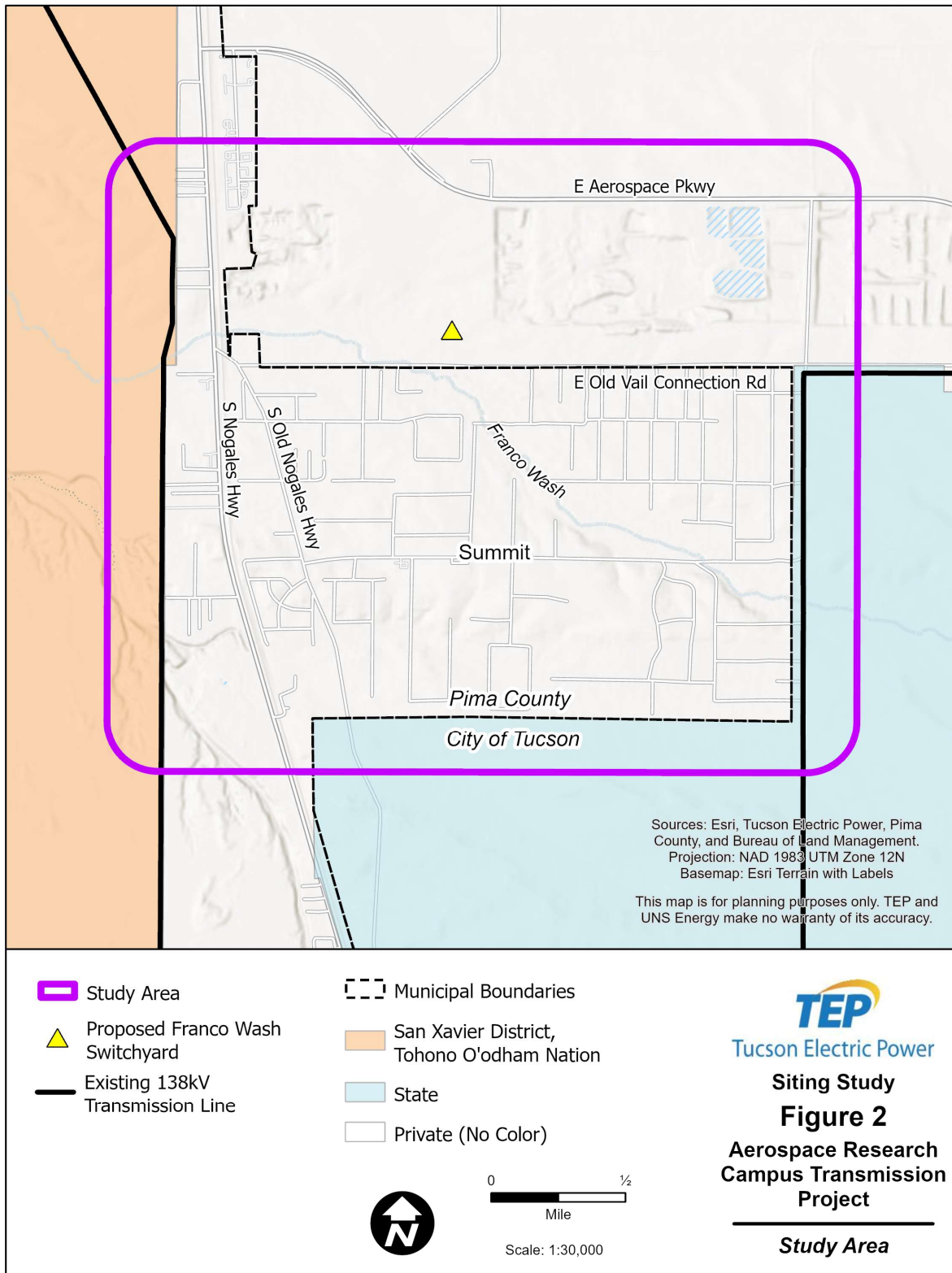
### Study Area

The first step in the pre-analysis phase was to define the Project Study Area ("Study Area"). TEP considered the following factors in developing the Study Area:

- The location of the proposed Switchyard and its proximity to an existing 138 kV transmission line that could be used to connect the ARC to TEP's 138 kV system.
- Direct route opportunities that would minimize the cost of the Project.
- TEP's design principles that encourage the use of established linear features, such as roads, washes, and existing utility corridors.

The Study Area was presented to stakeholders during an Agency Briefing on July 19, 2023, and to the public at a Public Open House on July 27, 2023 (see Figure 2).

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SITING STUDY



**Figure 2. Study Area**

### **Criteria**

TEP used the following criteria to evaluate and rank each potential route segment that would ultimately develop a proposed route. The following criteria are aligned with CEC statutory considerations (A.R.S. § 40-360.06) and TEP design principles.

- Impact on existing and planned land uses by state, local and private entities
- Impact on fish, wildlife, and plants
- Impact on special status species and their habitat
- Proximity to sensitive noise receptors
- Proximity to licensed communication sites
- Impact on designated scenic areas
- Impact on historic and archaeological sites
- Overall environmental impact
- Ability to construct and maintain facilities
- Cost
- Compliance with state, county or city ordinances

### **Opportunities and Constraints**

Opportunities included established linear features, such as roadways, washes, and existing utility corridors, as listed below and highlighted in Figure 3.

#### **Opportunities**

1. Existing TEP Sonoran to South Loop 138kV transmission line right-of-way/alignment
2. Existing WAPA/TEP 115 kV transmission line right-of-way/alignment
3. Planned WAPA/TEP 115 kV transmission line right-of-way/alignment
4. Existing TEP 46 kV sub-transmission line right-of-way/alignment
5. East Old Vail Connection Road right-of-way/alignment
6. Franco Wash
7. South Nogales Highway right-of-way/alignment
8. East Aerospace Parkway right-of-way/alignment
9. South Raytheon Parkway right-of-way/alignment
10. Boundary between Summit residential area and vacant state land



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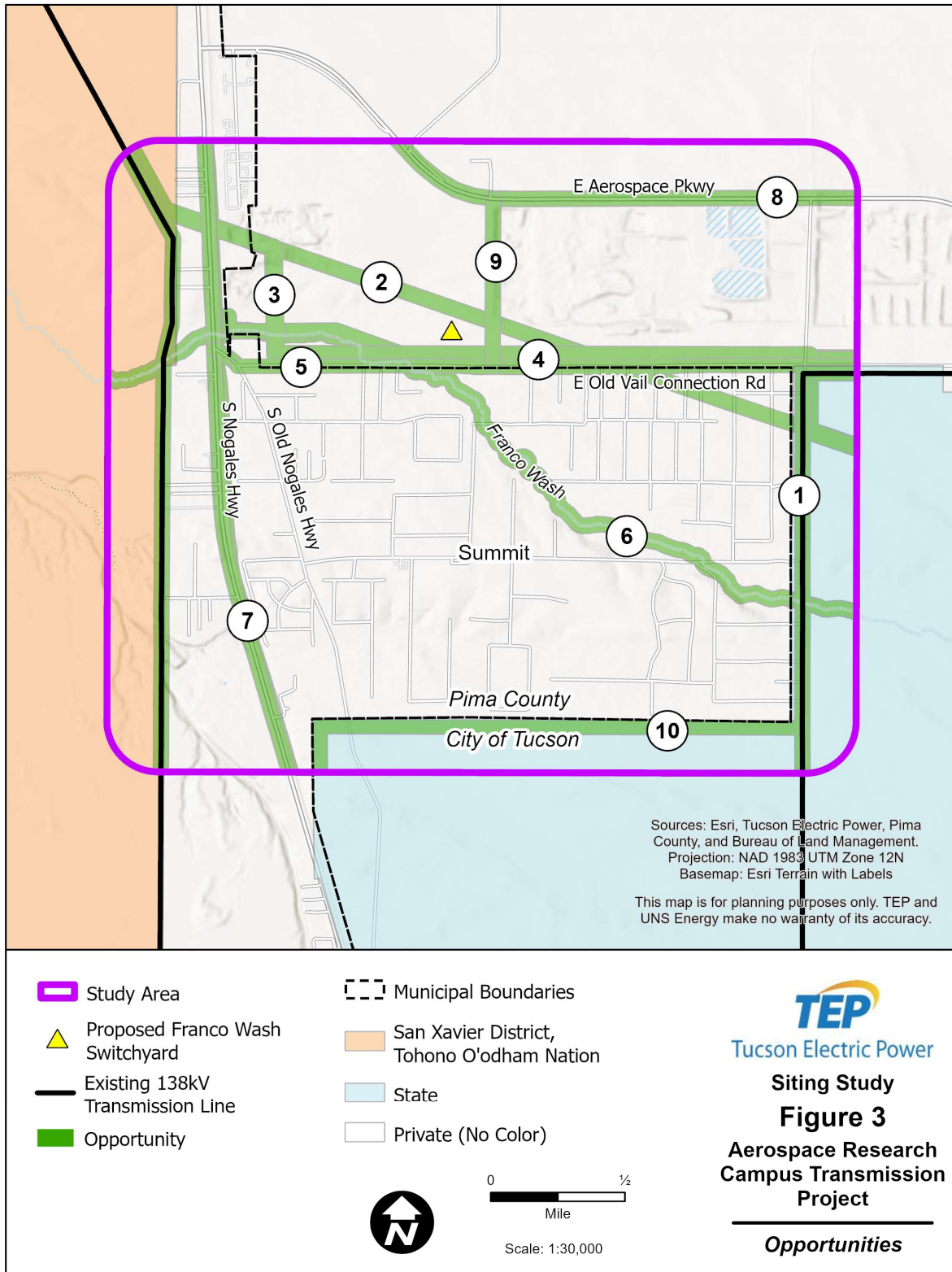


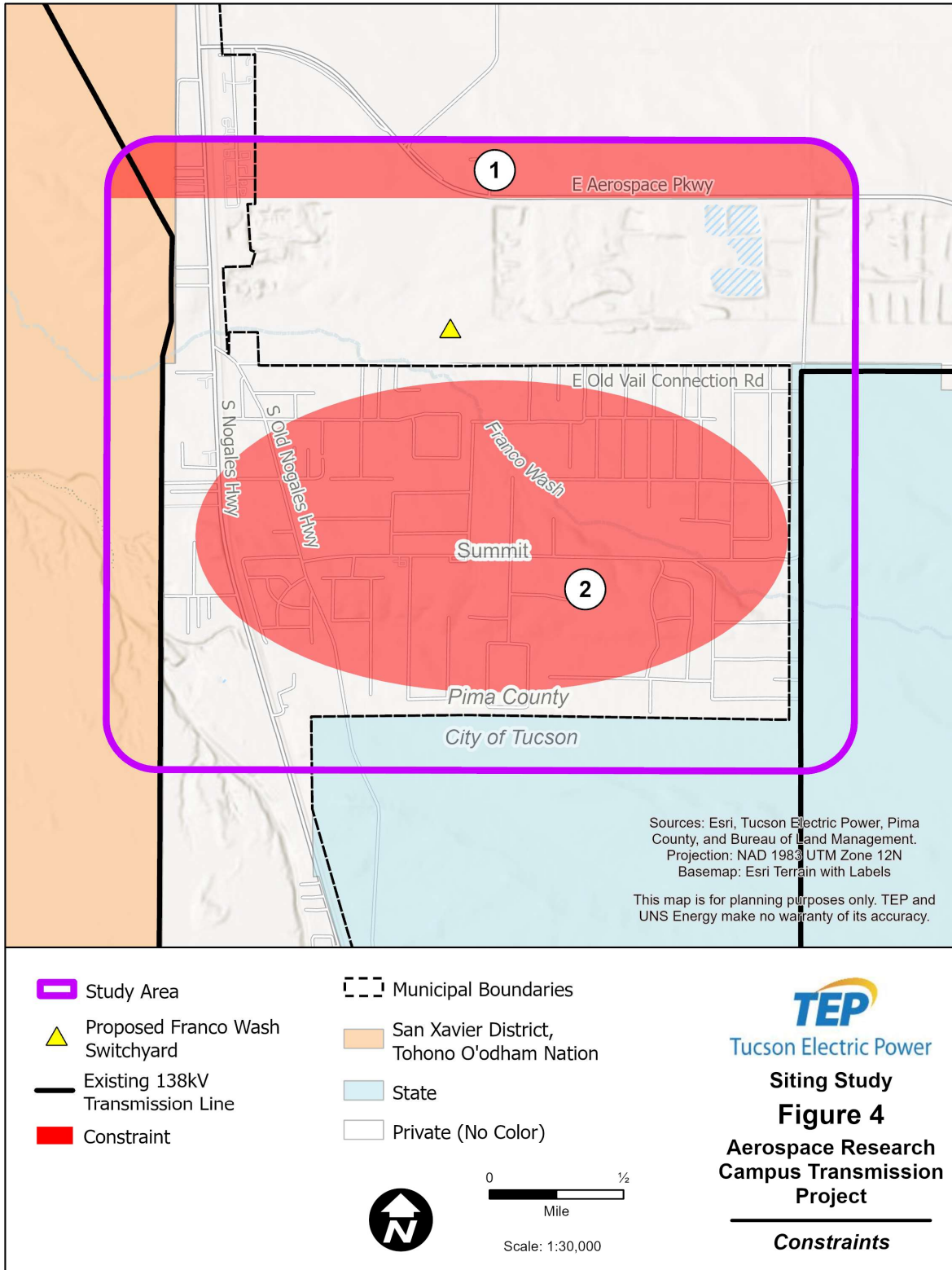
Figure 3. Opportunities

**Constraints**

Constraints include features that limit development or restrict design (Figure 4).

1. Nearby residential area
2. Federal Aviation Administration (FAA) height restrictions

AEROSPACE RESEARCH CAMPUS TRANSMISSION PROJECT  
SITING STUDY



**Figure 4. Constraints**

## **Outreach**

TEP notified the public and project stakeholders, including elected and public officials, agency representatives, and business interests about the Project during phases 1 and 5 of the siting process. Outreach for Phase 1 is summarized below.

### *Public Official Outreach – July 2023*

Elected officials from the City of Tucson and Pima County who represent wards and districts within the project study area were notified of the Project and offered a project briefing with the siting team. No elected official requested to participate in a project briefing.

### *Tucson Airport Authority (“TAA”) – July 13, 2023*

TEP met with the TAA independently from other stakeholders because TAA owns land just north of the Project. TAA expressed concerns over segments 1, 2, and 6 due to the right-of-way required to accommodate the pole line. Their concern stemmed from the desire to preserve as much land as possible for future development of the area. TAA asked TEP to consider a new segment (see Figure 6, Segment 9) that would utilize South Country Club Road and East Aerospace Parkway to connect to Franco Switchyard.

### *Agency Briefing – July 19, 2023*

About 27 stakeholders participated in a virtual agency briefing. Participants included representatives from the Tohono O’odham Nation, State Historic Preservation Office, Pima County (Economic Development, Development Services, Sustainability, Administration), City of Tucson (Tucson Water, Planning and Development Services, Transportation), Union Pacific Railroad, Kinder Morgan, and the business community.

TEP shared a Power Point Presentation that introduced the Project, its purpose and need, transmission line and switchyard characteristics, the transmission line siting process, the evaluation criteria, the opportunities and constraints and preliminary segments, the project timeline, and information about how to provide comment. TEP solicited feedback on the study area and preliminary segments.

Comments and questions received at the meeting are summarized below.

- Question about how the project is related to a TEP/WAPA transmission line project in the area
- Request for TEP to consider ABF’s plan for development while siting the line
- Request for TEP to consider Raytheon Missile System’s buffer area
- Question about TEP’s renewable energy plans

### *Open House – July 27, 2023*

TEP held its first open house at the Desert Diamond Casino’s Conference Center at 7350 South Nogales Highway, Tucson, AZ, from 6 to 8 p.m. Display materials included introductory information about the project’s purpose and need, Study Area, preliminary segments, pole characteristics, evaluation criteria, opportunities and constraints, and the siting process.

TEP solicited feedback on the Study Area, project opportunities and constraints, and preliminary segments.

The meeting was attended by two residents and two property owners. Comments received at the meeting are summarized below.

- Concern over flooding near Franco Wash, and the switchyard's proximity to the wash
- Concern about reliability for Summit residents

Overall, the attendees were supportive of the project and preliminary segments. These comments were carried forward to inform further phases of project analysis.

### **Field Visit**

In addition to learning about the study area from the public and stakeholders, it was important for the project team to become familiar with the area, including its character, geography, and existing land uses.



***Figure 5. Field Visit (Existing Utility Corridor)***

The team used this field visit to become acquainted with the area and verify desktop mapping information by “ground truthing.” This method was used to identify opportunities and constraints within the project study area to form preliminary segments (Figure 5).

### **Preliminary Segments**

TEP identified 8 preliminary segments to loop its existing 138 kV transmission line to the proposed Franco Wash Switchyard.

A ninth segment was added at the request of TAA, the landowner north of East Old Vail Connection Road. The stakeholder asked TEP to consider a segment that extended further north along South Country Club Road, west to East Aerospace Parkway, and south to the proposed Switchyard through Raytheon Parkway (see Figure 6 – Segment 9).

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SITING STUDY

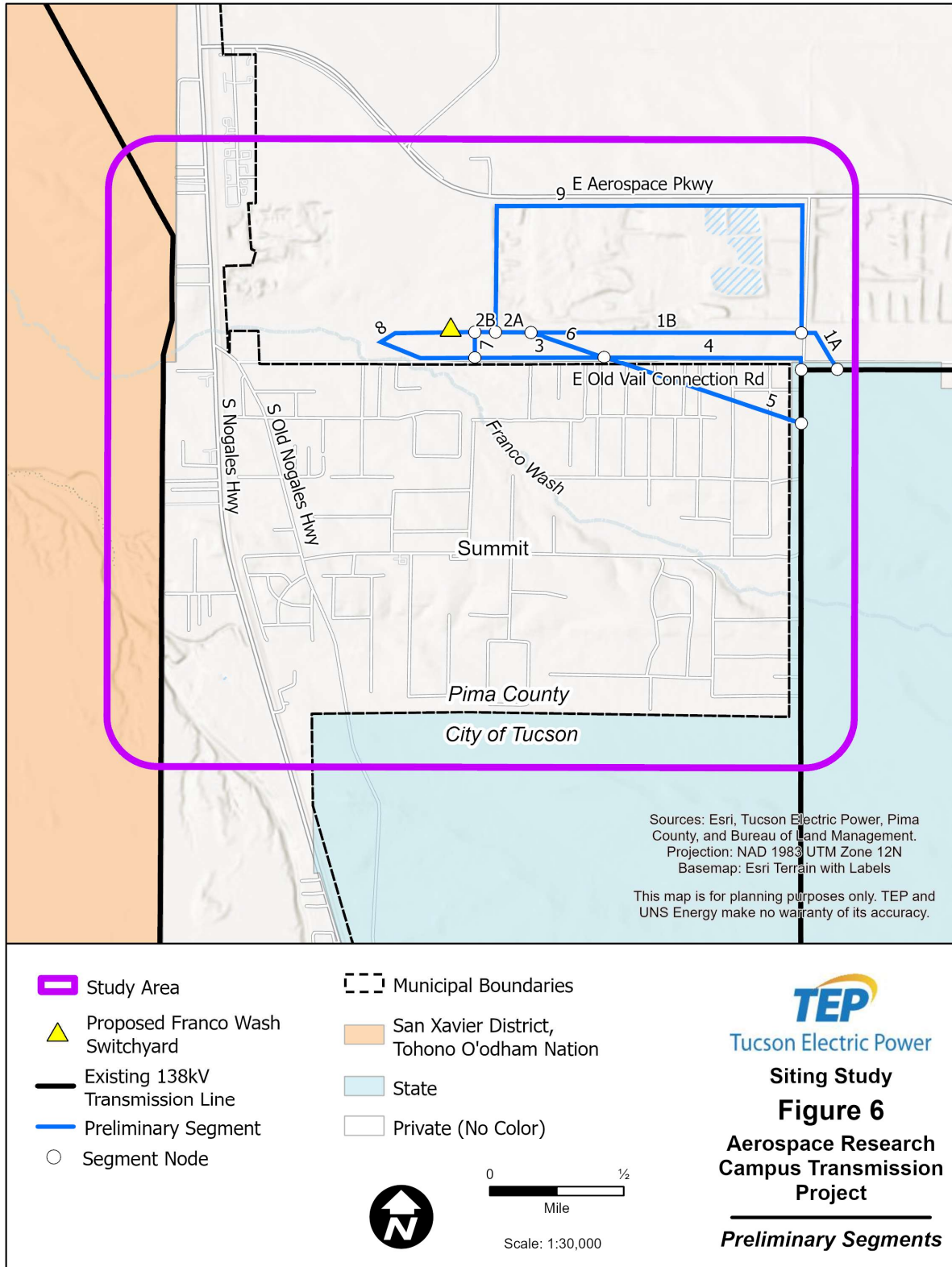


Figure 6. Preliminary Segments

## PHASE 2: DATA INVENTORY

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TEP sought to evaluate the preliminary segments and identify the proposed route based on the following factors and data models outlined in Phases 2 and 3.

Data gathered included:

- Land use as designated in the Pima County Comprehensive Plan
- Aerospace Research Campus Plan
- Platted subdivisions
- Critical habitat for Threatened and Endangered species
- Habitat for Forest Service Sensitive species
- Landcover
- Perennial water/open water
- Riparian areas
- Wildlife refuges
- Conservation easements
- FCC licensed communications antennas
- Sensitive receptors: schools, hospitals, adult/childcare facilities, and churches
- Scenic roads, viewpoints, or areas managed for scenic integrity such as a National Park
- Designated historic sites
- Class I cultural resource survey data – eligible sites
- Existing land uses
- Existing well sites
- Existing linear features – pipelines, railroads, roads, canals, etc.
- Geology and soils
- Air quality – nonattainment area for PM 2.5, PM 10, or Ozone
- Socioeconomic data – poverty levels, minority populations
- Digital Elevation Model (DEM)
- FAA airspace height limitations

## PHASE 3: SUITABILITY ASSESSMENT

---

Through stakeholder feedback, including feedback from the project team, TEP eliminated segments 5, 6, and 7. Segment 5 was eliminated because it would cross over a residential area. While there is an existing transmission corridor that could have been repurposed, the proximity to residences posed a significant access and maintenance challenge. Segments 6 and 7 were also initially considered because they aligned with an existing utility corridor, but were eliminated because the design for an adjacent planned transmission line had been



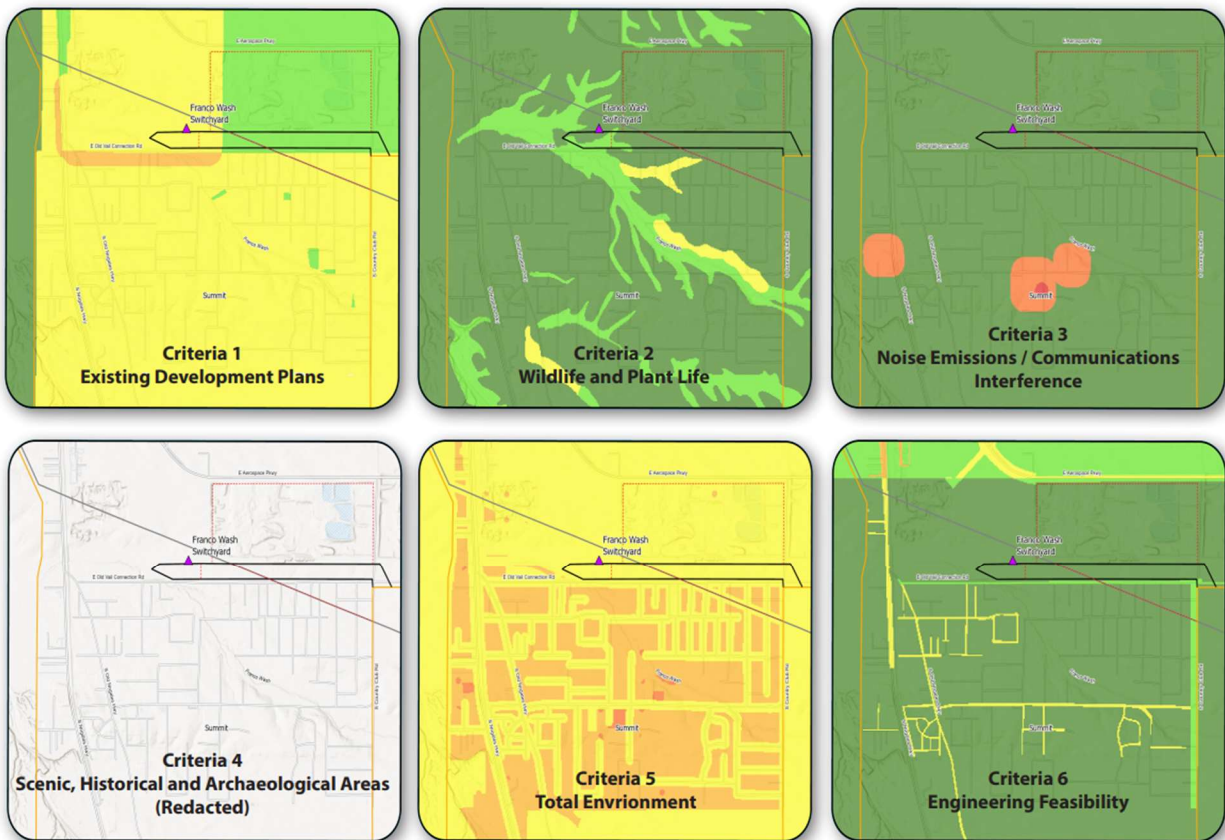
# AEROSPACE RESEARCH CAMPUS TRANSMISSION PROJECT SITING STUDY

completed. Moving forward with segments 6 and 7 would have required a redesign of that line.

Phase 3 of the siting process applied the data collected in Phase 2 to create spatial models that demonstrated higher and lower levels of suitability for the transmission line segments being evaluated.

Six criteria data models were created using ESRI ArcGIS Pro GIS software (Figure 7). The models were then combined and weighted by different factors to create three composite suitability models used to evaluate segments best suited to minimize impacts based on different values (Figure 8). Each model used a scaled color-coding system to depict areas of suitability. The scale varied from green, depicting high suitability, to red, depicting low suitability.

An outline of the Suitability Assessment procedure and steps followed are outlined in **Appendix A**.



**Figure 7. Criteria Models**



**Figure 8. Composite Suitability Models**

## PHASE 4: COMPATABILITY ANALYSIS

Each segment was evaluated using the information gathered at the field visit, through public and stakeholder feedback, in consultation with TEP's technical experts, and through the suitability assessment. The segments were rated 1, 2, 3, or 100 to assess their compatibility with the following factors to determine which segment(s) were most compatible with the construction and maintenance of a transmission line.

### Segment ratings:

- 1 = compatible
- 2 = possible negative impact
- 3 = known negative impact
- 100 = unacceptable impacts unlikely to be mitigated

These compatibility scores were compared to each of the following factors and averaged to provide an overall compatibility score, with 1 being most compatible.

### Compatibility factors:

- Existing development plans
- Wildlife and plant life, including endangered species
- Scenic areas
- Historic and archeological sites
- Noise emission levels
- Communication signal interference
- Engineering and construction feasibility
- Project cost and potential impacts on customer rates
- Complexity of right-of-way (ROW) acquisition
- Public and stakeholder input

All segments were evaluated and had different levels of compatibility with scores between 1.10 and 1.50. Segment 9 was eliminated during this phase because it had the lowest compatibility score, largely due to cost and stakeholder feedback.

Results of the Phase 4 compatibility analysis are included in **Appendix B**.

### **Proposed Route**

TEP's Proposed Route is a result of thorough analysis and public outreach efforts (Figure 9). Attendees at each meeting were supportive of the project and the segments and route presented. There was no opposition to the proposed route.

The route consists of building a new 138 kV transmission line approximately 3 miles in length to interconnect with the existing TEP 138 kV system to the planned 138 kV Franco Wash Switchyard. The new transmission line will be co-located on monopole structures with existing TEP 46 kV sub-transmission lines.

The 46 kV lines are currently installed on the north side of East Old Vail Connection Road in a double-circuit configuration. One of the 46-kV circuits will be transferred to new structures that will be installed south of the roadway. These new and existing monopoles will house both lines, with new 138 kV conductors strung on one side and existing 46 kv conductor on the other.

TEP presented and solicited feedback on the proposed route during the September 14 public open house.

AEROSPACE RESEARCH CAMPUS TRANSMISSION PROJECT  
SITING STUDY

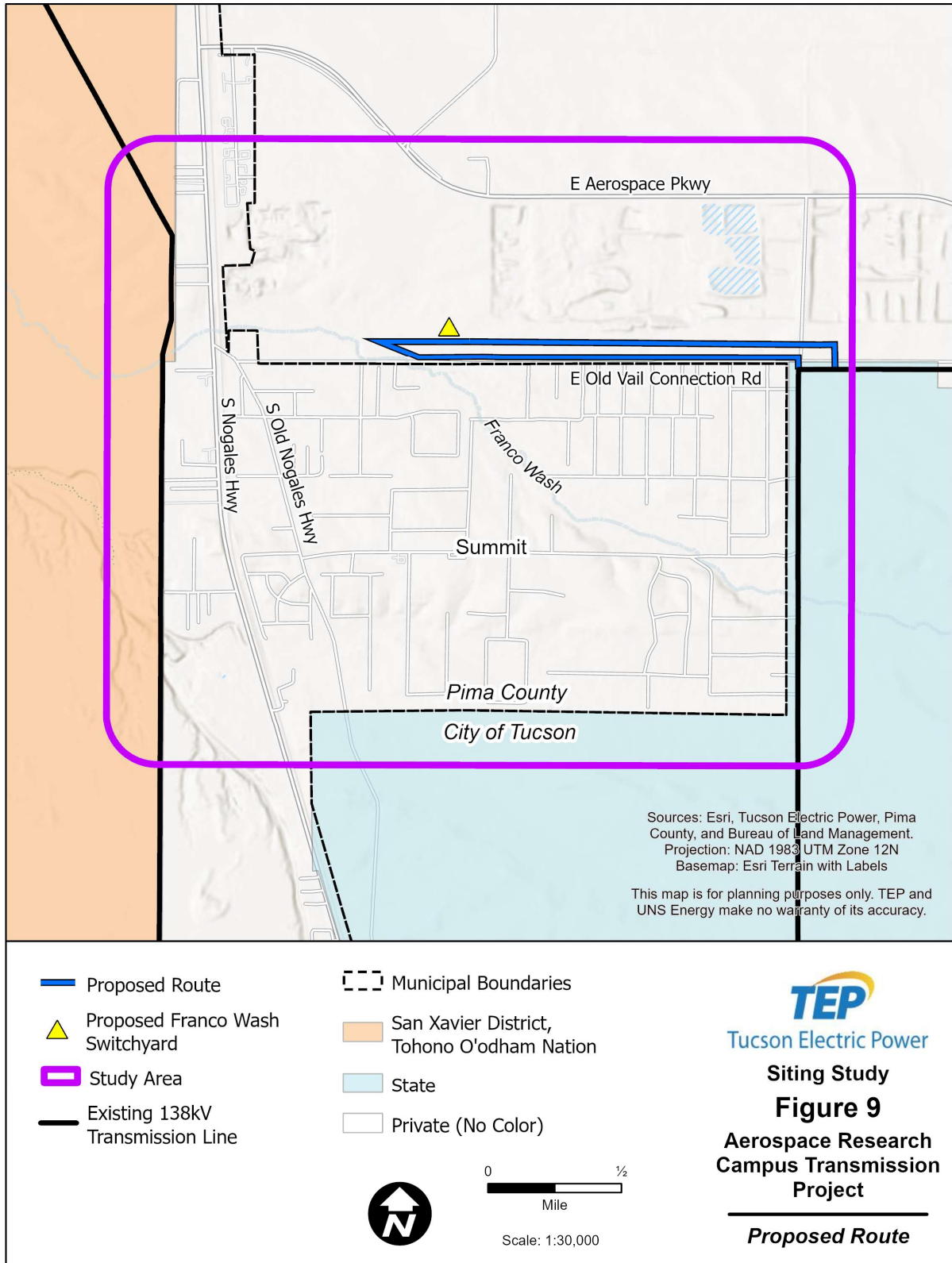


Figure 9. Proposed Route

## PHASE 5: CONCEPT EVALUATION

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### **Public and Stakeholder Outreach**

#### Stakeholder Notification – Aug. 31, 2023

Project stakeholders, including elected and public officials, were notified of TEP’s proposed route and encouraged to attend the September Open House meeting, visit the project website, and provide comments about the project through an email update sent in late August. Individual briefings were also offered at this stage, but none resulted.

#### Open House – Sept. 14, 2023

TEP held its second and final open house at the Desert Diamond Casino’s Conference Center at 7350 South Nogales Highway, Tucson, AZ, from 6 to 8 p.m. Display materials included information about the project’s purpose and need, proposed route, suitability factors, and the siting process. TEP solicited continued feedback on the project, including the eliminated segments and proposed route.

The meeting was attended by the Pima County Economic Development Director. Comments received at the meeting are summarized below.

- Support for the project
- Support for the proposed route
- Support for the proposed route avoiding Raytheon Missile System’s buffer area

### **Field Review**

The team used its final field review to confirm and “ground truth” information gathered through the stages outlined in this report and verify TEP’s proposed route to include in its CEC application.

## CLOSING

---

TEP will submit a CEC application with a single proposed route as a result of thorough public and stakeholder outreach and technical analysis following a multiphase approach as outlined in this approach.

## Appendix A

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### Suitability Assessment Procedure and Process

# SUITABILITY ANALYSIS

## 1.0 CRITERIA MODELS

In this analysis, criteria models were used to demonstrate how suitable the study area is in relation to six evaluation factors. The models used the following data and assigned weights to assess the area based on the following factors.

1. Existing Plans
2. Biological Resources
3. Noise Emission and Communication Interference
4. Scenic and Cultural Resources
5. Total Environment
6. Construction and Maintenance Feasibility

Each model used a scaled color-coding system to depict areas of suitability. The scale varied from green, depicting high suitability, to red, depicting low suitability. Criteria Model 4 was redacted and is represented in white.

### 1.1 *Criteria Model 1 – Existing Plans*

Existing plans of this state, local government, and private entities for development at or in proximity of the proposed site (Figure 1).

#### 1.1.1 Notes:

- Define vicinity as within 500 feet, implies some sort of adjacency.
- Plans should be treated the same as an existing land use of the same type.

#### 1.1.2 Data Required:

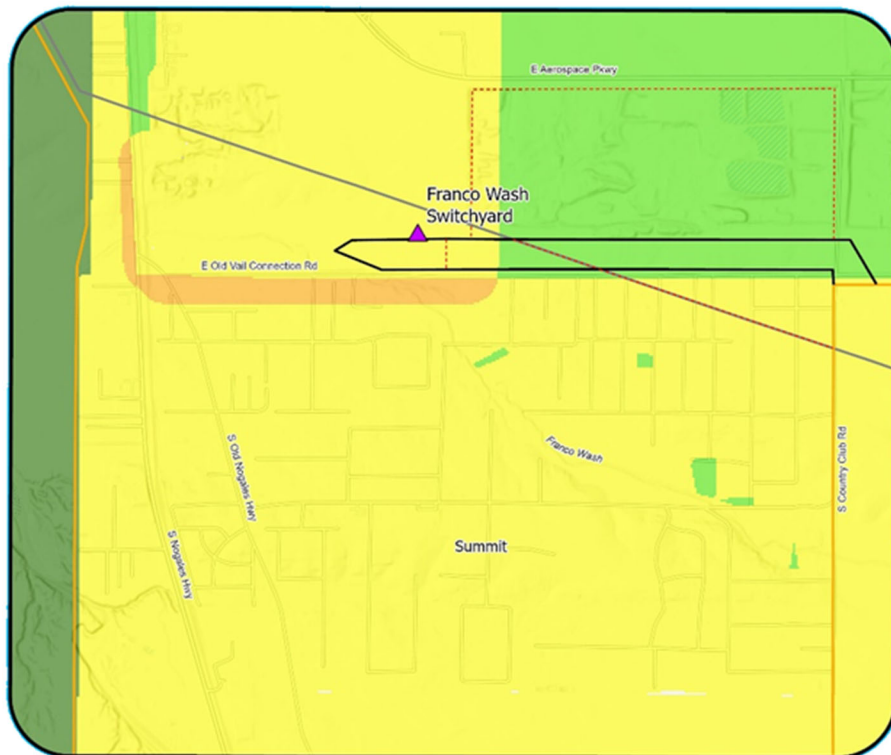
- General/Comprehensive Plan
  - Pima Prospers (Pima County Comprehensive Plan)
  - Plan Tucson (City of Tucson General Plan)
- Specific Plans – identified through meetings with jurisdictions and/or public (within 500')
  - Aerospace Research Campus Plan
  - Railroad Sidings
  - Development Plans

#### 1.1.3 Procedure:

Create buffers as noted above; combine platted land and specific plans into a single Specific Plans dataset; add a new field "Cell\_Value" as type Double to each of the datasets listed above – assign appropriate cell values as noted below; union those results with "Clip\_Area" for each dataset; use those results with Feature to Raster classifying by "Cell\_Value"; then create a composite raster by weighting each of the datasets as indicated below and adding the results together.

- General/Comprehensive Plan (50% weight)
  - Cell Value = 10: High Density Residential, Institutional
  - Cell Value = 8: Low/Medium Density Residential
  - Cell Value = 6: Commercial/Mixed Use
  - Cell Value = 4: Industrial
  - Cell Value = 3: Parks and Recreation/Preservation

- o Cell Value = 2: Agriculture/Ranching
- o Cell Value = 1: Open Space/Public Lands
- o Cell Value = 0: all other cells
- Specific Plan (50% weight)
  - o Cell Value = 10: High Density Residential, Institutional
  - o Cell Value = 8: Low/Medium Density Residential
  - o Cell Value = 6: Commercial/Mixed Use
  - o Cell Value = 4: Industrial
  - o Cell Value = 3: Parks and Recreation/Preservation
  - o Cell Value = 2: Agriculture/Ranching
  - o Cell Value = 1: Open Space/Public Lands
  - o Cell Value = 0: all other cells



**Figure 1. Criteria Model 1 - Existing Plans**

### **1.2 Criteria Model 2 – Biological Resources**

Fish, wildlife and plant life and associated forms of life on which they are dependent (Figure 2).

#### **1.2.1 Data Required:**

- Critical habitat for threatened and endangered (T&E) species
- Riparian Areas

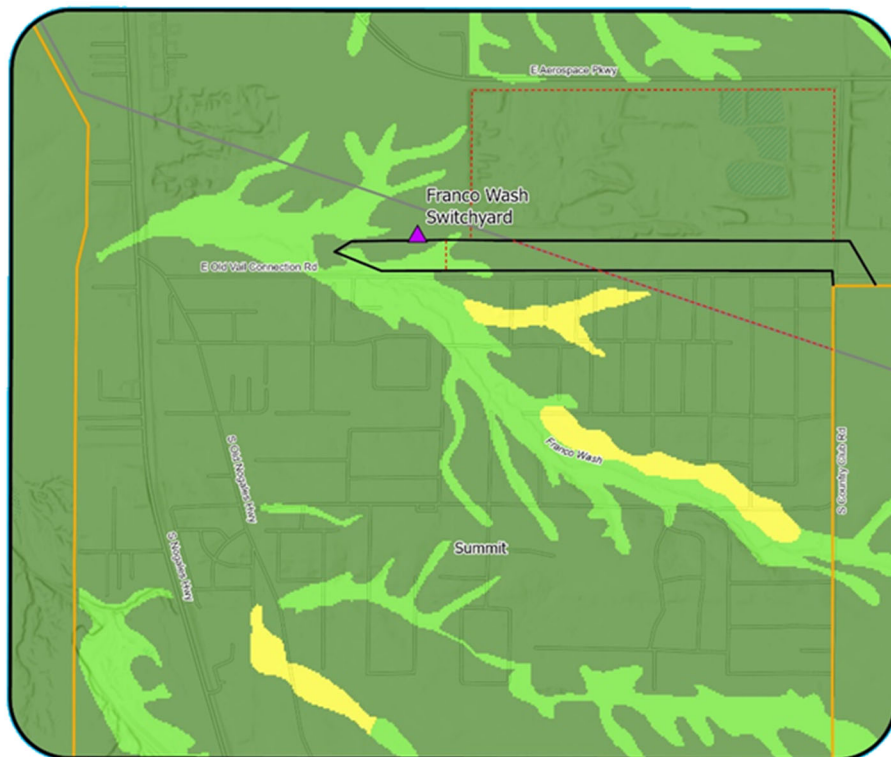
#### **1.2.2 Procedure:**

Add a new field "Cell\_Value" as type Double to each of the datasets listed above – assign appropriate cell values as noted below; union those results with "Clip\_Area" for each dataset; use those results with



Feature to Raster classifying by “Cell\_Value”; then create a composite raster by weighting each of the datasets as indicated below and adding the results together.

- Critical Habitat (75% weight)
  - o Cell Value = 10: critical habitat for T&E Species
  - o Cell Value = 0: all other cells
- Riparian (25% weight)
  - o Cell Value = 10: Class H riparian area
  - o Cell Value = 8: Class A riparian area
  - o Cell Value = 6: Class B riparian area
  - o Cell Value = 4: Class C riparian area
  - o Cell Value = 2: Class D riparian area
  - o Cell Value = 0: all other cells



**Figure 2. Criteria Model 2 – Biological Resources**

### **1.3 Criteria Model 3 – Noise Emission and Communication Interference**

Noise emission levels and interference with communication signals (Figure 3).

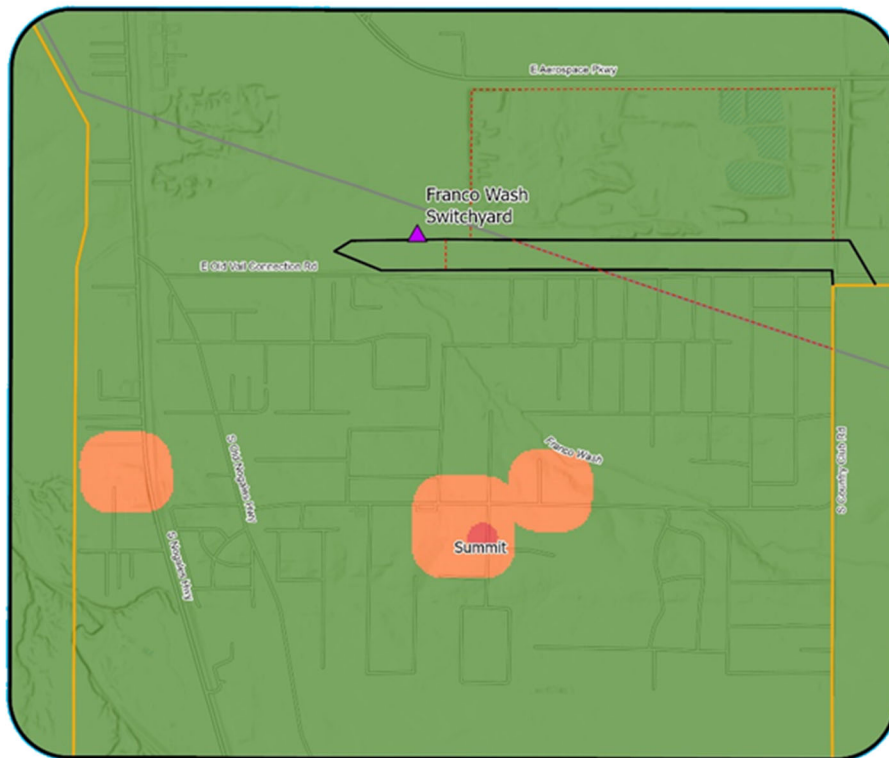
#### **1.3.1 Data Required:**

- FCC data on licensed antennas (within 250' of antenna)
- Sensitive receptors: schools, hospitals, adult/childcare facilities, churches (within 500' of property boundary)

**1.3.2 Procedure:**

Create 250 foot buffer around FCC licensed antenna sites; create 500 foot buffer around sensitive receptor locations; add a new field “Cell\_Value” as type Double to each of the datasets listed above – assign appropriate cell values as noted below; union each of these layers, with layers with highest cell value ranked in priority order; union those results with “Clip\_Area”; finally use those results with Feature to Raster classifying by “Cell\_Value”.

- Cell Value = 10: cell is located within buffered area for FCC licensed antennas
- Cell Value = 8: cell is located within buffered area for sensitive receptors
- Cell Value = 0: all other cells



**Figure 3. Criteria Model 3 – Noise Emission and Communication Interference**

**1.4 Criteria Model 4 – Scenic and Cultural Resources**

Existing scenic areas, historic sites and structures or archaeological sites at or in the vicinity of the proposed site (Figure 4). (Note: This model has been redacted.)

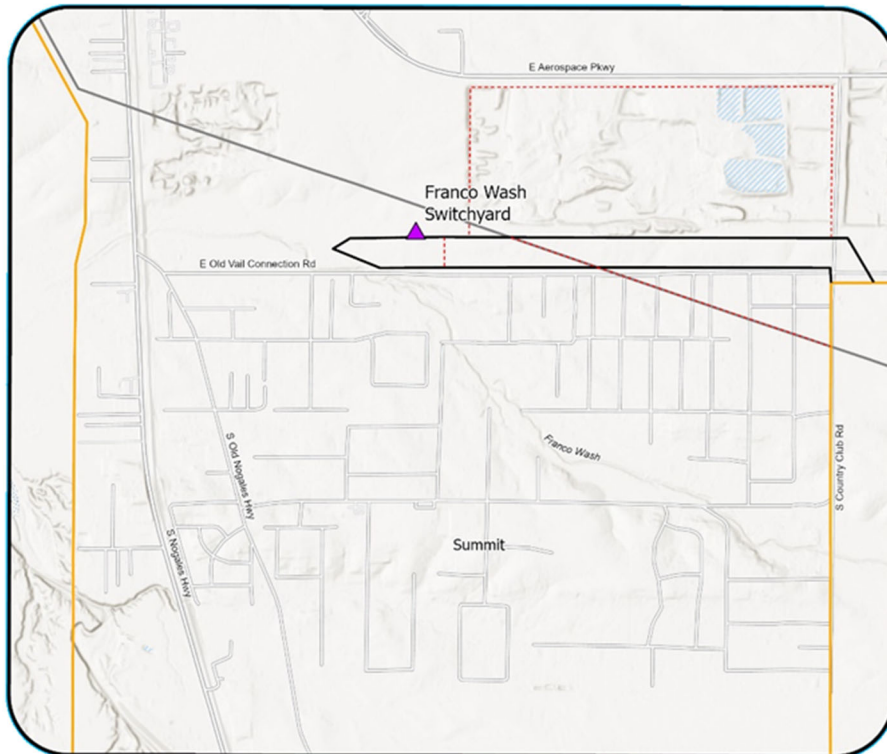
**1.4.1 Data Required:**

- Scenic roads, viewpoints, or areas designated for this such as a National Park (within ¼ mile, ½ mile, and 1 mile – to capture viewshed)
- Existing designated historic sites (within 200’, 500’, and 1000’ – to capture visual impacts)
- Class I Survey Data – eligible sites (within 250’ – within or adjacent to)

**1.4.2 Procedure:**

Create buffers as noted above; add a new field “Cell\_Value” as type Double to each of the datasets listed above – assign appropriate cell values as noted below; union those results with “Clip\_Area” for each dataset; use those results with Feature to Raster classifying by “Cell\_Value”; then create a composite raster by weighting each of the datasets as indicated below and adding the results together.

- Scenic Areas (40% weight)
  - o Cell Value = 10: cell is located within ¼ mile buffered scenic area
  - o Cell Value = 6: cell is located within ½ mile buffered scenic area
  - o Cell Value = 4: cell is located within 1 mile buffered scenic area
  - o Cell Value = 0: all other cells
- Designated Historic Sites (40% weight)
  - o Cell Value = 10: cell is located within 200’ buffered historic area
  - o Cell Value = 6: cell is located within 500’ buffered historic area
  - o Cell Value = 4: cell is located within 1000’ buffered historic area
  - o Cell Value = 0: all other cells
- Eligible Sites (20% weight)
  - o Cell Value = 10: cell is located within 250’ buffered area of eligible site
  - o Cell Value = 0: all other cells



**Figure 4. Criteria Model 4 – Scenic and Cultural Resources (Redacted)**

**1.5 Criteria 5 – Total Environment**

Total environment of the area, including air, water, soil, flora and fauna and the social, economic, and cultural conditions that influence communities and residents (Figure 5).

1.5.1 Data Required:

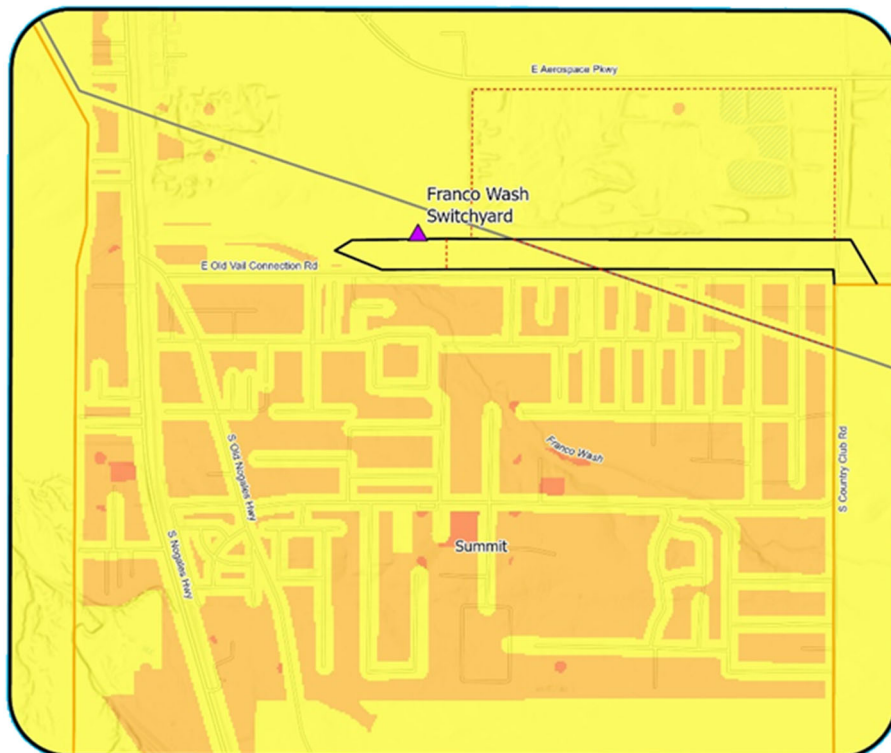
- Existing land uses
- Existing well sites (within 100')
- Existing linear features – pipelines, railroads, roads, canals, etc. (within 150')
- Existing licensed antennas (incorporated from Criteria 3)
- Sensitive Noise Receptors (incorporated from Criteria 3)
- Geology and soils
- Water resources (incorporated from Criteria 2)
- Biological resources (incorporated from Criteria 2)
- Cultural resources (incorporated from Criteria 4)
- Air quality (PM10, PM2.5, Ozone)
  - No non-attainment areas for these particulates are present within the study area
- Visual resources (incorporated from Criteria 4)
- Socioeconomic conditions (minority and poverty)
- Flood Zones

1.5.2 Procedure:

Create buffers as noted above; add a new field “Cell\_Value” as type Double to each of the datasets listed above – assign appropriate cell values as noted below; union those results with “Clip\_Area” for each dataset; use those results with Feature to Raster classifying by “Cell\_Value”; then create a composite raster by weighting each of the datasets as indicated below and adding the results together.

- Existing Land Uses/Well Sites/Linear Features (25% weight)
  - Cell Value = 10: High Density Residential, Public/Quasi Public
  - Cell Value = 8: Low/Medium Density Residential
  - Cell Value = 6: Commercial/Mixed Use
  - Cell Value = 4: Industrial
  - Cell Value = 3: Parks and Recreation/Golf Course
  - Cell Value = 2: Agriculture/Ranching
  - Cell Value = 1: Open Space
  - Cell Value = 10: cell is located within buffered well site
  - Cell Value = 0: within buffer of existing linear infrastructure (supersedes all other values)
  - Cell Value = 0: all other cells
- Existing License Antennas/Sensitive Noise Receptors (10% weight)
  - Cell Value – Criteria 3 model
- Geology and Soils (5% weight)
  - Farmland (50% weight)
    - Cell Value = 5: Prime Farmland
    - Cell Value = 0 – all other cells
  - Erosive Soils (50% weight)
    - Cell Value = 10: Very Severe Erosion
    - Cell Value = 7: Severe Erosion
    - Cell Value = 5: Moderate Erosion
    - Cell Value = 2: Light Erosion
    - Cell Value = 0: all other cells
- Water/Biological Resources (10% weight)
  - Cell Value – Criteria 2 model

- Cultural/Visual Resources (10% weight)
  - o Cell Value – Criteria 4 model
- Air Quality (5% weight)
  - o Cell Value = 2 – Nonattainment Area for PM 2.5, PM 10, or Ozone
  - o Cell Value = 0 – all other cells
- Socioeconomic Conditions (25% weight)
  - o Cell Value = 10 – % census tract at or below poverty level is > 1.5x % county at or below poverty level
  - o Cell Value = 5 –  $\geq$  % census tract at or below poverty level is > % county at or below poverty level
  - o Cell Value = 10 – % census tract classified as a minority population is > 1.5x % county classified as a minority population
  - o Cell Value = 5 – % census tract classified as a minority population is > % county classified as a minority population
  - o Cell Value = 0 – all other cells
- Floodplain (10% weight)
  - o Cell Value = 10 – High Risk Areas (Zones A, AE, A1-30, AH, AO, AR, A99)
  - o Cell Value = 7: Moderate Flood Hazard (Zones B and X)
  - o Cell Value = 4: Minimal Flood Hazard (Zones C and X)
  - o Cell Value = 1: Undetermined Flood Risk (Zone D)
  - o Cell Value = 0: Not in a flood zone



**Figure 5. Criteria Model 5 – Total Environment**

## **1.6 Criteria Model 6 – Construction and Maintenance Feasibility**

The technical practicability of achieving a proposed objective and previous experience with equipment and methods available for achieving a proposed objective (Figure 6).

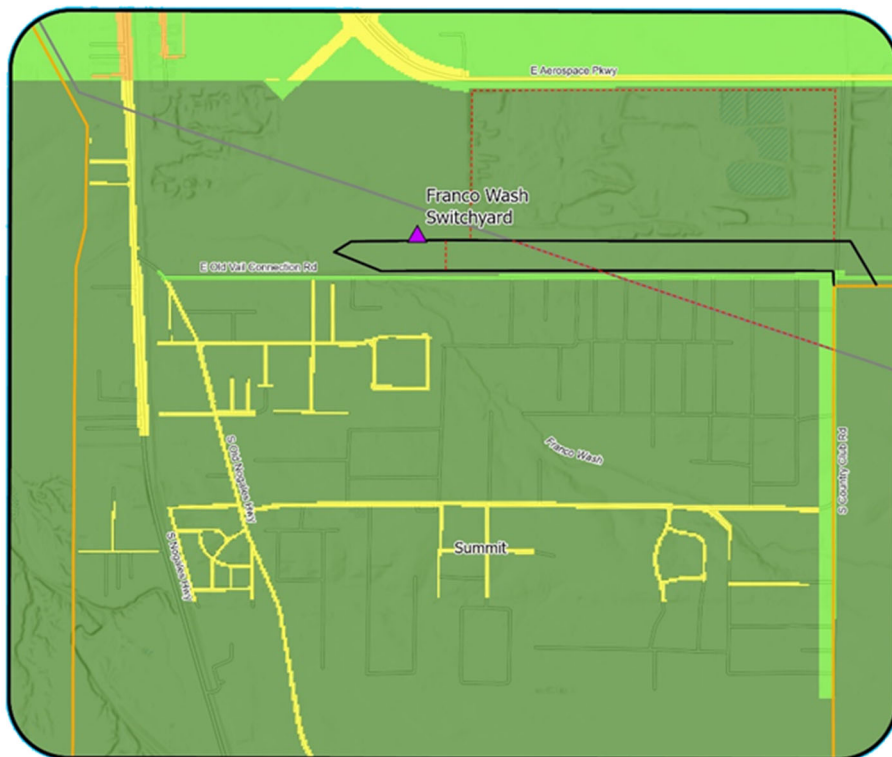
### **1.6.1 Data Required:**

- Availability of road right-of-way for construction (buffer arterial and collector roads by 150' and classify; buffer local roads and alleys by 50' and classify)
- Presence of buried utilities within road right-of-way (buffer roads by 150' and classify)
- Presence of overhead utilities within road right-of-way (buffer roads by 150' and classify)
- Airspace height limitations

### **1.6.2 Procedure:**

Create buffers as noted above; add a new field "Cell\_Value" as type Double to each of the datasets listed above – assign appropriate cell values as noted below; union those results with "Clip\_Area" for each dataset; use those results with Feature to Raster classifying by "Cell\_Value"; then create a composite raster by weighting each of the datasets as indicated below and adding the results together.

- Available Road Right-of-Way (50% weight)
  - o Cell Value = 10: available road right-of-way is less than 5 feet from edge of pavement on arterial/collector street
  - o Cell Value = 5: available road right-of-way is less than 10 feet from edge of pavement on arterial/collector street
  - o Cell Value = 0: ample unused road right-of-way available on arterial/collector street
  - o Cell Value = 10: constrained road right-of-way on local road or alley
  - o Cell Value = 5: ample unused road right-of-way available on local road or alley
- Presence of Buried Utilities in Road Right-of-Way (15% weight)
  - o Cell Value = 10: two or more buried utilities present
  - o Cell Value = 5: one buried utility present
  - o Cell Value = 0: no buried utilities are present
- Presence of Overhead Utilities in Road Right-of-Way (15% weight)
  - o Cell Value = 10: two or more overhead utilities present
  - o Cell Value = 5: one overhead present
  - o Cell Value = 0: no overhead utilities are present
- Airspace height limitations (20% weight)
  - o Cell Value = 10: height limitation  $\leq 50$  and  $> 0$
  - o Cell Value = 8: height limitation  $\leq 75$  and  $> 50$
  - o Cell Value = 4: height limitation  $\leq 95$  and  $> 75$
  - o Cell Value = 2: height limitation  $\leq 140$  and  $> 95$
  - o Cell Value = 0: all other cells



**Figure 6. Criteria Model 6 – Construction and Maintenance**

### 1.7 Exclusion areas

Exclusion areas where a transmission line could not easily be built or maintained were also assessed. Two exclusion areas were identified at the onset of the project.

Scenic and Gateway corridors:

- Challenge: Could require utilities to be built underground.
- Findings: None were identified within the study area.

Federal Aviation Administration (FAA) height limitations:

- Challenge: Could require pole height limitations and FAA permitting.
- Findings: Placement of poles north of Aerospace Parkway would be subject to height limitations and require FAA permitting.

## 2.0 COMPOSITE DATA MODELS

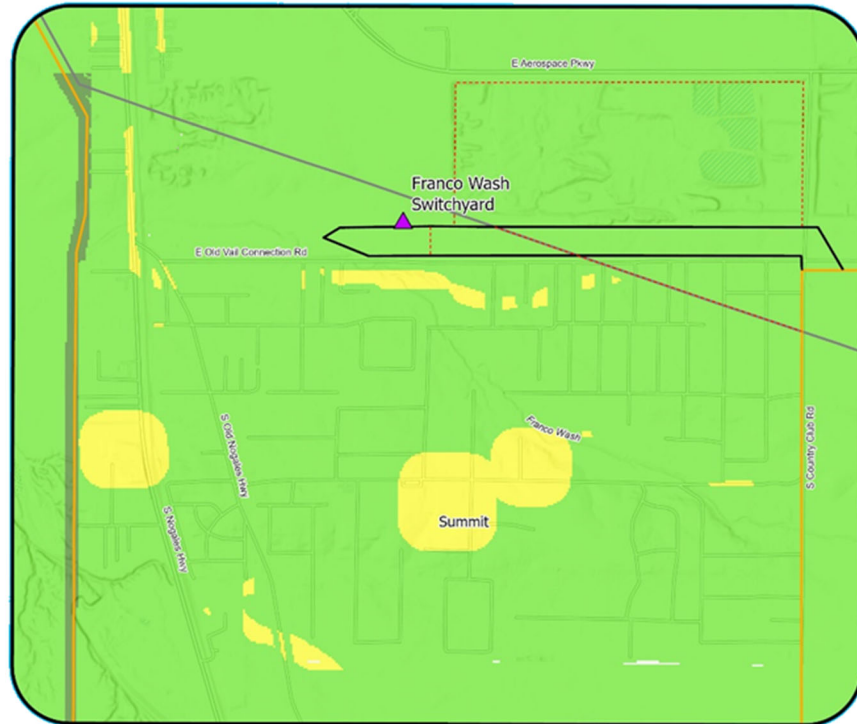
Using the six criteria models, four composite models were created to evaluate the suitability of transmission line segments with respect to the environmental, land use, and other factors considered by statute in granting a Certificate of Environmental Compatibility.

A raster calculator tool in ArcGIS Pro was used to combine each of the criteria models, with the appropriate weights to create the following composite models.

## 2.1 *Balanced Model*

Balanced Model results are shown in Figure 7.

- Criteria 1: Existing Plans (1/6 weight)
- Criteria 2: Biological Resources (1/6 weight)
- Criteria 3: Noise & Communication (1/6 weight)
- Criteria 4: Scenic & Cultural Resources (1/6 weight)
- Criteria 5: Total Environment (1/6 weight)
- Criteria 6: Construction & Maintenance (1/6 weight)



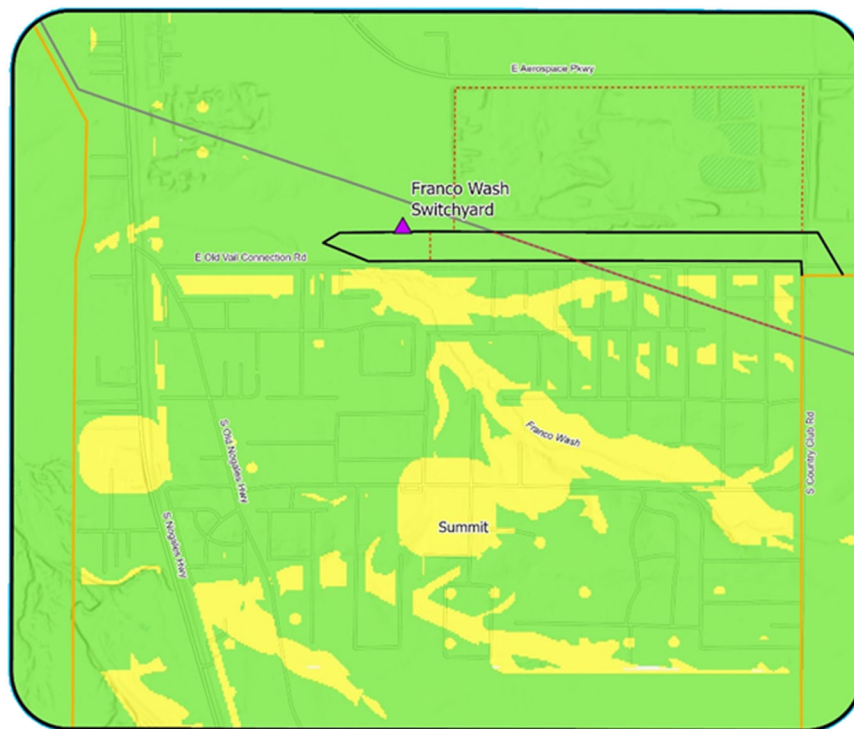
**Figure 7. *Balanced Model***



## 2.2 Environmental Model

Environmental Model results are shown in Figure 8.

- Criteria 1: Existing Plans (10% weight)
- Criteria 2: Biological Resources (30% weight)
- Criteria 3: Noise & Communication (10% weight)
- Criteria 4: Scenic & Cultural Resources (10% weight)
- Criteria 5: Total Environment (30% weight)
- Criteria 6: Construction & Maintenance (10% weight)

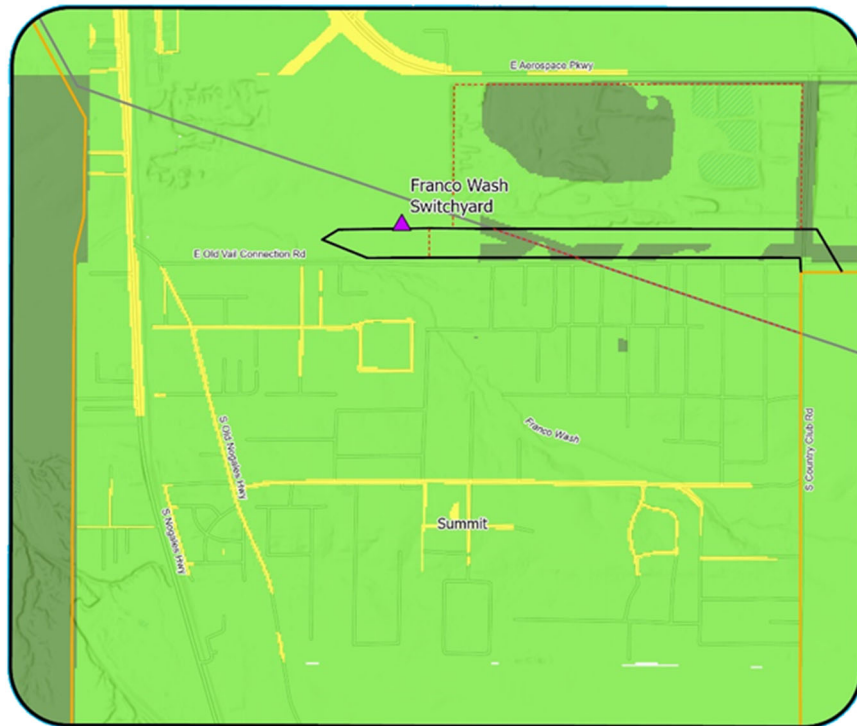


**Figure 8. Environmental Model**

### 2.3 Construction and Maintenance Feasibility Model

Construction and Maintenance Feasibility Model results are shown in Figure 9,

- Criteria 1: Existing Plans (10% weight)
- Criteria 2: Biological Resources (10% weight)
- Criteria 3: Noise & Communication (10% weight)
- Criteria 4: Scenic & Cultural Resources (10% weight)
- Criteria 5: Total Environment (10% weight)
- Criteria 6: Construction & Maintenance (50% weight)



**Figure 9. Construction and Maintenance Feasibility Model**

## Appendix B

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### Compatibility Analysis

## COMPATABILITY ANALYSIS

Segment	Existing/ Planned Land Use	Wildlife/ Plant Life	Scenic Areas	Historical and Archaeological Sites	Noise Emission Levels	Communication Signal Interference	Engineering/ Construction Feasibility	Cost	ROW Acquisition Complexity	Public/ Stakeholder Input	Overall Average
1A	1	2	1	1	1	1	1	1	1	1	1.10
1B	1	2	1	3	1	1	1	1	1	1	1.30
2A	1	2	1	1	1	1	1	1	1	1	1.10
2B	1	2	1	1	1	1	1	1	1	1	1.10
3	1	2	1	1	1	1	1	1	1	1	1.10
4	1	2	1	3	1	1	1	1	1	1	1.30
8	1	2	1	1	1	1	1	1	1	1	1.10
9	1	2	1	1	1	1	2	3	1	2	1.50

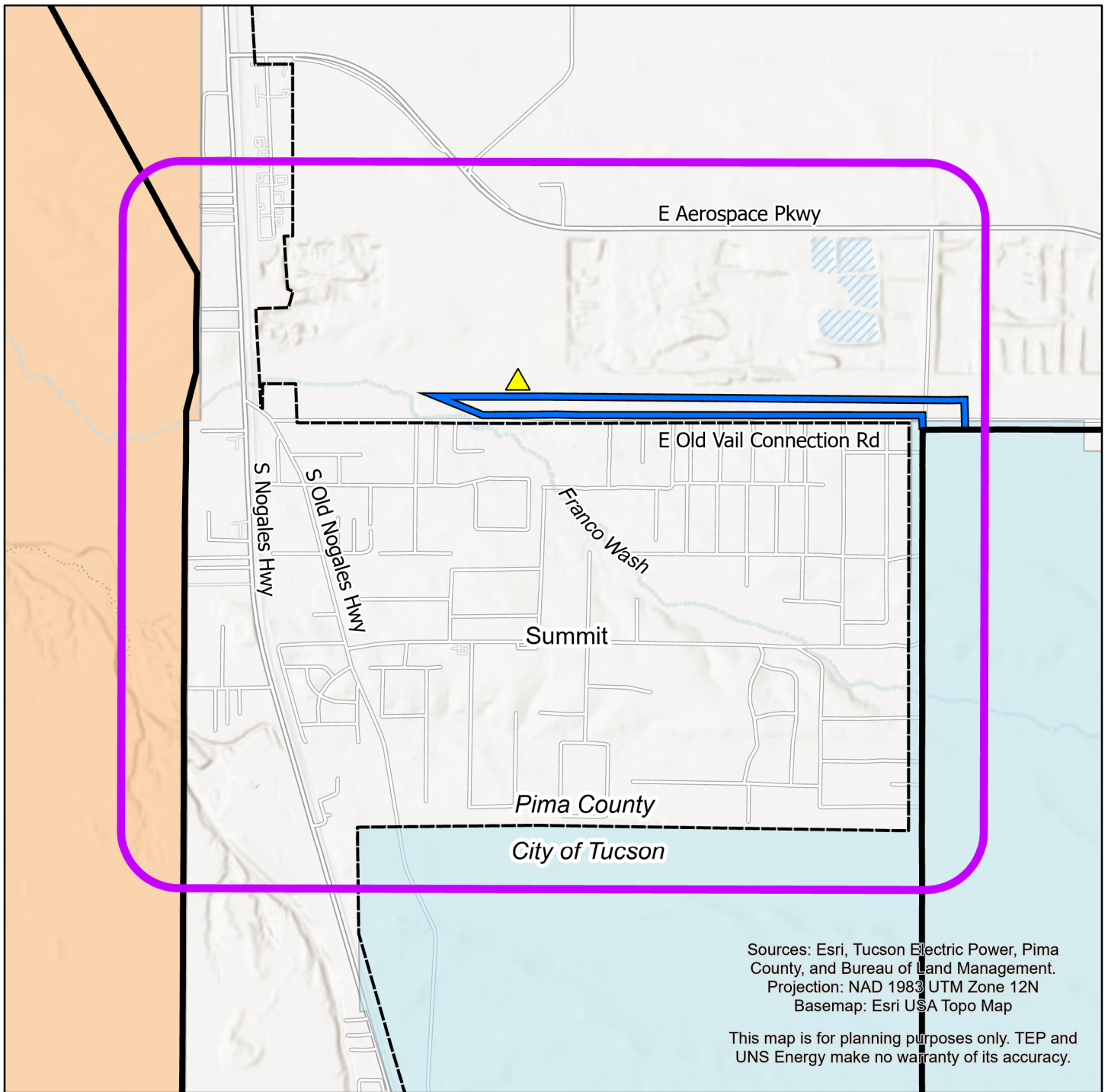
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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**



**Exhibit B-2**

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Sources: Esri, Tucson Electric Power, Pima County, and Bureau of Land Management.  
 Projection: NAD 1983 UTM Zone 12N  
 Basemap: Esri USA Topo Map

This map is for planning purposes only. TEP and UNS Energy make no warranty of its accuracy.

-  Proposed Route
-  Proposed Franco Wash Switchyard
-  Study Area
-  Existing 138kV Transmission Line
-  Municipal Boundaries
-  San Xavier District, Tohono O'odham Nation
-  State
-  Private (No Color)



Scale: 1:30,000



**Exhibit B-2**  
**Aerospace Research**  
**Campus Transmission**  
**Project**

***Proposed Route***



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**EXHIBIT C**

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## EXHIBIT C: AREAS OF BIOLOGICAL WEALTH

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As stated in Arizona Administrative Code R14-3-219 of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee, Exhibits to Application, Exhibit C:

*Describe any areas in the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitats for rare and endangered species. Describe the biological wealth or species involved and state the effects, if any, the proposed facilities will have thereon.*

---

C.1 Introduction .....	C-1
C.2 Biological Wealth .....	C-1
C.2.1 Areas of Biological Wealth .....	C-2
C.2.2 Special Status Species .....	C-2
C.3 Summary Of Potential Effects .....	C-3
C.3.1 Construction.....	C-3
C.3.2 Operation and Maintenance.....	C-3
C.4 Conclusion.....	C-4
C.5 References .....	C-4

### **C.1 Introduction**

The following analysis describes impacts to areas of biological wealth within the Biological Study Area, which is 500 feet on either side of the route centerlines analyzed for the Project.

### **C.2 Biological Wealth**

Exhibit C-1 maps the Proposed Route in relation to major washes and riparian habitat. The BRE in Exhibit C-2 (WestLand, 2023) and this section provide a general description of the existing environment with respect to vegetation, wildlife, and the potential for special status species to occur in the Study Area.

Areas of biological wealth include Important Bird Areas, Wildlife Connectivity Linkages, and designated Critical Habitat. None of these areas or features occur in the Study Area. As discussed in Exhibit B, there are, however, two special-status species with the potential to occur of Present or Unlikely in the Study Area.

The information analyzed includes a list of special status species obtained from the U.S. Fish and Wildlife Service (“USFWS”), Information for Planning and Consultation (“IPaC”) online database, and species lists,

ranges, and habitat data obtained from the Arizona Game and Fish Department (“AZGFD”), Heritage Database Management System (“HDMS”) On-line Environmental Review tool, National Wetlands Inventory Maps, Federal Emergency Management Agency (“FEMA”) Flood Insurance Rate Maps (“FIRM”), and review of habitat and life history requirements. The BRE analyzed the entire Biological Study Area.

#### C.2.1 Areas of Biological Wealth

The following areas of biological wealth are present in or near the Biological Study Area.

##### **Critical Habitat**

The USFWS has not designated critical habitat for federally listed species within the Study Area.

##### **Important Bird Areas (“IBA”)**

Two IBAs are located 15 miles from the Study Area. The Tucson Mountain IBA is northwest of the Study Area, and the Tanque Verde Wash/Sabino Canyon IBA is northeast. Neither will be impacted by the Project.

##### **Riparian Habitat**

Two Classes of Riparian Habitat are mapped with the Project Area and overlap the Proposed Route, Class C and Class D (see Exhibit C-1). The Project will span washes and riparian areas to the extent possible. Construction and installation of new structures will occur in previously disturbed locations.

##### **Environmental Resource Zone**

The City of Tucson Environmental Resource Zone (“ERZ”) was adopted by the City as a zoning regulation in 1990 to preserve open space, and regulates development along specific washes that contain or may contain critical riparian habitat within the 100-year floodplain. Development is defined as “any manmade change to improved or unimproved real estate.” The watercourse along East Old Vail Connection Road at the east end of the project is mapped as an ERZ. The Project will span washes and riparian areas to the extent possible. Construction and installation of new structures will occur in previously disturbed locations.

##### **Wildlife Linkage Corridors**

The Arizona Wildlife Linkages Workgroup (“AWLW”) has identified wildlife linkage corridors that may provide connectivity between habitats for wildlife species. The ability to move between habitats is essential to many wildlife population structures and movement. Two corridors are identified in the general vicinity of the Study Area: the San Xavier-Sierrita-Santa Rita Wildlife Connectivity Linkage, and the Lee Moore Wash Flow Corridor. Both, however, occur outside of the Study Area and therefore no effects are anticipated.

#### C.2.2 Special Status Species

Desktop research identified special status species from two different agencies: USFWS, and AZGFD. Of the 11 federally protected species with the potential to occur in the vicinity of the Study Area, 1 species was present within the Study Area itself, and 1 is unlikely to occur; the remaining 9 are not anticipated to occur within the Study Area (Table 2).

**Table 2. Federally Listed Species with Potential to occur in the Biological Study Area**

Scientific Name	Common Name	Status*	Potential to Occur
<b>INSECTS</b>			
<i>Danaus plexippus plexippus</i>	Monarch butterfly	C	Possible
<b>PLANTS</b>			
<i>Coryphantha scheeri var. robustispina</i>	Pima pineapple cactus	E	Possible

Note: From (WestLand, 2023), Section 6, Table 6

\*Key: E = Endangered (U.S. Fish and Wildlife Service); T = Threatened (U.S. Fish and Wildlife Service); Prop E = Proposed Endangered (U.S. Fish and Wildlife Service); CH = designated Critical Habitat in Study Area; C = Candidate for listing; BGEPA = Bald and Golden Eagle Protection Act

Sensitive species subject to the Migratory Bird Treaty Act (“MBTA”) are listed in Appendix E of the BRE (Exhibit C-2).

The western burrowing owl is not protected under the Endangered Species Act (“ESA”), but it is listed by the USFWS as a National Bird of Conservation Concern. It is also listed as endangered, threatened, or as a species of concern in nine states. All owls in Arizona are protected federally by the MBTA and by Arizona state law (A.R.S. Title 17). It is anticipated that construction of the Project would not impact the western burrowing owl, but a western burrowing owl survey will be conducted prior to construction of the Project (Exhibit C-2, Section 2.3.3).

**C.3 Summary Of Potential Effects**

The potential for the Project’s activities to affect any of the special status species was evaluated in the BRE. Though one Pima pineapple cactus was observed, it was deceased; therefore, there are no impacts anticipated to living cacti. The Project may impact individual monarch butterflies, but it is unlikely to result in a loss of viability or result in a trend toward federal listing.

The Project would have “No Effect” on federally species listed under the ESA, based upon lack of suitable habitat in the Project area, or implementation of Environmental Protection Measures (“EPMs”), or would otherwise require pre-construction surveys.

**C.3.1 Construction**

Construction of the proposed transmission line would have no effect on species listed under the ESA, is not likely to have impacts on water resources, would have no impacts on riparian habitat, and would not likely have any long-term impacts on urban wildlife movement or create barriers to wildlife. Construction activities may impact native plants through trimming or removal to gain equipment access. TEP will implement appropriate pre-construction surveys to reduce potential impacts to wildlife.

**C.3.2 Operation and Maintenance**

Potential impacts from operation and maintenance activities would be similar in nature to those previously described above for construction activities. However, the scope of impacts would be lower in magnitude than those for construction as there would be less equipment and fewer people working.

Under normal circumstances, operation and maintenance impacts would be temporary, and would occur once or twice per year over the life of the Project.

#### **C.4 Conclusion**

The Project may affect, but is not likely to adversely affect, the candidate monarch butterfly and would have no effect on the endangered Pima pineapple cactus, based on lack of viable individuals present, suitable habitat or implementation of EPMs that limit construction outside the breeding or occupancy period. Habitat for sensitive species within areas of biological wealth, such as washes or riparian habitat, is not anticipated to be impacted.

#### **C.5 References**

AZIBA. (2021). Important Bird Areas: Mini Conservation Plan Patagonia Mountains. Tucson: Arizona Important Bird Areas Program.

AZIBA. (2023, Jan). About the Arizona IBA Program. Retrieved from Arizona Important Bird Areas Program: <https://aziba.org>

WestLand. (2023). *Biological Resources Evaluation of the Aerospace Research Campus Transmission Project*. Tucson, AZ: WestLand Engineering & Environmental Services.

WRCC. (2018, August). Arizona Climate Summaries: Tucson Univ of Arizona, Arizona: NCDC 1981-2010 Monthly Normals. Retrieved from Western Region Climate Center: <http://wrcc.dri.edu/summary/clismaz.html>

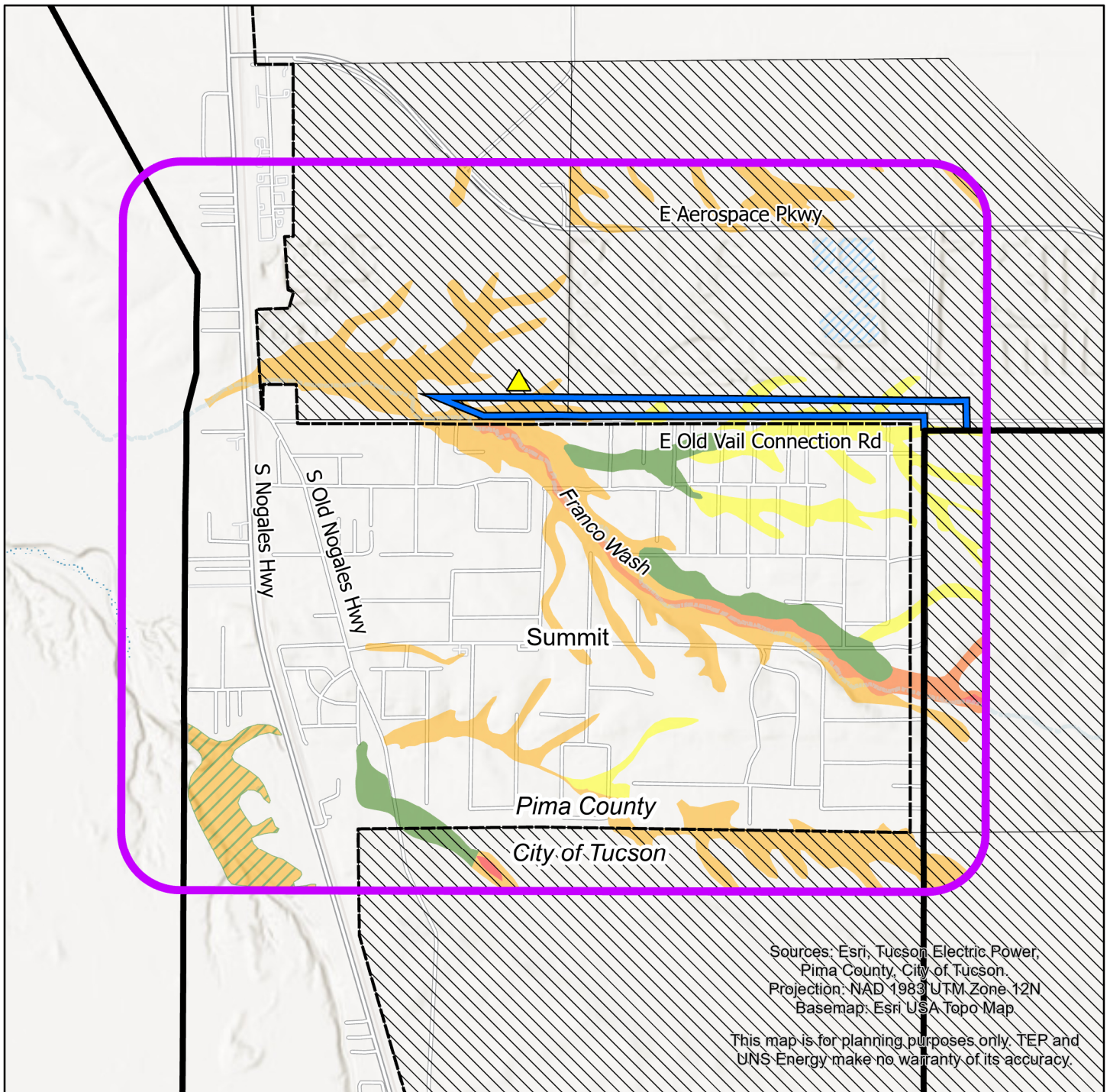
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



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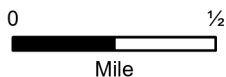
**Exhibit C-1**



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- |  |  |
|--|--|
|  Proposed Route                   |  Xeroriparian A Habitat       |
|  Proposed Franco Wash Switchyard  |  Xeroriparian B Habitat       |
|  Study Area                       |  Xeroriparian C Habitat       |
|  Existing 138kV Transmission Line |  Xeroriparian D Habitat       |
|  Municipal Boundaries             |  Hydroriparian & Mesoriparian |
|  Environmental Resource Zone      |  IRA - Xeroriparian C         |



Scale: 1:30,000



**Exhibit C-1**  
**Aerospace Research**  
**Campus Transmission**  
**Project**

**Biological**

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit C-2**

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# Biological Resources Evaluation of the Aerospace Research Campus Transmission Project

Prepared for:



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## 1. INTRODUCTION

To satisfy information requirements for consideration in Certificate of Environmental Compatibility (“CEC”) applications under Arizona Revised Statute §§ 40-360.06, Tucson Electric Power Company (“TEP”; the “Applicant”) retained WestLand Engineering & Environmental Services (“WestLand”) to prepare this Biological Resources Evaluation (“BRE”). This BRE is designed to support the application for a CEC to be reviewed by the Arizona Power Plant and Line Siting Committee (“Committee”) and the Arizona Corporation Commission (“ACC”) for new transmission facilities that would interconnect TEP’s existing 138-kilovolt (“kV”) transmission system to the proposed Franco Wash Switchyard (the “Project”).

This BRE report includes an assessment of the potential occurrence of special-status species and a description of areas of biological wealth within the location depicted in **Figure 2** herein (“Analysis Area”) and vicinity. For the purpose of this report, special-status species are defined as 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”), and species protected under the Bald and Golden Eagle Protection Act (“BGEPA”). Other special-status species and species of interest evaluated include bird species protected under the Migratory Bird Treaty Act (“MBTA”), state-protected native plants, and other species with no official status but identified by the USFWS as Species of Concern (“SC”) and/or the Arizona Game and Fish Department (“AGFD”) as Species of Greatest Conservation Need (“SGCN”). Areas of biological wealth include lands with special designations as wildlife habitat, areas of biodiversity, and designated or proposed critical habitat for ESA listed or proposed species.

The following sections are designed to give the Committee as much information as possible for use in its consideration of the A.R.S. 40-360.06 factors: the Project description (**Section 2**); the environmental setting of the Analysis Area (**Section 3**); the special-status species and species of interest screening methods (**Section 4**); the special-status species and species of interest potential to occur (**Section 5**); the discussion (**Section 6**); and the references cited (**Section 7**).

## 2. PROJECT DESCRIPTION

### 2.1. LOCATION

The Project is within Tucson city limits and unincorporated Pima County in Arizona (**Figure 1**). Tucson International Airport is located 1.8 miles north; Interstate 10 is 6.8 miles west; Sahuarita Air Force Range is 7.2 miles south; and South Nogales Highway is 0.5 mile west of the Project Area. The proposed transmission line would bifurcate the Applicant’s existing Sonoran-South 138-kV circuit (Section 4, Township 16 South, Range 14 East) and loop into the proposed Franco Wash Switchyard (Section 31, Township 15 South, Range 14 East). This proposed transmission line would cross private and state lands in the city of Tucson and unincorporated Pima County. Arizona State Trust lands managed by the Arizona

State Land Department (“ASLD”) are located immediately southeast of the transmission line within the Analysis Area (**Figure 1**).

## 2.2. PROPOSED PROJECT

The Project consists of two parallel transmission lines running east-west for approximately 1.4 and 1.5 miles; one is located within an existing 35-foot (“ft”) wide right-of-way (“ROW”). The Project would bifurcate the Applicant’s existing Sonoran-South 138 kV circuit and loop into the Franco Wash Switchyard located south of Tucson International Airport (the Project Area; **Figure 1**). To evaluate the biological resources present, a broader Analysis Area consisting of a 500-ft buffer surrounding the Project Area was established (**Figure 2**). The Project Area itself was also included in the evaluation. A field survey was conducted September 7 to 8, 2023 to support this BRE.

The 138-kV conductors will be strung on weathering steel monopole structures ranging in height from 60 ft to 120 ft, with spans averaging approximately 600 ft, depending on topography. The 138-kV line would include a fiber optical ground wire that would solely relay communication information related to line function back to TEP. The siting of facilities would blend into the landscape as much as possible and incorporate screening by vegetation and topographic relief to the extent practicable. Existing utility corridors would be used to minimize impacts to surface resources. Estimated disturbance footprints include pads at pole locations, temporary pulling and tensioning sites located at directional changes along the line, and road improvement or new construction to access each pole where necessary.

Routine maintenance activities would be scheduled and coordinated with other transmission facilities to avoid service interruption to those served by the line, ensure reliable electric service, and reduce the potential threat of fire associated with powerline operations. Emergency repairs and maintenance would take place as needed.

Noise associated with construction would be temporary and occur during daytime hours. Design features would be implemented to mitigate potential noise effects to receivers during construction activities where reasonable and practicable.

Disturbance associated with poles or pulling/tensioning sites would not be located within drainage features or other bodies of water. No permanent control or structural changes to any drainage or body of water is expected. Where necessary, ephemeral wash crossings for construction access would be temporary and implemented in accordance with approved Best Management Practices (“BMPs”) to minimize effects and ensure compliance with any necessary Clean Water Act permits.

Impacts to vegetation and soils would be temporary at each transmission line structure, except for the actual location of the transmission line structures where vegetation would be removed permanently. Removal of vegetation and soil disturbance would also be permanent along new access roads.

Disturbance at pulling and tensioning sites would be temporary and would be reclaimed with native vegetation following construction. Any incompatible vegetation would be removed to allow clearance from the conductor accounting for maximum sag and horizontal wind displacement conditions. Construction of the Project would include Environmental Protection Measures (“EPM”) to control erosion and reduce potential for soil instability, as discussed in **Section 2**.

## 2.3. ENVIRONMENTAL PROTECTION MEASURES

To reduce or eliminate potential Project impacts on the environment, TEP would implement two categories of EPMs: Erosion Control and Vegetation Management (**Section 2.3.1**) and Protection of Nesting Migratory Birds (**Section 2.3.2**). These EPMs would also address impacts on special-status species and species of interest, as described in further detail in **Section 6**.

### 2.3.1. Erosion Control and Vegetation Management

The following EPMs would be incorporated into the Project to control erosion and sedimentation and to avoid adverse effects on surface water quality:

- Water bars would be constructed on Project roads across contours to reduce stormwater velocity and divert flows in a more natural pattern, where practicable.
- Weed-free straw wattle would be used along slopes to control sediment and minimize erosion, where practicable.
- Soil would be scarified to assist with vegetation establishment.
- Existing trees that require removal would be chipped and spread over the land or on access routes to enhance soil stabilization and reduce erosion, where practicable.
- Construction equipment would be washed prior to entering the Project work site and monitoring for noxious weeds would occur after Project completion.
- Removal of large trees would be avoided where practicable and would be avoided completely or minimized in designated critical habitat for listed species, where practicable.
- Notification would be provided to Arizona Department of Agriculture to allow salvage of protected native plants on Pima County lands, and TEP would coordinate with interested parties on salvage of specific plant materials as practicable.

### 2.3.2. Protection of Nesting Migratory Birds

The following EPMs would be implemented to avoid harm to birds protected under the MBTA:

- If construction occurs between March 1 and August 31, a pre-construction nesting bird survey would be completed no more than 10 days prior to vegetation removal activities. If active bird nests are located, a 50-ft avoidance buffer would be maintained until nests are no longer active.

- If nesting raptors are identified in the Analysis Area, the appropriate spatial buffer listed in the USFWS Guidelines for Raptor Protection from Human and Land Use Disturbances (Romin and Muck 2002) would be established to avoid disturbance. Nest monitoring would occur to allow construction to proceed once the nest is empty.
- The Project would follow Edison Electric Institute's Avian Power Line Interaction Committee ("APLIC") recommendations.

### 3. ENVIRONMENTAL SETTING OF THE ANALYSIS AREA

#### 3.1. PHYSIOGRAPHIC AND CLIMATIC

The Analysis Area is located in the Southern Basin and Range Province, which is bounded by the Sierrita, Tumacácori, Santa Rita and Rincon Mountains. The Analysis Area is located in low lying terrain south of Tucson and east of the Santa Cruz River drainage. Elevations vary minimally within the Analysis Area and range from approximately 2,600 ft to 2,660 ft above mean sea level. In the vicinity of the Analysis Area, the Santa Cruz River (the largest drainage in the basin) is located 1.5 miles west; the Black Mountains are 5 miles northwest; the Rincon Mountains are 15 miles east; the Catalina Mountains are 17 miles north; and the Santa Rita Mountains are 18 miles south of the Analysis Area. The complex geology of the Tucson Basin, within which the Analysis Area lies, has been created by a long history of volcanism, plutonism, sedimentation, erosion, and tectonism. Volcanic and sedimentary rocks accumulated in the basin during the Oligocene to middle Miocene (Anderson 1987). The mountains in the vicinity consist of igneous, metamorphic, and sedimentary rocks of Precambrian to Tertiary age while the basin is a sediment-filled structure depression created during the Cenozoic age (Anderson 1987).

Climatic conditions in the area are characterized by hot summers (102 degrees Fahrenheit [°F] average temperature in June, the hottest month), mild winters (67°F average temperature in December, the coldest month) and low precipitation through the year with higher levels of rain July and August. The average annual precipitation in Tucson is 11.3 inches (Your Weather Service 2023, accessed September 12, 2023).

#### 3.2. LAND USE AND MANAGEMENT

The Analysis Area consists of private lands in the city of Tucson and unincorporated Pima County with a small section of ASLD lands located southeast of the Project Area (**Figure 1**). In the vicinity, land use includes industrial facilities, gravel extraction sites, residential developments, agricultural fields, solar facilities, and an international airport. Land use within the site includes dispersed recreation along a dirt road that traverses the site. The Analysis Area is highly disturbed based on the presence of off-road vehicle tracks, existence of dirt roads throughout the site, an electrical transmission line, and several areas with discarded trash. The census-designated place ("CDP") of Summit is located immediately south of the transmission line, and the paved Old Vail Connection Road is positioned approximately 0.5 mile north (**Figure 2**). CDPs are statistical equivalents of incorporated places and represent unincorporated

communities that do not have a legally defined boundary or an active, functioning governmental structure such as planned communities, military installments, resort towns, etc. (U.S. Census Bureau 2023, accessed September 26, 2023).

### 3.3. SURFACE WATER

The Analysis Area is located within the HUC 12 (150503010901) of the Lower Colorado Region in the Duck Tank Sub-watershed (USFWS 2023b, accessed September 12, 2023). There is no surface water or wetlands mapped within the Project Area, however, Franco Wash occurs immediately south of the transmission line that falls within the Analysis Area and is mapped as ephemeral (**Figure 3**). No surface water was observed during the field investigation and all drainages observed in the site were small, not well developed, and assessed as ephemeral. In the vicinity, freshwater ponds are mapped as occurring approximately 0.35 mile north (**Figure 3**). However, review of aerial photos between 1985 and 2023 show that no surface water is present in these ponds after 1996 (Google Earth 2023, accessed September 26, 2023).

### 3.4. SOIL

The Analysis Area is mapped as being underlain by Sahuarita soils, Mohave soils and urban land, 1- to 5-percent slopes, followed by Hantz loam, 0- to 1-percent slopes along the ephemeral drainages and with Yaqui fine sandy loam, 1- to 3-percent slopes situated on the eastern boundary (Soil Survey Staff 2023, accessed September 12, 2023). A map of the soil within the Analysis Area is provided in **Appendix A**.

### 3.5. VEGETATION

The Analysis Area is mapped within the Arizona Upland Subdivision of the Sonoran Desertscrub biotic community (The Nature Conservancy 2012) (**Figure 4**). The Arizona Upland Subdivision of the Sonoran Desertscrub biotic community is described as being well vegetated with full-sized trees in the uplands and high diversity of species and overall structure. Arizona Upland Subdivision includes a variety of plant species such as paloverde (*Parkinsonia* spp.), mesquite (*Prosopis* spp.), creosote (*Larrea tridentata*), bursage (*Ambrosia* spp.), cholla (*Cylindropuntia* spp.) and prickly pear (*Opuntia* spp.).

The vegetation observed in the Analysis Area during the site visit included threeawn (*Aristida* spp.), fourwing saltbush (*Atriplex canescens*), triangle bur ragweed (*Ambrosia deltoidea*), desertbroom (*Baccharis sarothroides*), grama grass (*Bouteloua* spp.), saguaro (*Carnegiea gigantea*), devil's spineflower (*Chorizanthe rigida*), jumping cholla (*Cylindropuntia fulgida*), low woollygrass (*Dasyochloa pulchella*), panicgrass (*Dichanthelium* spp.), Mormon tea (*Ephedra* spp.), fish hook barrel cactus (*Ferocactus wislizeni*), ocotillo (*Fouquieria splendens*), Arizona poppy (*Kallstroemia grandiflora*), creosote bush (*Larrea tridentata*), wolfberry (*Lycium* spp.), pincushion cactus (*Mammillaria* spp.), night-blooming cereus (*Peniocereus greggii*), velvet mesquite (*Prosopis velutina*), catclaw acacia (*Senegalia greggii*), desert globemallow (*Sphaeralcea ambigua*), golden dogweed (*Thymophylla pentachaeta*), whitethorn

acacia (*Vachellia constricta*), and desert zinnia (*Zinnia acerosa*). Two invasive noxious species, buffelgrass (*Cenchrus ciliaris*) and Russian thistle (*Salsola tragus*), were observed in the Analysis Area.

### 3.6. WILDLIFE

Based on Brown (1994a), **Table 1** lists wildlife species typically associated with the biotic community (Sonoran Desertscrub) in which the Analysis Area lies. The occurrence of many of these species has not been verified in the field and some of these species may not occur within this Analysis Area, though the table provides a general listing of the more common species that may be encountered in Sonoran Desertscrub biotic community. The AGFD identified six species of economic and recreational importance that are predicted to occur within the Analysis Area and an additional 105 species of greatest conservation need that are predicted to occur within the site based on Predicted Range Models (**Appendix B**).

Several wildlife species were observed during the field visit conducted September 7 to 8, including black-throated sparrow (*Amphispiza bilineata*), black-tailed gnatcatcher (*Polioptila melanura*), cactus wren (*Campylorhynchus brunneicapillus*), English sparrow (*Passer domesticus*), Gambel's quail (*Callipepla gambelii*), Gila woodpecker (*Melanerpes uropygialis*), greater roadrunner (*Geococcyx californianus*), hummingbird species (Trochilidae family), mourning dove (*Zenaida macroura*), unidentified raptor nest on existing power pole that was inactive during the site inspection, red-tailed hawk (*Buteo jamaicensis*), round-tailed ground squirrel (*Xerospermophilus tereticaudus*), tiger whiptail (*Cnemidophorus tigris*), turkey vulture (*Cathartes aura*), queen butterfly (*Danaus gilippus*), zebra-tailed lizard (*Callisaurus draconoides*), small mammal burrows, and snake tracks.

### 3.7. WILDLIFE AND AREAS OF BIOLOGICAL WEALTH

#### 3.7.1. Important Bird Areas

The Arizona Important Bird Areas (“IBA”) Program, a non-regulatory, non-government organization (“NGO”) designated program, identifies no IBAs in the Analysis Area (AZIBA 2014) (**Figure 5**). While no IBAs occur within the Project Area, two IBAs occur within 15 miles of the Project Area: Tucson Mountain IBA 15 miles to the northwest; and Tanque Verde Wash/Sabino Canyon IBA 15 miles to the northeast.

#### 3.7.2. Wildlife Connectivity Linkage

According to the Arizona Wildlife Linkages Workgroup (“AWLW”), a non-regulatory, NGO designated program, the San Xavier–Sierrita–Santa Rita Wildlife Connectivity Linkage occurs in the general vicinity of the Analysis Area (AWLW 2006a). The AWWL identified Wildlife Linkage Corridors that may provide connectivity between habitats for wildlife species, with the idea that such connectivity is essential to metapopulation structure and movement behaviors of wildlife. The primary goal is to inform planning such that wildlife connectivity issues are considered and incorporated at an early stage of the planning process. The San Xavier–Sierrita–Santa Rita Wildlife Connectivity Linkage is reported to include the following

species: black bear (*Ursus americanus*), cave myotis (*Myotis velifer*), giant spotted whiptail (*Aspidoscelis stictogrammus*), Gila topminnow (*Poeciliopsis occidentalis*), jaguar (*Panthera onca*), lesser long-nosed bat (*Leptonycteris yerbabuenae*), lowland leopard frog (*Lithobates yavapaiensis*), mountain lion (*Puma concolor*), yellow-nosed cotton rat (*Sigmodon ochrognathus*), and western yellow-billed cuckoo (*Coccyzus americanus*) (AWLW 2006b).

The AGFD lists the Lee Moore Wash Flow Corridor Pima County Wildlife Movement Area–Riparian/Wash as occurring within 3 miles (**Figure 5, Appendix B**). This movement corridor is along Lee Moore Wash located south of Summit and 0.8 mile south of the Analysis Area. Lee Moore Wash watershed extends from the Santa Rita Mountain to the Santa Cruz River north of Sahuarita (**Figure 5**). A variety of wildlife are likely to utilize this corridor to traverse the area.

### 3.7.3. Critical Habitats

The USFWS and AGFD show no designated or proposed critical habitat mapped in the Analysis Area (**Figure 5; Appendices B and C**).

**Table 1. Wildlife Species that May Occur in the Sonoran Desertscrub Habitat**

Species Name	Common Name	Species Name	Common Name	Species Name	Common Name
<b>MAMMALS</b>					
<i>Ammospermophilus harrisi</i>	Harris' ground squirrel	<i>Cardinalis sinuatus</i>	Pyrrhuloxia	<i>Coleonyx variegatus</i>	Banded gecko
<i>A. leucurus</i>	White-tailed antelope ground squirrel	<i>Chordeiles acutipennis</i>	Lesser nighthawk	<i>Crotalus atrox</i>	Western diamondback rattlesnake
<i>Antilocapra americana sonoriensis</i>	Sonoran pronghorn	<i>Colaptes auratus</i>	Gilded flicker	<i>C. cerastes</i>	Sidewinder
<i>Bassariscus astutus</i>	Ring-tailed cat	<i>C. chrysoides</i>	—	<i>C. ruber</i>	Red diamond rattlesnake
<i>Canis latrans</i>	Coyote	<i>Geococcyx californianus</i>	Roadrunner	<i>C. scutulatus</i>	Mohave rattlesnake
<i>Dicotyles tajacu</i>	Peccary, javelina	<i>Lophortyx californicus</i>	California quail	<i>C. tigris</i>	Tiger rattlesnake
<i>Dipodomys deserti</i>	Desert kangaroo rat	<i>L. gambeli</i>	Gambel quail	<i>Dipsosaurus dorsalis</i>	Desert iguana
<i>D. merriami</i>	Merriam's kangaroo rat	<i>L. douglassii</i>	Elegant quail	<i>Gopherus agassizi</i>	Desert tortoise
<i>D. peninsularis peninsularis</i>	Vizcaino desert kangaroo rat	<i>Melanerpes uropygialis</i>	Gila woodpecker	<i>Heloderma suspectum</i>	Gila monster
<i>Equus asinus</i>	Feral burro	<i>Micrathene whitneyi</i>	Elf owl	<i>H. suspectum suspectum</i>	Reticulated Gila monster
<i>Lepus californicus</i>	Black-tailed jackrabbit	<i>Myiarchus tyrannulus</i>	Wied's crested flycatcher	<i>Lichanura trivirgata</i>	Rosy boa
<i>Macrotis californicus</i>	California leaf-nosed bat	<i>Parabuteo unicinctus</i>	Harris' hawk	<i>Micruroides euryxanthus</i>	Arizona coral snake
<i>Motis californicus</i>	California myotis	<i>Phainopepla nitens</i>	Phainopepla	<i>Phrynosoma m'calli</i>	Flat-tail horned lizard
<i>Neotoma albigula</i>	White-throated woodrat	<i>Picoides scalaris</i>	Ladder-backed woodpecker	<i>P. platyrhinus calidiarum</i>	Southern desert horned lizard
<i>Odocoileus heminous crooki</i>	Desert mule deer	<i>Poliopitila mealanura</i>	Black-tailed gnatcatcher	<i>P. solare</i>	Regal horned lizard
<i>Perognathus amplus</i>	Arizona pocket mouse	<i>Scardafella inca</i>	Inca dove	<i>Phyllorhynchus decurtatus</i>	Spotted leaf-nosed snake
<i>P. baileyi</i>	Bailey's pocket mouse	<i>Toxostoma bendirei</i>	Bendire's thrasher	<i>Salvadora hexalepis</i>	Western patchnose snake
<i>P. formosus</i>	Long-tailed pocket mouse	<i>T. curvirostra</i>	Curve-billed thrasher	<i>Sauromalus obesus</i>	Chuckwalla
<i>P. penicillatus</i>	Desert pocket mouse	<i>T. lecontei</i>	LeConte's thrasher	<i>Sceloporus magister</i>	Desert spiny lizard
<i>Peromyscus eremicus</i>	Cactus mouse	<i>Zenida asiatica</i>	White-winged dove	<i>Sceloporus semiannulata</i>	Western ground snake
<i>P. eremicus erimicus</i>	Arizona cactus mouse	<i>Z. macroura</i>	Mourning dove	<i>Terrapene ornate</i>	Ornate box turtle
<i>Spermophilus tereticaudus</i>	Round-tailed ground squirrel	<b>REPTILES &amp; AMPHIBIANS</b>			
<i>Sylvilagus auduboni</i>	Desert cottontail	<i>Arizona elegans</i>	Glossy snake	<i>Uma inornata</i>	—
<i>Urocyon cinereoargenteus</i>	Gray fox	<i>A. elegans eburnata</i>	Desert glossy snake	<i>Uma notata</i>	Fringe-toed lizard
<i>Vulpes macrotus</i>	Kit fox	<i>A. elegans noctivaga</i>	Arizona glossy snake	<i>Urosaurus graciosus</i>	Brush lizard
<b>BIRDS</b>					
<i>Amphispiza bilineata</i>	Black-chinned sparrow	<i>Bufo retiformis</i>	Sonoran green toad	<i>U. microscutatus</i>	Small-scale lizard
<i>Athene cunicularia</i>	Burrowing owl	<i>Callisaurus draconoides</i>	Zebratail lizard	<i>U. ornatus</i>	Tree lizard
<i>Auriparus flaviceps</i>	Verdin	<i>Chilomeniscus cinctus</i>	Banded sand snake		
<i>Calypte costae</i>	Costa's hummingbird	<i>Chionactis occipitalis</i>	Western shovelnosed snake		
<i>Campylorhynchus brunneicapillus</i>	Cactus wren	<i>Cnemidophorus hyperythrus</i>	Orangethroat lizard		
<i>Amphispiza bilineata</i>	Black-chinned sparrow	<i>C. tigris gracilis</i>	Southern whiptail		
		<i>C. tigris multiscutatus</i>	Coastal whiptail		
		<i>C. tigris tigris</i>	Western whiptail		

Source: (Brown 1994b)



## 4. SPECIAL-STATUS SPECIES AND SPECIES OF INTEREST SCREENING METHODS

### 4.1. SCREENING ANALYSIS METHODS

A screening analysis was completed to evaluate the potential for special-status species, proposed or designated critical habitat, and species of interest to occur within the Analysis Area. ESA species (Listed, Proposed, or Candidate) and critical habitat considered for evaluation are those that were identified in the USFWS Information for Planning and Consultation (“IPaC”) report generated for the Project (**Appendix C**). Other special-status species and species of interest considered for evaluation were those identified in the AGFD Heritage Data Management System (“HDMS”) online environmental review tool query as having been recorded within 3 miles of the Project (**Appendix B**). The determinations of potential for special-status species and species of interest to occur within the Analysis Area were based on a review of:

- The natural history and known geographical and elevational ranges of the species.
- Other occurrence records in published or grey literature, including citizen science data, and unpublished data.
- Presence of suitable habitat based on available information and previously completed field evaluations.

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 Analysis Area, the site 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 Analysis Area, but the known, current distribution of the species includes the site and the required habitat characteristics of the species appear to be present in the 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 Analysis Area.

**Unlikely:** The known, current distribution of the species does not include the Analysis Area, but the distribution of the species is close enough such that the site 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 Analysis Area.

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

## 4.2. SITE VISIT

Two biologists conducted a site visit on September 7 and 8, 2023, to collect data used to describe the Analysis Area in this evaluation. Comprehensive surveys were conducted for federally listed plant species in portions of the Analysis Area affected by Project construction and maintenance activities. Protocol level surveys were completed for Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*), and during these comprehensive plant surveys, habitat suitability was evaluated for:

- Western burrowing owl (*Athene cunicularia hypugaea*).
- Monarch butterfly (*Danaus plexippus*).
- Cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*).
- Other special-status species and species of interest.

While in the Analysis Area, crews documented the wildlife and plant species in the site and vicinity and took representative photos of the site (**Appendix D**).

## 5. POTENTIAL FOR SPECIAL-STATUS SPECIES OF INTEREST TO OCCUR

The results of the special-status species screening analyses for ESA, BGEPA, and MBTA species are summarized in the following sections. A more detailed summary of potential to occur for ESA and BGEPA is included in **Tables 2 and 3**, respectively, providing an overview of the federal protection status, known suitable habitat, total range, distribution in Arizona, and potential to occur within the Analysis Area. The potential to occur for all other special-status species and species of interest is provided in **Appendix E**.

### 5.1. ESA SPECIES

The USFWS IPaC list generated for this Project (**Appendix C**) included 10 ESA species. One additional species, cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*), was added to this evaluation due to its recent listing in 2023 (USFWS 2023a). As a result, a total of 11 ESA species were evaluated for their potential to occur in the Analysis Area. Of these 11 species, one species, Pima pineapple cactus was determined to have the potential to occur of **Present**; no species had the potential to occur of **Possible**; one species, monarch butterfly (*Danaus plexippus*), was determined to have the potential to occur of **Unlikely**; and 8 were determined to have the potential to occur of **None** (jaguar, ocelot [*Leopardus (Felis) pardalis*], California least tern [*Sterna antillarum browni*], yellow-billed cuckoo [*Coccyzus americanus*], Sonoyta mud turtle [*Kinosternon sonoriense longifemorale*], Gila chub [*Gila intermedia*], Arizona eryngo [*Eryngium sparganophyllum*], cactus ferruginous pygmy owl and Huachuca water-umbel [*Lilaeopsis schaffneriana* var. *recurva*]). These determinations and explanations for these findings are provided in **Table 2**. There is no critical habitat within the Analysis Area (**Appendices B and C**).

## 5.2. BGEPA LISTED SPECIES

Species afforded protection under the BGEPA include golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*). Neither of these eagles have been recorded within 3 miles of the Analysis Area (**Appendix B**) and there are no eBird records in the site or vicinity (eBird 2023, accessed September 12, 2023). Bald eagle was determined to have a potential to occur in the Analysis Area of **None** while the golden eagle has a potential to occur of **Unlikely**. The potential for occurrence of these species is detailed in **Table 3**.

## 5.3. MBTA SPECIES

The Analysis Area is outside of IBA, however, numerous bird species and individuals protected by the MBTA nest or forage within and/or migrate through the site. The IPaC query lists three MBTA species, costa's hummingbird (*Calypte costae*), Gila woodpecker (*Melanerpes uropygialis*), and gilded flicker (*Colaptes chrysoides*), with potential to occur based on species occurrence on the USFWS Birds of Conservation Concern (BCC) list for this area (**Appendix C**). The HDMS query (**Appendix B**) lists a total of 40 MBTA species with potential to occur within the Analysis Area, based on habitat modeling.

## 5.4. OTHER SPECIAL-STATUS SPECIES AND SPECIES OF INTEREST

The HDMS lists three additional special-status species (Bailey's pocket mouse [*Chaetodipus baileyi*], Sonoran desert toad [*Incilius alvarius*], and western yellow bat [*Lasiurus xanthinus*]) documented within 3 miles of the Project [**Appendix B**] not already discussed in the previous sections. An overview of the known suitable habitat, potential to occur within the Analysis Area, and discussion of Project effects is provided in **Appendix E**.

# 6. EFFECTS ON SPECIAL-STATUS SPECIES AND SPECIES OF INTEREST

## 6.1. PROJECT EFFECTS

Potential effects of the Project on special-status species, encompassing the extent of all direct effects and delayed consequences related to the Project, were evaluated by considering the results of the Screening Analysis alongside the Project's possible impacts from (1) surface disturbance, (2) noise, (3) dust, and (4) installation and maintenance of permanent infrastructure.

### Surface Disturbance

Surface disturbance would consist of selective clearing with plant salvage for constructing a 100-ft-wide ROW corridor along the entire length of the proposed transmission line. Access to the Project for construction would be from existing roads to the maximum extent possible. New access roads would be

required to access pole locations that are not directly adjacent to existing roads. All storage and equipment laydown yards would be on private or TEP property.

Impacts to vegetation and soils would be temporary at the transmission line structure, except for the actual location of the transmission structure where vegetation would be removed permanently. Removal of vegetation and soil disturbance would be permanent along access roads. Disturbance at pulling and tensioning sites would be temporary and would be reclaimed following construction. Incompatible vegetation would be removed to allow for line sag and blow out. Construction of the Project includes EPMs that control erosion and reduce potential for soil instability.

## Noise

Anthropogenic noise would increase within and adjacent to the Analysis Area over the short period of Project construction; post-construction noise is expected to be negligible, related to low-level facility maintenance activities. Construction noise disturbances would extend beyond the immediate work areas from construction equipment, but because noise attenuates with distance (ISO 1996), any potential effects of Project-associated noise would be restricted to areas immediately surrounding noise sources.

Examples of typical construction noise for the Project include operation of a backhoe or bulldozer, which generate approximately 85 dBA, as measured at 50 ft (U.S. Department of Transportation 2006). Constant noise generation during daily construction activity is expected to be within that range, with no louder, short-term noise from explosives anticipated. Noise from a point source in an open field attenuates at a rate of 6 dBA for every doubling of distance (U.S. Department of Transportation 2006). Based on the calculation, peak noise levels at 1,000 ft from a construction machine would be 59 dBA (WKC Group 2023; accessed online January 6, 2023), less than the 69 dBA level above which USFWS recommends noise reduction measures for special-status species (USFWS 2012). Therefore, substantial increases in noise levels would be limited to areas within approximately 800 ft of the Analysis Area.

## Dust

Fugitive dust may be generated as a result of the Project, though dust deposition attenuates with distance and a majority is typically deposited near the source. For example, dust loads produced within an area decrease exponentially with distance, such that more than 70 percent of the total dust is deposited within 33 ft (10 m) of the dust production area, and more than 90 percent within 98 ft (30 m) (Walker and Everett 1987). Dust can affect the growth processes of vegetation and alter the structure of plant communities in an area (Farmer 1993), thus potentially affecting wildlife habitat. However, considering that the Project would minimize fugitive dust through dust suppression efforts, the potential effects of dust on wildlife and vegetation are not expected to be substantially different from current conditions within the Analysis Area.

## Installation of Permanent Infrastructure and Future Maintenance Activities

For any powerlines built, proper design and construction of the transmission line would prevent or minimize the risk of electrocution of raptors owls, vultures, and golden or bald eagles per the EPMS described in **Section 2.3**.

TEP would complete a ground inspection of the transmission line a minimum of once each year. The ground inspection would use existing access roads and would be completed in a four-wheel drive vehicle, utility task vehicle (“UTV”), on foot, or a combination of these methods. The inspection would identify any maintenance requirements. Routine maintenance activities include replacing broken insulators, repairing damaged conductors, and tightening nuts and bolts. Routine maintenance is non-ground disturbing and would be completed from a standard bucket truck. Minor road maintenance may be necessary on occasion, to ensure adequate access for maintenance vehicles. If TEP crews or subcontractors damage access roads, TEP would repair them as needed. Long-term noise impacts from transmission line operation and maintenance activities are expected to be minimal. Vegetation clearing under the line may impact species and habitat, but these clearing activities are expected to have a minimal impact. Due to the Project EPMS and minimal maintenance activity proposed, the potential effects of maintenance and permanent structures on wildlife and vegetation are not expected to have a substantially different effect from current conditions within the Analysis Area.

## 6.2. EFFECTS DETERMINATIONS

Discrete Project effects determinations were evaluated for three categories of special-status species (ESA, BGEPA, and other special-status species and species of interest).

### ESA Species

A subset of the special-status species evaluated as Listed, Proposed, or Candidate under the ESA, and the effects to these species, were analyzed per five potential effects determinations:

- **No effect**
- **May affect, not likely to adversely affect**
- **May affect likely to adversely affect**
- **Likely to jeopardize the continued existence (for proposed and candidate species)**
- **Not likely to jeopardize the continued existence (for proposed and candidate species)**

The analysis of effects on critical habitat was based on the following determinations:

- **No effect**
- **May affect, not likely to destroy or adversely modify critical habitat**
- **May affect, is likely to destroy or adversely modify critical habitat**

## BGEPA Species

Two species are protected under the BGEPA. Effects to BGEPA species were analyzed to determine whether any proposed Project activities would violate the BGEPA. The BGEPA prohibits unpermitted activities to “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or in any manner any bald eagle commonly known as the American eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof of the foregoing eagles...”. Under the BGEPA, “take” is defined as to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb” (16 U.S.C. 668c). Disturb is further defined as “...to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.” Permits may be granted for eagle takes that are “associated with, but not the purpose of, the activity; and cannot practicably be avoided” (50 C.F.R. 22.26). Per the definition of “take” above, the three potential effects determinations include:

- **No take**
- **Not likely to result in take**
- **Likely to result in take**

## MBTA Species

The MBTA makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations. Per the definition of “take” above, the three potential effects determinations include:

- **No take**
- **Not likely to result in take**
- **Likely to result in take**

## Other Special-Status Species and Species of Interest

Other special-status species and species of interest evaluated for effects were those not otherwise federally listed, proposed or candidate or BGEPA that have been recorded within 3 miles of the transmission line (**Appendix B**). These include:

- **1A, 1B:** These have no official status but are identified by AGFD as SGCN.
- **SC Species of Concern:** The terms “Species of Concern” or “Species at Risk” should be considered as terms-of-art that describe the entire realm of taxa whose conservation status may be of concern to the USFWS, but neither term has official status (currently includes all former C2 and delisted species).

- **Plants**

- **HS Highly Safeguarded:** no collection allowed.
- **SR Salvage Restricted:** collection only with permit.
- **ER Export Restricted:** transport out of State prohibited.
- **SA Salvage Assessed:** permits required to remove live trees.
- **HR Harvest Restricted:** permits required to remove plant by-products.

Effects were analyzed to determine whether the Project is expected to result in the loss of viability or a trend towards listing under the ESA. Three potential effects determinations were considered:

- **No effect**
- **May impact individuals, but unlikely to result in a loss of viability or result in a trend toward federal listing**
- **Likely to result in a loss of viability or result in a trend toward federal listing**

**Table 2. ESA Species Screening Analysis**

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur	Effects
<b>BIRDS</b>						
<p><b><i>Coccyzus americanus</i></b>  (western Distinct Population Segment)</p> <p>Yellow-billed cuckoo</p>	<p>Threatened (USFWS 2014b); designated critical habitat (USFWS 2021).</p>	<p>In Arizona, most commonly found in lowland riparian woodlands where Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk are dominant (USFWS 2013). Also utilizes drier woodlands including mesquite bosques, drainages in desert scrub and desert grassland with a tree component, and Madrean evergreen woodlands in perennial, intermittent or ephemeral drainages (USFWS 2020b). They may migrate along riparian corridors and surrounding upland vegetation (Hughes 2020).</p> <p>Elevation: Typically below 6,600 ft (AGFD 2011b).</p>	<p>This species is a long-distance neotropical migrant (Hughes 2020). At the species level, 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 Washington, Idaho, Nevada, Oregon, Utah, western Colorado, southwestern Wyoming, California, Arizona, western New Mexico, and Texas, U.S. Breeding range extends into the Cape Region of Baja California Sur, Sonora, Sinaloa, western Chihuahua and northwestern Durango, Mexico (USFWS 2014b). 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).</p>	<p>More common in southern, central and the extreme northeastern portion of state, but occurs throughout Arizona where suitable habitat exists (AGFD 2011b).</p>	<p><b>None</b></p> <p>There are no HDMS occurrence records for yellow-billed cuckoo within 3 miles of the Analysis Area (<b>Appendix B</b>) and there are no eBird records in the site or vicinity (eBird 2023, accessed September 18, 2023). Additionally, the trees within the Analysis Area are small (less than 6 ft in height) with a shrub-like growth form making them unsuitable for nesting.</p> <p>The Analysis Area is outside designated critical habitat for this species.</p>	<p><b>No effect</b></p> <p>This species is not expected to occur within the Analysis Area.</p>



Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur	Effects
<p><b><i>Glaucidium brasilianum cactorum</i></b></p> <p>Cactus ferruginous pygmy owl</p>	Threatened (USFWS 2023a); no critical habitat.	<p>Range-wide this species utilizes a broad range of arid to humid habitats from desertscrub to rainforest edges (Proudfoot and Johnson 2000). The <i>cactorum</i> subspecies commonly occurs in desertscrub, thornscrub, dry deciduous forests and lowland riparian habitats (USFWS 2011). In Arizona, this species occurs in cottonwood and willow riparian habitats, mesquite bosques, heavily wooded dry washes, and suburban or rural areas with native vegetation (Corman 2005). Nests in cavities of saguaro cacti or broad leaf riparian tree species (AGFD 2001a, Corman 2005). This species resides in same habitat types year-round (Proudfoot and Johnson 2000).</p> <p>Elevation: In Arizona, historically 450–4,200 ft (Corman 2005).</p>	<p>This species is non-migratory (Proudfoot and Johnson 2000). The <i>cactorum</i> subspecies ranges from southern Arizona and southern Texas, U.S. and south into Mexico. Occurs along the Pacific Slope in Sonora, Sinaloa, Nayarit, Jalisco, Colima and Michoacán and along Atlantic Slope in Nuevo Leon and Tamaulipas (USFWS 2011). However, there is uncertainty if the Texas and Atlantic Slope population are best described as the <i>cactorum</i> or <i>ridgwayi</i> subspecies (Proudfoot and Johnson 2000, USFWS 2011).</p>	<p>Modern records for this species primarily occur in Pima County including the Altar Valley, Avra Valley, Tohono O'odham tribal lands and Organ Pipe Cactus National Monument (Corman 2005, USFWS 2011). Additionally, this species occurs near Oracle Junction, Pinal County (Corman 2005).</p>	<p><b>None.</b></p> <p>The Analysis Area falls within the known range of the species and Sonoran Desertscrub and wooded riparian washes with mesquite are present within the site. However, there are no HDMS occurrence records within 3 miles (<b>Appendix B</b>), there are no eBird records in the site or vicinity (eBird 2023, accessed September 12, 2023), and there is no suitable nesting habitat in the site. All inventoried saguaros in the Analysis Area are small (less than 10 ft tall with no arms) and the velvet mesquite trees are small with an overall shrub like appearance (<b>Appendix D, Photos 1-4</b>).</p> <p>There is no designated or proposed critical habitat for this species.</p>	<p><b>No effect</b></p> <p>This species is not expected to occur within the Analysis Area.</p>
<p><b><i>Sternula</i> [=<i>Sterna</i>] <i>antillarum browni</i></b></p> <p>California least tern</p>	Endangered (USFWS 1970); no critical habitat.	<p>Breeds in colonies on open sandy beaches, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, and wetland areas (USFWS 1985). Uses similar habitat during migration (USFWS 2006). Winters in habitats outside of the U.S. (USFWS 2006).</p> <p>Elevation: Sea level to approximately 1,000 ft in Arizona (Marschalek 2010).</p>	<p>This species is migratory (USFWS 2006). Since 1970, breeding range has been limited to coastal California (San Francisco Bay and south), U.S. and the Gulf of California and the western coast of the Baja peninsula, Mexico. Winter range is poorly known but likely includes southern Mexico, Guatemala, Costa Rica, Panama and possibly Peru (USFWS 2006).</p>	<p>Extralimital breeding has been documented in Glendale, Maricopa County (Marschalek 2010), and transient migrants have been documented in Mohave and Pima counties (USFWS 1985, USFWS 2009).</p>	<p><b>None</b></p> <p>There are no HDMS occurrence records for this species within 3 miles of the Analysis Area (<b>Appendix B</b>) and there are no eBird records within the site or vicinity (eBird 2023, accessed September 12, 2023). Additionally, the habitat within the Analysis Area does not include large bodies of water and therefore is not considered suitable.</p> <p>There is no designated or proposed critical habitat for this species.</p>	<p><b>No effect</b></p> <p>This species is not expected to occur within the Analysis Area.</p>

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur	Effects
<b>INSECTS</b>						
<i>Danaus plexippus</i> Monarch butterfly	Candidate. (USFWS 2020a); no critical habitat.	Monarch caterpillars feed exclusively on plants in the subfamily Asclepiadoideae (milkweed) and adults forage for nectar on a wide variety of flowers. This species can be found wherever milkweed occurs. Overwintering populations use the leaves, branches, and trunks of large trees within forested groves. In California, both native tree species and eucalyptus trees are utilized (Jepsen et al. 2015).  Elevation: In Arizona, found at all elevations (Morris, Kline, and Morris 2015).	<i>D. plexippus</i> occurs in North America, Central America, the Caribbean south to South America, Hawaii, Australia, some Pacific Islands, parts of Asia, Africa, and southern Europe. Populations outside of the Americas may be non-native (Zhan et al. 2014). Most populations of the <i>plexippus</i> subspecies are migratory and breed in southern-most portions of all Canadian provinces except Newfoundland and Labrador, the conterminous U.S. states and the Mexican states of Baja California, Chihuahua, Coahuila, Nuevo León, Sonora, and Tamaulipas. The wintering range of migratory populations includes coastal California and southern Florida, U.S. and the Mexican states of Baja California, Mexico and Michoacán (Jepsen et al. 2015).	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).	<b>Unlikely</b>  There are no HDMS occurrence records of this species within 3 miles of the Analysis Area ( <b>Appendix B</b> ) and there are no Monarch and Milkweed Mapper records in the site or vicinity (The Xerces Society for Invertebrate Conservation 2023, accessed September 12, 2023). The nearest monarch records are north of Interstate 10 (7 miles) and south of Sahuarita (9 miles). However, no milkweed was observed during field investigation. This species has limited potential to migrate through the site but is not expected to breed in the Analysis Area.  There is no designated or proposed critical habitat for this species.	<b>May impact individuals, but unlikely to result in a loss of viability or result in a trend toward federal listing.</b>  Monarch butterfly has not been documented within 3 miles of the Analysis Area ( <b>Appendix B</b> ), there are no Monarch and Milkweed Mapper records in the site or vicinity, and there was no milkweed observed during the field visit. However, there are flowering plants in the Analysis Area that may provide foraging opportunities for adult butterflies. Project surface disturbance activities are not anticipated to cause long-term degradation of potentially suitable foraging habitat for monarch butterfly or result in a substantial change in landscape characteristics from baseline levels therefore, the Project does not significantly increase the risk of monarch butterfly road mortality. To address effects on nectar plants that may be used by monarch butterflies, disturbed areas would be re-seeded with native species (see EPMs in <b>Section 2.3</b> ).

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur	Effects
<b>MAMMALS</b>						
<p><i>Leopardus pardalis</i></p> <p>Ocelot</p>	<p>Endangered (USFWS 1982); no critical habitat.</p>	<p>Uses a wide range of densely vegetated habitats throughout its range including desertscrub, thornscrub, grasslands, marshlands, coastal tropical forest, dry tropical forest, tropical rain forest, oak woodlands, piedmont/montane scrub, cloud forest, pine-oak forests, palm savanna, sandhills, shrub woodlands, deciduous forest, and gallery forest (AGFD 2010, USFWS 2016).</p> <p>Elevation: In Arizona, generally below 4,000 ft (AGFD 2010) but has been documented from sites as high as 9,514 ft in Mexico (USFWS 2016).</p>	<p>Occurs in southern Arizona and Texas, U.S. Range extends southward through Mexico to Argentina and Uruguay, South America (USFWS 2016).</p>	<p>Since the 1970s, a total of six ocelots (all from 2009 and later) have been documented in the Huachuca, Patagonia, Whetstone, and Santa Rita Mountain ranges. This includes five live and one deceased ocelot (all males). The dead specimen of uncertain origin was found in 2010 next to a highway near Globe between the Pinal and Superstition Mountain ranges (USFWS 2018a; Tim Snow, AGFD, personal communication to D. Cerasale, WestLand Resources, June 29, 2018). A 2-year camera-trap study in the area near Globe, Arizona, did not photograph any additional ocelots (Featherstone et al. 2013) The first live ocelot was detected in the Whetstone Mountains in April of 2009 (Avila-Villegas and Lamberton-Moreno 2013). The second live specimen was first detected in the Huachuca Mountains in 2011 and subsequently observed in the Patagonia Mountains in 2012 and last detected in the Huachuca Mountains in 2013 (Culver 2016). The third live specimen was detected in the Huachuca Mountains in 2012 and has been detected repeatedly in the Huachuca's, most recently in January 2021. In 2014, a fourth live specimen was observed in the Santa Rita Mountains. Additionally, an ocelot was detected in December 2013 in the Santa Rita Mountains; however, it is unknown if this was the same as the fourth ocelot described above or a different ocelot. The fifth live specimen was observed in 2018 in the Huachuca Mountains and was later found dead due to injuries associated with a vehicle collision. The nearest known breeding population occurs at Rancho El Aribabi in Sonora, Mexico (Rorabaugh et al. 2020).</p>	<p><b>None</b></p> <p>There are no HDMS occurrence records within 3 miles of the Analysis Area (<b>Appendix B</b>) and the site lacks appropriate habitat of densely vegetated areas. The nearest observation consists of one individual documented in the Santa Rita Mountains in 2013 which are located approximately 21 miles southeast of the Analysis Area.</p> <p>Given the rarity of this species across the landscape and lack of appropriate habitats, it is unlikely that an individual of this species would occur in the Analysis Area.</p> <p>There is no designated or proposed critical habitat for this species.</p>	<p><b>No effect</b></p> <p>Project construction activities would occur during daylight hours and are unlikely to disrupt the behavior of this generally nocturnal species (AGFD 2010). Given the relatively small spatial extent and limited time span of the Project and the extremely low potential for this species to occur in the Analysis Area, particularly during Project disturbance activities, the Project would have no effect on this species.</p>

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur	Effects
<i>Panthera onca</i> Jaguar	Endangered (USFWS 1997b); designated critical habitat (USFWS 2014a).	<p>Range wide this species uses wide variety of habitat types. Jaguars use lowland wet vegetative communities, including marshy savanna and tropical rainforest. This species is also found in arid regions where it is found in tropical dry forest, thornscrub, desertscrub, chaparral, semi-desert grassland, Madrean evergreen woodland, deciduous forest, and conifer forest (USFWS 2018c).</p> <p>Elevation: This species has been recorded from as high as 9,186 ft in the northern extent of its range (USFWS 2018c).</p>	Occurs in southern Arizona, southern New Mexico and southern Texas, U.S. Range extends southward through Mexico to northern Argentina (USFWS 2018c).	Historically (i.e., prior to 1965), jaguars were reported at numerous locations in Arizona, as far north as the Grand Canyon; however, all Arizona records since 1965 have been in the southern portion of the state (Brown and López-González 2001, Wildlife Conservation Society 2021, accessed February 1, 2021). One record is from near Globe, and the remaining records are from the Atascosa, Baboquivari, Dos Cabezas, Huachuca, Patagonia, Peloncillo, Santa Rita and Whetstone mountains in the southeastern portion of the state. Between 1965 and 1986, only three jaguars were documented (and all were killed) in Arizona: in the Patagonia Mountains (1965), near the Santa Cruz River (1971), and in the Dos Cabeza Mountains (1986). No jaguars were reported in Arizona for 10 years between 1986 and 1996, but the number of sightings of this species in the southwestern U.S. has been on the rise since 1996. Seven possibly eight, individual jaguars were documented in the U.S. between 1996 and 2021: two in New Mexico and five or six in Arizona (Wildlife Conservation Society 2021). A single male jaguar has been documented in the Dos Cabeza and Chiricahua Mountains as recently as 2021 (Wildlife Conservation Society 2021). Because female jaguars have not been documented in the state for many years, individuals detected in Arizona are interpreted as part of a population that primarily occurs in adjoining regions of Mexico (USFWS 2018c).	<p><b>None</b></p> <p>Records of this species are rare, isolated, and occur in the large mountain ranges of southwestern Arizona. The only recent records are of a male known to use the Santa Rita Mountains that has not been observed since 2015, a possible male in the Huachuca Mountains, and a possible third male in the Dos Cabezas Mountains (AGFD 2016a, USFWS 2017c). Moreover, the individual reported from the Huachuca Mountains is believed to have been killed in Mexico (Davis 2018). There are no HDMS occurrence records within 3 miles of the Analysis Area (<b>Appendix B</b>) and the site is in the low-lying area well outside of the nearest known observation in the Santa Rita Mountains that is approximately 21 miles southeast.</p> <p>Given the rarity of this species across the landscape, it is unlikely that an individual of this species would occur in the Analysis Area.</p> <p>The Analysis Area is outside designated critical habitat for this species.</p>	<b>No effect</b>  Project construction activities would occur during daylight hours and would not disrupt nocturnal productivity of this species. Given the relatively small spatial extent and limited time span of the Project and the extremely low potential for this species to occur in the Analysis Area, particularly during Project disturbance activities, the Project would have no effect on this species.

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur	Effects
<p><b><i>Coryphantha scheeri</i> var. <i>robustispina</i></b></p> <p>[Note: <i>C. s.</i> var. <i>robustispina</i> is considered to be a synonym of <i>Coryphantha robustispina</i> ssp. <i>robustispina</i> (Integrated Taxonomic Information System 2019, accessed October 15, 2019)]</p> <p>Pima pineapple cactus</p>	Endangered (USFWS 1993); no critical habitat.	<p>Occurs on flat ridges and alluvial fans with deep, silty, and gravely soils, in semi-desert grassland and Sonoran desertscrub (AGFD 2001b, USFWS 2018d). Most commonly found on coppice mounds in Holocene or Pleistocene substrates (USFWS 2018d).</p> <p>Elevation: 2,300–5,000 ft (AGFD 2001b) but typically below 4,200 ft (USFWS 2018d).</p>	Occurs in south-central Arizona, U.S. and north-central Sonora, Mexico (AGFD 2001b, USFWS 2018d).	Found in the Altar and Santa Cruz valleys in Pima and Santa Cruz counties (USFWS 2018d).	<p><b>Present</b></p> <p>This species was observed in the Analysis Area during the field visit and there are HDMS occurrence records within 3 miles of the site (<b>Appendix B</b>). However, the Pima pineapple cactus documented in the site is deceased (<b>Appendix D, Photos 5 and 6</b>).</p> <p>There is no designated or proposed critical habitat for this species.</p>	<p><b>No effect</b></p> <p>The individual Pima pineapple cactus observed during the clearance survey is deceased; therefore, no live individuals would be impacted by the Project. Given the relatively small spatial extent and limited disturbance during construction, the Project is not anticipated to impact the species.</p>
<p><b><i>Eryngium sparganophyllum</i></b></p> <p>Arizona eryngo</p>	Petitioned for listing (Center for Biological Diversity 2018); Sixty-day Notice of Intent to Sue (Silver 2019).	<p>Found in organic muck or wet silty clay-loam soils in riparian zones or marshes in Pinyon-Juniper or Madrean evergreen woodlands and cienegas in desertscrub (AGFD 2004).</p> <p>Elevation: In Arizona, 2,720–4,000 ft (AGFD 2004).</p>	In Arizona, 2,720–4,000 ft (AGFD 2004).	Known from along Agua Caliente wash, La Cebadilla wetland complex and west of Tanque Verde wash near Tucson and from Lewis Springs Cienega in San Pedro Riparian National Conservation Area (AGFD 2004). The 2018 petition for listing (Center for Biological Diversity 2018) cites a report from SWCA (SWCA Environmental Consultants 2002) which did not detect the species during surveys of Pima County property as evidence that the Agua Caliente population has been extirpated.	<p><b>None</b></p> <p>There are no HDMS occurrence records for this species within 3 miles of the Analysis Area (<b>Appendix B</b>), the nearest SEINet record is in the Empire Mountains approximately 20 miles southeast (SEINet Portal Network 2023, accessed September 12, 2023), and the site lacks appropriate habitat of riparian areas or marshy soils.</p> <p>There is no designated or proposed critical habitat for this species.</p>	<p><b>No effect</b></p> <p>This species is not expected to occur within the Analysis Area.</p>
<p><b><i>Lilaeopsis schaffneriana</i> var. <i>recurva</i></b></p> <p>Huachuca water-umbel</p>	Endangered (USFWS 1997a); designated critical habitat (USFWS 1999).	<p>Found in shallow and slow-flowing cienegas, rivers, streams and springs or within active stream channels in areas that escape scouring during flood events (USFWS 2017d).</p> <p>Elevation: 2,001–7,100 ft (USFWS 2017d).</p>	Occurs in southeastern Arizona, U.S. and Sonora and Chihuahua, Mexico (SEINet Portal Network 2019, accessed January 11, 2019, USFWS 2017d).	Found at 17 localities within the Santa Cruz, San Pedro, and Rio Yaqui watersheds. Within the Santa Cruz River basin this species occurs at six locations including Bear Canyon, Huachuca Canyon, Las Cienegas, Scotia Canyon, Sunnyside Canyon and upper Sonoita Creek. Within the San Pedro River basin there are nine locations including the Babocomari River, Gardner Canyon, Lone Mountain Canyon, McClure Canyon, Sawmill Canyon, Sycamore Spring, Wakefield Mine springbox and the mainstem of the San Pedro River. Within the Rio Yaqui basin this species occurs in Black Draw and Leslie Canyon (USFWS 2017d).	<p><b>None</b></p> <p>There are no HDMS occurrence records for this species within 3 miles of the Analysis Area (<b>Appendix B</b>) and the site lacks suitable habitat of aquatic systems.</p> <p>The Analysis Area is outside designated critical habitat for this species.</p>	<p><b>No effect</b></p> <p>This species is not expected to occur within the Analysis Area.</p>

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur	Effects
<b>REPTILES</b>						
<i>Kinosternon sonoriense longifemorale</i>  Sonoyta mud turtle	Endangered (USFWS 2017a); proposed critical habitat (USFWS 2018b).	This species requires aquatic and terrestrial habitat (USFWS 2017a). Forages, shelters and mates in perennial, or near-perennial waters of springs, cienegas, impoundments and streams (USFWS 2017e). Young individuals prefer shallow water with dense emergent or overhanging vegetation whereas adults prefer deeper water with submerged vegetation (USFWS 2017e). Adjacent riparian habitat is used for nesting and aestivation (USFWS 2017e).  Elevation: Below 6,700 ft (AGFD 2016b).	Occurs in Arizona, U.S. and Sonora, Mexico (USFWS 2017a).	Restricted to the pond and channel of Quitobaquito Springs in Organ Pipe Cactus National Monument (USFWS 2017a).	<b>None</b>  There are no HDMS occurrence records for this species within 3 miles of the Analysis Area ( <b>Appendix B</b> ) and lacks suitable habitat of aquatic habitats.  The Analysis Area is outside proposed critical habitat for this species.	<b>No effect</b>  This species is not expected to occur within the Analysis Area.
<b>FISH</b>						
<i>Gila intermedia</i>  Gila chub	Endangered (USFWS 2005b); designated critical habitat (USFWS 2005a).  [Note: USFWS (2017b) determined that <i>G. nigra</i> and <i>G. intermedia</i> should be subsumed into <i>G. robusta</i> and intends to review the status of Gila chub.]	The species typically occurs in pools of small streams or cienegas. However, this species can also be found in larger streams. It is often found near undercut banks, overhanging vegetation, and various types of cover within the aquatic habitat (USFWS 2015).  Elevation: 2,000–5,500 ft (USFWS 2015).	Endemic to the Gila River Basin in Arizona and New Mexico, U.S. and Sonora, Mexico (USFWS 2015).	There are 20 known populations that occur in the following areas: five locations in the Agua Fria River Basin (Indian Creek, Larry Creek, Lousy Canyon, Silver Creek, and Sycamore/Little Sycamore creeks), three locations in the San Pedro River Basin (Hot Springs/Bass Canyon, O'Donnell Creek, and Redfield Canyon), at four locations in the Santa Cruz River Basin (Cienega Creek, Romero Canyon, Sabino Canyon, and Sheehy Spring), five tributaries in the Upper Gila River Basin (Blue River, Bonita Creek, Dix Creek, Eagle/East Eagle Creek, and Harden Cienega Creek) and four locations in the Verde River Basin (Red Tank Draw, Spring Creek and Walker Creek). This species has not been detected in the Salt River Basin since 1978 (USFWS 2015).	<b>None</b>  The Analysis Area lacks suitable habitat of open water and there are no HDMS occurrence records for this species within 3 miles of the site ( <b>Appendix B</b> ).  The Analysis Area is outside designated critical habitat for this species.	<b>No effect</b>  This species is not expected to occur within the Analysis Area.

**Table 3. BGEPA Species Screening Study**

Species Name	Federal Status	Known Suitable Habitat	Total Range	Distribution in Arizona	Potential to Occur	Effects
<i>Aquila chrysaetos</i> Golden eagle	Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).	Range-wide, breeds in a wide variety of open habitats, with nests typically on cliffs, and avoids heavily forested areas (Katzner et al. 2020). In Arizona, prefers pinyon-juniper woodlands and Sonoran desertscrub (Driscoll 2005). Constructs 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). Primarily feeds on small mammals (greater than 80% of prey items) but also consumes birds, reptiles and fish (Katzner et al. 2020). In the western U.S. average territory size ranges from 22 to 55 square miles (AGFD 2002).  Elevation: In Arizona, typically breeds between 1,300–9,000 ft (Driscoll 2005).	This species is a short to medium-distance partial migrant with a Holarctic distribution (Katzner et al. 2020). In North America, primarily breeds in western portion of the continent from Alaska to central Mexico. Northern most populations are typically migratory. Year-round and non-breeding populations occur from central Saskatchewan to British Columbia, Canada and south throughout its range and sparsely in the eastern U.S. (Katzner et al. 2020).	Found in suitable habitat throughout the state (Driscoll 2005) but tend to vacate low desert areas during the summer (AGFD 2002).	<b>Unlikely</b>  There are no HDMS occurrence within 3 miles of the Analysis Area ( <b>Appendix B</b> ) and there are no eBird records within the site or vicinity (eBird 2023, accessed September 12, 2023). The Analysis Area contains limited foraging habitat (open areas in Sonoran Desertscrub). However, the site is highly degraded and in close proximity to residential development and lacks appropriate nesting habitat (cliffs, rock outcrops, large trees) and they are known to rarely nest in transmission lines.	<b>Not likely to result in take</b>  The Analysis Area does not include suitable nesting habitat. Potential foraging habitat occurs, but the Project has no potential to result in take.  No Project impacts to cliffs, large trees, undisturbed forest habitat, water resources, or roadways are anticipated that might affect the quality or availability of golden eagle breeding or foraging habitat. Ground disturbance would be confined to a small footprint, and construction durations would only occur as necessary. Project construction noise has the potential to cause golden eagles to temporarily vacate or avoid the Analysis Area if individuals happen to be present during construction.  Electric line construction would incorporate avian-safe design elements that would protect golden eagles from electrocution (see EPMs in Section 2.3.3).
<i>Haliaeetus leucocephalus</i> Bald eagle	Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).	Breeding is concentrated in coastal areas, along rivers, lakes, or reservoirs. Typically breeds in forested areas with edge habitat within 1.3 miles of aquatic habitats suitable for foraging. Prefers areas of shallow water and shorelines for fishing and hunting wide variety of waterfowl, and small aquatic and terrestrial mammals. Fish are the preferred prey, but carrion is used extensively whenever encountered. Nests away from human disturbance in large trees and rarely on cliff ledges or on the ground when trees are absent. Winters primarily in coastal areas or along major river systems with adequate prey availability and large trees for perching (Buehler 2020).  Elevation: In Arizona, 460–7,930 ft (AGFD 2011a).	Migratory behavior varies among populations and age groups (Buehler 2020). Breeds south of the tundra throughout Canada and the U.S., excluding Hawaii. Additionally, small breeding populations occur in Baja California, Sonora and Chihuahua, Mexico (Buehler 2020). Winter range appears to be expanding as populations increase in size. Most populations are year-round residents with only the northern most populations in Alaska, U.S. and Canada withdrawing southward or to coastal areas (Fink et al. 2018).	A small resident population occupies the central part of the state, and a wintering population occurs in central and northern Arizona. Breeding territories occur at most large lakes and reservoirs and along portions of large rivers and creeks, including the Agua Fria, Bill Williams, Colorado, Little Colorado, Gila, Salt, San Carlos, San Francisco and Verde Rivers (AGFD 2011a, McCarty, Licence, and Jacobsen 2018).	<b>None</b>  The Analysis Area lacks suitable habitat (large water systems with fish and carrion), is in the southern limit of this species wintering range, there are no HDMS occurrence records within 3 miles ( <b>Appendix B</b> ), and no eBird records in the site or immediate vicinity (eBird 2023, accessed September 12, 2023).	<b>No take</b>  This species is not expected to occur within the Analysis Area.

## 6.3. DISCUSSION

### 6.3.1. ESA Species

Overall, no effects on ESA covered species are anticipated. The Project may impact individuals but is unlikely to result in a loss of viability or result in a trend toward federal listing for the ESA candidate monarch butterfly. The Project is not likely to destroy or adversely modify designated critical habitat for any species because no critical habitat is present in the Analysis Area. The Project would have no effect on any other federally listed species, including Pima pineapple cactus, based on lack of suitable habitat or implementation of EPMs that limit construction outside the breeding or occupancy period.

### 6.3.2. BGEPA Species

The Project will not result in the take of any BGEPA covered species.

### 6.3.3. MBTA and Other Special-Status Species and Species of Interest

The Project would result in surface disturbance and vegetation removal within the transmission line footprint. Project EPMs (**Section 2.3**) would help to avoid and/or minimize potential effects to MBTA, other special-status species, species of interest, and their habitat. Planned construction activities would take place during daylight hours, which would reduce or eliminate disruptions to nocturnal or crepuscular wildlife behavior. The Project would not impact perennial or near-permanent surface water features because none are present in the Analysis Area; therefore, no impacts to aquatic or riparian-obligate plants and wildlife are anticipated. The Project would not impact caves, abandoned mines, or other underground refugia that may provide potential bat roosting habitat. Construction noise would be temporary; therefore, the Project would not cause a substantial or long-term increase in ambient noise levels in the Analysis Area. Preconstruction surveys would be completed to detect and avoid impacts to nesting birds. Given the limited spatial and temporal Project impacts and the incorporation of EPMs, no substantial impacts to MBTA, other special-status species, and species of interest are anticipated; therefore, it is determined that the Project is not expected to result in the loss of viability or a trend towards listing for any MBTA, other special-status species, and species of interest.

### 6.3.4. Wildlife and Area of Biological Wealth

#### Important Bird Areas

The Analysis Area is outside of mapped IBAs therefore it will not impact IBAs.

#### Wildlife Connectivity Linkage

The San Xavier – Sierrita – Santa Rita Wildlife Connectivity Linkage and the Lee Moore Wash Flow Corridor occurs in the general vicinity of the Analysis Area. As the Analysis Area occurs outside of this linkage no effects are anticipated.

#### Critical Habitat

No designated or proposed critical habitat is mapped within the Analysis Area.



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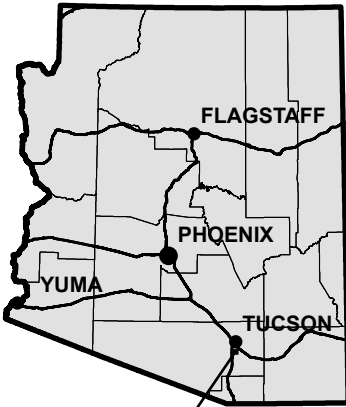
Zhan, Shuai, Wei Zhang, Kristjan Niitepõld, Jeremy Hsu, Juan Fernández Haeger, Myron P. Zalucki, Sonia Altizer, Jacobus C. de Roode, Steven M. Reppert, and Marcus R. Kronforst. 2014. "The Genetics of Monarch Butterfly Migration and Warning Colouration." *Nature* 514 (7522):317-321.

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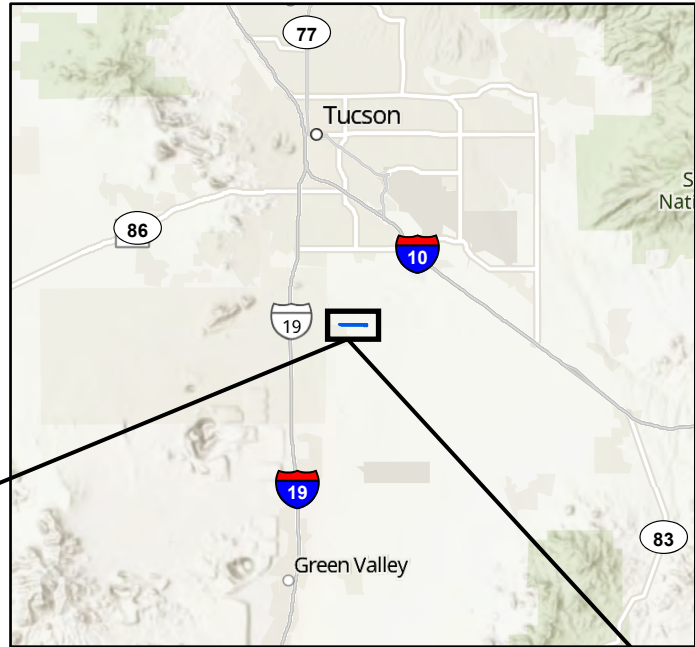
## FIGURES

ARIZONA

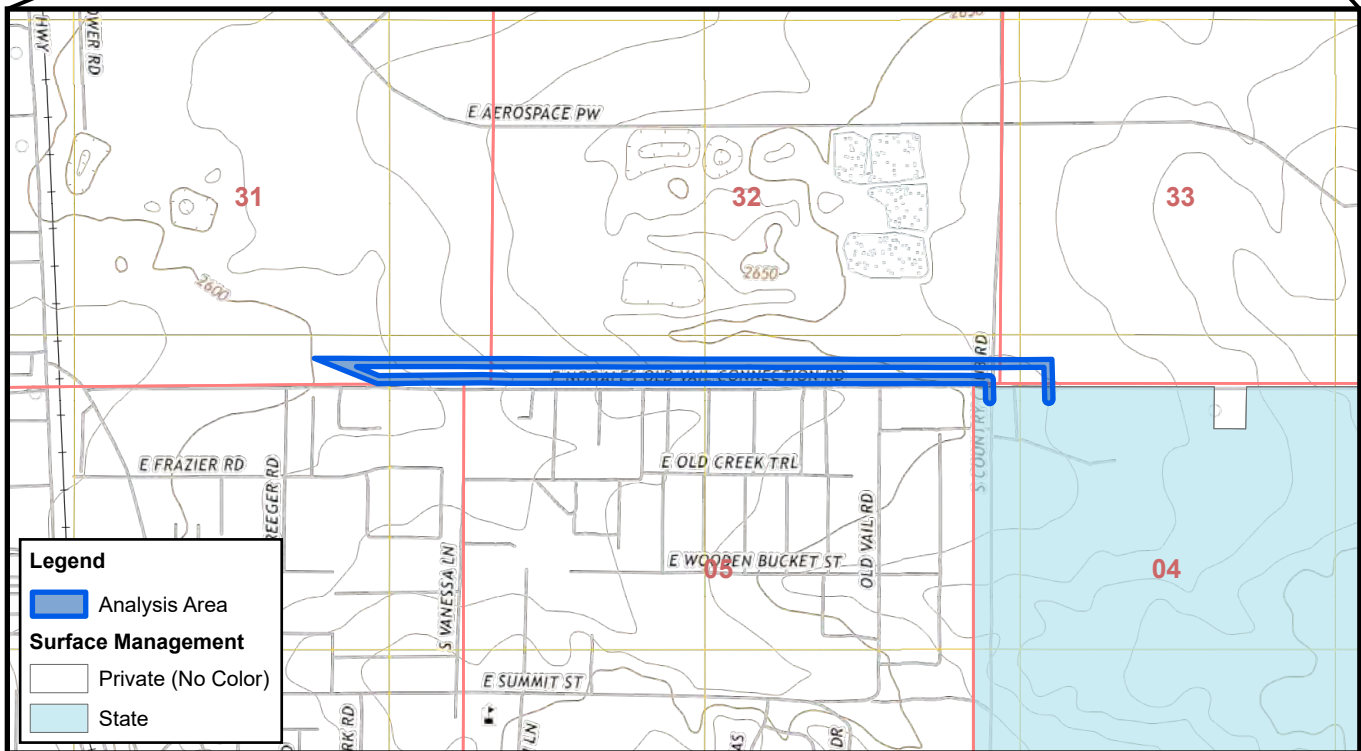


PROJECT LOCATION

PROJECT VICINITY



Approximate Scale 1 inch equals 10 miles



T15S, R14E, Portions of Sections 31-33,  
T16S, R14E, a Portion of Section 6,  
Pima County, Arizona  
Tucson SW USGS 7.5' Quadrangle (2021)  
Projection: NAD 1983 UTM Zone 12N  
Surface Management: BLM ArcGIS Service accessed 9/25/2023  
Image Source: ArcGIS Online, World Topographic Map

TUCSON ELECTRIC POWER  
Biological Resource Evaluation of  
the Aerospace Research Campus  
Transmission Project

VICINITY MAP  
Figure 1

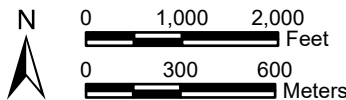


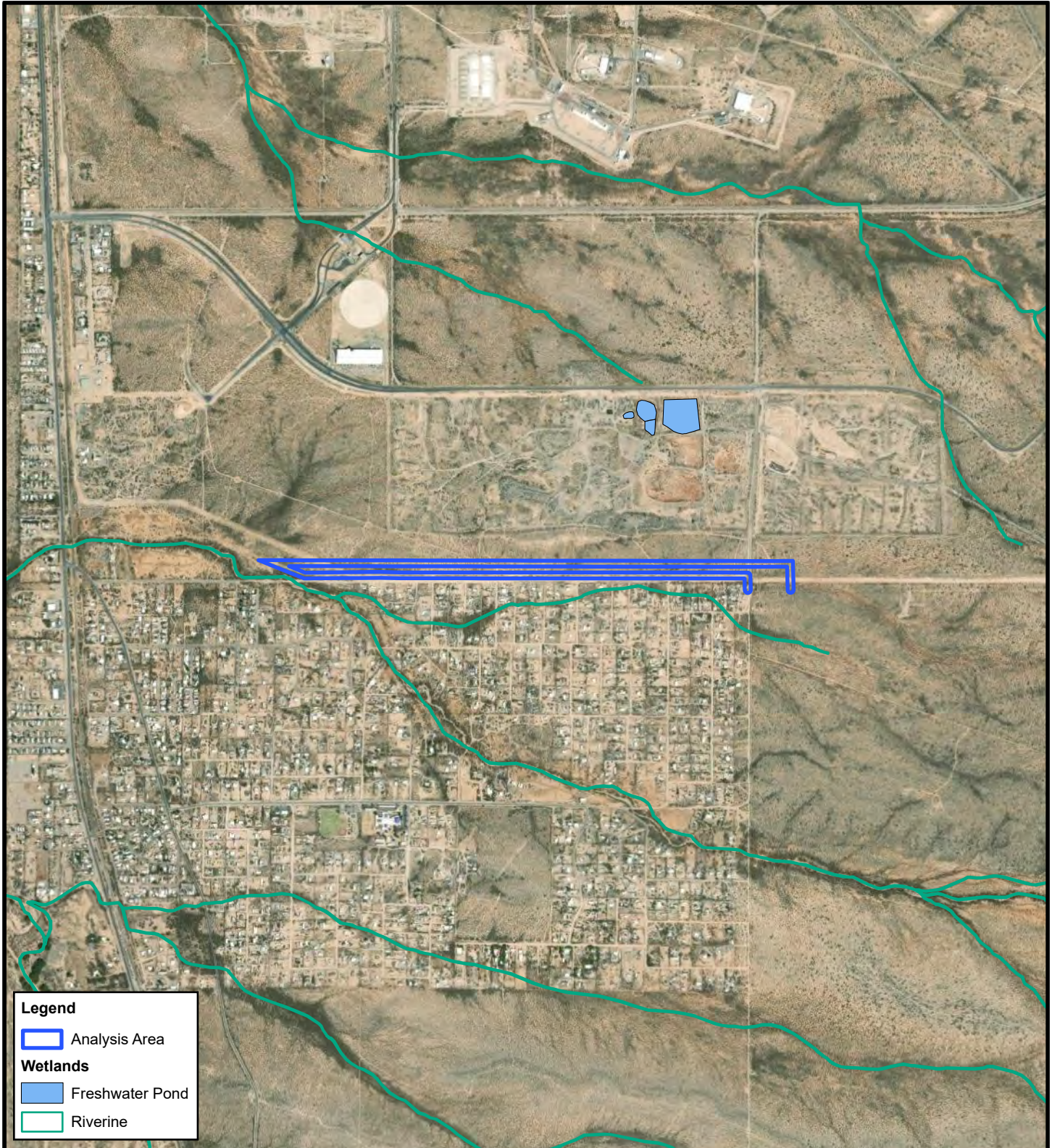
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 T16S, R14E, a Portion of Section 6,  
 Pima County, Arizona  
 Projection: NAD 1983 UTM Zone 12N  
 Image Source: Maxar 1/13/202

**TUCSON ELECTRIC POWER**  
 Biological Resource Evaluation of  
 the Aerospace Research Campus  
 Transmission Project

AERIAL OVERVIEW

Figure 2





**Legend**

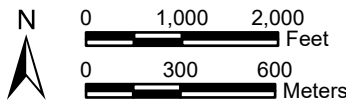
- Analysis Area
- Wetlands**
- Freshwater Pond
- Riverine

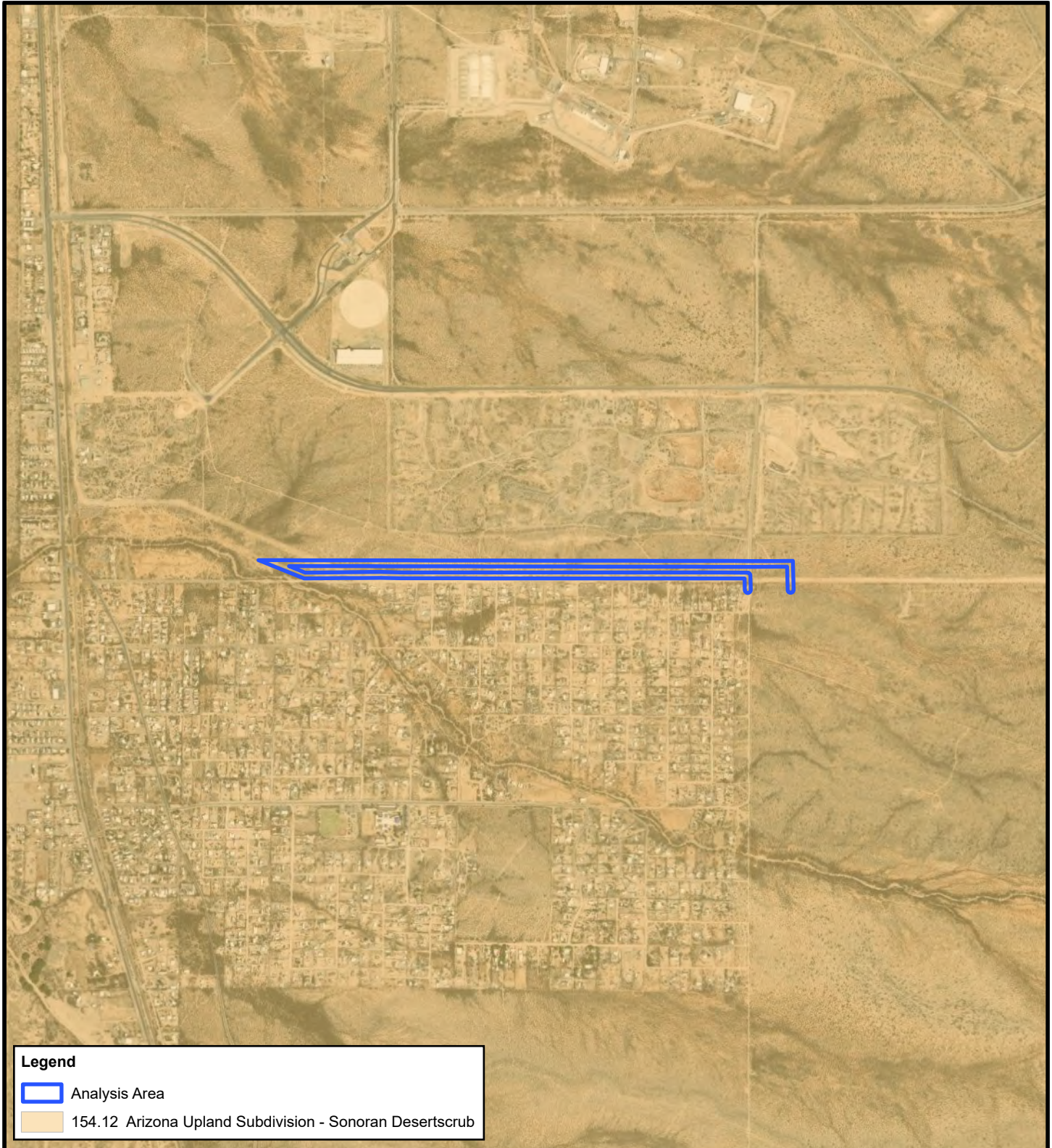
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T16S, R14E, a Portion of Section 6,  
Pima County, Arizona  
Projection: NAD 1983 UTM Zone 12N  
National Wetland Inventory: USFWS ArcGIS  
Service accessed 9/25/2023  
Image Source: Maxar 1/13/2022

**TUCSON ELECTRIC POWER**  
Biological Resource Evaluation of  
the Aerospace Research Campus  
Transmission Project

NATIONAL WETLAND INVENTORY MAP

Figure 3





**Legend**

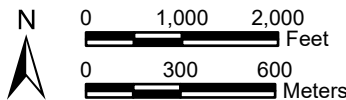
- Analysis Area
- 154.12 Arizona Upland Subdivision - Sonoran Desertscrub

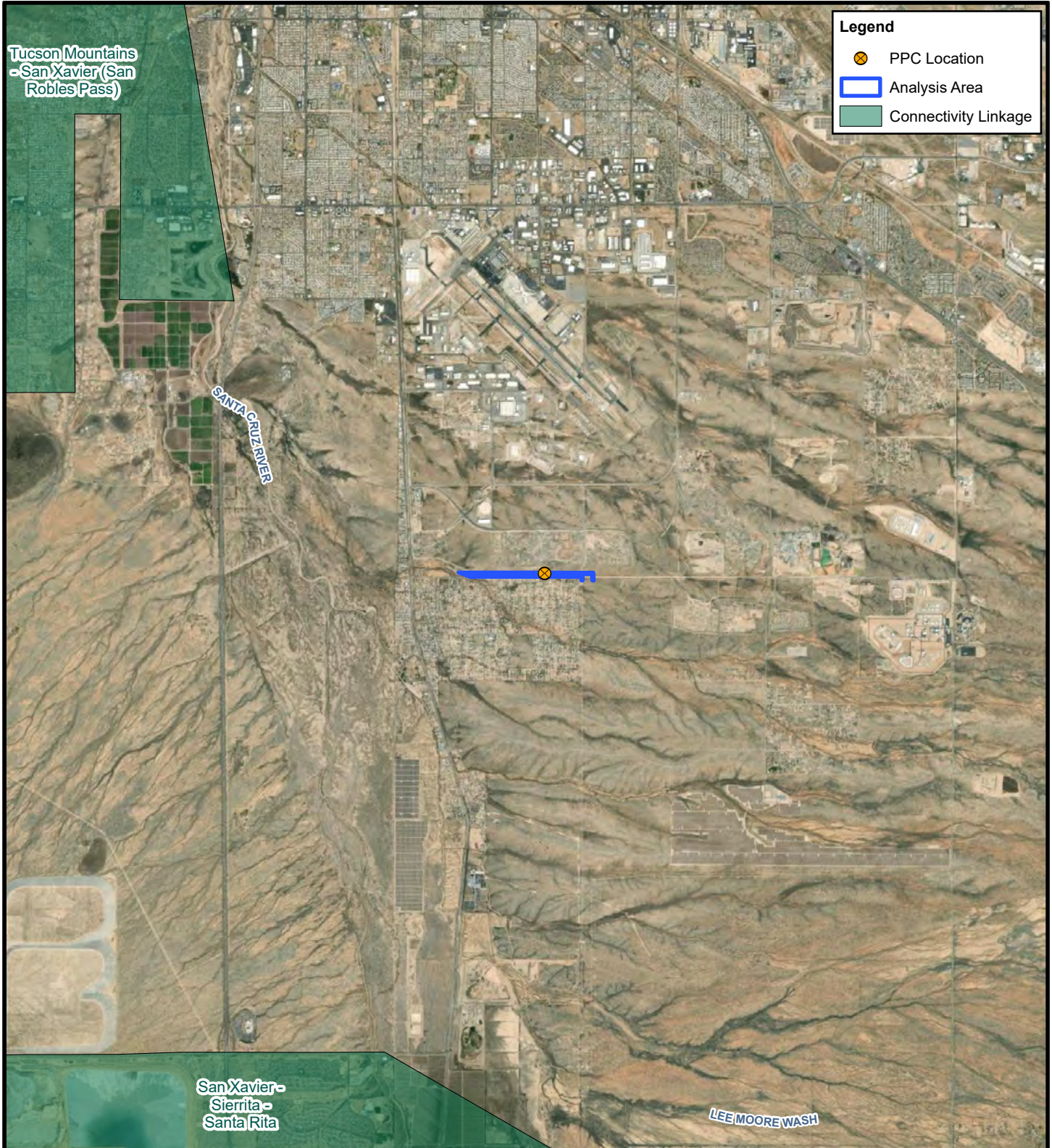
T15S, R14E, Portions of Sections 31-33,  
 T16S, R14E, a Portion of Section 6,  
 Pima County, Arizona  
 Projection: NAD 1983 UTM Zone 12N  
 Brown and Lowe's Biotic Communities of the Southwest (1980),  
 developed by The Nature Conservancy in Arizona (2004)  
 Image Source: Maxar 1/13/202

**TUCSON ELECTRIC POWER**  
 Biological Resource Evaluation of  
 the Aerospace Research Campus  
 Transmission Project

VEGETATION MAP

Figure 4



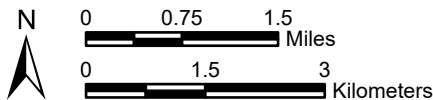


T15S, R14E, Portions of Sections 31-33,  
 T16S, R14E, a Portion of Section 6,  
 Pima County, Arizona  
 Projection: NAD 1983 UTM Zone 12N  
 Data Source: Arizona Game and Fish  
 Image Source: Maxar 1/13/202

**TUCSON ELECTRIC POWER**  
 Biological Resource Evaluation of  
 the Aerospace Research Campus  
 Transmission Project

WILDLIFE AND AREAS OF  
 BIOLOGICAL WEALTH

Figure 5

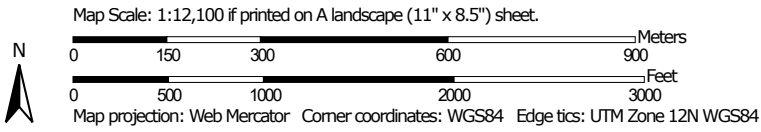


APPENDIX A  
NRCS Soil Map—Santa Cruz and Parts  
of Cochise and Pima Counties, Arizona

Soil Map—Pima County, Arizona, Eastern Part  
(Aerospace Transmission Line)



Soil Map may not be valid at this scale.





Soil Map—Pima County, Arizona, Eastern Part  
(Aerospace Transmission Line)

### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)




















**Soils**



 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

**Special Point Features**






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Pima County, Arizona, Eastern Part  
Survey Area Data: Version 21, Aug 29, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2018—May 1, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
34	Hantz loam, 0 to 1 percent slopes	14.6	19.3%
72	Sahuarita soils, mohave soils and urban land, 1 to 5 percent slopes	60.1	79.7%
86	Yaqui fine sandy loam, 1 to 3 percent slopes	0.7	1.0%
<b>Totals for Area of Interest</b>		<b>75.5</b>	<b>100.0%</b>

APPENDIX B  
AGFD HDMS Online Environmental  
Review Tool Query Report

# 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:**

Aerospace Research Campus Transmission Line

**Project Description:**

Transmission line

**Project Type:**

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

**Contact Person:**

Gabrielle Diamond

**Organization:**

Private Consulting Firm

**On Behalf Of:**

CONSULTING

**Project ID:**

HGIS-20323

***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.

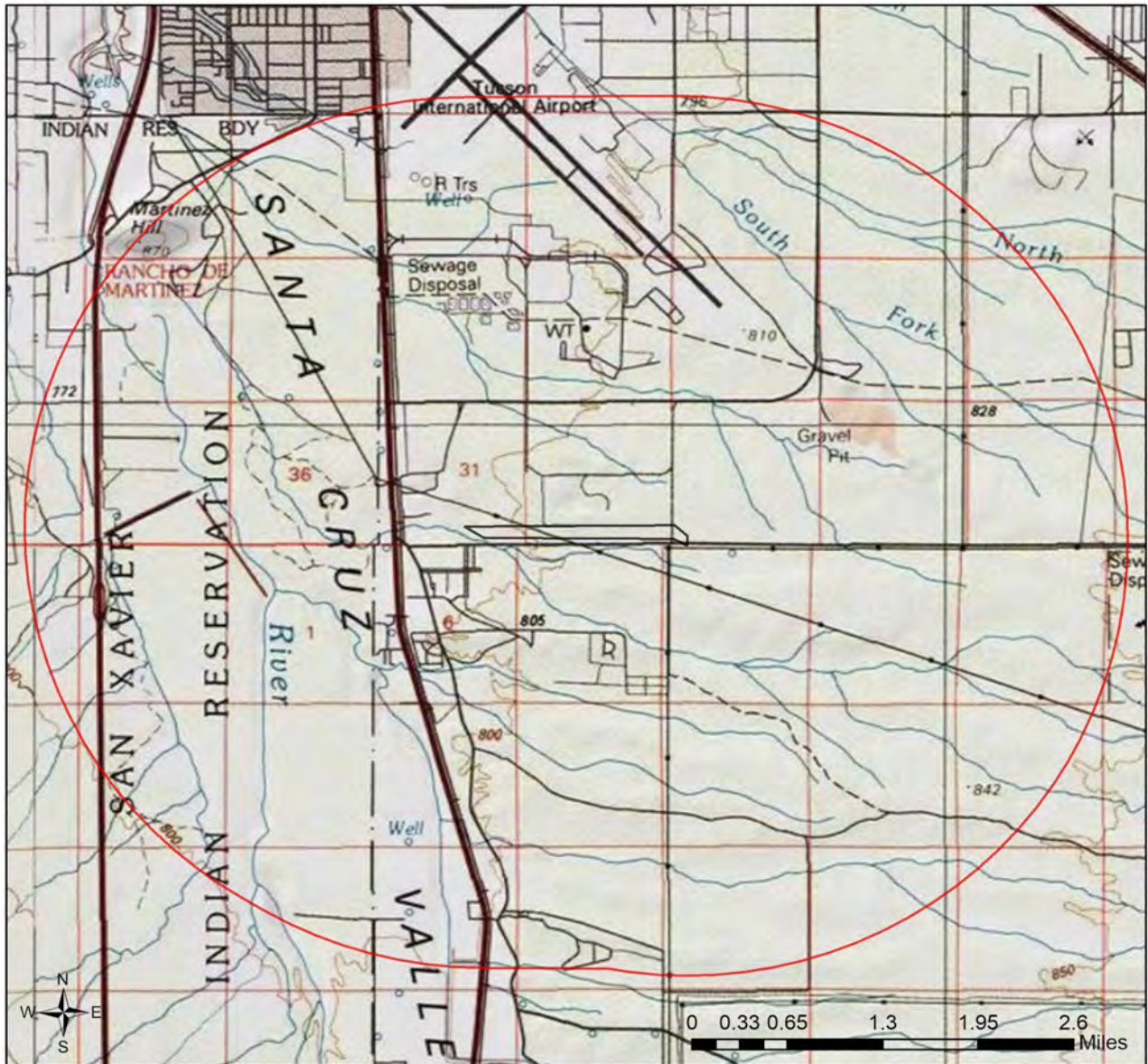
**Locations Accuracy Disclaimer:**

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](mailto: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

# Aerospace Research Campus Transmission Line USA Topo Basemap With Locator Map



- Buffered Project Boundary
- Project Boundary

Project Size (acres): 80.93

Lat/Long (DD): 32.0766 / -110.9367

County(s): Pima

AGFD Region(s): Tucson

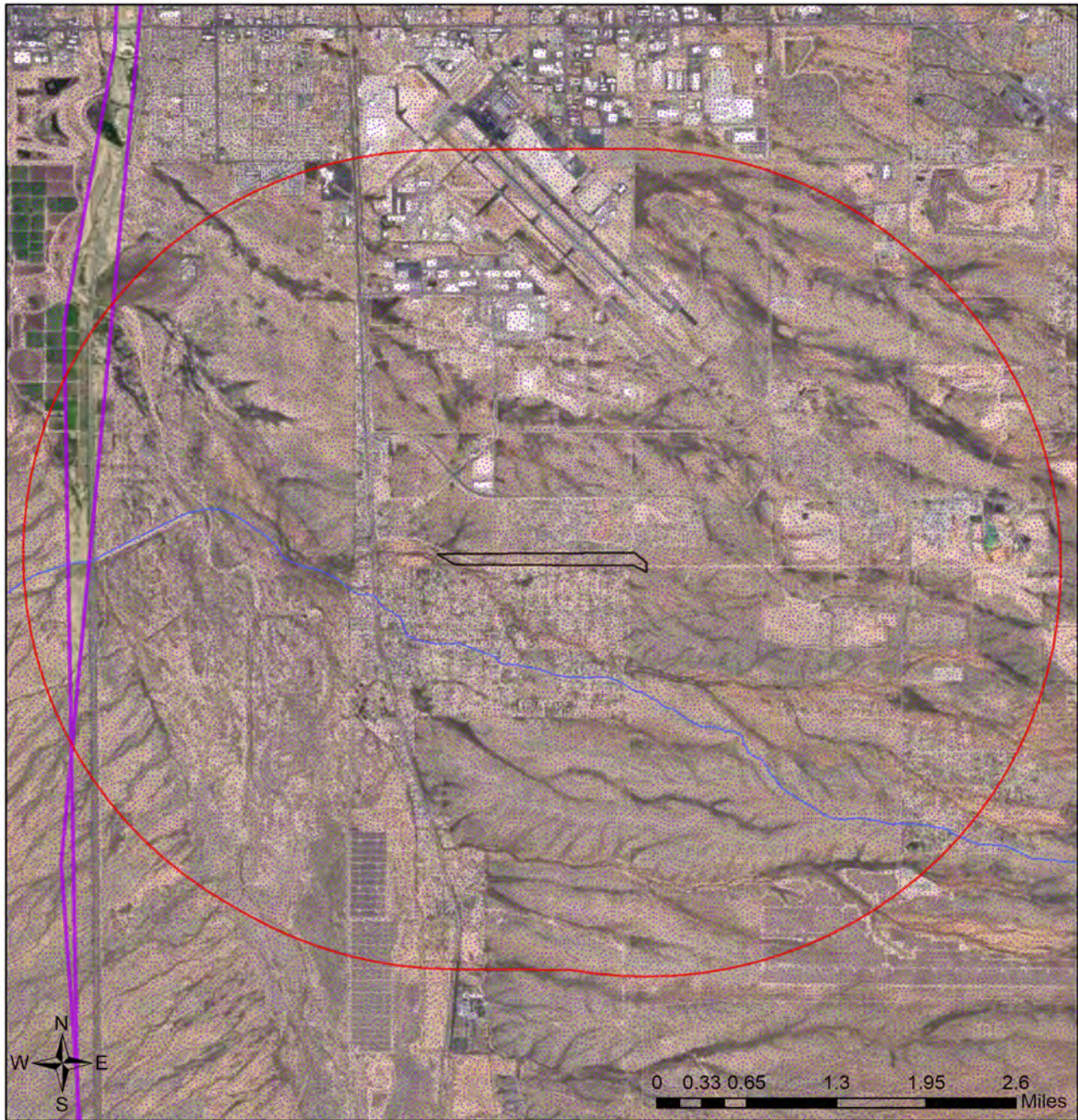
Township/Range(s): T15S, R14E; T16S, R14E

USGS Quad(s): TUCSON SW

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



## Aerospace Research Campus Transmission Line Web Map As Submitted By User

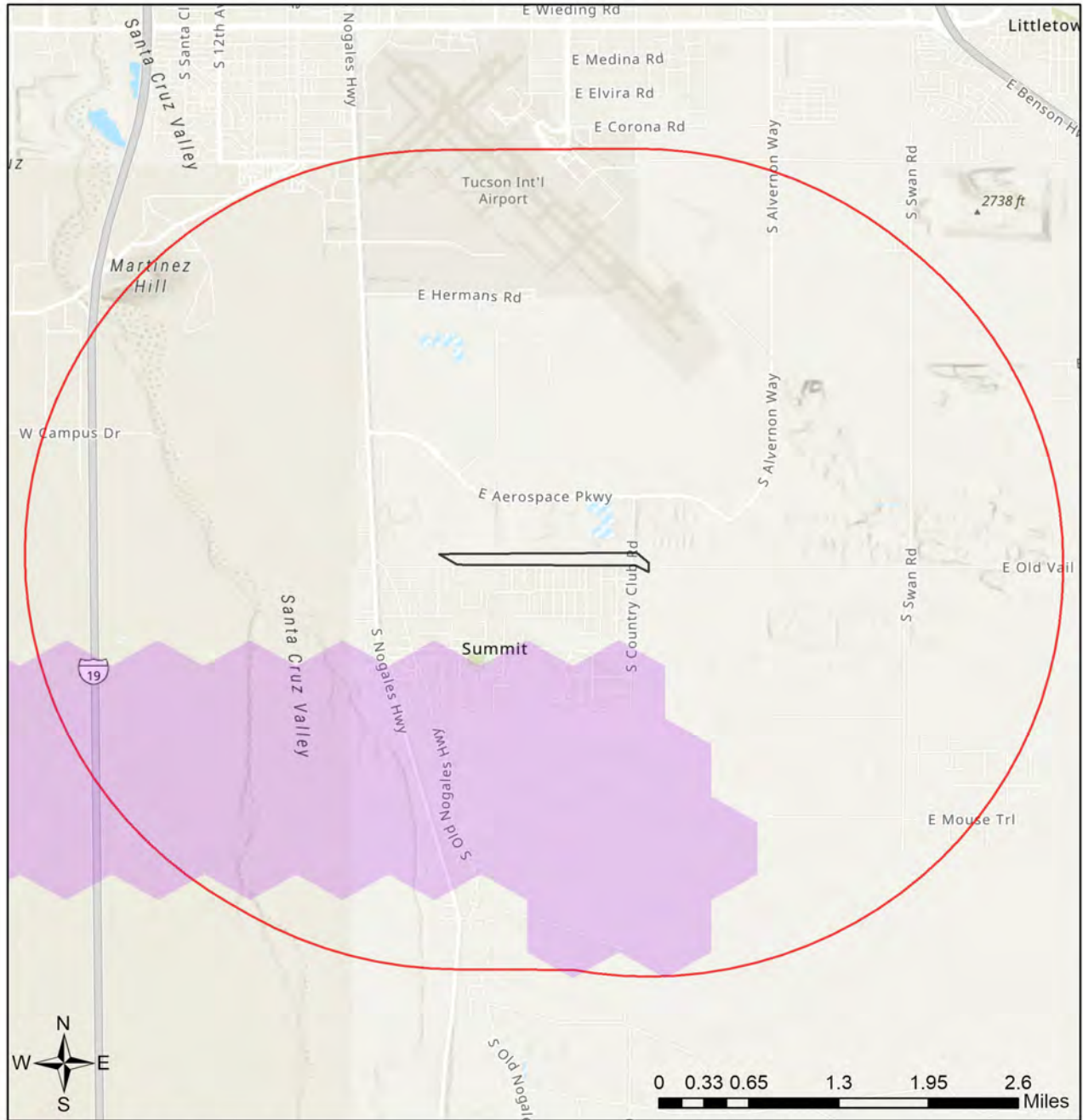


- Critical Habitat
- Important Bird Areas
- Special Areas
- Wildlife Connectivity
- Hydrography\_Watersheds\_Watersheds\_HUC10
- Buffered Project Boundary
- Project Boundary

Project Size (acres): 80.93  
Lat/Long (DD): 32.0766 / -110.9367  
County(s): Pima  
AGFD Region(s): Tucson  
Township/Range(s): T15S, R14E; T16S, R14E  
USGS Quad(s): TUCSON SW  
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



## Aerospace Research Campus Transmission Line Important Areas

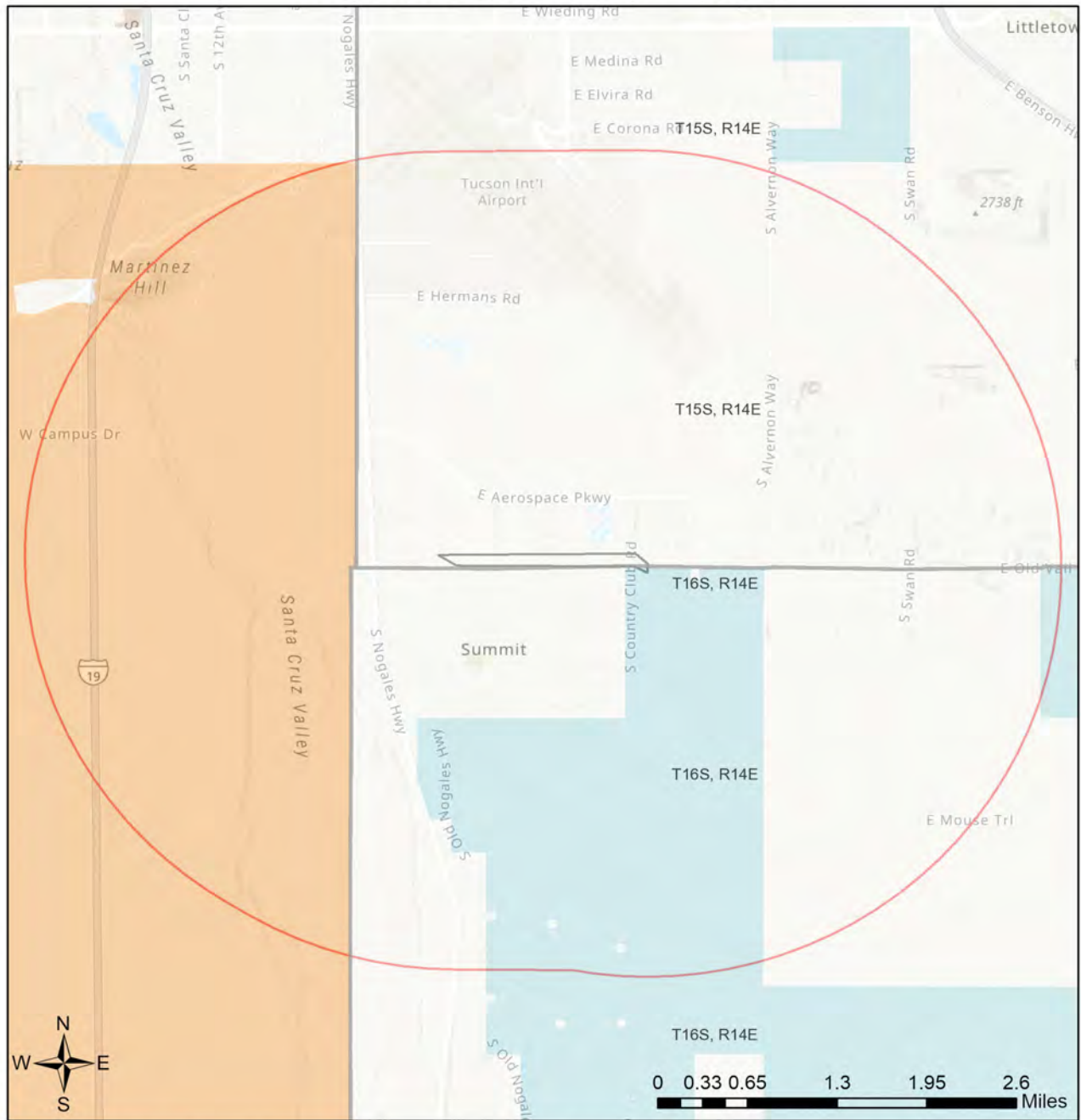


- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 80.93  
 Lat/Long (DD): 32.0766 / -110.9367  
 County(s): Pima  
 AGFD Region(s): Tucson  
 Township/Range(s): T15S, R14E; T16S, R14E  
 USGS Quad(s): TUCSON SW

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

## Aerospace Research Campus Transmission Line Township/Ranges and Land Ownership



- |   |   |
|---|---|
| <span style="border: 2px solid red; padding: 2px;"> </span> Buffered Project Boundary                         | <span style="background-color: #ccccff; border: 1px solid black; padding: 2px;"> </span> National Park/Mon.     |
| <span style="border: 1px solid black; padding: 2px;"> </span> Project Boundary                                | <span style="background-color: #e0e0e0; border: 1px solid black; padding: 2px;"> </span> Private                |
| <span style="background-color: #e08080; border: 1px solid black; padding: 2px;"> </span> AZ Game & Fish Dept. | <span style="background-color: #a08080; border: 1px solid black; padding: 2px;"> </span> State & Regional Parks |
| <span style="background-color: #ffff00; border: 1px solid black; padding: 2px;"> </span> BLM                  | <span style="background-color: #add8e6; border: 1px solid black; padding: 2px;"> </span> State Trust            |
| <span style="background-color: #d3d3d3; border: 1px solid black; padding: 2px;"> </span> BOR                  | <span style="background-color: #c1e1c1; border: 1px solid black; padding: 2px;"> </span> US Forest Service      |
| <span style="background-color: #ffcc99; border: 1px solid black; padding: 2px;"> </span> Indian Res.          | <span style="background-color: #3cb371; border: 1px solid black; padding: 2px;"> </span> Wildlife Area/Refuge   |
| <span style="background-color: #ffb6c1; border: 1px solid black; padding: 2px;"> </span> Military             | <span style="border: 1px solid black; padding: 2px;"> </span> Township/Ranges                                   |
| <span style="background-color: #32cd32; border: 1px solid black; padding: 2px;"> </span> Mixed/Other          |   |

Project Size (acres): 80.93  
 Lat/Long (DD): 32.0766 / -110.9367  
 County(s): Pima  
 AGFD Region(s): Tucson  
 Township/Range(s): T15S, R14E; T16S, R14E  
 USGS Quad(s): TUCSON SW

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

**Special Status Species Documented within 3 Miles of Project Vicinity**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Chaetodipus baileyi	Bailey's Pocket Mouse					2
Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE			HS	
Incilius alvarius	Sonoran Desert Toad					2
Lasiurus xanthinus	Western Yellow Bat		S			2

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
Lee Moore Wash Flow Corridors	Pima County Wildlife Movement Area - Riparian/Wash					

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
Accipiter gentilis	Northern Goshawk	SC	S	S		2
Ammodramus savannarum perpallidus	Western Grasshopper Sparrow					
Ammospermophilus harrisi	Harris' Antelope Squirrel					
Anthus spragueii	Sprague's Pipit	SC				2
Aquila chrysaetos	Golden Eagle			S		2
Asio otus	Long-eared Owl					2
Aspidoscelis sonorae	Sonoran Spotted Whiptail					2
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		2
Auriparus flaviceps	Verdin					2
Buteo regalis	Ferruginous Hawk	SC		S		2
Buteo swainsoni	Swainson's Hawk					2
Buteogallus anthracinus	Common Black Hawk					2
Calcarius ornatus	Chestnut-collared Longspur					2
Calypte costae	Costa's Hummingbird					2
Camptostoma imberbe	Northern Beardless-Tyrannulet		S			2
Campylorhynchus brunneicapillus	Cactus Wren					2
Catharus ustulatus	Swainson's Thrush					2
Chaetodipus baileyi	Bailey's Pocket Mouse					2
Charadrius montanus	Mountain Plover	SC				2
Chilomeniscus stramineus	Variable Sandsnake					2
Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		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
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo (Western DPS)					
<i>Colaptes chrysoides</i>	Gilded Flicker			S		2
<i>Columbina inca</i>	Inca Dove					2
<i>Corvus cryptoleucus</i>	Chihuahuan Raven					2
<i>Crotalus tigris</i>	Tiger Rattlesnake					2
<i>Cynanthus latirostris</i>	Broad-billed Hummingbird		S			2
<i>Empidonax wrightii</i>	Gray Flycatcher					2
<i>Eumops perotis californicus</i>	Greater Western Bonneted Bat					
<i>Falco mexicanus</i>	Prairie Falcon					2
<i>Falco peregrinus anatum</i>	American Peregrine Falcon					
<i>Falco sparverius</i>	American Kestrel					2
<i>Gastrophryne mazatlanensis</i>	Sinoloan Narrow-mouthed Toad					
<i>Glaucidium brasilianum cactorum</i>	Cactus Ferruginous Pygmy-owl					
<i>Gopherus morafkai</i>	Sonoran Desert Tortoise	CCA	S	S		1
<i>Heloderma suspectum</i>	Gila Monster					1
<i>Incilius alvarius</i>	Sonoran Desert Toad					2
<i>Kinosternon sonoriense sonoriense</i>	Desert Mud Turtle					
<i>Lanius ludovicianus</i>	Loggerhead Shrike	SC				2
<i>Lasiurus blossevillii</i>	Western Red Bat		S			2
<i>Lasiurus cinereus</i>	Hoary Bat					2
<i>Lasiurus xanthinus</i>	Western Yellow Bat		S			2
<i>Lithobates yavapaiensis</i>	Lowland Leopard Frog	SC	S	S		1
<i>Macrotus californicus</i>	California Leaf-nosed Bat	SC		S		2
<i>Megascops kennicottii</i>	Western Screech-owl					
<i>Melanerpes uropygialis</i>	Gila Woodpecker					2
<i>Melospiza lincolni</i>	Lincoln's Sparrow					2
<i>Micrathene whitneyi</i>	Elf Owl					
<i>Micruroides euryxanthus</i>	Sonoran Coralsnake					2
<i>Myadestes townsendi</i>	Townsend's Solitaire					2
<i>Myotis velifer</i>	Cave Myotis	SC		S		2
<i>Myotis yumanensis</i>	Yuma Myotis	SC				2
<i>Notiosorex cockrumi</i>	Cockrum's Desert Shrew					2
<i>Nyctinomops femorosaccus</i>	Pocketed Free-tailed Bat					2
<i>Nyctinomops macrotis</i>	Big Free-tailed Bat	SC				2
<i>Parabuteo unicinctus</i>	Harris's Hawk					2
<i>Passerculus sandwichensis</i>	Savannah Sparrow					2
<i>Perognathus amplus</i>	Arizona Pocket Mouse					2
<i>Peucaea carpalis</i>	Rufous-winged Sparrow					2
<i>Phrynosoma solare</i>	Regal Horned Lizard					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
Poocetes gramineus	Vesper Sparrow					2
Progne subis hesperia	Desert Purple Martin					
Spizella breweri	Brewer's Sparrow					2
Tadarida brasiliensis	Brazilian Free-tailed Bat					
Toxostoma bendirei	Bendire's Thrasher					2
Troglodytes pacificus	Pacific Wren					2

**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: 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

Analysis indicates that your project is located in the vicinity of an identified **wildlife habitat connectivity feature**. The **County-level Stakeholder Assessments** contain five categories of data (Barrier/Development, Wildlife Crossing Area, Wildlife Movement Area- Diffuse, Wildlife movement Area- Landscape, Wildlife Movement Area- Riparian/Washes) that provide a context of select anthropogenic barriers, and potential connectivity. 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://www.azgfd.com/wildlife/planning/habitatconnectivity/identifying-corridors/>.

Please contact the Project Evaluation Program ([pep@azgfd.gov](mailto:pep@azgfd.gov)) for specific project recommendations.

APPENDIX C  
USFWS Arizona Ecological Services Field Office  
IPaC System Online Query Report

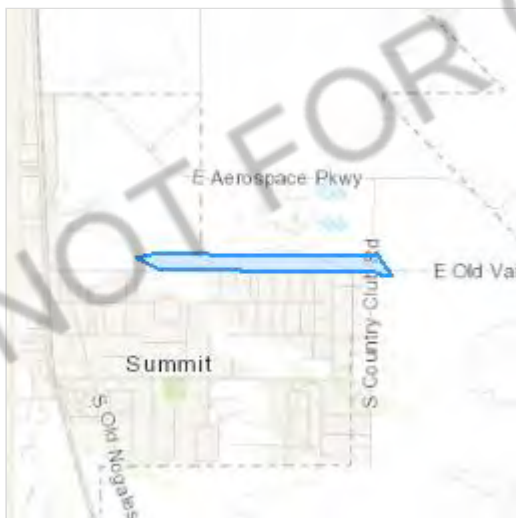
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Pima County, Arizona



## Local office

Arizona Ecological Services Field Office

☎ (602) 242-0210

📅 (602) 242-2513

9828 North 31st Ave



#c3

Phoenix, AZ 85051-2517

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [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.

The following species are potentially affected by activities in this location:

## Mammals

NAME	STATUS
<b>Jaguar</b> <i>Panthera onca</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/3944">https://ecos.fws.gov/ecp/species/3944</a>	Endangered
<b>Ocelot</b> <i>Leopardus (=Felis) pardalis</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4474">https://ecos.fws.gov/ecp/species/4474</a>	Endangered

## Birds

NAME	STATUS
<b>California Least Tern</b> <i>Sterna antillarum browni</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/8104">https://ecos.fws.gov/ecp/species/8104</a>	Endangered
<b>Yellow-billed Cuckoo</b> <i>Coccyzus americanus</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a>	Threatened

## Reptiles

NAME	STATUS
<b>Sonoyta Mud Turtle</b> <i>Kinosternon sonoriense longifemorale</i> Wherever found There is <b>final</b> critical habitat for this species. <a href="https://ecos.fws.gov/ecp/species/7276">https://ecos.fws.gov/ecp/species/7276</a>	Endangered

## Fishes

NAME	STATUS
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**Gila Chub** *Gila intermedia* **Endangered**  
Wherever found  
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.  
<https://ecos.fws.gov/ecp/species/51>

## Insects

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NAME	STATUS
<b>Monarch Butterfly</b> <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	<b>Candidate</b>

## Flowering Plants

---

NAME	STATUS
<b>Arizona Eryngo</b> <i>Eryngium sparganophyllum</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/10705">https://ecos.fws.gov/ecp/species/10705</a>	<b>Endangered</b>
<b>Huachuca Water-umbel</b> <i>Lilaeopsis schaffneriana</i> var. <i>recurva</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/1201">https://ecos.fws.gov/ecp/species/1201</a>	<b>Endangered</b>
<b>Pima Pineapple Cactus</b> <i>Coryphantha scheeri</i> var. <i>robustispina</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4919">https://ecos.fws.gov/ecp/species/4919</a>	<b>Endangered</b>

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

## Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

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Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds  
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds  
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

**What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?**

The potential for eagle presence 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). To see 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 of bald and golden eagles 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 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. Please contact your local Fish and Wildlife Service Field Office if you have questions.

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

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.

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-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

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

Costa's Hummingbird *Calypte costae*

Breeds Jan 15 to Jun 10

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>

Gila Woodpecker *Melanerpes uropygialis*

Breeds Apr 1 to Aug 31

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>

Gilded Flicker *Colaptes chrysoides*

Breeds May 1 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  
<https://ecos.fws.gov/ecp/species/2960>

## 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  $0.05/0.25 = 0.2$ .

- 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.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### 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.

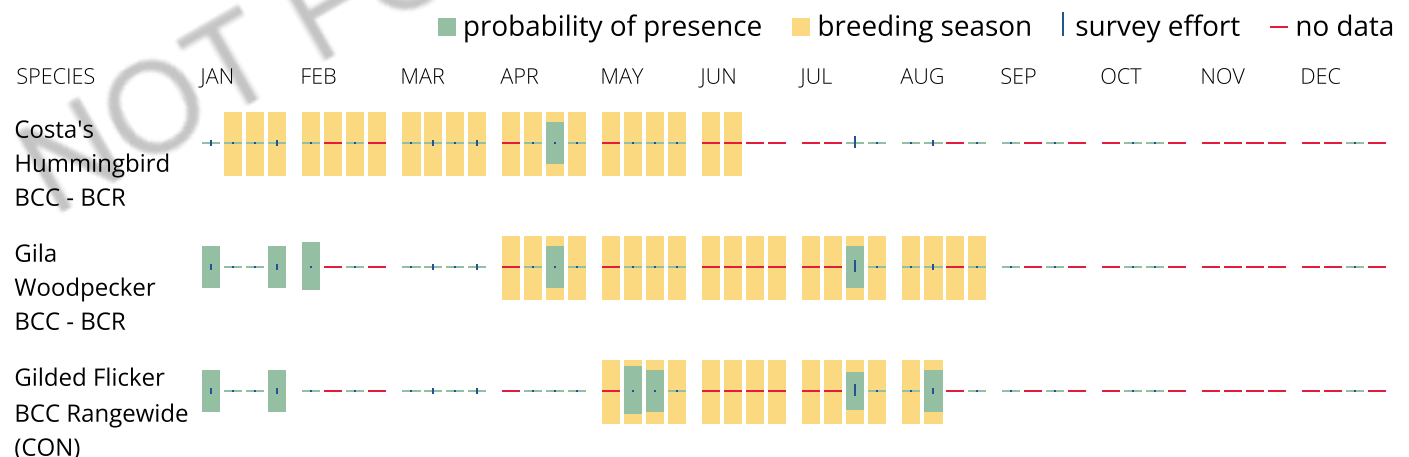
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### 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.



**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.

# Facilities

## National Wildlife Refuge lands

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 at this location.

## Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

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](#).

This location did not intersect any wetlands mapped by NWI.

**NOTE:** This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### **Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### **Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX D  
Representative Photographs  
of the Analysis Area



**Photo 1.**

Overview of the existing dirt road is present within the Analysis Area.



**Photo 2.**

Overview of vegetation at the center of the Analysis Area is dominated by low growing shrubs with a relatively open understory.



**Photo 3.**

Saguaro are present within the Analysis Area but are small (less than 10 feet) and lack arms and nesting holes.



**Photo 4.**

Drainages are ephemeral and are not well developed in the Analysis Area.



**Photo 5.**

A deceased Pima pineapple cactus observed in the Analysis Area.

UTM: (NAD83)  
506256 3548914



**Photo 6.**

Overview of location of Pima pineapple cactus (at lower center).

APPENDIX E  
Other Special-Status Species and Species of Interest  
with Records within 3 Miles of the Project



## Appendix E. Other Special-Status Species and Species of Interest within 3 Miles of the Project

**SGCN:** Species of Greatest Conservation Need, AGFD (no official status), Tier 1 (vulnerable with additional criteria), Tier 2 (vulnerable without additional criteria), and Tier 3 (unknown vulnerability status).

**USFS S Sensitive:** Those taxa occurring on National Forests in Arizona which are considered sensitive by the Regional Forester.

Species Name	Status	Known Suitable Habitat	Project Effects
<i>Chaetodipus baileyi</i> Bailey's pocket mouse	SGNC 2	Habitat: Lower Sonoran Desert transition zone, often between rocky hillsides and desert flats. They utilize areas under large bushes and trees. Elevations 885 to 2362 feet (University of Michigan 2020, accessed September 14, 2023).  Potential: None.	<b>No impact.</b>  This species is not expected to occur in the Analysis Area because the known elevation range is below those in the site. The Project has a small footprint and a short duration; therefore, it is anticipated to have no impact on this species.
<i>Incilius alvarius</i> Sonoran desert toad	SGNC 2	Habitat: Found in a variety of arid communities primarily in the Sonoran Desert, often near permanent water in xeroriparian habitats (Tucson Herpetological Society 2023, accessed September 14, 2023).  Potential: Possible.	<b>May impact individuals, but unlikely to result in a loss of viability or results in a trend toward federal listing.</b>  The Project has a small footprint and short duration, which is not likely to adversely affect the species.
<i>Lasiurus xanthinus</i> Western yellow bat	SGNC 2 USFS S	Habitat: Inhabits savannas, woodlands, regions dominated by pastures or croplands, and residential areas. Often roosts in palm trees, yucca, and occasionally in trees (Arroyo-Cabrales and Álvarez-Castañeda 2016).  Potential: None.	<b>No impact.</b>  This species is not expected to occur in the Analysis Area because the site lacks appropriate roosting habitat of palm trees or yucca. The Project has a small footprint and a short duration; therefore, it is anticipated to have no impact on this species.

### References Cited

- Arroyo-Cabrales, J., and S.T. Álvarez-Castañeda. 2016. *Lasiurus xanthinus*, Western Yellow Bat. *The IUCN Red List of Threatened Species 2017: e.T41532A22004260*.
- Tucson Herpetological Society. 2023. <https://tucsonherpsociety.org/>.
- University of Michigan. 2020. "Animal Diversity Web." <https://animaldiversity.org/>.

**EXHIBIT D**

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## EXHIBIT D:     **BIOLOGICAL RESOURCES**

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As stated in Arizona Administrative Code R14-3-219 of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee, Exhibits to Application, Exhibit D:

*“List the fish, wildlife, plant life and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon.”*

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### **D.1 Introduction**

This exhibit includes a description of biological resources within the Biological Study Area, which is 500 feet on either side of the route centerlines analyzed for the Project.

### **D.2 Existing Conditions**

The Project will be constructed in a largely undeveloped area within the City of Tucson. Approximate elevations within the Study Area vary minimally from 2,600 to 2,660 feet above mean sea level. The Project is located with the Duck Tank Sub-watershed of the Lower Colorado Region (HUC 150503010901). The Biological Study Area consists mostly of highly disturbed areas, including industrial facilities, gravel extraction sites, residential developments, agricultural fields, solar generation facilities, and an international airport.

Annual precipitation recorded in the area is 11.3 inches. High summer temperatures average just over 100 degrees Fahrenheit (°F), with winter low averages approximately 67 °F.

The largest drainage in the basin, the Santa Cruz River, is located 1.5 miles to the west of the Project Area. The entire basin is ringed by mountain ranges: the Black Mountains 5 miles northwest, the Rincon Mountains 15 miles east, the Catalina Mountains 17 miles north, and the Santa Rita Mountains 18 miles south. The Project Area itself is generally flat, and bisected by Franco Wash, which drains east to west.

Soils in the Biological Study Area are generally Sahuarita soils, Mohave soils, and urban land with 1 to 5 percent slopes, and Hantz loam at 0 to 1 percent slopes along the ephemeral drainages, and Yaqui fine sandy loam at 1 to 3 percent slopes on the eastern boundary of the Study Area. A full list of the soils and a map of the Study Area is in the BRE, Appendix A (Exhibit C-2).

Land use within the Study Area is mapped as Low and Medium Density Residential, Mixed Use Commercial, and Light and Heavy Industrial. An area of Resource Conservation is along Franco Wash.

The Study Area consists of one major roadway; South Nogales Highway (north/south) is located near the western boundary of the Study Area. South Country Club Road (north/south) is located near the eastern boundary of the Study Area, and East Aerospace Parkway along the northern boundary. The proposed route would follow most of an existing utility corridor, just north of East Old Vail Connection Road (east/west).

A brief discussion of vegetation and wildlife resources potentially occurring within the Study Area and potential project impacts are outlined below and described in more detail in the BRE, Exhibit C-2.

Vegetation

The Study Area is mapped within the Arizona Upland Subdivision of the Sonoran Desertscrub biotic community, which is described as well vegetated with full-sized trees in the uplands, a high diversity of species and overall structure (The Nature Conservancy 2012).

In September 2023, WestLand conducted a field visit of the Study Area. Plant and wildlife species observed during this survey are provided in Table 3 and Table 4. Details on species that typically occur in the biotic communities present in the Study Area are outlined in the BRE, Sections 3.5 and 3.6 (Exhibit C-2).

**Table 3. Plants Observed During Field Visit September 2023**

Species Name	Common Name
<i>Aristida</i> spp.	threeawn
<i>Atriplex canescens</i>	fourwing saltbush
<i>Ambrosia deltoidea</i>	triangle bur ragweed
<i>Baccharis sarothroides</i>	desertbroom
<i>Bouteloua</i> spp.	grama grass
<i>Carnegiea gigantea</i>	saguaro
<i>Chorizanthe rigida</i>	devil's spineflower
<i>Cylindropuntia fulgida</i>	jumping cholla
<i>Dasyochloa pulchella</i>	low woollygrass
<i>Dichanthelium</i> spp.	panicgrass
<i>Ephedra</i> spp.	Mormon tea
<i>Ferocactus wislizeni</i>	fish hook barrel cactus
<i>Fouquieria splendens</i>	ocotillo
<i>Kallstroemia grandiflora</i>	Arizona poppy
<i>Larrea tridentata</i>	Creosote bush
<i>Lycium</i> spp.	wolfberry
<i>Mammillaria</i> spp.	pincushion cactus

Species Name	Common Name
<i>Peniocereus greggii</i>	night-blooming cereus
<i>Prosopis velutina</i>	velvet mesquite
<i>Senegalia greggii</i>	catclaw acacia
<i>Sphaeralcea ambigua</i>	desert globemallow
<i>Thymophylla pentachaeta</i>	golden dogweed
<i>Vachellia constricta</i>	whitethorn acacia
<i>Zinnia acerosa</i>	desert zinnia

\* This does not represent a comprehensive listing of the species that are either known to occur or have the potential to occur in the area, the field visit was not a comprehensive plant or wildlife inventory.

Wildlife

Special status species, to include those listed federally or by the State, are discussed in Exhibit C and the BRE (Exhibit C-2). Wildlife species observed in the Study Area during a field visit in September 2023 by Westland are shown in Table 4.

**Table 4. Wildlife Observed During Field Visit September 2023**

Species Name	Common Name
<i>Amphispiza bilineata</i>	black-throated sparrow
<i>Polioptila melanura</i>	black-tailed gnatcatcher
<i>Campylorhynchus brunneicapillus</i>	cactus wren
<i>Passer domesticus</i>	English sparrow
<i>Callipepla gambelii</i>	Gambel's quail
<i>Melanerpes uropygialis</i>	Gila woodpecker
<i>Geococcyx californianus</i>	greater roadrunner
Trochilidae family	hummingbird species
<i>Zenaida macroura</i>	mourning dove
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Xerospermophilus tereticaudus</i>	round-tailed ground squirrel
<i>Cnemidophorus tigris</i>	tiger whiptail
<i>Cathartes aura</i>	turkey vulture
<i>Danaus gilippus</i>	queen butterfly
<i>Callisaurus draconoides</i>	zebra-tailed lizard

\* This does not represent a comprehensive listing of the species that are either known to occur or have the potential to occur in the area, the field visit was not a comprehensive plant or wildlife inventory.

### **D.3 Effects of the Proposed Project**

Removal of vegetation associated with clearing and grading has the potential to impact nesting birds protected under the MBTA. In the event construction is scheduled during nesting/breeding seasons, TEP will conduct pre-construction bird surveys and avoid nesting birds until fledging is complete. Vegetation will be checked prior to construction to ensure there would be no impacts to protected species.

Native plants in the Study Area are protected by Arizona Native Plant Law (“ANPL”) and subject to standards included in A.R.S. § 3-904 and Pima County Code Chapter 18.72 Native Plant Preservation to avoid destruction of protected plants, which TEP will follow. Some native vegetation and riparian habitat would be trimmed or removed to allow for equipment access during construction. Construction of the transmission line is not anticipated to create barriers to wildlife movement or likely have any long-term impacts on urban wildlife movement.

### **D.4 Conclusion**

Impacts to general wildlife and vegetation along the proposed route are anticipated to be minor. Minimal, temporary, disturbance is anticipated to native vegetation due to plant trimming and removal to allow for equipment access during construction. Potential impacts to plants and animals will be addressed through pre-construction surveys, timing of work, and compliance with all applicable statutes, ordinances, and regulations of any local, state, or federal agency having jurisdiction.

### **D.5 References**

- AZIBA. (2021). Important Bird Areas: Mini Conservation Plan Patagonia Mountains. Tucson: Arizona Important Bird Areas Program.
- AZIBA. (2023, Jan). About the Arizona IBA Program. Retrieved from Arizona Important Bird Areas Program: <https://aziba.org>
- WestLand. (2023). *Biological Resources Evaluation of the Aerospace Research Campus Transmission Project*. Tucson, AZ: WestLand Engineering & Environmental Services.
- WRCC. (2018, August). Arizona Climate Summaries: Tucson Univ of Arizona, Arizona: NCDC 1981-2010 Monthly Normals. Retrieved from Western Region Climate Center: <http://wrcc.dri.edu/summary/clismaz.html>

**EXHIBIT E**

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## EXHIBIT E: SCENIC AREAS, HISTORIC SITES AND STRUCTURES, AND ARCHAEOLOGICAL SITES

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As stated in Arizona Administrative Code R14-3-219 of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee, Exhibits to Application, Exhibit E:

*Describe any existing scenic areas, historic sites and structures or archaeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facilities will have thereon.*

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### **E.1 Introduction**

Exhibit E includes summaries of studies conducted for existing visual (scenic) resources, historic sites and structures, cultural resources, and archaeological resources, and evaluates the potential impacts the proposed Project may have on each resource.

## **E.2 *Scenic Areas and Visual Resources***

### **E.2.1 Overview**

This section of Exhibit E addresses scenic areas and visual resources in the Project area. The Project study area does not contain designated national, state, or local scenic areas.

A Visual Impact Assessment was conducted by Jeremy Palmer, Sole Proprietor (“Palmer”) for the entire Project, (Exhibit E-1). The visual impact assessment combines objective and subjective evaluations of the existing landscape characteristics and potential changes to the landscape because of the Project and assesses the level of viewer sensitivity to different segments of the Proposed Route.

### **E.2.2 Visual Impact Assessment**

The visual impact assessment determined the potential impacts of the proposed Project on viewsheds. Viewsheds associated with the Project were measured by the frequency of casual observers and the classification of the viewer’s experience (i.e., traveler, recreationist, resident). The proposed route was then scored based on the relative level of impact to existing versus future landscape, types of viewers, and degree of impact to visual resources.

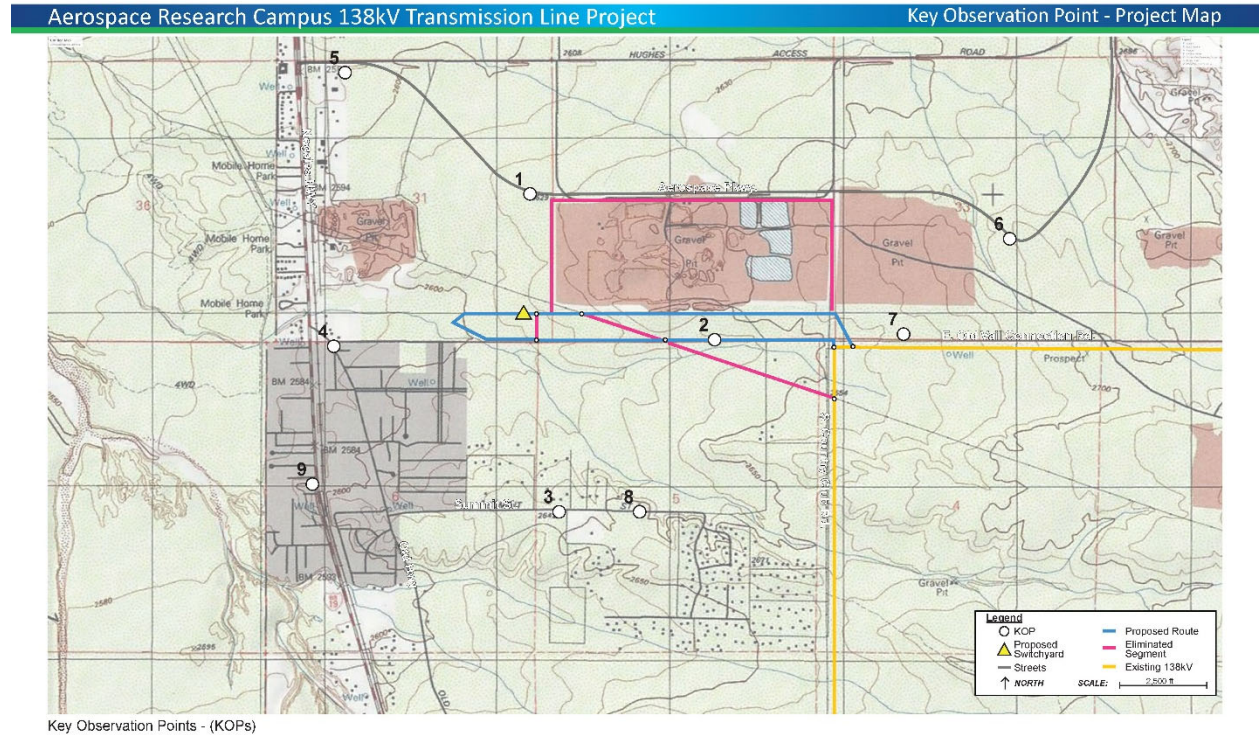
Identification of potential visual impacts involved a review of the preliminary transmission line design and review of local planning documents, aerial photos, geographic information system (“GIS”) data maps, site visits by Palmer and others, 3-dimensional modeling, photos taken of the Project Area, and use of Google Earth Pro.

The components of the visual impact assessment included identification of the types of viewers and their sensitivity to the Project in each segment of the route and characterization of impacts that were quantified as low, medium, or high. The visual impact assessment considered the effects of new structures introduced into the existing setting on associated sensitive viewers, which considered the influence of existing facilities (i.e., existing transmission lines, streetlight structures).

### **E.2.3 Landscape Setting**

The landscape setting for the Project Study Area is comprised of a mix of rural developed land and natural open space. The Project Study Area delineated by TEP encompasses the evaluated route and is comprised of rural settings, including general residential (e.g., suburban homesteads and trailer homesites), commercial, industrial, park/recreation, and open space.

For each type of land use within the Project Study Area, expectations of casual observers for the character of the landscape changes. Residential observers located within a home or private yard typically take in a viewshed with long and frequent views of the surrounding landscape; therefore, their sensitivity to changes is typically higher. Similarly, recreational observers within parks or open space are expected to have a high sensitivity to their surroundings. Commercial observers are anticipated to have a medium sensitivity, due to shorter exposure to a viewshed and less familiarity. Commuters typically experience low sensitivity as they are in transit to and from an industrial setting and are focused on work-related activities.



**Figure 2. Key Observation Points for the Visual Simulation**

The casual observer’s sensitivity to changes in the landscape that are a direct result of new structures such as those proposed in this Project is also contingent on the character of the existing landscape. If the proposed structures are similar in character to the existing landscape, i.e., form, line, scale, color, then viewer sensitivity to the resulting changes will be lower than when compared to the same structures being placed into a different existing landscape in which there are no similar features.

**E.2.4 Visual Impact Assessment Results**

Visual contrasts are defined as the change to the visual environment resulting from modifications to the landscape. The degree of visual change resulting from a modification is directly related to the amount of contrast between the proposed structures and existing environment.

Visual contrasts for the Project were first rated by the degree to which transmission routes and structures would conflict with the existing environment. Visual impacts were rated as follows:

- Low Contrast: the Project is adjacent or parallel to similar features and/or is within a more industrial setting, and casual observer's sensitivity to changes to the landscape resulting from the Project is low.
- Moderate Contrast: the Project is adjacent or parallel to similar features and casual observer's sensitivity to changes to the landscape resulting from the Project is moderate or high.
- High Contrast: the Project introduces new visual forms that contrast with the existing landscape, the setting is residential or recreational, and casual observer's sensitivity is high.

Impacts are anticipated to be low for the proposed Project when it is adjacent to or parallel with similar developed settings or features, such as industrial and commercial settings, because visual contrast is minimal. Park/recreation settings, which are generally characterized by open space and developed recreational facilities, typically result in greater impacts when adjacent to the Project, because it differs in form and line. Residential settings are characterized by moderately sized structures and/or open space; here, impacts are anticipated to be moderate because form and line are similar to the proposed Project, but sensitivity is higher.

Visual contrasts resulting from the Project would be expected to be reduced where: (1) the proposed route occurs within an industrial setting that is similar in form and line to the Project; (2) the route is within a corridor that has existing overhead electric lines; or (3) the route is some distance from the casual observer and is obscured by or blends into the landscape.

Alternative segments have been analyzed and eliminated from consideration by TEP. There is a single proposed route that was assessed and rated from Low contrast to High Contrast. The Proposed Route was analyzed from a key observation point ("KOP") to understand the potential Visual Impacts to a casual observer from the respective KOP (Figure 2). The Impacts were weighted from 1 to 3 to weight and score the results in the following *Visual Impact Assessment Matrix* (Table 5). A value was assigned to each segment of the route as follows:

- High Visual Impact (Rank= 3): A value assigned to segments in which the installation of proposed TEP structures would negatively affect the casual observer's viewshed.
- Moderate Visual Impact (Rank= 2): A value assigned to segments in which the installation of proposed TEP structures would moderately affect the casual observer's viewshed.
- Low Visual Impact (Rank=1): A value assigned to segments in which the installation of proposed TEP structures would have minimal effect on the casual observer's viewshed.

Finally, the route's score was averaged across the matrix. The score of the Proposed Route is 1.11, based on impacts to visual resources.

**Table 5. Visual Impact Assessment Matrix**

KOP	Contrast Rating	Visual Impact	Notes
1	Low	Low	Viewshed is from commercial campus. Numerous similar lines, forms, colors from existing structures and development.
2	Low	Moderate	Numerous similar lines, forms, colors from existing structures and development. Close proximity to Project increases impact for residential viewers.
3	Low	Low	Numerous similar lines, forms, colors from existing structures and development. Proposed structures are obscured from view by vegetation, terrain, and distance.
4	Low	Low	Numerous similar lines, forms, colors from existing structures and development.
5	Low	Low	Numerous similar lines, forms, colors from existing structures and development. Proposed structures are obscured from view by vegetation, terrain, and distance.
6	Low	Low	Numerous lines, forms, colors from existing structures and development. Most viewers are commuters with low impacts.
7	Low	Low	Many new structures proposed, however there are similar existing structures which reduce contrast.
8	Low	Low	Similar lines, forms, colors from existing structures and development. Structure impacts reduced and obscured by vegetation and distance.
9	Low	Low	Similar lines, forms from existing development. View to the structures is obscured by vegetation.

**E.2.5 Visual Impact Assessment/Narrative**

The following provides a narrative assessment of the visual impacts for general segments of the Proposed Route.

**KOP 1**

Starting on the north side of the Project Study Area, this KOP represents the view for commuters traveling near the southern end of the airport campus. Contrasts are low due to the existing infrastructure.

**KOP 2**

This viewshed represents the perspective of many residents as they drive through the north edge of the community and a few stationary homeowners along East Old Vail Connection Road. Due to proximity of the viewer to the structures there is an increased impact, however, the new structures are virtually identical to the existing structures which reduces their contrast. This impact is localized along the north edge of the residential properties with unobstructed and sustained views to the project structures.

**KOP 3**

This viewshed represents the perspective of users at the Summit Elementary School. This KOP is the only viewshed from a nearby park or school property where one can see the proposed structures. The contrast

is low due to existing structures and the impact is low due to the distance and vegetation which mitigate any impacts.

#### **KOP 4**

This viewshed represents the perspective of many residents as they drive through the northwest edge of the community and homeowners along East Old Vail Connection Road. There are impacts due to the unobstructed view of the Project, however these impacts are diminished by distance from this KOP to the Project.

#### **KOP 5**

This KOP represents the view for commuters as they enter the southwest corner of the airport campus. The distance from the viewer to the structures minimizes any impacts or contrasts.

#### **KOP 6**

Starting on the northeast side of the Project Study Area, this KOP represents the view for commuters traveling near the southern end of the airport campus. Contrasts and impacts are low due to the existing infrastructure.

#### **KOP 7**

This KOP represents a view of the Project from the east side of the proposed route. There are numerous proposed structures. However, the illegal dumping which is rampant in this location indicates that the casual viewer has no regard for the scenic quality of this viewshed. Based on this disregard, one can assume that the proposed structures will have minimal impact on the viewers.

#### **KOP 8**

This viewshed represents the perspective of mostly residential users from the east end of East Summit Street. The proposed structures are visible from a few locations, however, the distance between the viewer and the structures minimizes contrasts and impacts.

#### **KOP 9**

This KOP represents the view for users of the nearby Dhammaratanaram Temple as they exit the parking lot. The distance from the viewer to the structures minimizes any impacts or contrasts.

#### **E.2.6 Summary**

Much of this project places structures in a location where there are already existing structures. As this alignment is on the north side of the community of Summit, the impact to the residences is localized to the north end of the community. Anyone who is roughly 0.25 miles to the south of the alignment, or more, has their viewshed obscured by vegetation or distance, which reduces impacts to the viewer. Overall, much of the adjacent community of Summit will not be impacted by the Project.

### **E.3 *Historic Sites and Structures, and Archaeological Sites***

As required by the Arizona Administrative Code R14-3-219, Ex. 1(E), the potential effects of the Project on historic sites and structures and archaeological sites were assessed. The assessment also was prepared to

support ACC compliance with the State Historic Preservation Act (A.R.S. §§ 41-861 – 41-864), which requires state agencies to consider the impacts of their programs on historic properties listed in or eligible for listing in the Arizona Register of Historic Places (“ARHP”), or the National Register of Historic Places (“NRHP”), and to provide the State Historic Preservation Office (“SHPO”) an opportunity to review and comment on the actions that affect such historic properties.

### E.3.1 Inventory Methods

WestLand Engineering & Environmental Services (WestLand) examined information for historic sites, structures, and archaeological sites within the Project Study Area. The report is attached as Exhibit E-1 (WestLand, 2023). The following sources were consulted:

- AZSITE database
- Archaeological Records Office of the Arizona State Museum
- Historic General Land Office (“GLO”) Plats
- Historic U.S. Geological Survey (“USGS”) topographic quadrangle maps
- National Register of Historic Places
- ARHP

WestLand gathered information from these sources to evaluate whether portions of the Study Area had been previously surveyed for cultural resources, to determine whether historic properties eligible for inclusion or already listed in the ARHP or NRHP are present, and to provide recommendations concerning the potential for impacts to cultural resources. The results of the Class I records review were used by TEP to identify routes that would avoid impacts to known historic properties or cultural resources. The full Class I methods and results are presented in Exhibit E-1. The discussion here is limited to the cultural resources that have the potential to be impacted by the Proposed Route, within the Study Area.

### E.3.2 Inventory Results

According to the records reviewed, 100 percent of the Project Area has been surveyed for cultural resources using current methodologies. The surveys consisted of 24 cultural resources inventories conducted within the Study Area, of which 13 intersect the proposed corridor. The inventories identified 27 archaeological sites within the Study Area, four of which intersect the proposed corridor (Exhibit E-1). Of these four sites, two have previously been determined not eligible for listing in the NRHP. No information regarding eligibility status was available for the other two. Pending eligibility confirmation of these two sites, it is recommended to avoid these sites or develop an appropriate treatment plan.

A file search was also conducted in the NRHP and the ARHP databases, and no sites listed in either register are located within the Project Area (AZ State Parks, 2023), (NPS, 2023).

The historical GLO and USGS maps prior to 1905 identified one possible road in the Project Area, however it does not appear on maps after 1905. The survey inventories did not identify any historical roads. WestLand recommends that no further Class III survey of the proposed corridor is necessary.



### E.3.3 Assessment of Effects

The Proposed Route was assessed for level of impact to eligible historic structures and archaeological sites. Potential avoidance measures such as shifts in the alignment, adjustments to span distances, and rerouting of access roads were considered when assessing potential impacts.

No known eligible sites are located within the Project Area. Pending further information, WestLand recommends avoidance for sites AZ BB:13:1001(ASM) and AZ BB:13:1002(ASM).

### E.3.4 Conclusion

WestLand conducted a cultural resources assessment or Class I review of the Study Area to better inform the selection of the Preferred and Alternative Routes. This information was then used to evaluate impacts to known historic properties and cultural resources along the Routes. If avoidance of the potentially eligible sites is not possible, WestLand recommends the development of an appropriate treatment plan.

WestLand also provides the general recommendation that all ground-disturbing activities have the potential to inadvertently disturb human remains and other cultural items. Pursuant to A.R.S. § 41-844, if Native American human remains, funerary objects, sacred ceremonial objects, or objects of national or tribal patrimony are encountered on state lands during ground-disturbing activities, all activity shall cease in the discovery area and the Director of the Arizona State Museum (“ASM”) shall be immediately notified. Pursuant to A.R.S. § 41-865, if Native American human remains or funerary objects are encountered on private land during ground-disturbing activities, all activity shall cease in the discovery area and the Director of the ASM shall be immediately notified.

### E.3.5 References

- AZ State Parks. (2023). *State Register of Historic Places*. Retrieved from <https://d2umhuunwbec1r.cloudfront.net/gallery/0004/0051/6C59BF0C13FB42FA9804DCA7A9F174D2/ARHP%20List.pdf>
- NPS. (2023). *National Park Service*. Retrieved from National Register Database and Research: <https://www.nps.gov/subjects/national-register/database-research.htm>
- WestLand. (2023). *A Cultural Resources Assessment in Support of the Aerospace Research Campus Transmission Project, Pima County, Arizona*. Tucson, AZ: WestLand Environmental & Engineering Services.

**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit E-1**

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# A Cultural Resources Assessment in Support of the Aerospace Research Campus Transmission Project, Pima County, Arizona

**Prepared for:** Tucson Electric Power  
**Prepared by:** WestLand Engineering & Environmental Services  
**Date:** September 13, 2023; Revised September 29, 2023  
**Project/Report Nos.:** 11038/2023-200

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(follow text)

- Figure 1. Vicinity map  
Figure 2. Study Area location showing surface management

## Appendices

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- Table A.1. Previous archaeological surveys in the Study Area
  - Table A.2. Known archaeological sites intersecting the Study Area
  - Figure A.1. Previous cultural resource surveys and previously known sites intersecting the Study Area
- Appendix B. Historical Maps of the Study Area
- Figure B.1. Overlay of the Study Area on the USGS Tucson, AZ 1:125,000 topographic quadrangle, 1904 edition
  - Figure B.2. Overlay of the Study Area on the USGS Tucson, AZ 1:62,500 topographic quadrangle, 1948 edition
  - Figure B.3. Overlay of the Study Area on the USGS Tucson SW, AZ 1:24,000 topographic quadrangle, 1968 edition

## INTRODUCTION AND PROJECT BACKGROUND

Tucson Electric Power (TEP) proposes to initiate the Aerospace Research Campus Transmission Project (Project), which consists of the addition of a new segment of 138-kV transmission line to a proposed switchyard. The transmission line would bifurcate TEP's existing Sonoran-South 138-kV circuit and loop into the proposed Franco Wash Switchyard. The proposed transmission line and switchyard would be located within the City of Tucson and unincorporated Pima County.

The Project requires a Certificate of Environmental Compatibility (CEC) from the Arizona Corporation Commission. TEP contracted WestLand Engineering & Environmental Services (WestLand) to prepare a cultural resources assessment (Class I) for two proposed 100-foot-wide corridors as part of their due diligence for the CEC application (**Figure 1**). The aim of the Class I records search was to (1) determine previous cultural survey coverage in the Study Area (the two 100-foot-wide corridors plus a 0.5-mile [0.8-km] buffer) conducted to date and (2) ascertain the number of previously recorded cultural resources sites within the Study Area, the cultural resources' site types, and, if possible, their Arizona Register of Historic Places and National Register of Historic Places (A/NRHP) eligibility status. WestLand also assessed the need for additional survey work and any potential impacts the Project might have on known cultural resources.

This document presents the Class I records search results for the Study Area in the City of Tucson and unincorporated Pima County, Arizona. In legal terms, the Project is in Township 15 South, Range 14 East, portions of Sections 31–33, and Township 16 South, Range 14 East, portions of Sections 4–6, Gila and Salt River Baseline and Meridian (Tucson SW, Arizona, U.S. Geological Survey [USGS] 7.5' quadrangle) (**Figure 2**).

## ARCHAEOLOGICAL RESEARCH AND RECORDS SEARCH

As part of the cultural resources analysis, an archaeological overview of the Study Area was conducted. Specifically, archaeologists reviewed existing archaeological information in the site files at the Arizona State Museum's (ASM's) Archaeological Records Office and online using Arizona's AZSITE archaeological database. WestLand then generated a dataset containing the documented information about each site and each survey conducted in the Study Area.

For each previous survey project, WestLand documented the agency project number, project title, and a reference. WestLand also noted the spatial extent of each survey as it intersected the Study Area, with an emphasis on the projects conducted in the last 10 years. This 10-year timeframe was used to assess whether the previously conducted surveys in the Study Area could be considered adequate in

light of current Arizona State Historic Preservation Office (SHPO) guidelines (SHPO 2004). These guidelines make it clear that not all surveys older than 10 years are inadequate, either from the perspective of meeting state and federal standards or from a research standpoint. However, many of these surveys were conducted prior to the adoption of the state and federal standards that help ensure the adequacy of archaeological investigations. For example, these standards define what constitutes an “archaeological site” and a “100 percent intensive survey.” Following SHPO guidelines (SHPO 2004), WestLand examined the older surveys in the Study Area from the standpoint of (1) the survey methods used and if these methods met current standards and (2) the professional qualifications of the survey personnel who conducted the investigations and if these qualifications met current state and federal standards. The results of the analysis are presented in **Appendix A, Table A.1 and Figure A.1**, and summarized in the **Previous Survey Coverage in the Study Area** section below.

WestLand also documented the number of previously recorded sites in the Study Area, including each site’s ASM (or other) site number, site type, and age and cultural affiliation. When a reference for a site was available, that information was also documented. In addition, WestLand noted the A/NRHP eligibility of any previously recorded sites intersecting the proposed corridors. This information is presented in **Table A.2 and Figure A.1** (Appendix A) and summarized in the **Known Cultural Resources in the Study Area** section below.

The criteria for A/NRHP eligibility are as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

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

## Historical Map Review

In addition to the archaeological overview, historical (i.e., more than 50 years old) General Land Office (GLO) plats and USGS quadrangle maps were examined to identify potentially historical features that might be encountered in the Study Area. The features depicted on these maps meet the minimum threshold for being considered historical according to ASM criteria. Historical USGS quadrangle maps at the Historical Topographic Map Collection (<https://ngmdb.usgs.gov/topoview/>) and historical GLO plats at the Official Federal Land Records Site (<https://gloreCORDS.blm.gov/default.aspx>) were used in this research. WestLand examined the following maps as part of the cultural resources assessment:

- **GLO plat for Township 15 South, Range 14 East, officially filed in 1873.** No features are shown to intersect the Study Area.
- **GLO plat for Township 16 South, Range 14 East, officially filed in 1873.** No features are shown to intersect the Study Area.
- **USGS Tucson, AZ 1:125,000 topographic quadrangle, 1904 and 1905 editions.** These two editions depict a southeast-trending road (unnamed) extending from Sahuarito Butte and heading toward Helvetia in the Santa Rita Mountains. The unnamed road crosses both corridor alternatives (see Appendix B, Figure B.1).
- **USGS Tucson, AZ 1:62,500 topographic quadrangle, 1948, 1956, and 1957 editions.** No features are shown to intersect the study area. The unnamed road from the 1904 and 1905 quadrangles is no longer depicted (Figure B.2 [Appendix B]).
- **USGS Tucson, AZ 1:250,000 topographic quadrangle, 1958, 1959, and 1962 editions.** No features are shown to intersect the study area.
- **USGS Tucson SW, AZ 1:24,000 topographic quadrangle, 1968 edition.** East Old Vail Road appears on this map following its current alignment, running east-west along the southern boundary of the south corridor alternative. The Tucson-Apache 115kV transmission line also runs through the proposed corridors from the northwest to the southeast (Figure B.3 [Appendix B]).

## Previous Survey Coverage in the Study Area

Twenty-three cultural resources inventories have been conducted in the Study Area, 12 of which intersect the proposed corridors (Table A.1 and Figure A.1 [Appendix A]). These projects were conducted over the past several decades and include large block surveys for the Tucson Airport Authority, the Aerospace Research

Campus (previously referred to as the Aerospace Research Park and the Aerospace Business Park), and the Southern Tucson Basin Survey project and linear surveys for transmission, fiber optic, and sewer lines. According to available records, these surveys have examined 100 percent of the proposed corridors. While only four of these projects were conducted in the past 10 years, 100 percent of the proposed corridors has been surveyed to current standards. Specifically, the corridors are encompassed by the survey area for the Hughes Access Road and Aerospace Business Park project conducted by SWCA Environmental Consultants, Inc. (SWCA), in 2013 (Rawson and Hesse 2014) (see **Table A.1** [Appendix A]).

## Known Cultural Resources in the Study Area

Twenty-seven archaeological sites have been located within the Study Area, four of which intersect the proposed corridors (**Table A.2 and Figure A.1** [Appendix A]). These four sites are AZ BB:13:720(ASM), AZ CC:13:80(ASM), AZ BB:13:1001(ASM), and AZ BB:13:1002(ASM). AZ BB:13:720(ASM), AZ BB:13:1001(ASM), and AZ BB:13:1002(ASM) consist of prehistoric artifact scatters. AZ BB:13:80(ASM) is the Tucson-Apache 115kV transmission line. In 2006, AZ BB:13:80(ASM) was determined not eligible for listing in the NRHP by the U.S. Army Corps of Engineers (Chamorro and King 2014). AZ BB:13:720(ASM) has also been determined not eligible for listing in the A/NRHP (SHPO-2008-0510). Therefore, no further work is recommended for AZ BB:13:720(ASM) and AZ CC:13:80(ASM). At the time of this review, no information regarding eligibility status was available for AZ BB:13:1001(ASM) and AZ BB:13:1002(ASM). Pending confirmation of the eligibility recommendations for these sites, WestLand recommends avoidance for these two sites, which both intersect the northern proposed corridor option. If avoidance is not possible, WestLand recommends the development of an appropriate treatment plan.

A file search of the A/NRHP databases indicates that no sites listed in either register are located within the Study Area (Arizona State Parks 2023; National Park Service 2023).

## SUMMARY AND RECOMMENDATIONS

WestLand performed a cultural resources assessment to better inform the evaluation of the proposed corridors for the Aerospace Research Campus Transmission Project Study Area. In order to understand previous survey coverage and known archaeological site density, WestLand reviewed existing archaeological survey and site information available in the AZSITE archaeological database and at the ASM Archaeological Records Office and examined historical maps of the Study Area to assess the potential for additional historical sites that have not yet been recorded.



In the past ten years, 100 percent of the proposed corridors has been surveyed for cultural resources using current methodologies (**Figure A.1** [Appendix A]). Four sites were identified as intersecting the proposed corridors, two of which have been previously determined not eligible for inclusion in the A/NRHP. At the time of this report, WestLand could not verify the recommendation status of the remaining two sites. In the ASM Archaeological Records Office files, sites AZ BB:13:1001(ASM) and AZ BB:13:1002(ASM) are attributed to SWCA project 2017-487.ASM. However, these sites do not appear in the associated report, and the SWCA survey does not extend into the Study Area. It appears there is a record keeping error associated with AZ BB:13:1001(ASM) and AZ BB:13:1002(ASM). The project registration associated with these sites has not yet been submitted to the ASM, therefore, no information is available, and the full extent of these sites is unknown.

The GLO and USGS map review identified one possible road intersecting the proposed corridors; the road does not appear on any maps after 1905. No historical roads were recorded as sites within the proposed corridors during previous modern survey efforts (Rawson and Hesse 2014); however, unnamed roads are generally unlikely to reach the significance level needed for listing in the A/NRHP. Therefore, WestLand recommends that no further Class III survey of the proposed corridors is necessary. Pending further information, WestLand recommends avoidance for sites AZ BB:13:1001(ASM) and AZ BB:13:1002(ASM). If site information is not submitted to the ASM prior to construction, WestLand recommends a qualified archaeologist relocate the sites and map their extents. No further work is recommended for sites AZ BB:13:720(ASM) and AZ CC:13:80(ASM).

WestLand provides the general recommendation that all ground-disturbing activities have the potential to inadvertently disturb human remains and other cultural items. Pursuant to Arizona Revised Statute §41-844, if Native American human remains, funerary objects, sacred ceremonial objects, or objects of national or tribal patrimony are encountered on state lands during ground-disturbing activities, all activity shall cease in the discovery area and the Director of the ASM shall be immediately notified. Pursuant to Arizona Revised Statute §41-865, if Native American human remains or funerary objects are encountered on private land during ground-disturbing activities, all activity shall cease in the discovery area and the Director of the ASM shall be immediately notified.

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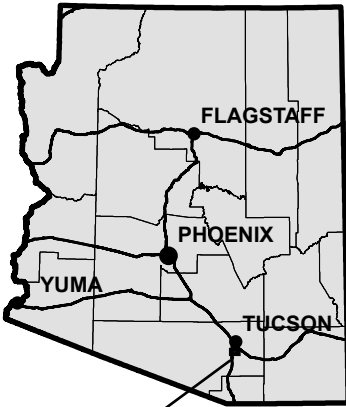
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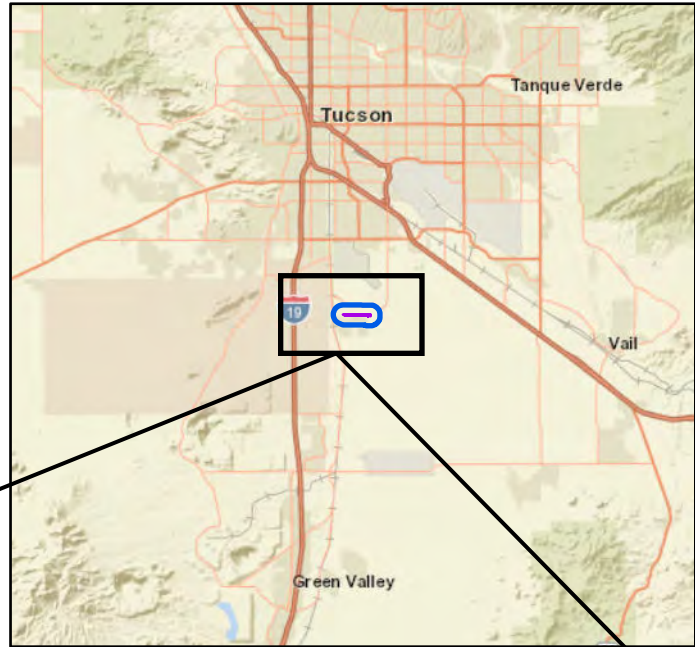
2014 *Cultural Resources Inventory for the Hughes Access Road Relocation Project, Pima County, Arizona*. Cultural Resources Report No. 14-104. SWCA Environmental Consultants, Inc., Tucson.

## FIGURES

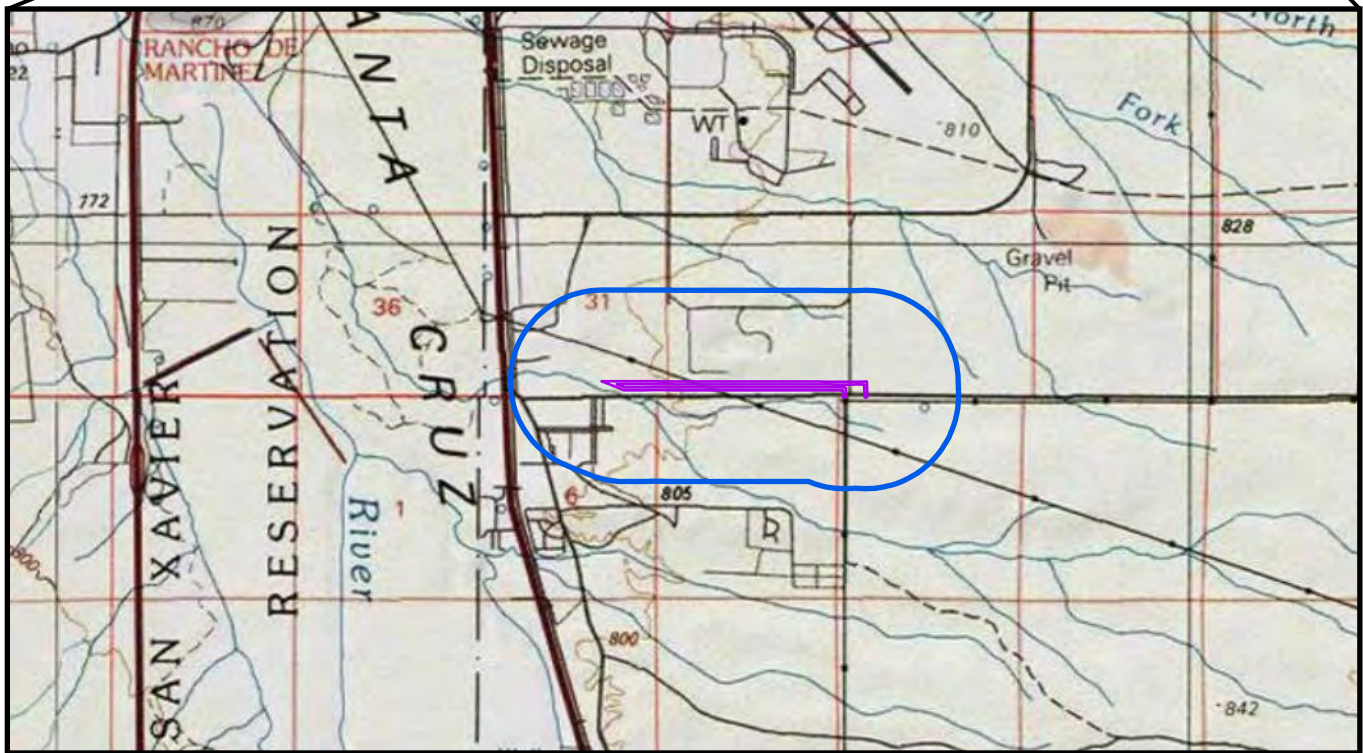
ARIZONA



PROJECT LOCATION



Approximate Scale: 1 inch equals 10 miles



T15S, R14E, Portion(s) of Section(s) 31-33,  
 T16S, R14E, Portion(s) of Section(s) 4-6,  
 Pima County, Arizona  
 Tucson SW USGS 7.5' Quadrangle  
 Projection: NAD 1983 UTM Zone 12N  
 Data Source: ArcGIS Online World Streetmap

Legend

- Study Area
- Proposed Corridors

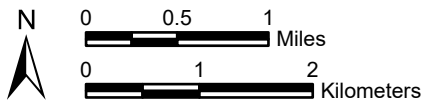
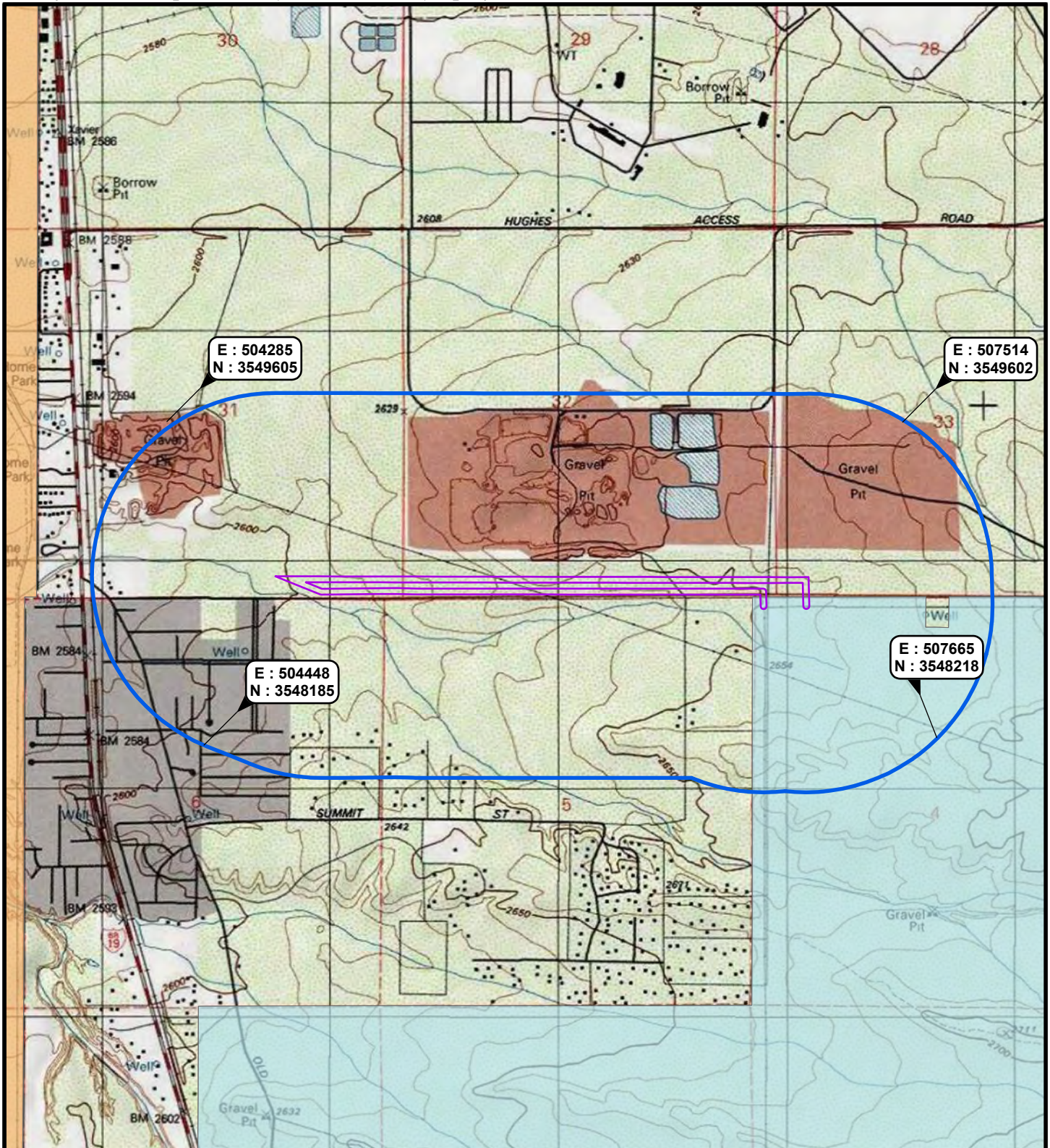


Figure 1. Vicinity map



T15S, R14E, Portion(s) of Section(s) 31-33,  
 T16S, R14E, Portion(s) of Section(s) 4-6,  
 Pima County, Arizona  
 Tucson SW USGS 7.5' Quadrangle  
 Projection: NAD 1983 UTM Zone 12N  
 Surface Management: BLM ArcGIS Service accessed 09/01/2023

- Legend**
- Study Area
  - Proposed Corridors
- Surface Management**
- Indian Lands
  - Private (No Color)
  - State



Figure 2. Study Area location showing surface management

## APPENDIX A

### Archaeological Records Search

Figure A.1 depicts information that is considered sensitive and may be protected under federal, state, and local laws. As such, it has been redacted from this report.

**Table A.1. Previous archaeological surveys in the Study Area\***

Agency Project No.	Project Name	Reference
1982-207.ASM	1 1 Tucson-Apache 115 kV Transmission Line	Hammack 1983
1984-158.ASM	2 2 Southern Tucson Basin Survey	Doelle et al. 1985
1984-162.ASM	3 3 Granite Construction	Madsen 1984
1994-170.ASM	5 4 Tucson Airport Authority Survey – Western Santa Rita	Knoblock 1994
1985-84.ASM	4 5 Miller Paving	Madsen 1985
1999-159.ASM	6 6 Archaeological Survey South of Tucson International Airport	Dutt 1999
2003-1139.ASM	7 7 Old Vail Road Area 158.18 Acre Survey	Jones and Dart 2003
2005-446.ASM	8 8 Tucson-Apache 115 kV Transmission Line Project	Goldstein 2008
2013-132.ASM	9 9 Hughes Access Road and Aerospace Business Park	Rawson and Hesse 2014
2016-397.ASM	10 10 Old Nogales Interceptor	Stone 2017a
2016-399.ASM	11 11 Verano Sewer	King 2017
2017-151.ASM	12 12 Verano Sewer	Stone 2017c
2017-487.ASM**	13 13 Southline Transmission Line	Rawson et al. 2020
1989-40.ASM	14 14 South Tucson Underground Line	Adams 1989
1995-72.ASM	15 15 Tucson-Nogales Fiber Optics ROW	Adams and Hoffman 1995
1999-437.ASM	16 16 Old Nogales Highway Colony Sewer Line Survey	Hesse 1999
2000-49.ASM	17 17 Old Nogales Highway Colonia WWM Sewerline Cultural Resources Assessment	Jones 2000
2005-399.ASM	18 18 D-2-145, MS5045	Davis 2005
2006-317.ASM	20 20 Franco Wash Survey	Twilling 2006a, 2006b
2012-73.ASM	21 21 Proposed Fiber Optic Corridor-Cultural Resource Survey	Knoblock 2001
2013-398.ASM	22 22 Old Vail Connection Road/Old Nogales Highway	Heilman 2013
2017-429.ASM	23 23 Old Nogales Interceptor	Stone 2017b
2019-398.ASM	24 24 Aerospace Corridor Water Main	Stalley 2019

\* The projects in the proposed corridors are listed first.

\*\* Spatial data not yet available; survey does not appear not on **Figure A.1**.

**Table A.2. Known archaeological sites intersecting the Study Area\***

Site Number (ASM)	Site Type	Age and Cultural Affiliation	Reference	NRHP Eligibility
AZ BB:13:720	1 Artifact scatter	Prehistoric; Native American	Jones and Dart 2003	Determined not eligible
AZ BB:13:1001	2 Unknown	Unknown	Rawson et al. 2020	Unknown
AZ BB:13:1002	3 Unknown	Unknown	Rawson et al. 2020	Unknown
AZ CC:13:80	4 Transmission line	Historic; Euroamerican	Goldstein 2008	Determined not eligible
AZ BB:13:59	5 Campsite	Prehistoric; Native American	Not listed	
AZ BB:13:130	6 Artifact scatter	Formative Period; Hohokam	Doelle et al. 1985	
AZ BB:13:131	7 Artifact scatter	Prehistoric; Native American	Doelle et al. 1985	
AZ BB:13:300	8 Artifact scatter	Prehistoric; Native American	Doelle et al. 1985	
AZ BB:13:301	9 Campsite	Prehistoric; Native American	Doelle et al. 1985	
AZ BB:13:302	10 Artifact scatter	Prehistoric; Native American	Doelle et al. 1985	
AZ BB:13:451	11 Rock piles	Prehistoric; Native American	Knoblock 1994	
AZ BB:13:460	12 Artifact scatter	Prehistoric; Native American	Knoblock 1994	
AZ BB:13:634	13 Rock piles	Prehistoric; Native American	Dutt 1999	
AZ BB:13:635	14 Rock piles	Prehistoric; Native American	Dutt 1999	
AZ BB:13:638	15 Rock piles	Prehistoric; Native American	Dutt 1999	
AZ BB:13:679	16 Tucson & Nogales Railroad	Historic; Euroamerican	Goldstein 2008	
AZ BB:13:718	17 Trash scatter	Historic; Euroamerican	Jones and Dart 2003	
AZ BB:13:719	18 Rock piles	Prehistoric; Hohokam	Jones and Dart 2003	
AZ BB:13:722	19 Rock piles	Ceramic Period; Hohokam	Jones and Dart 2003	
AZ BB:13:841	20 Rock piles	Prehistoric; Native American	Rawson and Hesse 2014	
AZ BB:13:843	21 Artifact scatter	Prehistoric; Native American	Rawson and Hesse 2014	
AZ BB:13:845	22 Homestead	Historic; Euroamerican	Rawson and Hesse 2014	
AZ BB:13:846	23 Artifact scatter	Prehistoric; Native American and Historic; Euroamerican	Rawson and Hesse 2014	
AZ BB:13:847	24 Artifact scatter	Prehistoric; Native American and Historic; Euroamerican	Rawson and Hesse 2014	
AZ BB:13:848	25 Trash scatter	Historic; Euroamerican	Rawson and Hesse 2014	
AZ BB:13:849	26 Trash scatter	Historic; Euroamerican	Rawson and Hesse 2014	
AZ BB:13:850	27 Trash scatter	Historic; Euroamerican	Rawson and Hesse 2014	

\* The sites in the proposed corridors are listed first.



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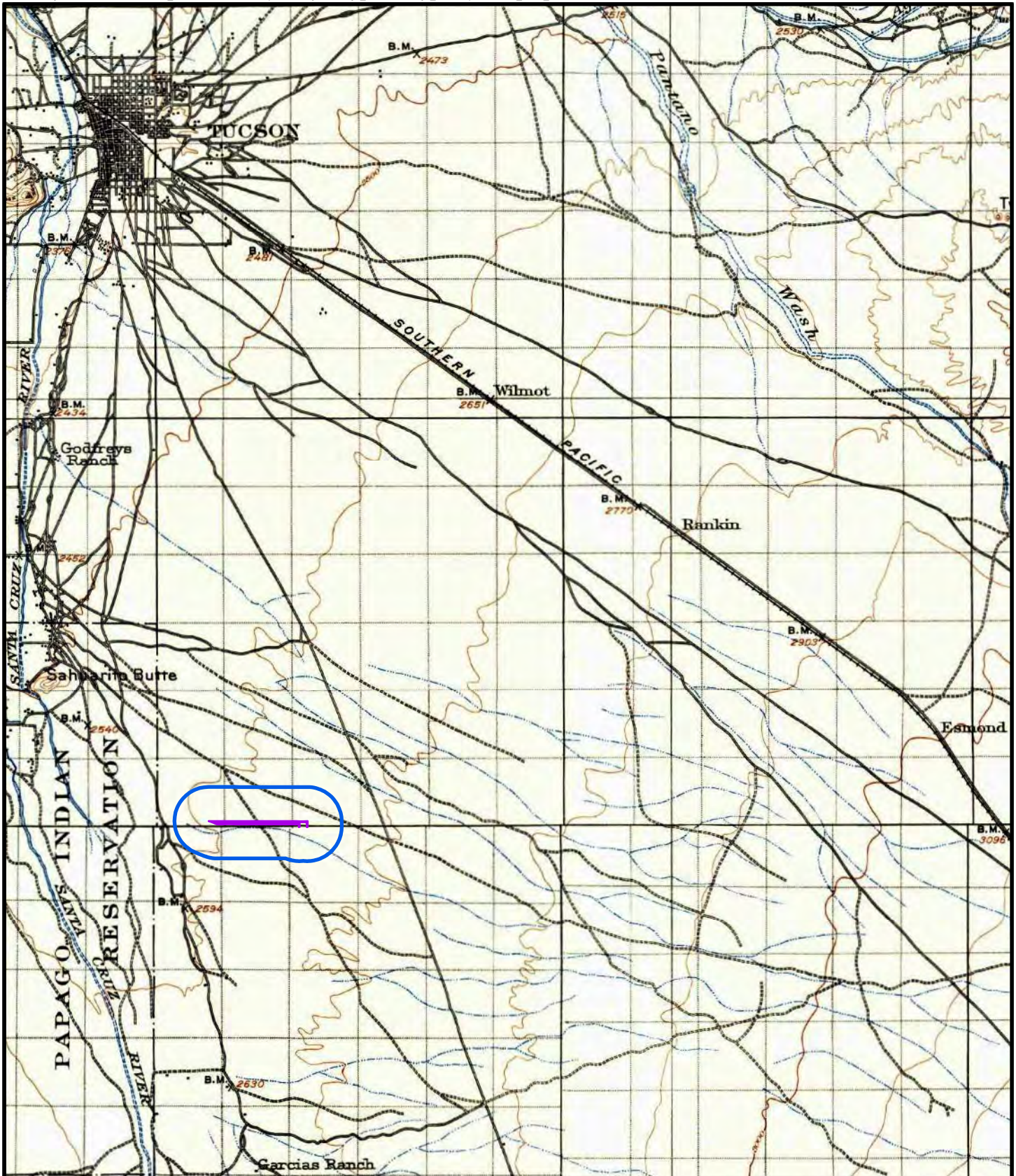
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**APPENDIX B**  
**Historical Maps of the Study Area**



0 1 2 Miles

0 2 4 Kilometers

**Legend**

 Study Area


 Proposed Corridors

Figure B.1. Overlay of the Study Area on the USGS Tucson, AZ 1:125,000 topographic quadrangle, 1904 edition

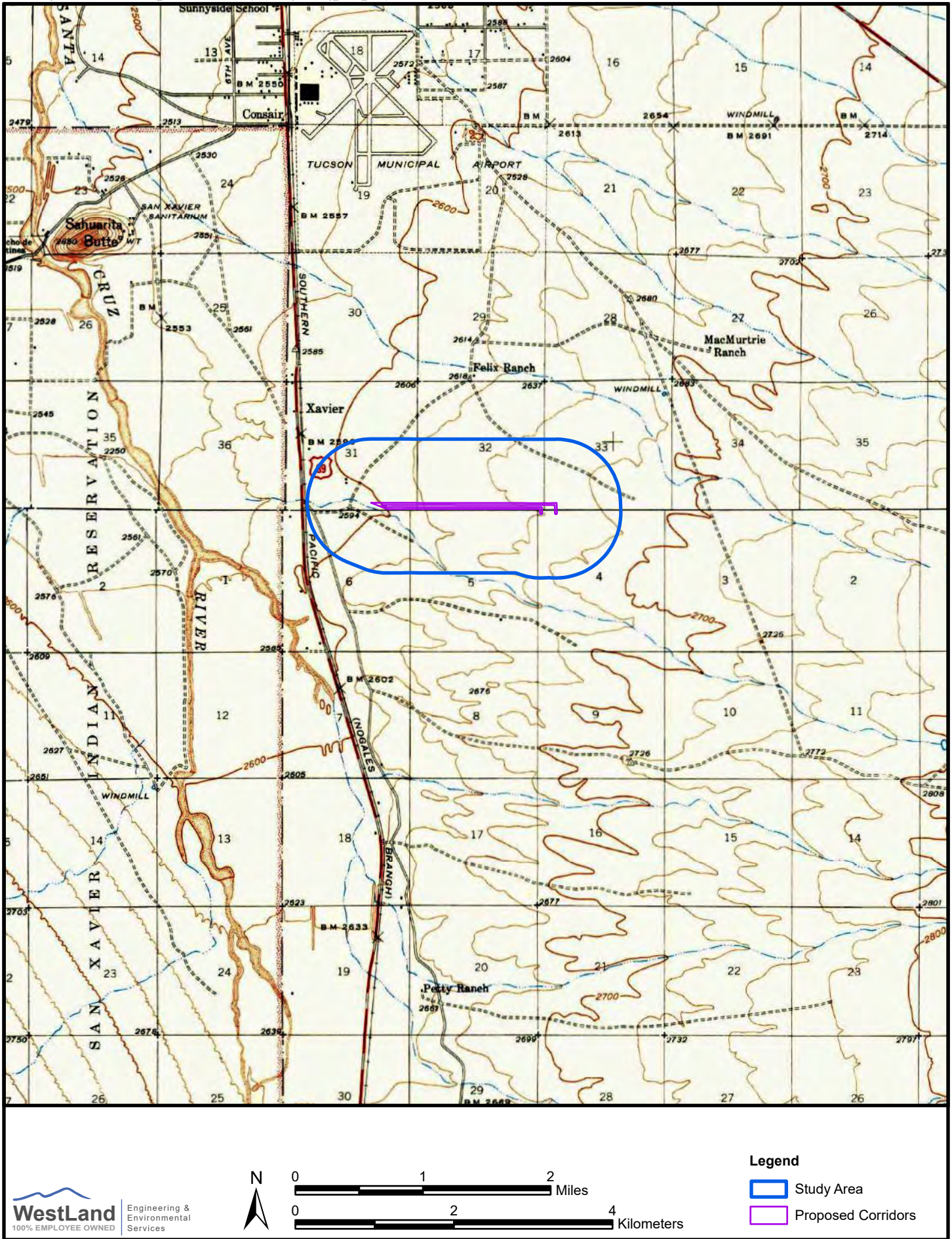


Figure B.2. Overlay of the Study Area on the USGS Tucson, AZ 1:62,500 topographic quadrangle, 1948 edition

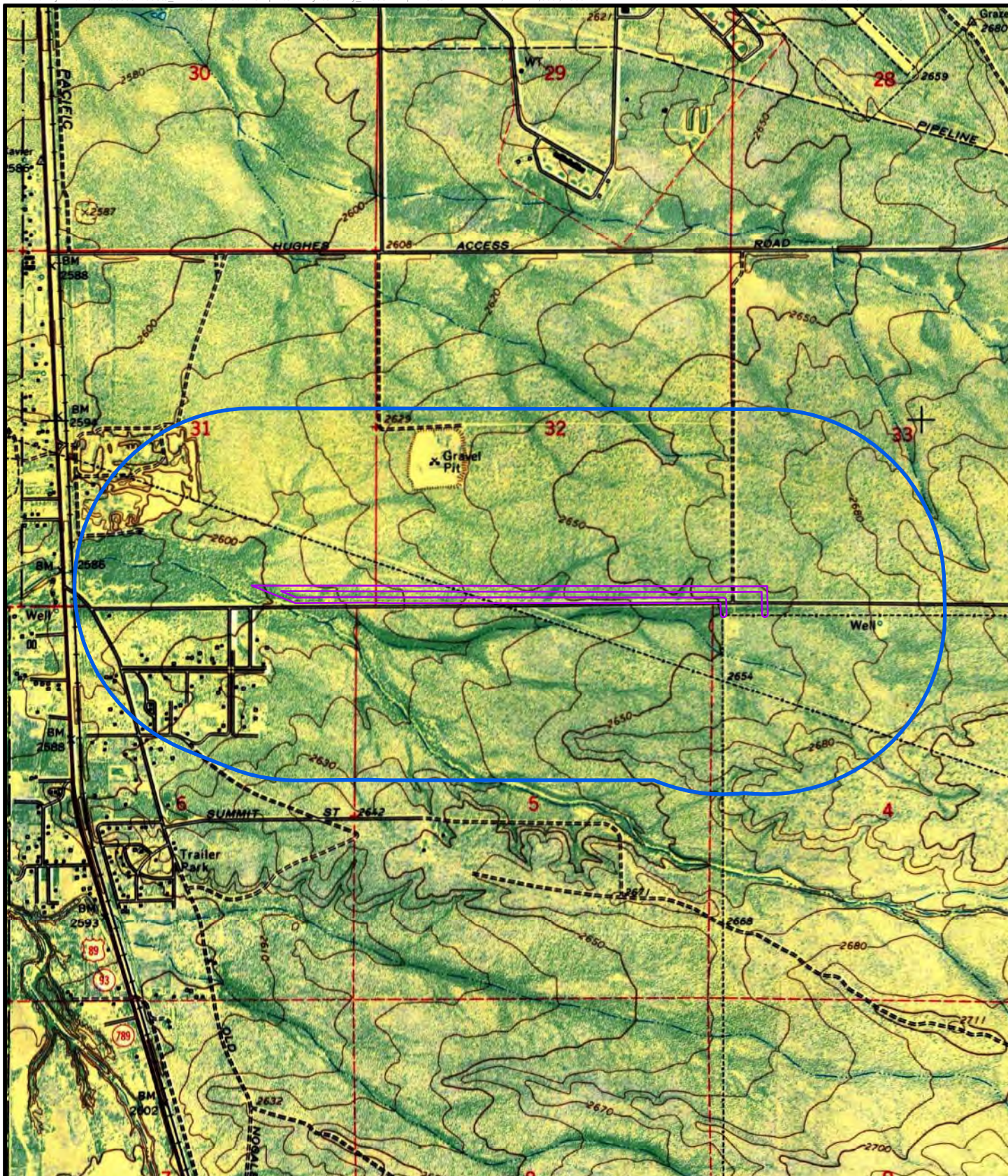


Figure B.3. Overlay of the Study Area on the USGS Tucson SW, AZ 1:24,000 topographic quadrangle, 1968 edition

**EXHIBIT F**



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## EXHIBIT F: RECREATIONAL PURPOSES AND ASPECTS

As stated in Arizona Administrative Code R14-3-219 of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee, Exhibits to Application, Exhibit F:

*State the extent, if any, the proposed site or route will be available to the public for recreational purposes, consistent with safety considerations and regulations and attach any plans the applicant may have concerning the development of the recreational aspects of the proposed site or route.*

F.1 Introduction ..... F-1  
 F.2 Affected Environment ..... F-1  
 F.3 Potential Effects ..... F-2  
 F.4 Conclusion ..... F-2

### ***F.1 Introduction***

The following analysis describes recreational settings and features, and potential impacts to them from the Project, within the Study Area.

### ***F.2 Affected Environment***

Recreational opportunities in the Study Area are primarily associated with dispersed recreation occurring on unimproved roadways, and one county operated park (Table 6, Exhibit F-1).

Summit Park is located more than half a mile from the Proposed Route. The Project is unlikely to preclude recreational uses or public enjoyment as the location of the transmission line would not result in closure of any recreational facilities.

***Table 6. Recreation Facilities within the Study Area***

Recreation Facility	Jurisdiction	Location
Summit Park	Pima County	1800 E Summit Street; 0.6 miles south of the Proposed Route

### **Summit Park**

Summit Park consists of a baseball field, a half-court basketball court, paved and unimproved trails, a playground, picnic area, and a small parking area. The park is located 0.6 miles south of the Proposed

Route. The Project, including its construction and operation and maintenance, will have no impact on the use of or access to the park.

### ***F.3 Potential Effects***

#### **Construction**

Construction activities could create minor impacts to informal dispersed recreational area users in locations where the transmission line intersects dirt roads.

Project construction would not impact the use of any formal existing recreation opportunities or activities.

Potential indirect impacts from construction to the natural, historic, cultural, or visual character of parks and recreation areas are discussed in Exhibits B, C, D, E, and G.

Much of the project will be located on private land and TEP will obtain easements for the construction and operation of the transmission line. Currently, TEP does not have any plans to make the ROW available to the public for recreational purposes. While TEP is not opposed to compatible recreational development within the ROW, this use is not proposed as part of the Project. Agreements with landowners would need to be secured prior to pursuing this type of development.

#### **Operation and Maintenance**

Operation and maintenance activities are short-term and occur infrequently. While minor disturbances such as noise, area closures, and traffic detours may occur, recreational opportunities and activities would resume once this temporary work is complete.

### ***F.4 Conclusion***

The Proposed Route is informed by TEP's design principle to first use established infrastructure corridors that meet the Project objectives. This approach encourages the location of routes within public road ROW or within existing linear corridors to the greatest extent practicable and maintains public use consistent with existing land use. This strategic approach minimizes impacts to recreational facilities and parks and maintains public use and recreation along existing ROWs.

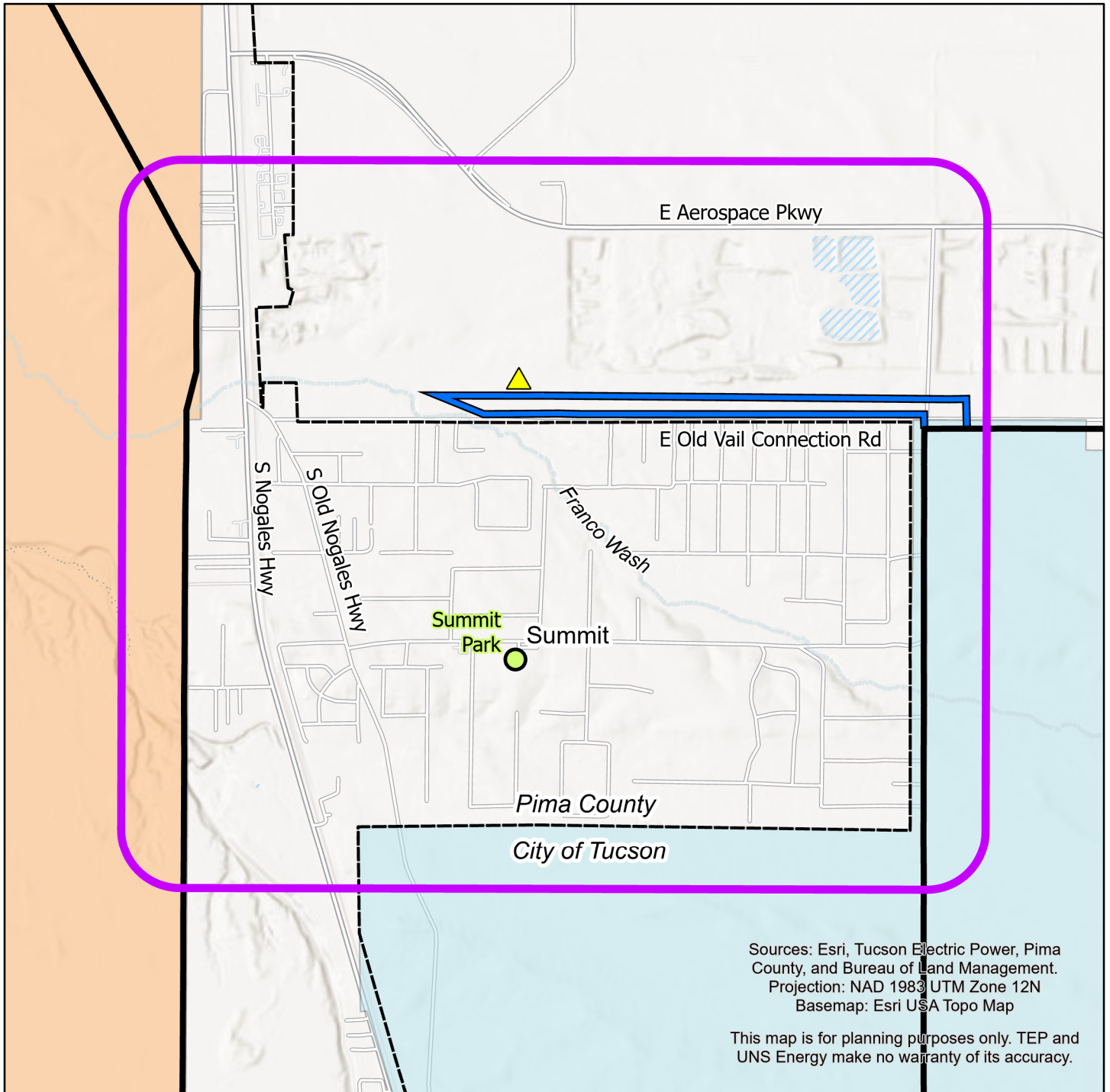
During and following construction, all existing recreation facilities will remain available. Where the Project crosses existing roads, permanent access to and along these features for recreational use will not be affected.

**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit F-1**


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 Proposed Route


 Proposed Franco Wash Switchyard

 Study Area

 Existing 138kV Transmission Line

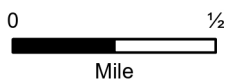
 Recreation Facilities

 Municipal Boundaries

 San Xavier District, Tohono O'odham Nation

 State

 Private (No Color)



Scale: 1:30,000

  
**Tucson Electric Power**

**Exhibit F-1**  
**Aerospace Research Campus Transmission Project**

**Recreation**

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**EXHIBIT G**



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## EXHIBIT G: CONCEPTS OF PROPOSED FACILITIES

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As stated in Arizona Administrative Code R14-3-219 of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee, Exhibits to Application, Exhibit G:

*Attach any artist's or architect's conception of the proposed plant or transmission line structures and switchyards, which applicant believes may be informative to the Committee.*

EXHIBIT	CONTENTS
G-1	Single Circuit 138 kV Tangent Typical Configuration
G-2	Single Circuit 138 kV Turning Typical Configuration
G-3	Switchyard General Arrangement
G-4	Visual Simulations

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit G-1**

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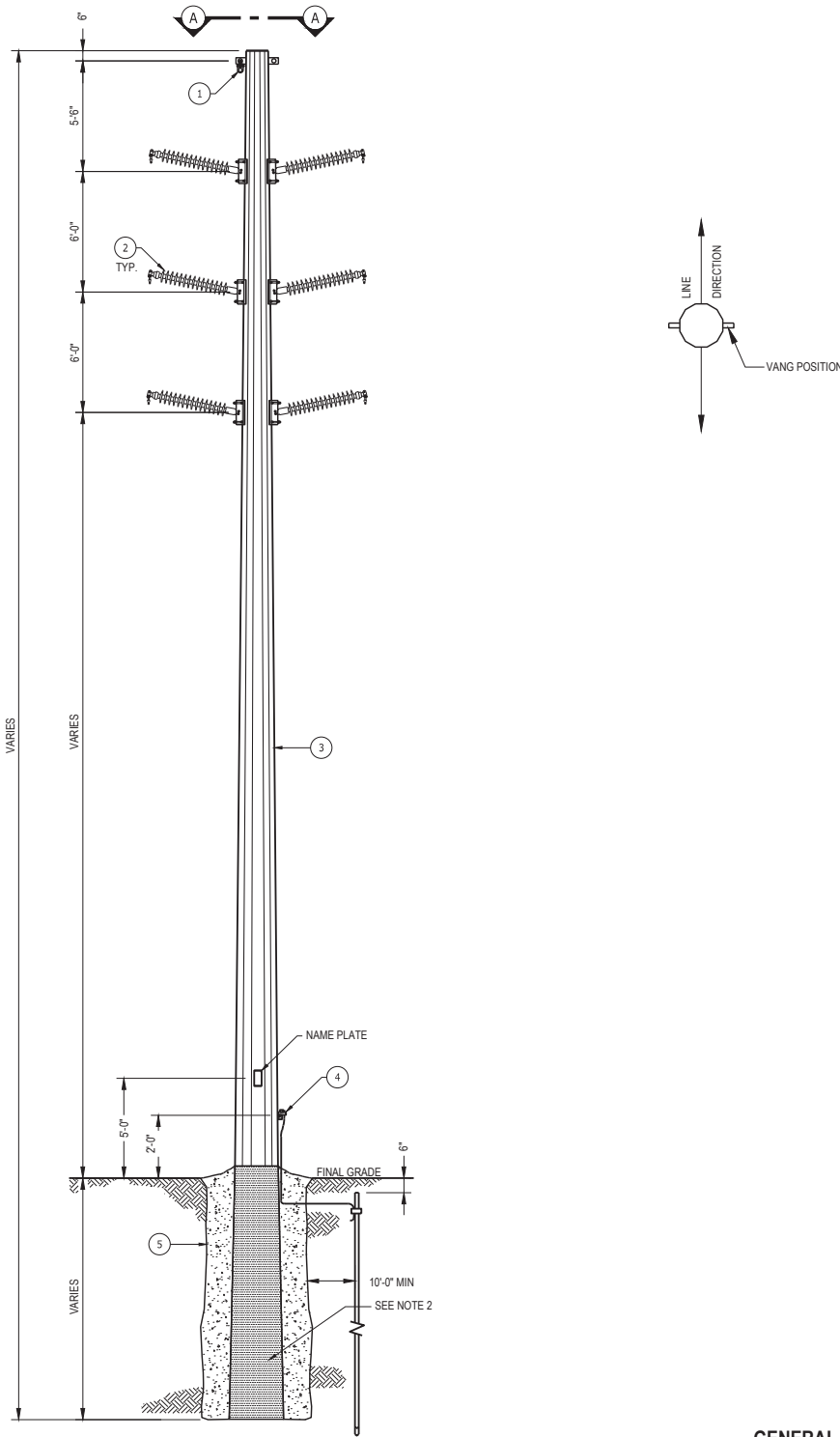
UnSourceEnergy Services

**FRAMING, DOUBLE CIRCUIT TANGENT**  
(0-3 DEGREES), TYPE 3, 46/69/138kV  
TRANSMISSION STANDARD

INITIATED  
EFFECTIVE DATE

MF  
3/28/13

TL1130.100.001-R00



**ELEVATION**

**TANGENT 0-3°, DOUBLE CIRCUIT 46/69/138KV**

**GENERAL NOTES:**

- CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL, (OR THAT OF ITS SUBCONTRACTOR(S) PERFORMING THE WORK).
- EMBEDDED PORTION OF POLE PLUS 1'-6" COATED W/ CORROSCOTE II CLASSIC PNT 219A & 219B, 40MILS THICK.

**BILL OF MATERIAL**

ITEM	DESCRIPTION	QTY.	ASSEMBLY DRAWINGS
1	OPGW/STATIC SUSP.ASSEMBLY	1	TL0504.001 TL0506.001
2	POST INSULATOR ASSEMBLY	6	TL0502.001 TL0502.002
3	STEEL POLE	1	SEE CTE
4	GROUNDING ASSEMBLY	1	TL0500.001
5	FOUNDATION DETAIL	1	TL0700.005

**STRUCTURE TABLE**

LENGTH	HEIGHT	EMBEDMENT	STORES NUMBER	MOMENT CAPACITY (K-FT)	WEIGHT (LBS)
90'-0"	74'-6"	15'-6"	2-13-8090	986	5800
99'-6"	83'-6"	16'-0"	2-13-8099	1148	7900
108'-6"	92'-6"	16'-0"	2-13-8109	1305	9000

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit G-2**



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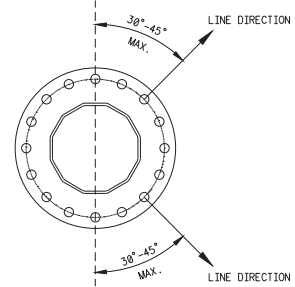
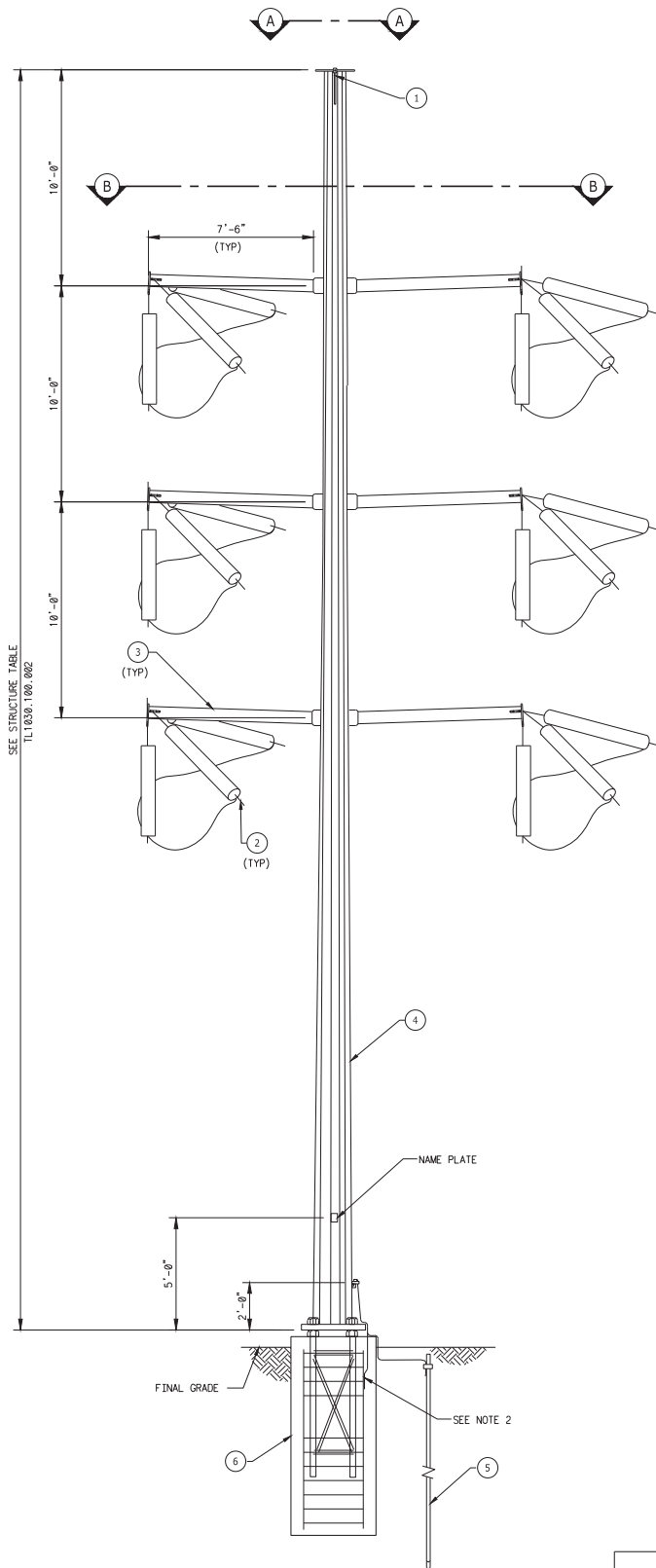
UnSourceEnergy Services

**FRAMING DOUBLE CIRCUIT**  
HDE 60-90 DEGREES, 138KV  
TRANSMISSION STANDARD

INITIATED  
EFFECTIVE DATE

MF  
11/30/10

TL1030.100.001-R00



SECTION A-A

**NOTES:**

1. CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF IT'S SUBCONTRACTOR(S) PERFORMING THE WORK.
2. TIE GROUNDING ASSEMBLY TO REINFORCING REBAR CAGE OF FOUNDATION.
3. SEE TL1030.200.001 & TL1030.200.002 FOR LOADING DETAILS.
4. SEE TL1030.300.002 FOR POLE DETAILS.

**BILL OF MATERIAL**

ITEM.	DESCRIPTION	QTY.	ASSEMBLY DRAWING
1	OPGW/STATIC ASSEMBLY	1	TL0504.004
2	D.E. INSULATOR ASSEMBLY	12	TL0501.005
3	TUBULAR DAVIT ARM 7'-6"	6	TL1030.300.001
4	STEEL POLE	1	TL1030.300.002
5	GROUND ASSEMBLY	1	TL0500.001
6	FOUNDATION	1	TL0700.003 OR TL0700.004

HDE (60-90°) STRUCTURE (LOOKING AHEAD)

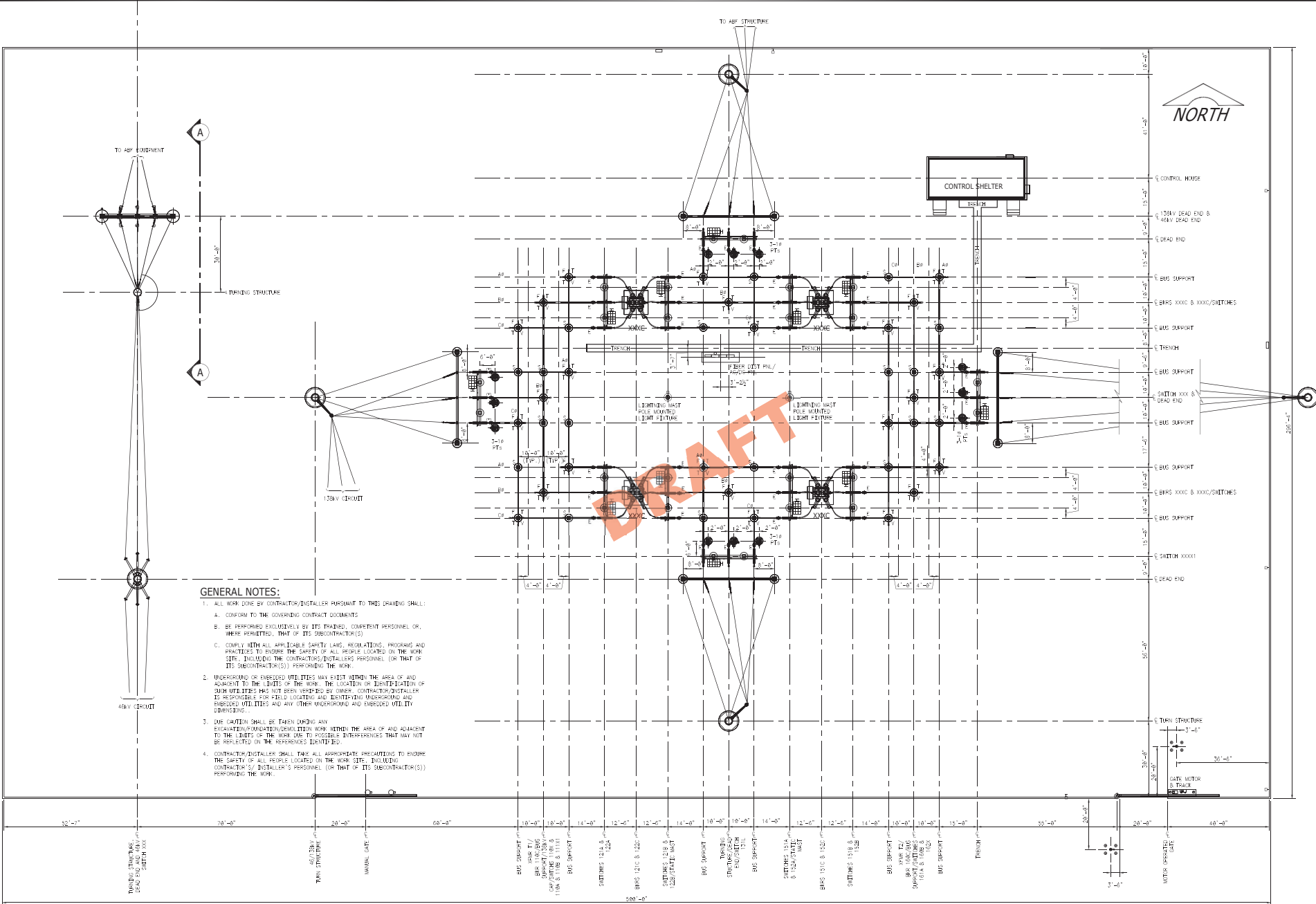
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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit G-3**

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- GENERAL NOTES:**
1. ALL WORK DONE BY CONTRACTOR/INSTALLER PURSUANT TO THIS DRAWING SHALL:
    - A. CONFORM TO THE GOVERNING CONTRACT DOCUMENTS.
    - B. BE PERFORMED EXCLUSIVELY BY ITS TRAINED, COMPETENT PERSONNEL OR, WHEN PERMITTED, THAT OF ITS SUBCONTRACTOR(S).
    - C. COMPLY WITH ALL APPLICABLE SAFETY LAWS, REGULATIONS, PROGRAMS AND PRACTICES TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING THE CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.
  2. UNDERGROUND OR EMBEDDED UTILITIES MAY EXIST WITHIN THE AREA OF AND ADJACENT TO THE LIMITS OF THE WORK. THE LOCATION OR IDENTIFICATION OF SUCH UTILITIES HAS NOT BEEN VERIFIED BY OWNER. CONTRACTOR/INSTALLER IS RESPONSIBLE FOR FIELD LOCATING AND IDENTIFYING UNDERGROUND AND EMBEDDED UTILITIES AND ANY OTHER UNDERGROUND AND EMBEDDED UTILITY DURING THE WORK.
  3. DUE CAUTION SHALL BE TAKEN DURING ANY EXCAVATION/FOUNDATION/DEMOLITION WORK WITHIN THE AREA OF AND ADJACENT TO THE LIMITS OF THE WORK DUE TO POSSIBLE INTERFERENCES THAT MAY NOT BE REFLECTED IN THE REFERENCES IDENTIFIED.
  4. CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.

PLAN VIEW  
SCALE: 1/16" = 1'-0"

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit G-4**



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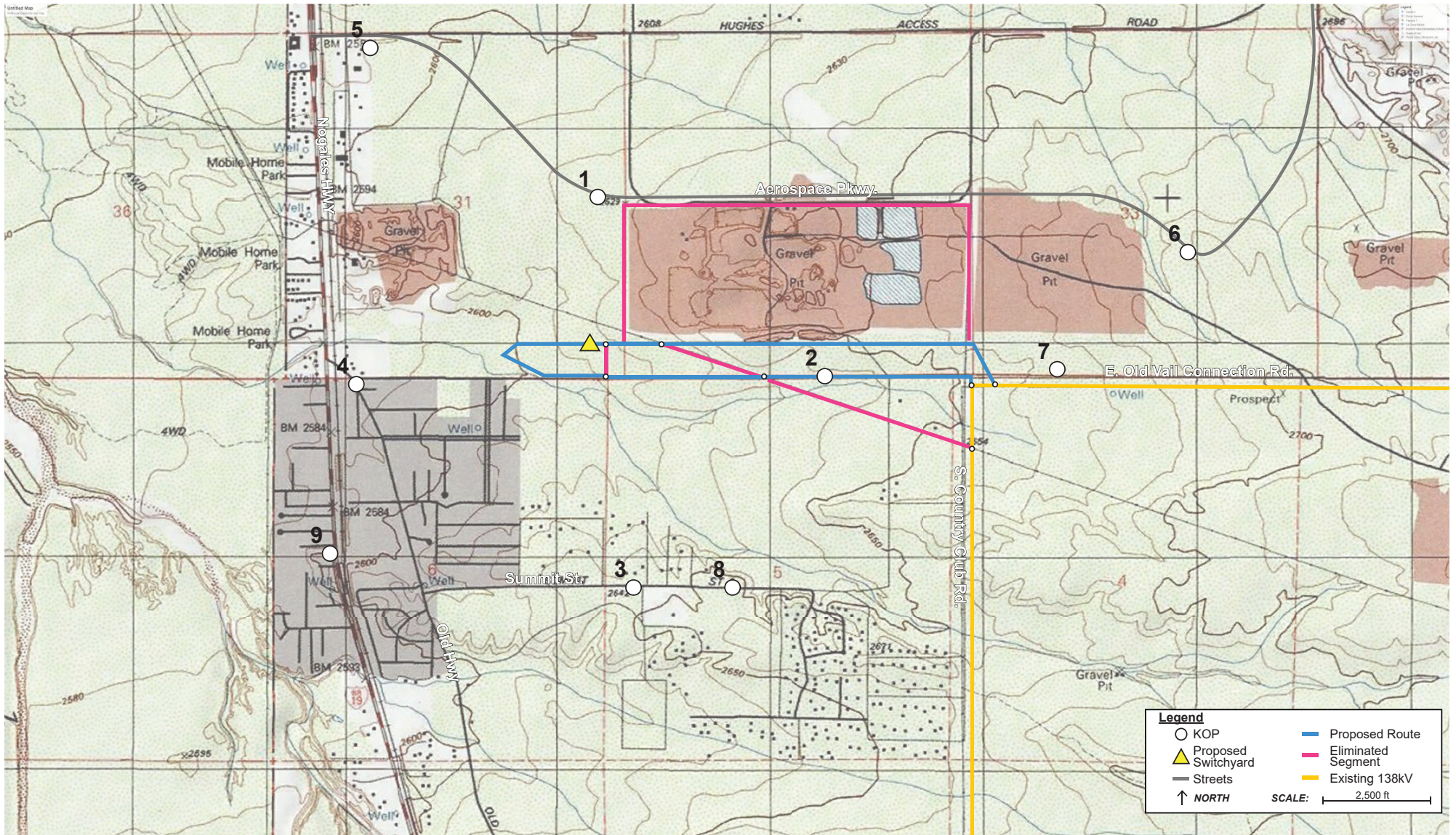
# Tucson Electric Power

## ***Aerospace Research Campus 138 kV Transmission Line Project Visual Resource Exhibit***

Visual Simulations

Prepared By:  
Jeremy Palmer | Sole Proprietor

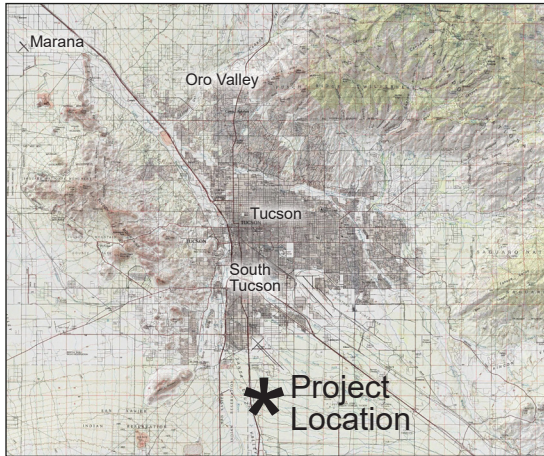
September 13th, 2023



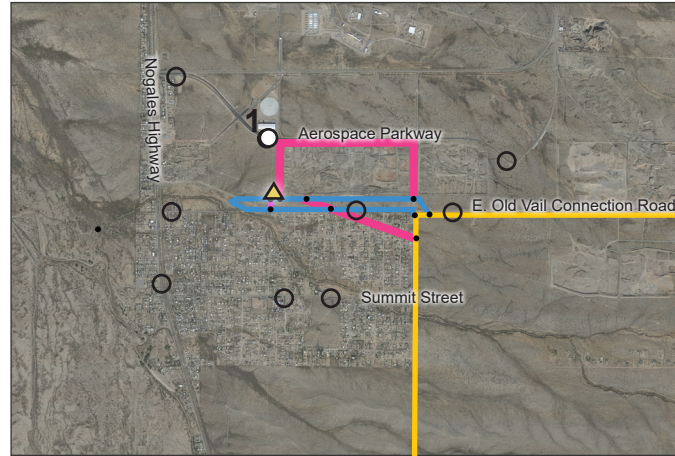
Key Observation Points - (KOPs)

# Aerospace Research Campus 138 kV Transmission Line Project

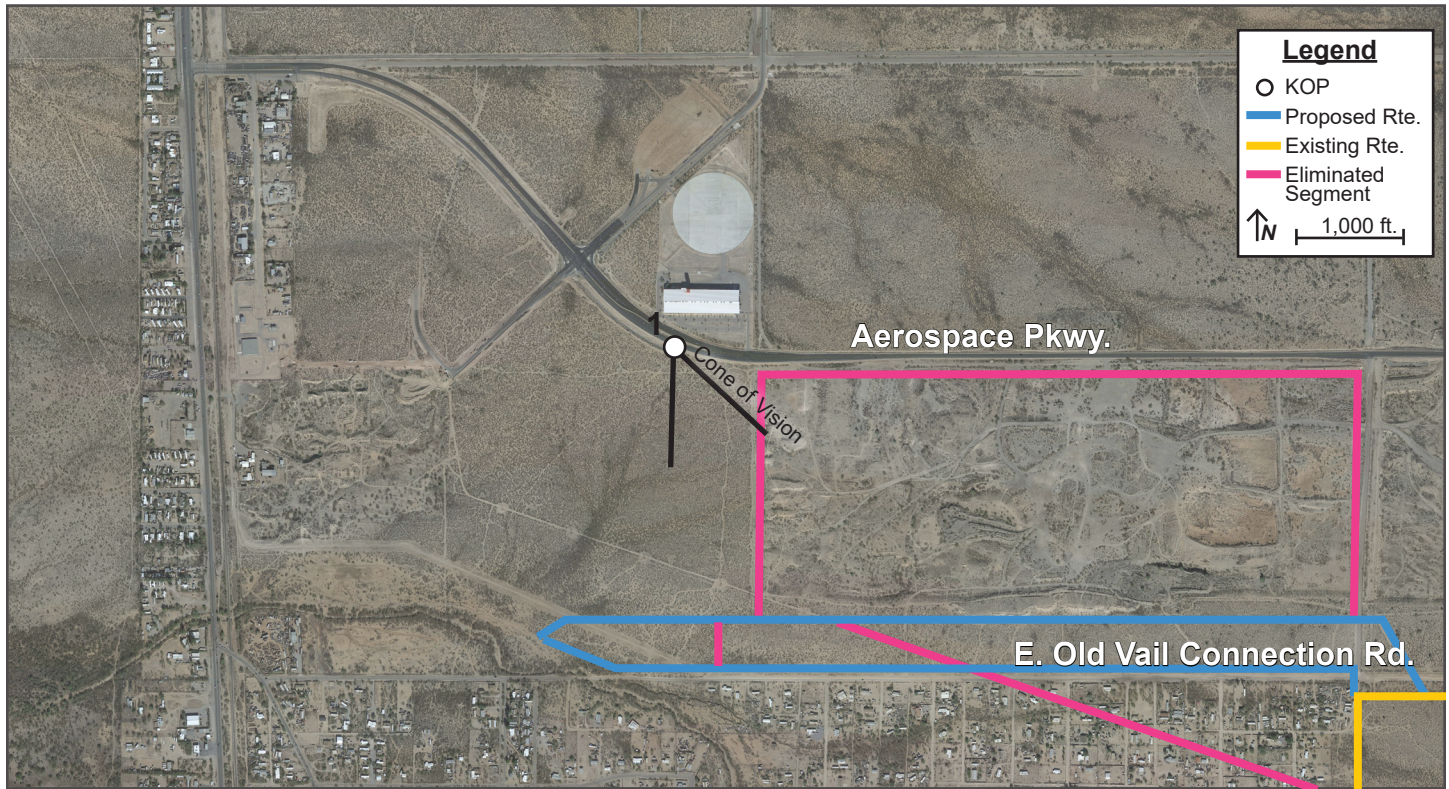
## Key Observation Point (KOP) # 1



Vicinity Map



Project Map Enlargement



### Notes:

#### Camera Information

- Type: Canon EOS RP
- Sensor: CMOS (Full-Frame) 35.9mm x 24mm
- Lens: Canon RF 24-105mm f/4-7.1 IS STM
- Focal Length: 50mm | F-Stop: f/9 | ISO:100
- Dimensions in pixel: 6240 x 4160

#### KOP

- Representative View for: residents, commuters
- Location: 1805 E Aerospace Pkwy
- Latitude: 32.083397° N; Longitude: 110.944917° W
- View Point Elevation at Eye Level: 2,628 ft.
- Looking: southeast
- Poles Visible: pole structures, switchyard
- Image File Name: IMG\_2403.JPG

#### Simulation Notes

- Photo Taken: August 5, 2023, 10:35 AM
- The image is based on a single photo and represents approximately 39.5 degree horizontal field of view.
- This view is approximately 2,253 feet northwest of the nearest pole represented in the simulation.
- The simulation is based on the best information available and is preliminary. Final alignment and structure locations are subject to change based on final engineering and other factors.

Key Observation Point (KOP) #1



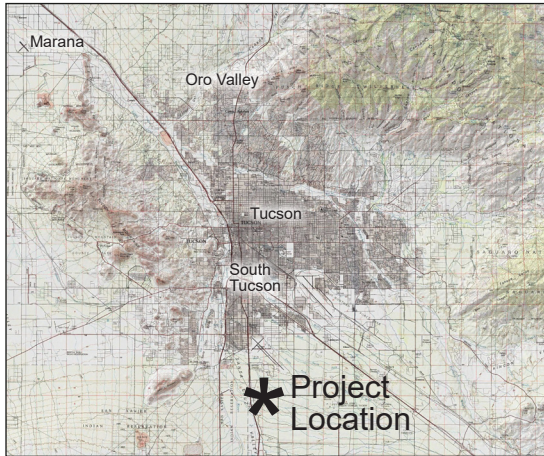
Existing Condition



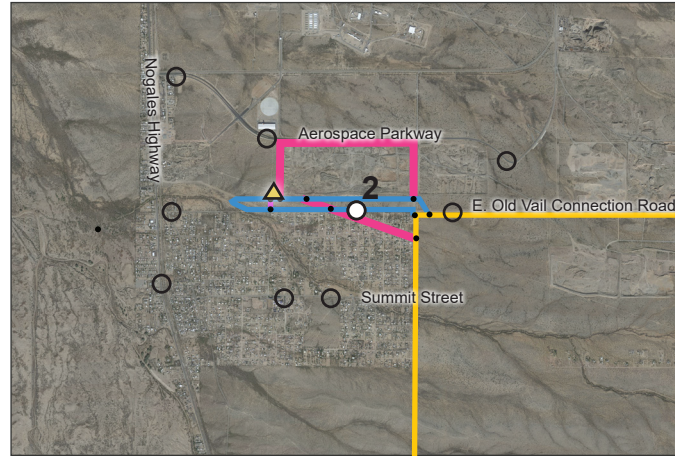
Simulated Condition

# Aerospace Research Campus 138 kV Transmission Line Project

## Key Observation Point (KOP) # 2

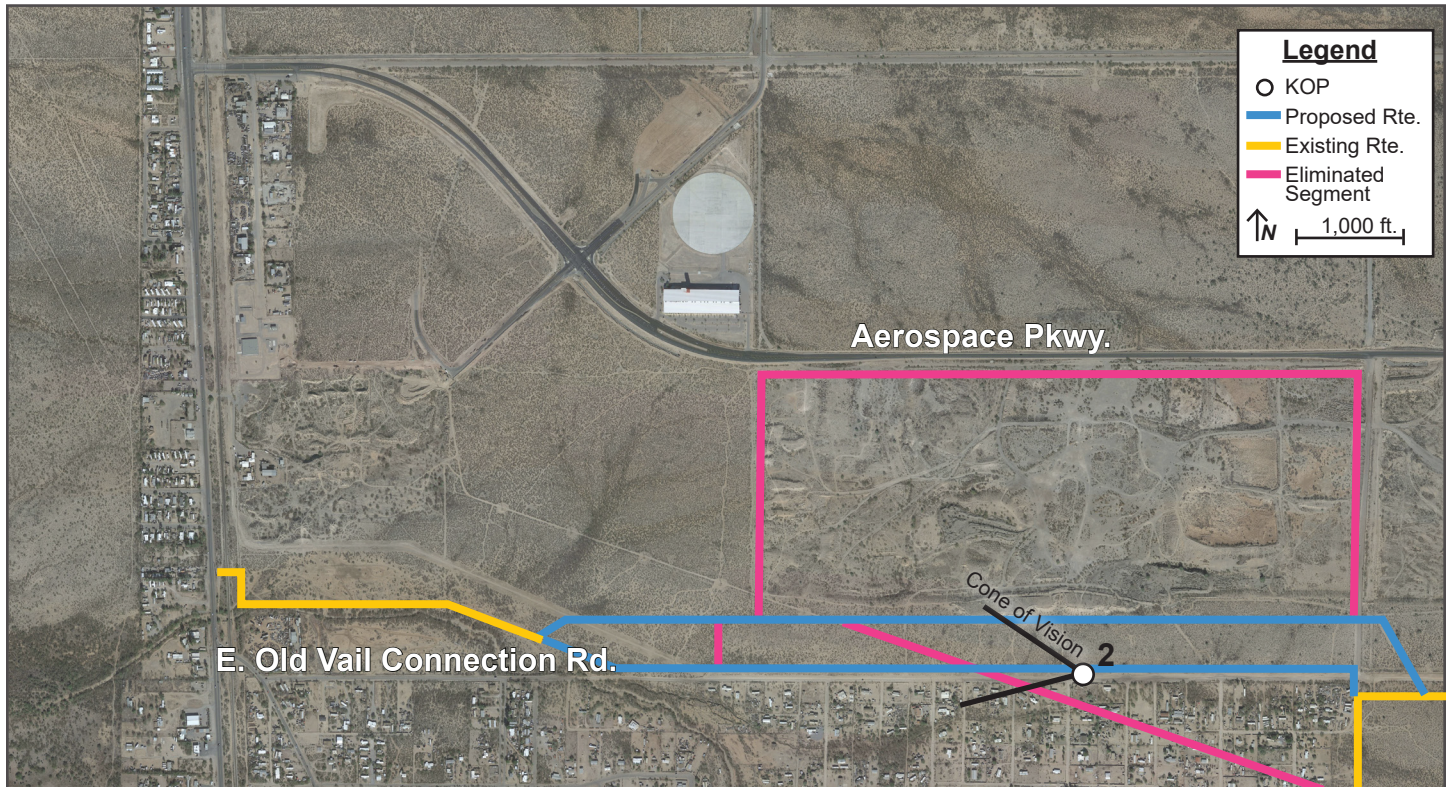


Vicinity Map



Project Map Enlargement

- Legend**
- Existing Transmission
  - Proposed Route
  - Eliminated Segment
  - KOP
  - ▲ Proposed Substation
  - ▲ Proposed Switchyard



### Notes:

#### Camera Information

- Type: Canon EOS RP
- Sensor: CMOS (Full-Frame) 35.9mm x 24mm
- Lens: Canon RF 24-105mm f/4-7.1 IS STM
- Focal Length: 35mm | F-Stop: f/10 | ISO:100
- Dimensions in pixel: 6240 x 4160

#### KOP

- Representative View for: residents
- Location: 2680 E Old Vail Rd
- Latitude: 32.075874° N; Longitude: 110.933893° W
- View Point Elevation at Eye Level: 2,642 ft.
- Looking: west
- Poles Visible: Pole Structures, Switchyard
- Image File Name: IMG\_2574.JPG

#### Simulation Notes

- Photo Taken: August 5, 2023, 11:07 AM
- The image is based on a single photo and represents approximately 54 degree horizontal field of view.
- This view is approximately 690 feet east of the nearest pole represented in the simulation.
- The simulation is based on the best information available and is preliminary. Final alignment and structure locations are subject to change based on final engineering and other factors.

Key Observation Point (KOP) #2

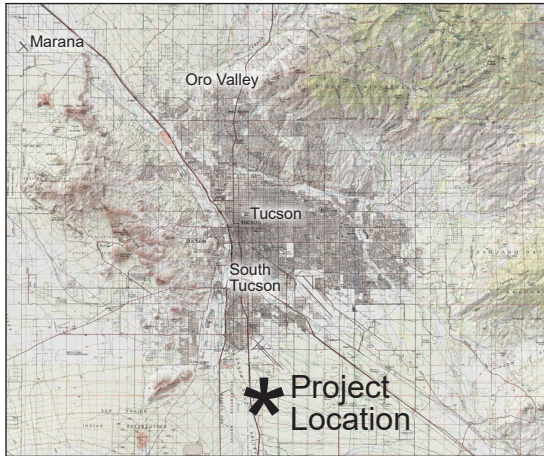


Existing Condition

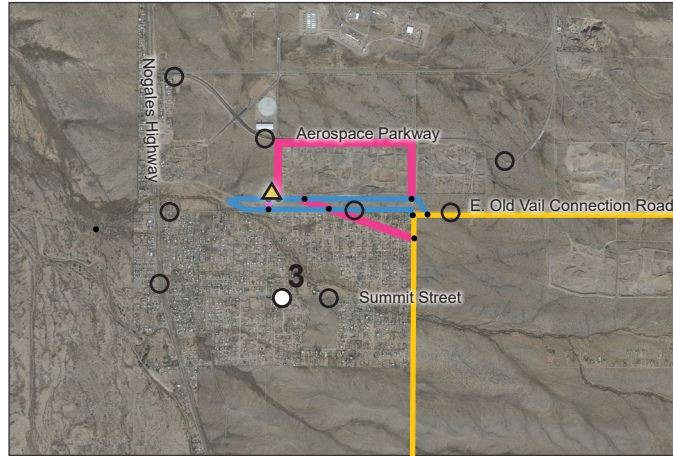


Simulated Condition

## Key Observation Point (KOP) # 3

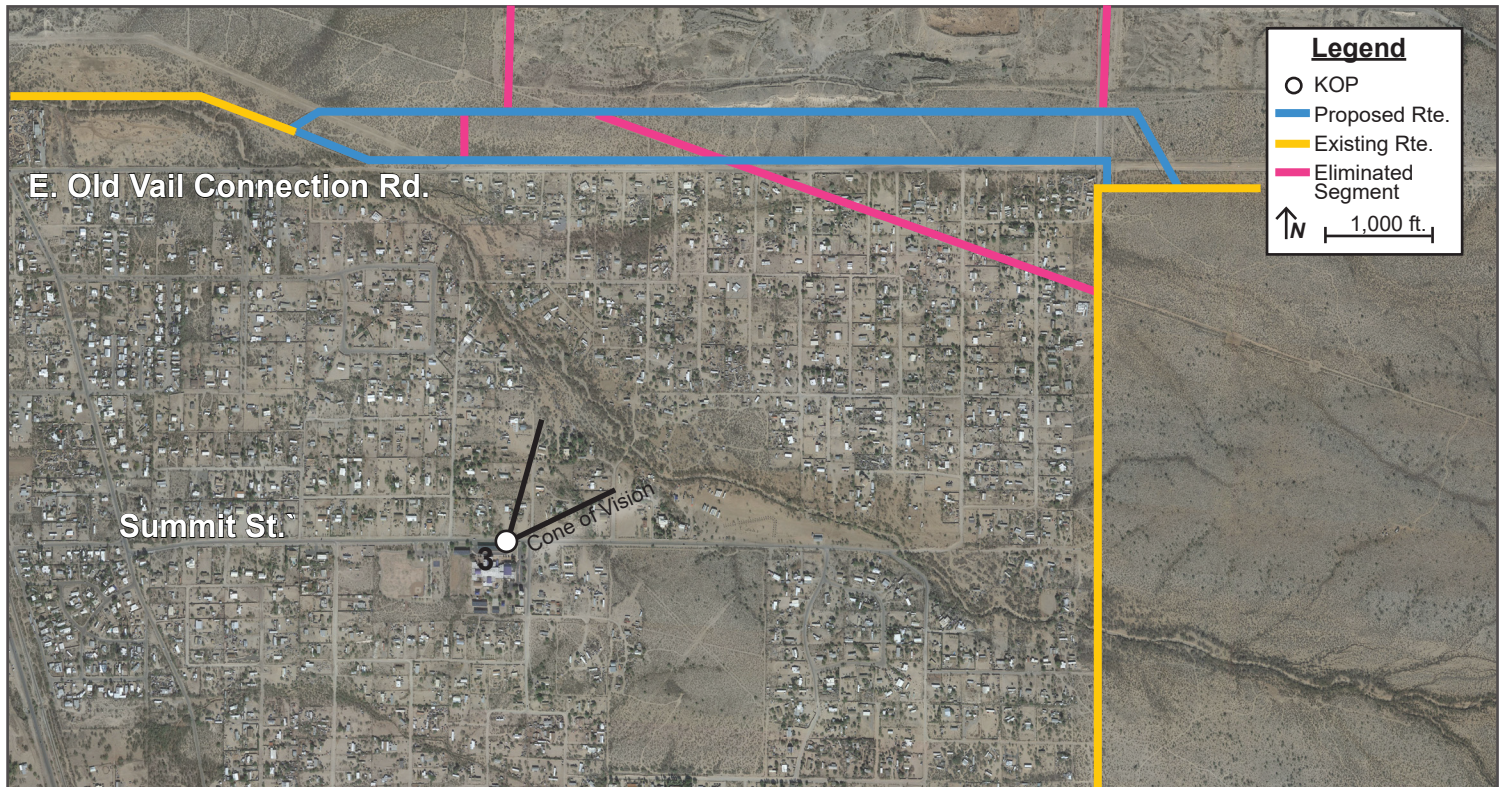


Vicinity Map



Project Map Enlargement

- Legend**
- Existing Transmission
  - Proposed Route
  - Eliminated Segment
  - KOP
  - ▲ Proposed Substation
  - ▲ Proposed Switchyard



### Notes:

#### Camera Information

- Type: Canon EOS RP
- Sensor: CMOS (Full-Frame) 35.9mm x 24mm
- Lens: Canon RF 24-105mm f/4-7.1 IS STM
- Focal Length: 35mm | F-Stop: f/10 | ISO:100
- Dimensions in pixel: 6240 x 4160

#### KOP

- Representative View for: residents, and school visitors
- Location: 1961 E Summit St/ Summit View Elementary
- Latitude: 32.066979° N; Longitude: 110.943138° W
- View Point Elevation at Eye Level: 2,646 ft.
- Looking: northeast
- Poles Visible: Pole Structures
- Image File Name: IMG\_2630.JPG

#### Simulation Notes

- Photo Taken: August 5, 2023, 11:26 AM
- The image is based on a single photo and represents approximately 54 degree horizontal field of view.
- This view is approximately 4,030 feet southwest of the nearest pole represented in the simulation.
- The simulation is based on the best information available and is preliminary. Final alignment and structure locations are subject to change based on final engineering and other factors.



Key Observation Point (KOP) #3

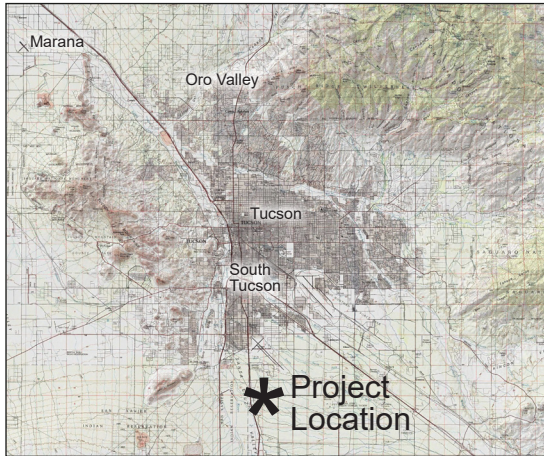


Existing Condition

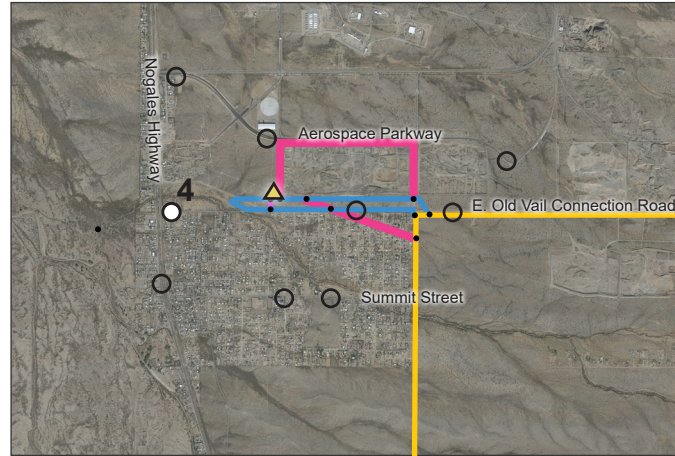


Simulated Condition

## Key Observation Point (KOP) # 4

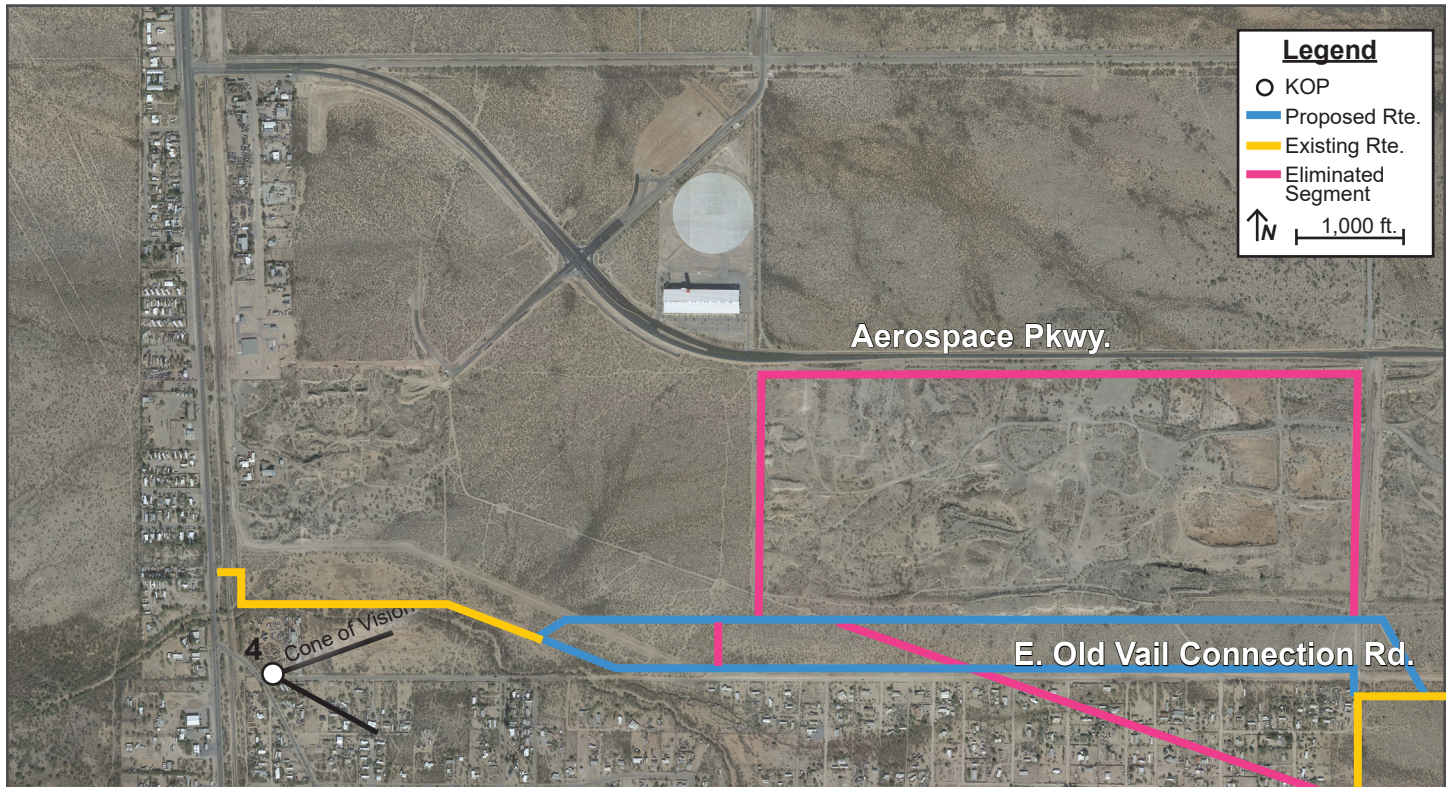


Vicinity Map



Project Map Enlargement

- Legend**
- Existing Transmission
  - Proposed Route
  - Eliminated Segment
  - KOP
  - ▲ Proposed Substation
  - ▲ Proposed Switchyard



### Notes:

#### Camera Information

- Type: Canon EOS RP
- Sensor: CMOS (Full-Frame) 35.9mm x 24mm
- Lens: Canon RF 24-105mm f/4-7.1 IS STM
- Focal Length: 50mm | F-Stop: f/10 | ISO:100
- Dimensions in pixel: 6240 x 4160

#### KOP

- Representative View for: residents
- Location: 1101 E Summit St
- Latitude: 32.075736° N; Longitude: 110.956981° W
- View Point Elevation at Eye Level: 2,587 ft.
- Looking: east
- Poles Visible: Pole Structures
- Image File Name: IMG\_2524.JPG

#### Simulation Notes

- Photo Taken: August 5, 2023, 10:58 AM
- The image is based on a single photo and represents approximately 39.5 degree horizontal field of view.
- This view is approximately 2,388 feet west of the nearest pole represented in the simulation.
- The simulation is based on the best information available and is preliminary. Final alignment and structure locations are subject to change based on final engineering and other factors.

Key Observation Point (KOP) #4

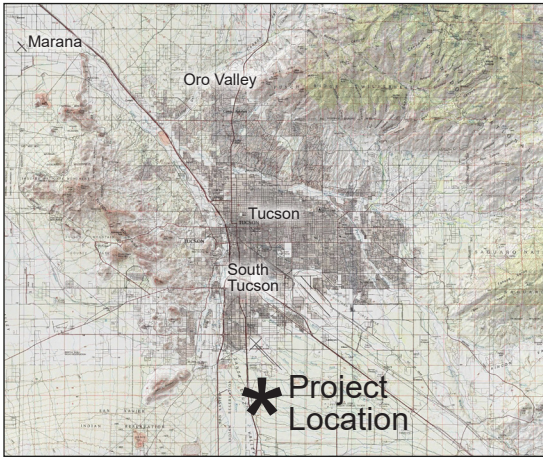


Existing Condition

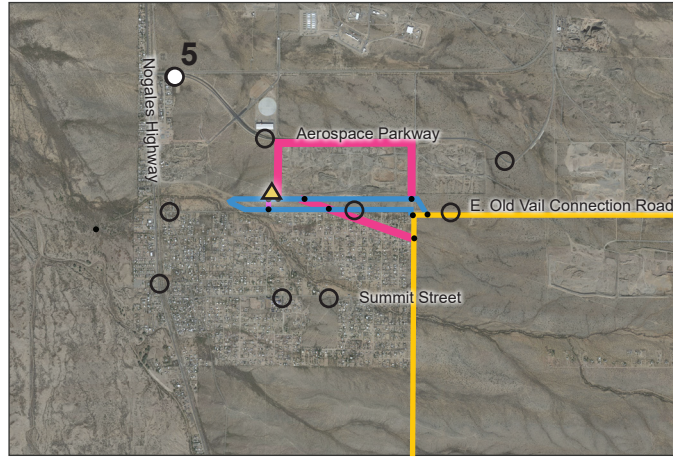


Simulated Condition

## Key Observation Point (KOP) # 5

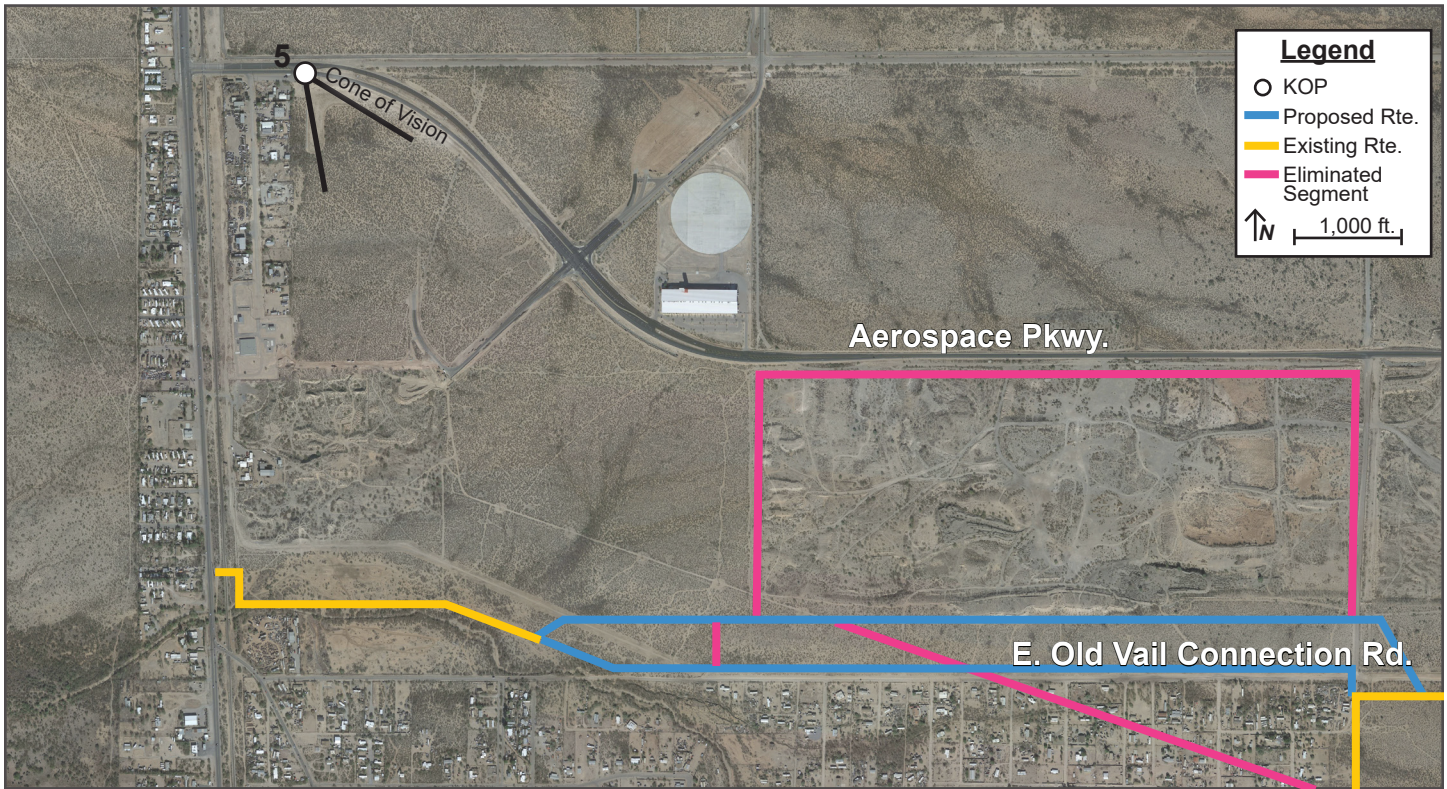


Vicinity Map



Project Map Enlargement

- Legend**
- Existing Transmission
  - Proposed Route
  - Eliminated Segment
  - KOP
  - ▲ Proposed Substation
  - ▲ Proposed Switchyard



- Legend**
- KOP
  - Proposed Rte.
  - Existing Rte.
  - Eliminated Segment
  - ↑ N
  - 1,000 ft.

### Notes:

#### Camera Information

- Type: Canon EOS RP
- Sensor: CMOS (Full-Frame) 35.9mm x 24mm
- Lens: Canon RF 24-105mm f/4-7.1 IS STM
- Focal Length: 35mm | F-Stop: f/10 | ISO:100
- Dimensions in pixel: 6240 x 4160

#### KOP

- Representative View for: residents, commuter
- Location: 964 Aerospace Pkwy
- Latitude: 32.090031° N; Longitude: 110.955978° W
- View Point Elevation at Eye Level: 2,596 ft.
- Looking: southeast
- Poles Visible: Pole Structures
- Image File Name: IMG\_2353.JPG

#### Simulation Notes

- Photo Taken: August 5, 2023, 10:29 AM
- The image is based on a single photo and represents approximately 54 degree horizontal field of view.
- This view is approximately 5,331 feet northwest of the nearest pole represented in the simulation.
- The simulation is based on the best information available and is preliminary. Final alignment and structure locations are subject to change based on final engineering and other factors.

Key Observation Point (KOP) #5

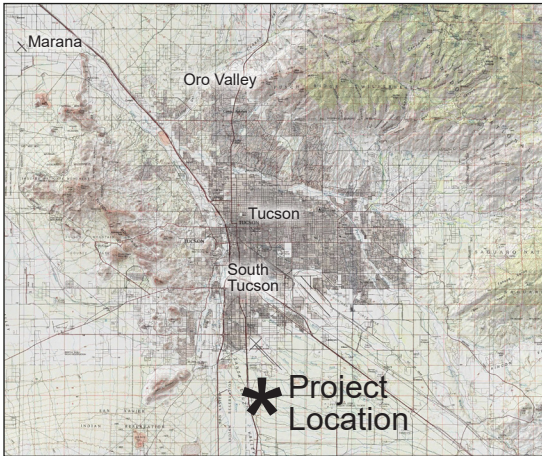


Existing Condition

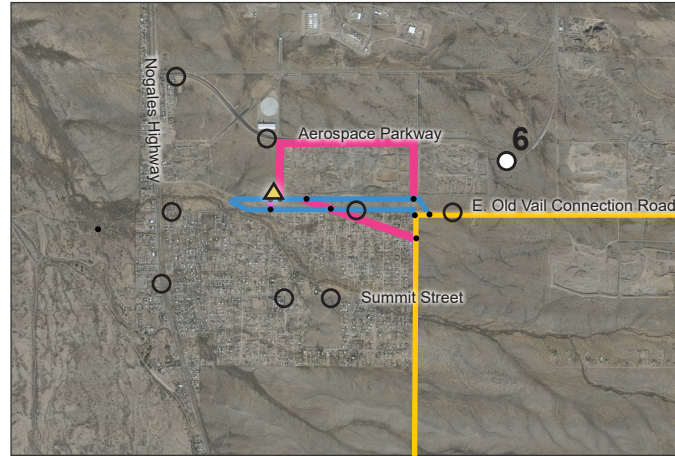


Simulated Condition

## Key Observation Point (KOP) # 6

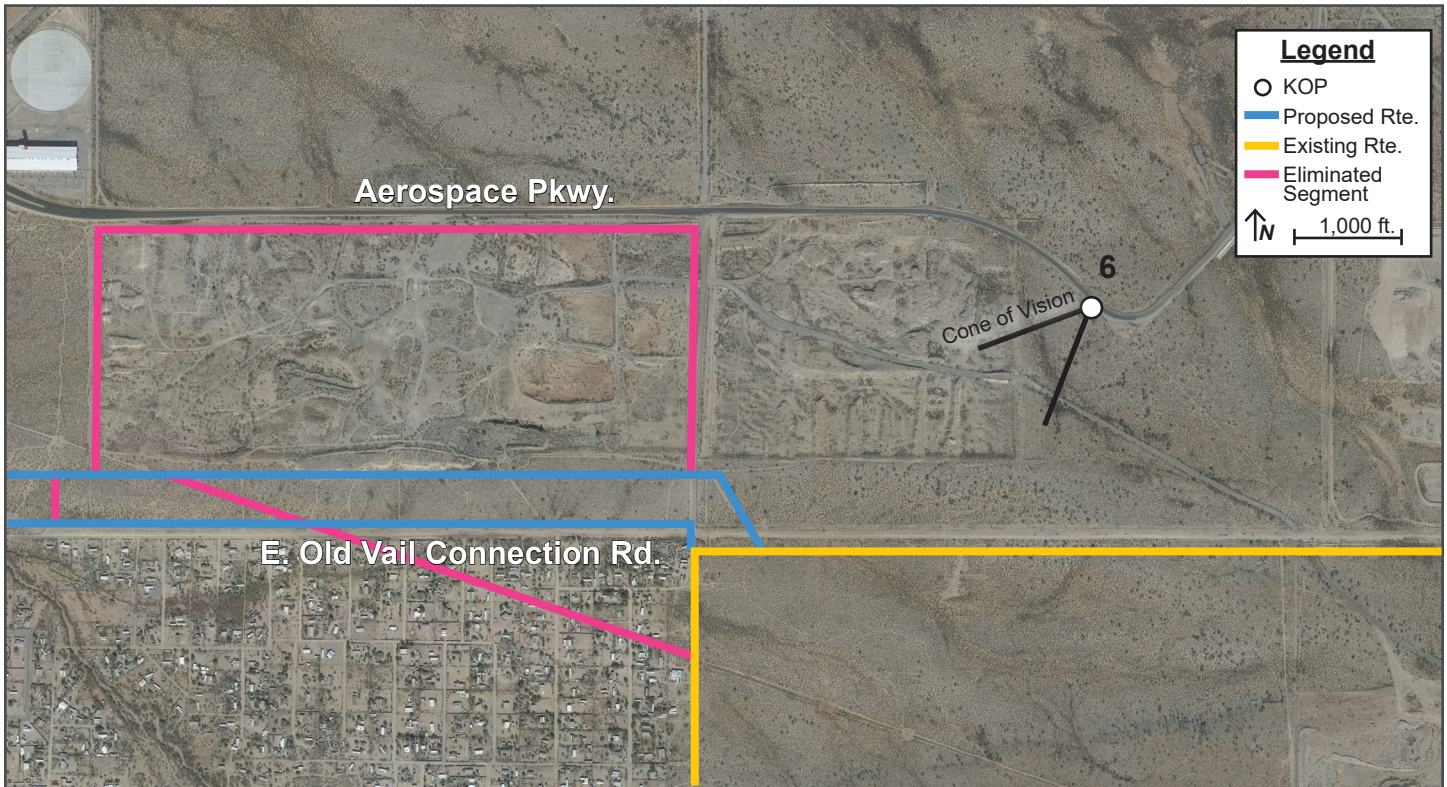


Vicinity Map



Project Map Enlargement

- Legend**
- Existing Transmission
  - Proposed Route
  - Eliminated Segment
  - KOP
  - ▲ Proposed Substation
  - ▲ Proposed Switchyard



### Notes:

#### Camera Information

- Type: Canon EOS RP
- Sensor: CMOS (Full-Frame) 35.9mm x 24mm
- Lens: Canon RF 24-105mm f/4-7.1 IS STM
- Focal Length: 50mm | F-Stop: f/6.3 | ISO:100
- Dimensions in pixel: 6240 x 4160

#### KOP

- Representative View for: residents, commuters, commercial
- Location: 3651 Aerospace Pkwy
- Latitude: 32.081220° N; Longitude: 110.915699° W
- View Point Elevation at Eye Level: 2,690 ft.
- Looking: southwest
- Poles Visible: Pole Structures
- Image File Name: IMG\_2457.JPG

#### Simulation Notes

- Photo Taken: August 5, 2023, 10:44 AM
- The image is based on a single photo and represents approximately 39.5 degree horizontal field of view.
- This view is approximately 3,369 feet northeast of the nearest pole represented in the simulation.
- The simulation is based on the best information available and is preliminary. Final alignment and structure locations are subject to change based on final engineering and other factors.

Key Observation Point (KOP) #6

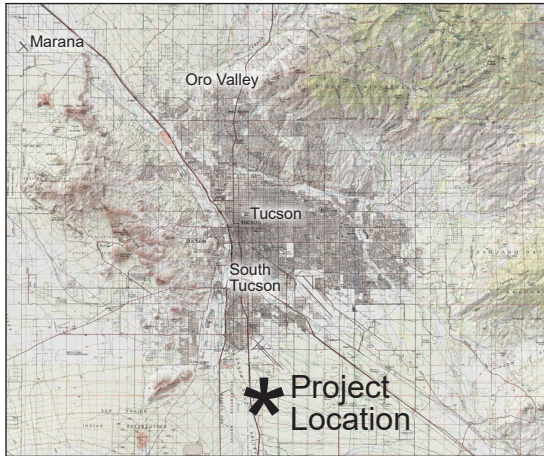


Existing Condition

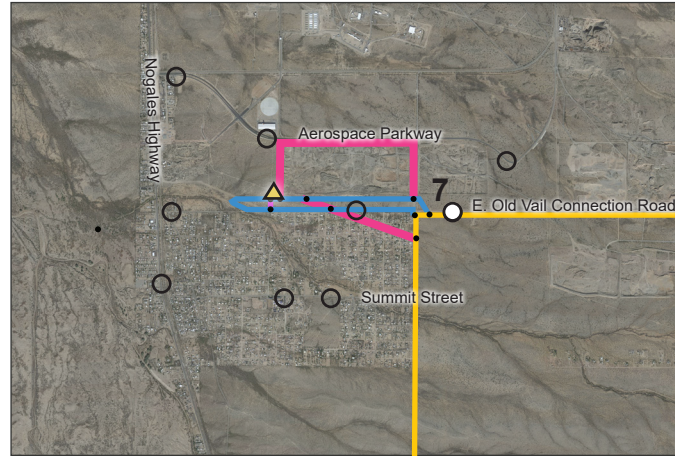


Simulated Condition

## Key Observation Point (KOP) # 7

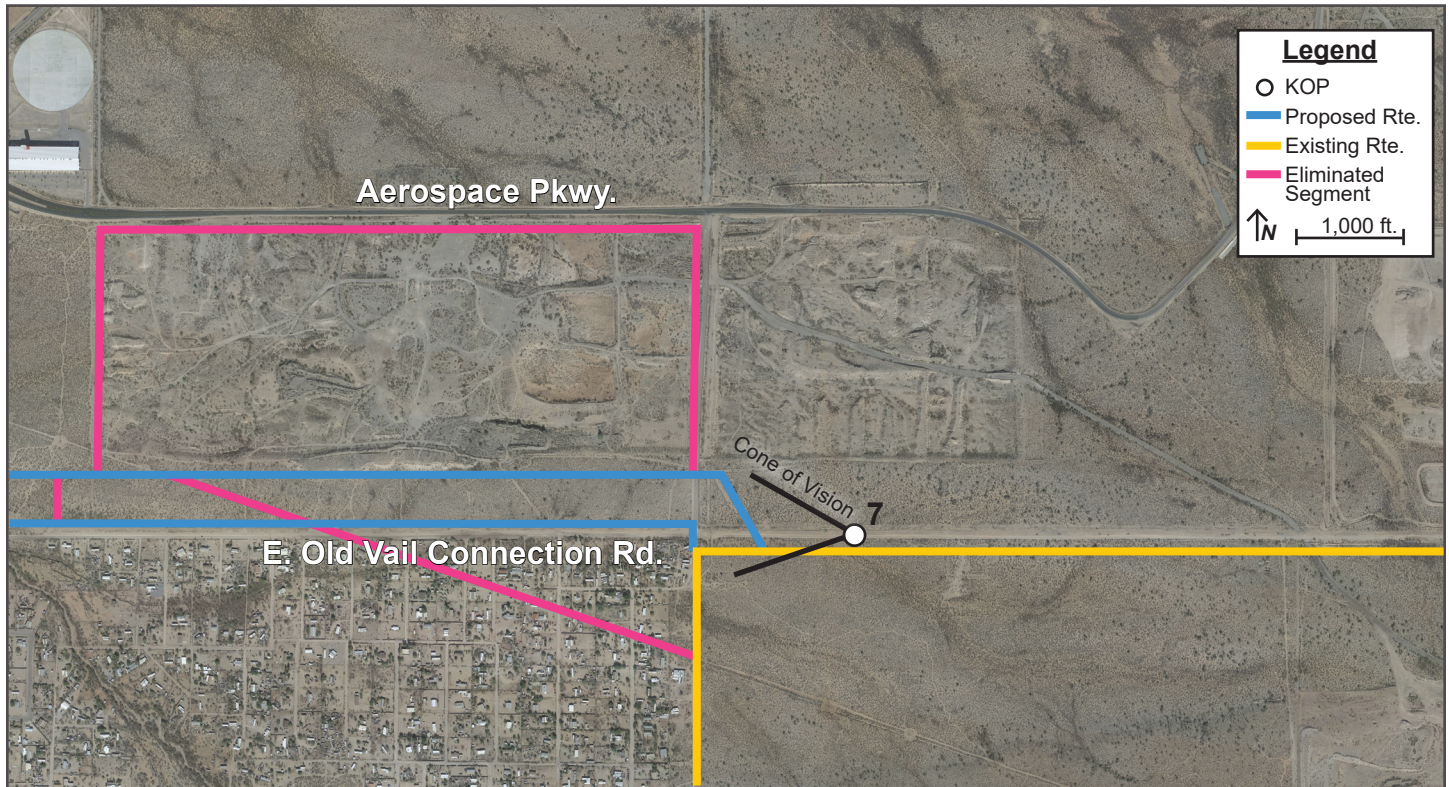


Vicinity Map



Project Map Enlargement

- Legend**
- Existing Transmission
  - Proposed Route
  - Eliminated Segment
  - KOP
  - ▲ Proposed Substation
  - ▲ Proposed Switchyard



### Notes:

#### Camera Information

- Type: Canon EOS RP
- Sensor: CMOS (Full-Frame) 35.9mm x 24mm
- Lens: Canon RF 24-105mm f/4-7.1 IS STM
- Focal Length: 35mm | F-Stop: f/10 | ISO:100
- Dimensions in pixel: 6240 x 4160

#### KOP

- Representative View for: residents, commercial
- Location: 3101 E Old Vail Rd
- Latitude: 32.075845° N; Longitude: 110.922090° W
- View Point Elevation at Eye Level: 2,668 ft.
- Looking: west
- Poles Visible: Pole Structures
- Image File Name: IMG\_2610.JPG

#### Simulation Notes

- Photo Taken: August 5, 2023, 11:14 AM
- The image is based on a single photo and represents approximately 54 degree horizontal field of view.
- This view is approximately 912 feet east of the nearest pole represented in the simulation.
- The simulation is based on the best information available and is preliminary. Final alignment and structure locations are subject to change based on final engineering and other factors.



Key Observation Point (KOP) #7



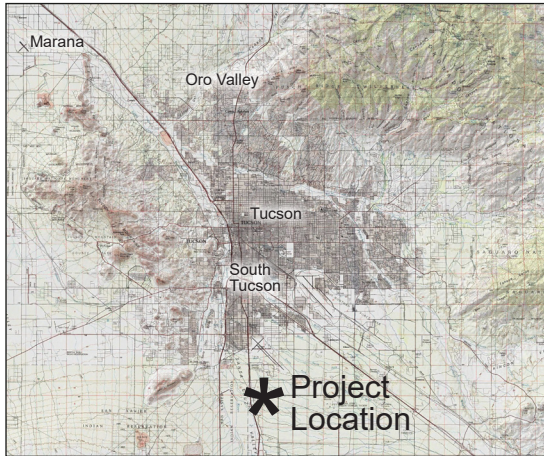
Existing Condition



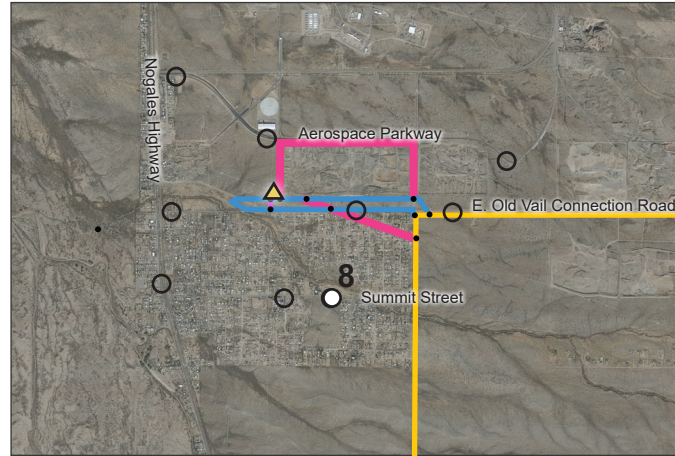
Simulated Condition

# Aerospace Research Campus 138 kV Transmission Line Project

## Key Observation Point (KOP) # 8

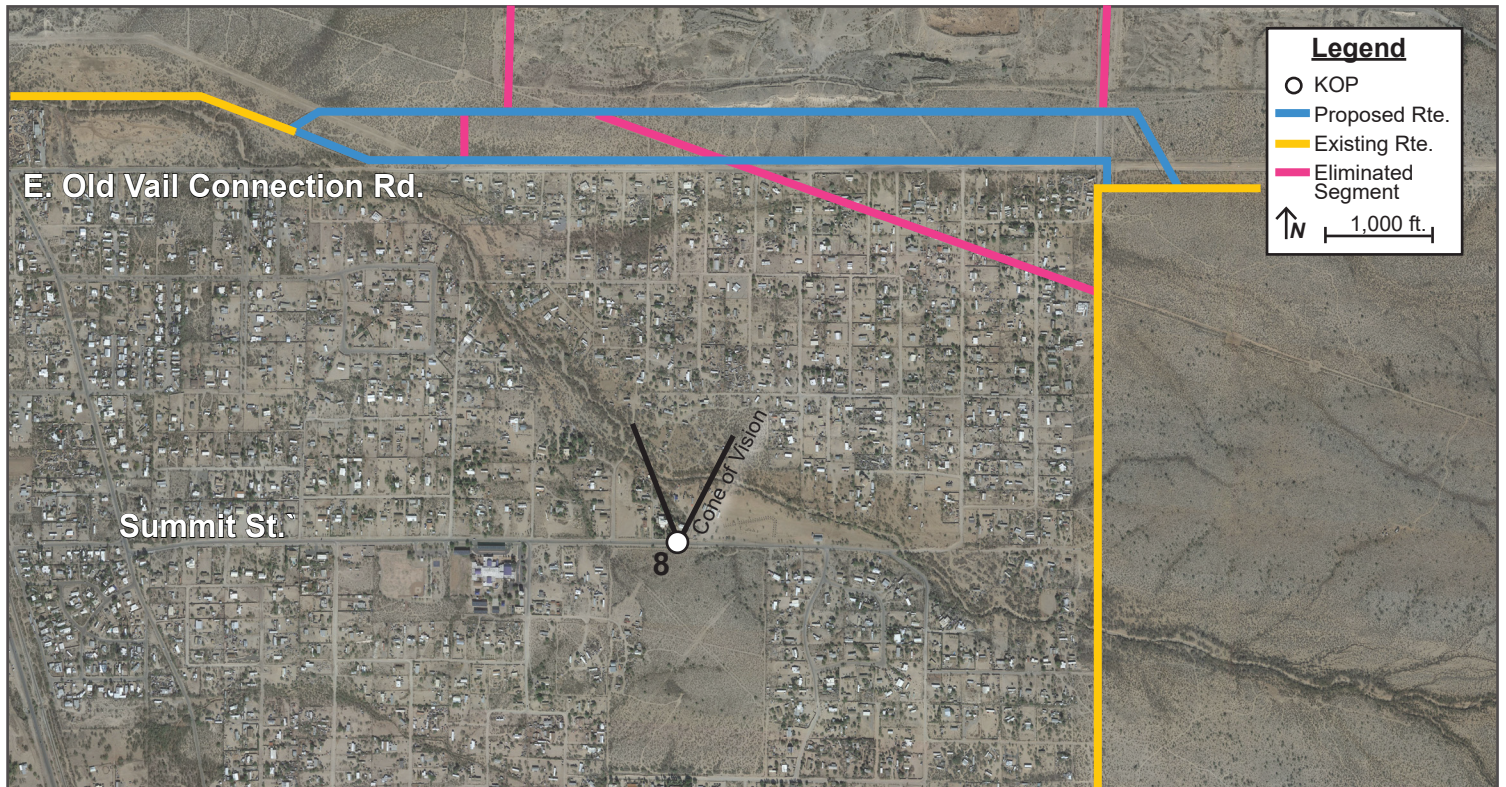


Vicinity Map



Project Map Enlargement

- Legend**
- Existing Transmission
  - Proposed Route
  - Eliminated Segment
  - KOP
  - ▲ Proposed Substation
  - ▲ Proposed Switchyard



### Notes:

#### Camera Information

- Type: Canon EOS RP
- Sensor: CMOS (Full-Frame) 35.9mm x 24mm
- Lens: Canon RF 24-105mm f/4-7.1 IS STM
- Focal Length: 35mm | F-Stop: f/9 | ISO:100
- Dimensions in pixel: 6240 x 4160

#### KOP

- Representative View for: residents
- Location: 2355 E Summit St
- Latitude: 32.066939° N; Longitude: 110.937235° W
- View Point Elevation at Eye Level: 2,644 ft.
- Looking: north
- Poles Visible: Pole Structures
- Image File Name: IMG\_2649.JPG

#### Simulation Notes

- Photo Taken: August 5, 2023, 11:31 AM
- The image is based on a single photo and represents approximately 54 degree horizontal field of view.
- This view is approximately 3,581 feet south of the nearest pole represented in the simulation.
- The simulation is based on the best information available and is preliminary. Final alignment and structure locations are subject to change based on final engineering and other factors.

Key Observation Point (KOP) #8

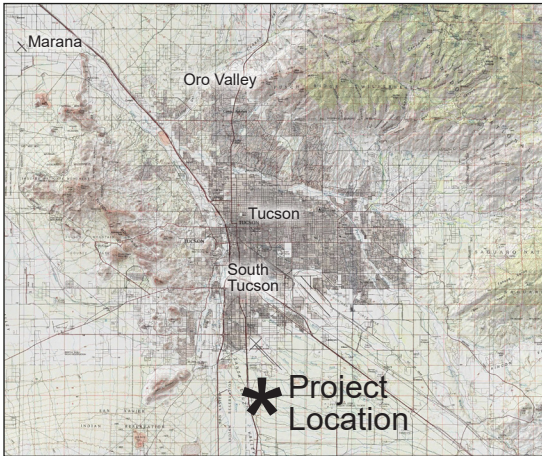


Existing Condition

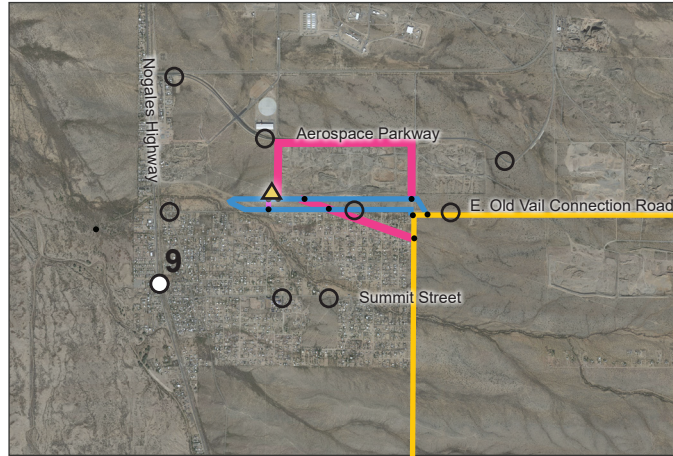


Simulated Condition

## Key Observation Point (KOP) # 9

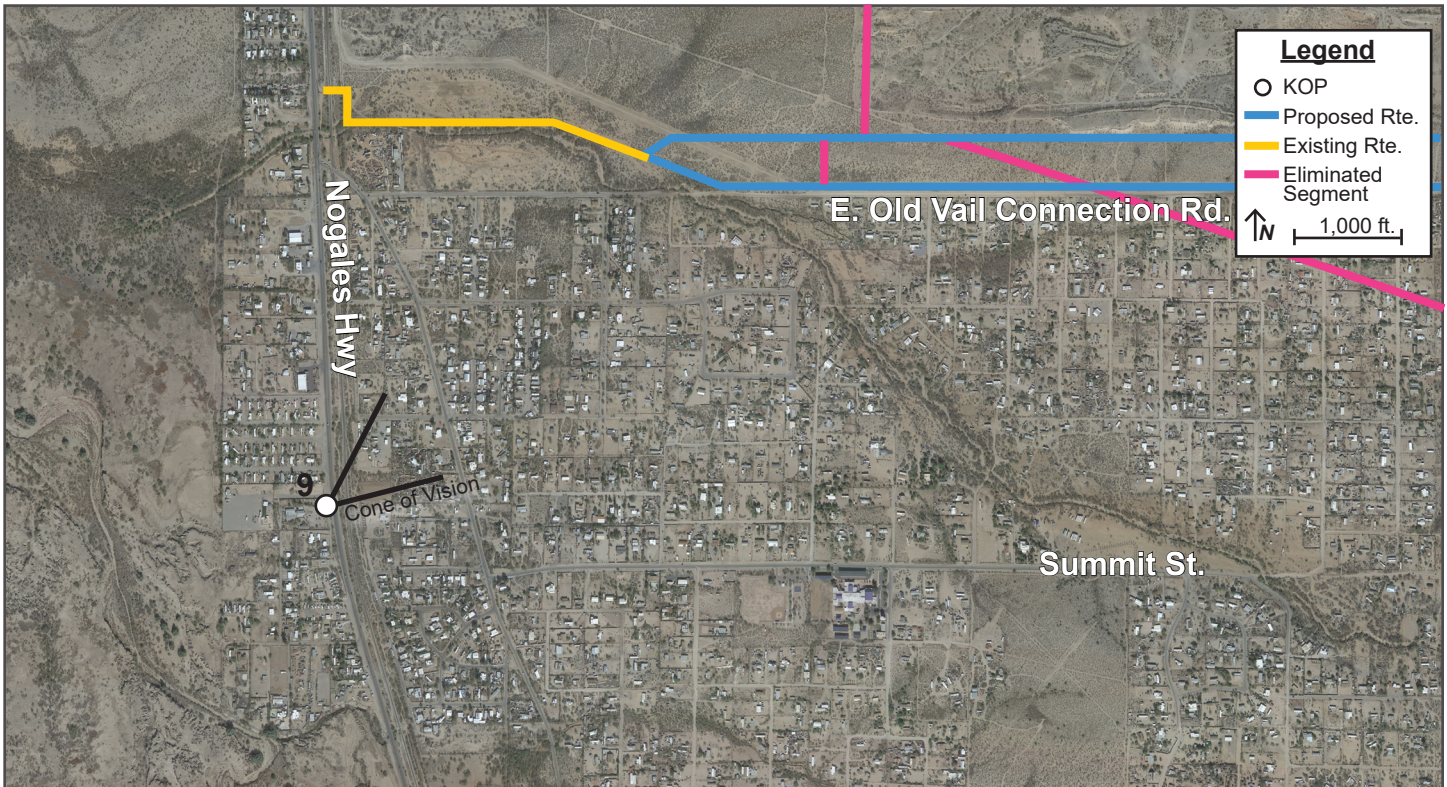


Vicinity Map



Project Map Enlargement

- Legend**
- Existing Transmission
  - Proposed Route
  - Eliminated Segment
  - KOP
  - ▲ Proposed Substation
  - ▲ Proposed Switchyard



### Notes:

#### Camera Information

- Type: Canon EOS RP
- Sensor: CMOS (Full-Frame) 35.9mm x 24mm
- Lens: Canon RF 24-105mm f/4-7.1 IS STM
- Focal Length: 50mm | F-Stop: f/10 | ISO:100
- Dimensions in pixel: 6240 x 4160

#### KOP

- Representative View for: temple visitors, commercial
- Location: 10049 S Nogales Hwy
- Latitude: 32.068406° N; Longitude: 110.958424° W
- View Point Elevation at Eye Level: 2,599 ft.
- Looking: northeast
- Poles Visible: Pole Structures
- Image File Name: IMG\_2694.JPG

#### Simulation Notes

- Photo Taken: August 5, 2023, 11:45 AM
- The image is based on a single photo and represents approximately 39.5 degree horizontal field of view.
- This view is approximately 4,091 feet southwest of the nearest pole represented in the simulation.
- The simulation is based on the best information available and is preliminary. Final alignment and structure locations are subject to change based on final engineering and other factors.

Key Observation Point (KOP) #9



Existing Condition



Simulated Condition

**EXHIBIT H**

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## EXHIBIT H: EXISTING PLANS

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As stated in Arizona Administrative Code R14-3-219 of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee, Exhibits to Application, Exhibit H:

*To the extent applicant is able to determine, state the existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site or route.*

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H.1 Introduction.....	H-2
H.2 Existing Plan Review .....	H-2
H.2.1 Land Ownership and Jurisdiction .....	H-2
H.2.2 Land Use Plans and Development Plans.....	H-2
H.3 Local Government Plans.....	H-2
H.3.1 City of Tucson General Plan.....	H-2
H.3.2 City of Tucson Zoning and Development Code .....	H-2
H.3.3 Pima County Comprehensive Land Use Plan.....	H-3
H.3.4 Arizona State Land Department (“ASLD”) .....	H-3
H.4 Federal.....	H-3
H.4.1 Federal Aviation Administration (“FAA”) .....	H-3
H.5 Tribal.....	H-3
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## **H.1 Introduction**

TEP analyzed anticipated impacts of the Project on the existing land uses, land use plans, and any known development plans in the Project Study Area. Existing land use for the Project is mapped in Exhibit A-4. The Study Area is within Pima County, and the City of Tucson Arizona.

## **H.2 Existing Plan Review**

The following review describes the current landscape and existing land use and land use plan goals and policies within the Study Area.

### **H.2.1 Land Ownership and Jurisdiction**

"Area of jurisdiction" means the state, a county or an incorporated city or town which exercises concurrent or exclusive jurisdiction over a geographical area. "Land use jurisdiction" may include the administrative authority maintained by federal, state, tribal, regional, or local government agencies responsible for land use planning and policies, based upon land ownership.

The Project is located in the City of Tucson and is therefore under City jurisdiction. There are City-specific land use plans and policies applicable to activities within Tucson. A portion of the Proposed Route is within existing ROW that will need to be expanded by acquiring new ROW.

During Project outreach, TEP consulted with local, state, and federal agencies, government representatives, and stakeholders within the Study Area and along the Proposed Route. Outreach and public participation activities are detailed in Exhibit J.

### **H.2.2 Land Use Plans and Development Plans**

Local and federal agency jurisdictions that will be traversed by the Project have adopted land use plans and regulations that guide the type, time, and intensity of land use. TEP conducted an inventory of applicable land use plans in the City and Pima County to determine which land use plans may intersect with the Project. The Project will not impact any existing plans in either the City or the County.

## **H.3 Local Government Plans**

### **H.3.1 City of Tucson General Plan**

Plan Tucson is the City's General Plan, and is a long-term document intended to guide decisions affecting elements that shape the city, including land use, transportation, and energy resources. Development of Plan Tucson began in 2011 and was ratified in 2013. Plan Tucson's Future Growth Scenario Map indicates the Project Area to be located within the Southlands and bordered by an Industrial Area.

### **H.3.2 City of Tucson Zoning and Development Code**

The City of Tucson zoning indicates a portion of the proposed route is located within Zoning Code P-1, Park Industrial. Park Industrial runs along the eastern portion of East Old Vail Connection Road and then north, intersecting with East Aerospace Parkway and South Raytheon Parkway, and encourages a mixture of development types, including office, commercial, and high-density residential. The remainder of the Project Area is Zoned I-2, Heavy Industrial.

### H.3.3 Pima County Comprehensive Land Use Plan

Pima County's Comprehensive Land Use Plan maps Planned Land Use in the Project Area as medium density urban residential (Pima County, 2009) (Exhibits A-4 and H-1). The Project will be located in the City, but is in compliance with existing and planned land use in the County.

### H.3.4 Arizona State Land Department ("ASLD")

Lands managed by ASLD are located within the Study Area, and an amendment to the existing ROW would be required for a portion of the route.

## H.4 **Federal**

### H.4.1 Federal Aviation Administration ("FAA")

FAA jurisdiction within the Study Area extends outward from the Tucson International Airport within a 3- to 5-mile radius. The FAA requires application for an obstruction evaluation for new poles within that radius to determine whether the proposed construction would obstruct aviation activities, to include flight paths or communications. A Notice of Construction may also be required depending on the results of the obstruction evaluation. The Proposed Route was submitted to the FAA Notice Criteria Tool, which indicated that structures 75 feet high would not need an obstruction evaluation, but structures 110 feet would exceed criteria and require an evaluation (Exhibit H-3). Further coordination will be conducted with the FAA once structure design has been initiated to ensure compliance with regulations and to avoid conflicts.

### H.5 **Tribal**

No tribal lands exist along the Proposed Route. The Tohono O'odham Nation San Xavier District borders the Project Area west of South Nogales Highway but is not being crossed by the Project.

### H.6 **Private**

No private entity land use plans were identified on private lands in the Study Area.

### H.7 **Existing Land Use**

TEP conducted a land use inventory and an assessment of potential impacts on existing land uses that may occur from construction and operation of the Project. The existing land use is mapped in Exhibit H-1. Overall, the Project Area is a mix of industrial facilities, gravel extraction sites, residential developments, agricultural fields, solar generation facilities, and an international airport. The land use categories identified in Exhibit H-1 are described below.

#### Residential:

Residential land uses within the Study Area range from low- to medium- density residential areas. There are 3 platted subdivisions within the Study Area. They are located within the residential developments south of East Old Vail Connection Road, in the area Zoned GR-1, Rural Residential by the County.

#### Commercial:

A scattering of commercial establishments are located in the Study Area north and south of East Old Vail Connection Road, and along South Nogales Highway.

Light and Heavy Industrial:

The Study Area north of East Old Vail Connection Road is zoned Light and Heavy Industrial. The land between East Old Vail Connection Road and East Aerospace Parkway is vacant. Existing aerospace industries such as World View and Raytheon Missile Systems are located north of East Aerospace Parkway.

Resource Conservation:

Resource Conservation land use is mapped in the vicinity of Franco Wash.

Utilities:

- Electrical transmission and distribution lines, as well as telephone and cable lines are present in the Study Area.
- A sanitary sewer service area, Agua Nueva/Tres Rios, is located along East Old Vail Connection Road.
- Tucson Water services the area within the City of Tucson and portions of the area south of East Old Vail Connection Road.
- There are active cell towers within the Study Area, which are referenced in Exhibit I.

Transportation Network:

Roadways within the Study Area include:

- South Country Club Road on the eastern boundary of the Study Area (minor local road; unimproved)
- South Nogales Highway on the western boundary of the Study Area (major local road)
- East Aerospace Parkway on the northern boundary of the Study Area (major local road)
- East Old Vail Connection Road, south and parallel to East Aerospace Parkway (minor local road)

Several minor local roads serve the residential neighborhood south of East Old Vail Connection Road.

Vacant/Undeveloped Land:

The land directly adjacent to and north of East Old Vail Connection Road is mostly vacant.

A former gravel extraction pit exists west of South Country Club Road, between East Aerospace Parkway and East Old Vail Connection Road.

Recreation Facilities:

See Exhibit F for a detailed description of Recreation within the Study Area.

Table 7 shows the percentage of different land uses along the Proposed Route.

**Table 7. Percentage Land Use Along the Proposed Route**

Proposed Route	Land Use	Percent of Land Use Crossed
Proposed Route	Residential	0%
	Commercial	0%
	Industrial	0%
	Vacant	100%

**H.8 Proposed Land Uses and Developments**

The ARC is proposed for development in the northern portion of the Study Area. This future development on privately-owned lands under City planning jurisdiction will require approval by the City’s planning and development departments.

**H.9 Potential Effects**

Land use impacts may be defined primarily as (1) incompatible with existing plans or proposed land uses, plans, or developments; or (2) restrictions on land use that would result from the construction or operation of the Project. Potential effects on future or planned land use are generally associated with Project construction rather than operation, as once construction is completed, no further land use changes are anticipated. As demonstrated in this application, the Project is compatible with local land use plans; therefore, there would be no impacts of the Project anticipated on local, state, and federal land use plans within the Study Area.

Restrictions on land use would result from ROW or easement acquisition across a property. The project has fixed termini at the planned Franco Wash Switchyard. The majority of the Project would be built on private and county land, and follow existing utility or road ROW corridors, reducing the impact of the Project on use of the land.

Potential effects from this project on private, county, or State land would include restrictions on use of the land within the Project ROW.

**Pima County Regional Flood Control District (“PCRFC”) (“PCRFCD”)**

TEP does not anticipate impacts on PCRFCD plans. Any need for PCRFCD permits would be dependent upon the actual pole placement.

**City of Tucson**

TEP has coordinated with the City of Tucson throughout the development of its proposed route. The route is compatible with the City’s plans and ordinances as demonstrated in this Application. Any further coordination, including applying for permits, and completing required studies will be completed.

## H.10 **Conclusion**

The Proposed Route is generally consistent with local, state, and federal land use plans. The route would be constructed on easements across private and county property, which is vacant and undeveloped. Land use impacts are anticipated to be minor to low.

## H.11 **References**

Pima County. (2009). *Pima County Comprehensive Land Use Plan - Planned Land Use Maps*. Retrieved from Eastern Pima County: <https://www.pima.gov/1184/Planned-Land-Use-Maps>

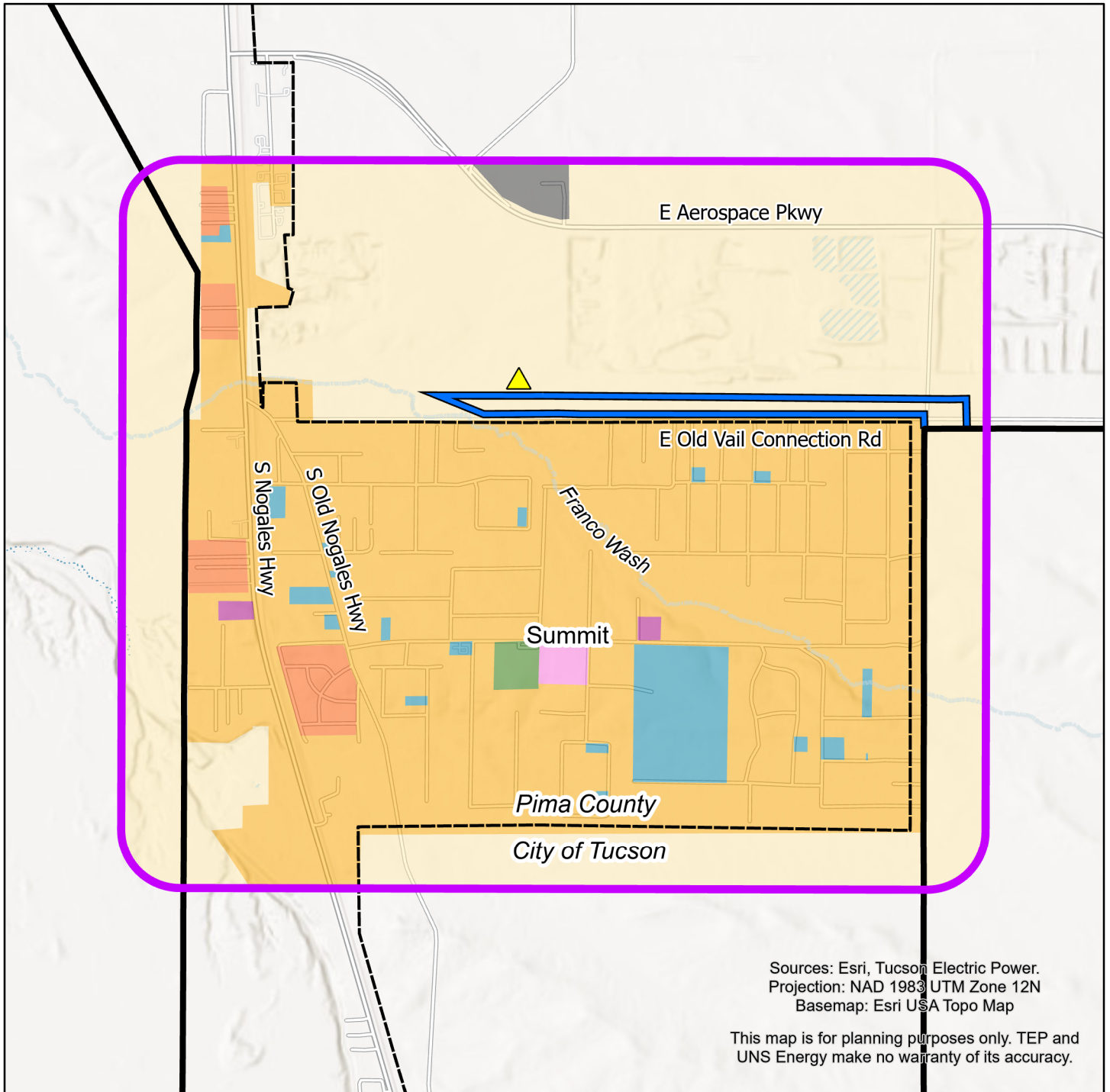
Tucson. (n.d.). *City of Tucson Plans*. Retrieved from City of Tucson: <https://www.tucsonaz.gov/Departments/Planning-Development-Services/Development-Tools-Resources/Plans>















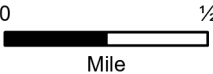
**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit H-1**

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-  Proposed Route
  -  Proposed Franco Wash Switchyard
  -  Study Area
  -  Existing 138kV Transmission Line
  -  Municipal Boundaries
- Existing Land Use
-  Commercial
  -  Industrial
  -  Institutional
  -  Parks and Recreation
  -  Religious
  -  Low Density Residential
  -  Medium Density Residential
  -  Vacant and Open Space
- 


Scale: 1:30,000



**Exhibit H-1**  
**Aerospace Research  
 Campus Transmission  
 Project**

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**Existing Land Use**



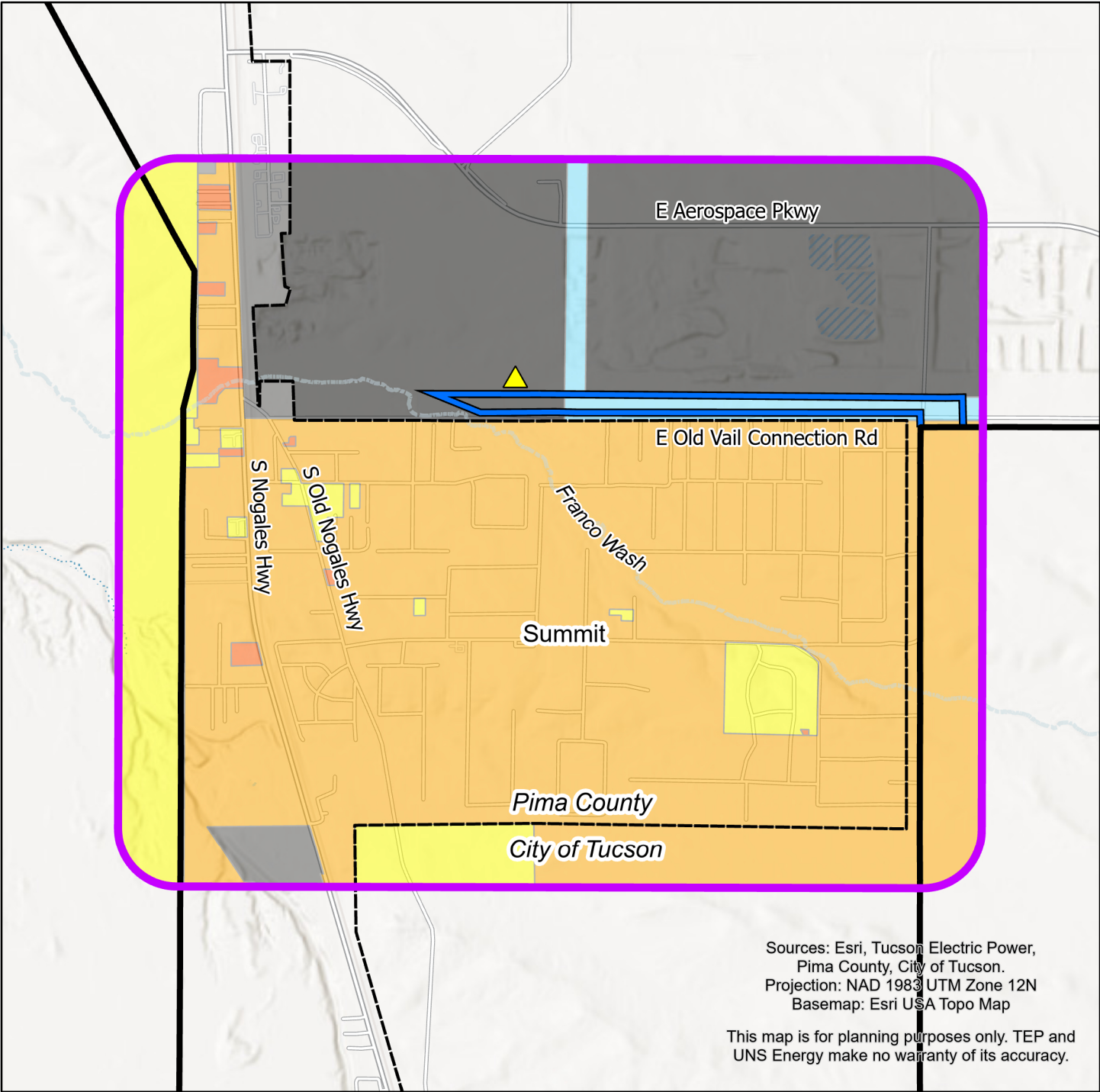
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**Application for a Certificate of Environmental  
Compatibility**

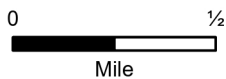
**Aerospace Research Campus  
Transmission Project**

**Exhibit H-2**

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-  Proposed Route
-  Proposed Franco Wash Switchyard
-  Study Area
-  Existing 138kV Transmission Line
-  Municipal Boundaries
- Zoning**
-  CB-1, RH, SH, RX-1
-  GR-1, RH
-  CB-2, CMH-1, CMH-2, TH
-  P-I
-  CI-1
-  CI-2
-  I-2



Scale: 1:30,000



**Exhibit H-2**  
**Aerospace Research**  
**Campus Transmission**  
**Project**

**Zoning**

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit H-3**

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### Notice Criteria Tool

[Notice Criteria Tool - Desk Reference Guide V\\_2018.2.0](#)

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference [CFR Title 14 Part 77.9](#).

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the [FAA Co-location Policy](#)
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the [Air Traffic Areas of Responsibility map](#) for Off Airport construction, or contact the [FAA Airports Region / District Office](#) for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

\* **Structure Type:**  ▼  
 Please select structure type and complete location point information.

**Latitude:**  Deg  M  S  ▼

**Longitude:**  Deg  M  S  ▼

**Horizontal Datum:**  ▼

**Site Elevation (SE):**  (nearest foot)

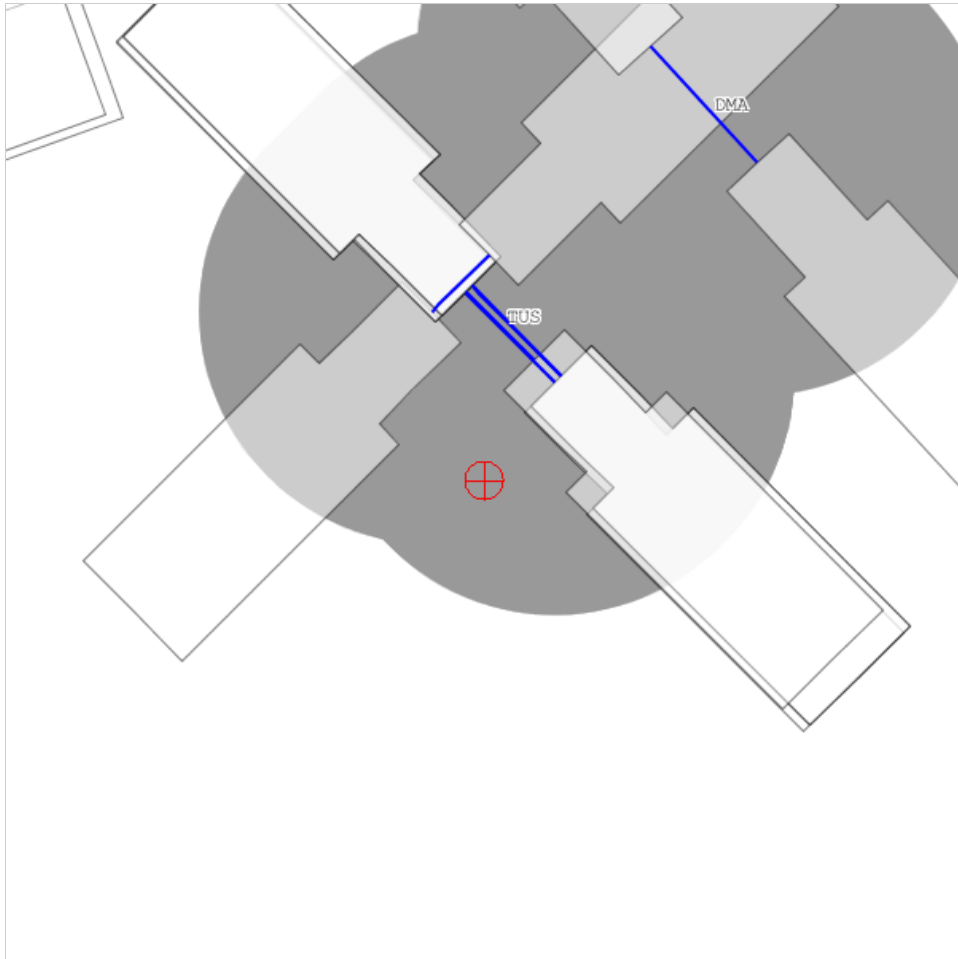
**Structure Height :**  (nearest foot)

**Is structure on airport:**  No  Yes

### Results

You do not exceed Notice Criteria.







## Notice Criteria Tool

[Notice Criteria Tool - Desk Reference Guide V\\_2018.2.0](#)

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference [CFR Title 14 Part 77.9](#).

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The tool below will assist in applying Part 77 Notice Criteria.

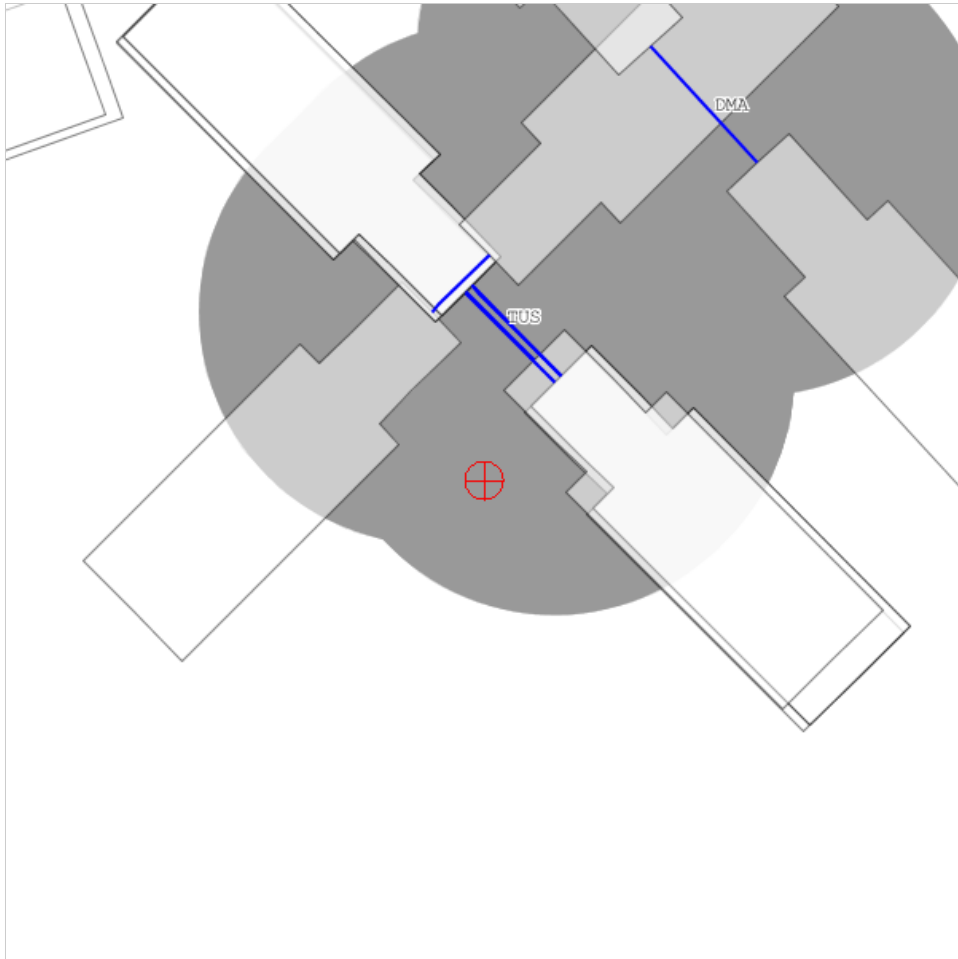
<b>* Structure Type:</b>	POWER_LINE   Transmission Line Tower <span style="float:right">▼</span>			
	Please select structure type and complete location point information.			
<b>Latitude:</b>	32	Deg	4	M
			37	S
				N ▼
<b>Longitude:</b>	110	Deg	56	M
			40	S
				W ▼
<b>Horizontal Datum:</b>	NAD83 ▼			
<b>Site Elevation (SE):</b>	2616	(nearest foot)		
<b>Structure Height :</b>	110	(nearest foot)		
<b>Is structure on airport:</b>	<input checked="" type="radio"/> No <input type="radio"/> Yes			

### Results

You exceed the following Notice Criteria:

77.9(b) by 14 ft. The nearest airport is TUS, and the nearest runway is 03/21.

The FAA requests that you file



**EXHIBIT I**

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## EXHIBIT I: ANTICIPATED NOISE AND INTERFERENCE WITH COMMUNICATION SIGNALS

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As stated in Arizona Administrative Code R14-3-219 of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee Exhibits to Application, Exhibit I:

*“Describe the anticipated noise emission levels and any interference with communication signals which will emanate from the proposed facilities.”*

---

I.1 Introduction .....	I-1
I.2 Audible Noise .....	I-1
I.3 Corona Noise .....	I-5
I.4 Radio Interference .....	I-6
I.5 Television Interference .....	I-6
I.6 Electric and Magnetic Field Effects .....	I-6
I.6.1 Existing Electric Facilities within the Proposed Route .....	I-6
I.6.2 Electric and Magnetic Fields Background .....	I-7
I.7 Conclusion .....	I-8
I.8 References .....	I-9

### **I.1 Introduction**

The following analysis describes the anticipated noise impacts and interference with communication signals within the Study Area. The Study Area is within Pima County, Arizona. The Project will generate both audible noise during the construction and maintenance phases, and minor corona noise during operation.

### **I.2 Audible Noise**

Baseline ambient noise levels in the Study Area were estimated using the relationship between population density and noise levels. Populations for the majority of the area immediately adjacent to the proposed route are urban. Despite vacant land in the Study Area, the populated area of Summit has a population of over 4,000, and the U.S. Census defines a rural area as having less than 2,500 residents. The County has an average population density of 114 people per square mile and the City averages 2,251 people per square mile. Summit has an average population density of 1,197 people per square mile. Typical ambient noise levels for an urban setting are 85 to 90 A-weighted decibels (“dBA”). In the central portion of the Study Area, the proposed switchyard is located within 0.75 miles of South Nogales Highway and the Union

Pacific Railway (“UPRR”), 1.1 miles of the Project run along East Old Vail Connection Road. Ambient noise levels along East Old Vail Connection Road and South Nogales Highway are higher than the remainder of the Study Area.

Sources of noise along the Proposed Route primarily relate to transportation sources and include traffic on South Nogales Highway and East Old Vail Connection Road, local access traffic, aircraft departing and returning from Tucson International Airport, and noise from UPRR. Existing land use also contributes to noise levels. There is one sensitive noise receptor, Summit View Elementary School, located in the Study Area, 0.7 miles south of the Proposed Route (see Exhibit H).

Some level of audible noise will result from transmission line construction, operation, and maintenance. During construction, equipment used for assembly and erection of structures, wire pulling and splicing activities, as well as construction equipment and vehicles used to transport crews and materials will generate noise. Noise from construction activities would be audible, particularly to the closest residents. This construction noise, however, would not be considered a major impact because construction would occur during daytime hours when tolerance to noise is higher, and would be temporary, lasting only a few days at a time in any one location. Long-term audible noise impacts from transmission line operation and maintenance activities are expected to be minimal.

Uncontrolled noise levels for typical construction equipment are displayed in Table 8. The maximum noise levels will range between 80 to 85 dBA at 50 feet from construction equipment. As a general rule, noise levels drop 6 dBA every time the distance from a point source is doubled.

**Table 8. Typical Noise Levels for Construction Equipment**

<b>Equipment</b>	<b>Typical Maximum Levels (dBA at 50 feet)</b>
Front loader	80
Backhoe, excavator	80
Tractor, dozer	85
Grader, scraper	85
Dump truck	84
Pick-up truck	55
Concrete mixer truck	85
Crane (movable)	85
Pump	77
Generator	82
Compressor (air)	80
Pneumatic tools	85
Compactor (ground)	80
Auger drill rig	85
Source: FHWA 2017	

Construction criteria for acceptable noise limits for nearby residents as established by the U.S. Department of Transportation (“USDOT”) were used to assess impacts from construction noise due to the

Project (Table 9). These criteria are not standardized, but are considered reasonable guidelines for determining construction noise impacts (USDOT 2012). The acceptability standards are given in terms of the 1-hour equivalent noise level (“Leq”), the 8-hour Leq, and the weighted day night average (“Ldn”) noise level.

**Table 9. General Construction Noise Assessment Criteria Acceptable Limits**

Land use	One-hour Leq (dBA)		8-hour Leq (dBA)		Weighted Ldn (dBA)
	Day	Night	Day	Night	30-day average*,**
Residential	90	80	80	70	75
Commercial	100	100	85	85	80
Industrial	100	100	90	90	85
* Note: In urban areas with very high ambient noise levels ( $L_{dn} > 65$ dBA), $L_{dn}$ from construction should not exceed existing ambient plus-10 decibels.					
** Note: 24 hour $L_{eq}$ , not $L_{dn}$					
Source: USDOT 2012					

Based on typical usage factors, the average construction noise level is conservatively estimated to be 83 dBA at 50 feet from the centerline of the transmission line. Thus, from 0 to approximately 75 feet from the transmission line, construction noise levels would slightly exceed the USDOT 8-hour Leq standards for construction in residential areas. Construction will be occurring adjacent to residential areas that are located within 0.7 miles of South Nogales Highway and UPRR, and a few hundred feet from East Old Vail Connection Road. These areas experience one-hour traffic volumes that can exceed 500 cars per hour (Table 10). Vehicles can generate over 65 dBA at 45 miles per hour traffic speed (Table 11).



**Table 10. Traffic on Roads in the Project Area**

ROAD	SPEED LIMIT (mph)	AADT
East Old Vail Connection Road	25	1,029
South Nogales Highway	45	11,922
South Old Nogales Highway	35	5,604

(PAG, 2022)

**Table 11. Noise Generated by Traffic (dBA) at 50 feet**

Vehicles /hour	SPEED (MILES/HOUR)				
	35	40	45	50	55
500	63.2	64.4	65.6	66.8	67.9
1000	66.2	67.4	68.6	69.8	70.9
2000	69.2	70.4	71.6	72.8	73.9
3000	71.0	72.2	73.4	74.6	75.7

(WSDOT, 2020)

Noise levels associated with the transmission line construction are anticipated to decrease according to typical point source distance attenuation (Table 12). As such, at a distance of approximately 75 feet and beyond, noise is expected to be within suitable limits. Construction noise impacts will be temporary, and construction will be near the structure location(s), not along the entirety of the transmission line.

Construction activity related to one transmission line structure (pole) with a concrete foundation is typically completed in three days. It will take one to two consecutive days to drill the foundation and pour the concrete, and another day, at a later time, to set the pole. It takes less than a day to erect a typical direct embed pole. This makes the duration of direct noise impacts within 100 feet of noise receptors brief and temporary. To reduce noise impacts whenever a receptor is within approximately 100 feet of the active transmission construction area, any idling equipment will be parked as far away from the receptor as possible and turned off when possible.

**Table 12. Construction Noise Level Estimates**

Distance from centerline (feet)	Estimated Construction Noise Levels Leq (dBA)*	Estimated Ldn (dBA)
50	83	78
100	77	72
150	74	69
200	71	67
300	68	64
400	65	61
800	59	57

\*Note: A background nighttime noise level of 45 dBA is assumed.

The majority of construction noise impacts (i.e., those beyond 100 feet) are expected to have minor short-term impacts. Typical noise levels for construction beyond 100 feet are below the USDOT acceptable limits. The majority of the work is planned to occur during the daytime period in accordance with local guidelines. No nighttime work is planned.

### **1.3 Corona Noise**

Noise emanating from a transmission line is caused by corona. Corona is the electrical ionization of the air that occurs near the surface of the energized conductor and suspension hardware due to electric field strength. Certain electromagnetic effects are inherently associated with overhead transmission of electrical power at high voltage. These effects are produced by the electric and magnetic fields (“EMF”) of the transmission line with one of the primary effects being corona discharge. Corona effects are manifested as audible noise (“AN”), radio interference, and television interference. These particular effects will be minimized by line location, line design, and construction practices. Results presented in this exhibit are based on consideration of the various possible construction configurations along the alternative routes. Corona may result in AN being produced by a transmission line. Corona noise levels are typically 40 to 50 dBA at the edge of the ROW. In comparison, a vacuum cleaner typically produces 60 to 80 dBA.

The amount of corona produced by a transmission line is a function of the voltage of the line, the diameter of the conductors, the locations of the conductors in relation to each other, the elevation of the line above sea level, the condition of the conductors and hardware, and the local weather conditions. Corona typically becomes a design concern for transmission lines at 345 kV and above and is less noticeable from lines that are operated at lower voltages, such as the Project’s proposed 138 kV transmission line.

The electric field gradient is greatest at the surface of the conductor. Large-diameter conductors have lower electric field gradients at the conductor surface; hence, lower corona than smaller conductors, everything else being equal. The conductors for the Project will be of a larger diameter, and thus will have a reduced potential to create audible noise. Irregularities (such as nicks and scrapes on the conductor surface or sharp edges on suspension hardware) concentrate the electric field at these locations, increasing the electric field gradient and the resulting corona at these spots. Similarly, foreign objects on the conductor surface, such as dust or debris can cause irregularities on the surface that are a source for corona.

Corona also increases at higher elevations where the density of the atmosphere is less than at sea level. AN varies with elevation with the relationship of  $A/300$ , where A is the elevation of the line above sea level measured in meters (EPRI 2005). AN at a 600-meter (1,968.5 feet) elevation would be twice the AN at 300 meters (984.25 feet) all other things being equal. The elevations along the Project range from 3,500 feet to 5,000 feet.

Raindrops, snow, fog, hoarfrost, and condensation accumulated on the conductor surface are also sources of surface irregularities that can increase corona. During fair weather, the number of these condensed water droplets or ice crystals is usually small, and the corona effect is also small. However, during wet weather, the number of these sources increases (e.g., due to rain drops standing on the conductor) and corona effects are therefore greater. During wet or foul weather conditions, the conductor would produce

the greatest amount of corona noise; yet noise generated by heavy rain hitting the ground would typically be greater than the noise generated by corona, thus masking the AN from the transmission line.

Corona produced on a transmission line can be reduced by the design of the transmission line and the selection of hardware and conductors used for the construction of the line; for instance, the conductor hardware used to support the conductors have rounded rather than sharp edges and recessed bolts to reduce sharp edges that can contribute to corona. The conductors themselves will be installed under tension to prevent damage to the conductor and retain a smooth surface without causing nicks, burrs, or scrapes in the conductor strands.

The transmission line proposed for the Project will be designed to reduce corona generation.

#### ***1.4 Radio Interference***

Corona-generated radio interference is most likely to affect the amplitude modulation (“AM”) radio broadcast band (535 to 1,605 kilohertz); frequency modulation (“FM”) radio is rarely affected. Only AM receivers located very near to transmission lines that are tuned to a weak station have the potential to be affected by radio interference. An example is the humming noise on an AM radio that happens when the radio is near a power line but diminishes as the radio moves away from the line. FM radio receivers usually do not pick up interference from transmission lines, because corona-generated radio frequency noise currents decrease in magnitude with increasing frequency and are quite small in the FM broadcast band (88 to 108 megahertz). In addition, the excellent interference rejection properties inherent in FM radio systems make them virtually immune to amplitude-type disturbances.

Residential areas located in the vicinity of the Proposed Route are near other existing power lines; therefore, additional radio interference as a result of the Project’s implementation is not expected.

TEP has identified three (3) active communications towers previously licensed by the FCC within the Study Area, between 3,000 and 5,000 feet of the Proposed Route (Exhibit I-1). TEP has notified the tower owners of the Project via letter (Exhibit I-2). No radio interference is anticipated from the Project. Potential impacts will be further assessed following design and will be mitigated as needed.

#### ***1.5 Television Interference***

Interference with traditional television reception affects only over-the-air signals of local television stations and does not impact Cable or satellite stations. Any impacts from the transmission line’s corona effects may occur during periods of bad weather but is usually only a concern for transmission lines of 345 kV or greater and only for receivers within 500 feet of the line. Because the voltage would not exceed 138 kV, television interference is not expected.

#### ***1.6 Electric and Magnetic Field Effects***

##### ***1.6.1 Existing Electric Facilities within the Proposed Route***

There are existing electrical facilities within the Study Area. Within the Proposed Route, the following electrical facilities exist:

- A 46 kV sub-transmission line on the north side of East Old Vail Connection Road
- A 13.8 kV distribution line on the north side of East Old Vail Connection Road
- A 115 kV transmission line crossing East Old Vail Connection Road
- A 138 kV transmission line on the east side of South Country Club Road

I.6.2 Electric and Magnetic Fields Background

EMFs are everywhere; they occur naturally in every atom of matter. The Earth’s surface has a natural electric field which is created by electric charges in the upper atmosphere. The Earth also has a strong magnetic field, which is evidenced by the use of compasses for navigation. The magnetic field is created by electric currents in the magma of the Earth’s core.

EMFs are also produced by power lines. These fields may induce voltages and currents on nearby conductive objects. Electric fields are produced whenever a conductor is connected to a source of electrical voltage. An example of this is the plugging of a lamp into a wall outlet in a home. When the lamp is plugged in, a voltage is induced in the cord to the lamp, which causes an electric field to be created around the cord. Magnetic fields are produced whenever an electrical current flows in a conductor. In the lamp example, if the lamp is turned on (allowing electricity to flow to the lamp), a magnetic field is created around the lamp cord in addition to the electric field. These fields exist around overhead and underground power lines, house wiring, computers, power tools, appliances, and anything that carries or uses electricity, and EMF strength is typically measured in milligauss (“mG”).

Table 13 displays the magnetic field strength from various electrical sources. It is general practice to consider both electric and magnetic fields together in assessing the amount of effect at the outer edge of a transmission line’s ROW.

**Table 13. EMF Strength of Various Electrical Sources at Various Distances**

EMF Source <sup>1</sup>	Distance	Strength	Distance	Strength	Distance	Strength
Microwave Oven	0.5 feet	200 mG	1.0 feet	4 mG	4.0 feet	2 mG
Vacuum Cleaner	0.5 feet	300 mG	1.0 feet	60 mG	4.0 feet	1 mG
Hair Dryer	0.5 feet	300 mG	1.0 feet	1 mG	4.0 feet	0 mG
Electric Shaver	0.5 feet	100 mG	1.0 feet	20 mG	4.0 feet	0 mG
138 kV Transmission Line, vertical <sup>2</sup>	0 feet	16.4 mG	50 feet	6.9 mG	500 feet	<0.14 mG

<sup>1</sup> Appliance magnetic field strengths are median values in mG for typical 60 Hz electrical current (source: USNIEHS 1999, DOE 1995)

<sup>2</sup> Irvington – East Loop Transmission Line EMF Analysis Rev. 0, November 26, 2019, prepared by Power Engineers. Location 2 from study was used as this represents a configuration and current on the line similar to that expected for the Project

Although researchers and scientists have heavily studied this issue since the 1970s, they have not confirmed that any adverse health effects have been caused by exposure to low-level EMFs.

- After a recent review of scientific literature about the issue, the World Health Organization (“WHO”) called for continued research but concluded that, “...current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields.”
- In 1997, a National Research Council committee studying the issue concluded, “...the current body of evidence does not show that exposure to these fields presents a human-health hazard. Specifically, no conclusive and consistent evidence shows that exposures to residential EMF produce cancer, adverse neurobehavioral effects, or reproductive and developmental effects.”
- Similarly, in 1999, the National Institute of Environmental Health Sciences (“NIEHS”) reported to the U.S. Congress that, “No consistent pattern of biological effects from exposure to EMF had emerged from laboratory studies with animals or with cells.”
- According to the National Cancer Institute: “No consistent evidence for an association between any source of non-ionizing EMF and cancer has been found, despite numerous epidemiologic studies and comprehensive reviews of scientific literature.”

This research has been performed through epidemiological, animal, biological and clinical studies.

The EMFs associated with power lines and electrical devices are much weaker than those associated with other sources such as microwaves or radio waves. These EMFs, at the low end of the electromagnetic spectrum, are described as “non-ionizing” because they are not known to damage DNA or cells directly (WHO, 2021).

Past studies on 138 kV transmission lines have yielded results where maximum calculated magnetic fields were less than or equivalent to the median magnetic field produced by a food processor from 6 inches away, 30 mG.

From these studies, at the edge of ROW, calculated magnetic fields were found to be weaker than the median magnetic field while standing 6 inches away from a conventional video display terminal for a personal computer (POWER, 2019). A hair dryer or microwave oven from a half foot away can be found to produce stronger magnetic fields than were calculated at any of the locations analyzed along similar routes (POWER, 2019). It is anticipated that the EMFs from this Project will be less than or equal to those for 138 kV transmission lines with similar properties.

### **1.7 Conclusion**

Based upon current measurements within the Study Area and past studies for 138 kV transmission lines similar to the Project, it is expected that the EMF values associated with this Project are expected to be comparable to other 138 kV transmission lines in the state, and are expected to have EMF values at the edge of ROW that are less than or equal to common household appliances. Furthermore, using engineering judgement, the EMFs emitted by the Project will be comparable to corridors with similar existing facilities.

## **I.8 References**

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- American Cancer Society: [www.cancer.org/cancer/cancer-causes/radiation-exposure/extremely-low-frequencyradiation.html](http://www.cancer.org/cancer/cancer-causes/radiation-exposure/extremely-low-frequencyradiation.html).
- Environmental Protection Agency: [www3.epa.gov/radtown/electricmagnetic-fields.html](http://www3.epa.gov/radtown/electricmagnetic-fields.html).
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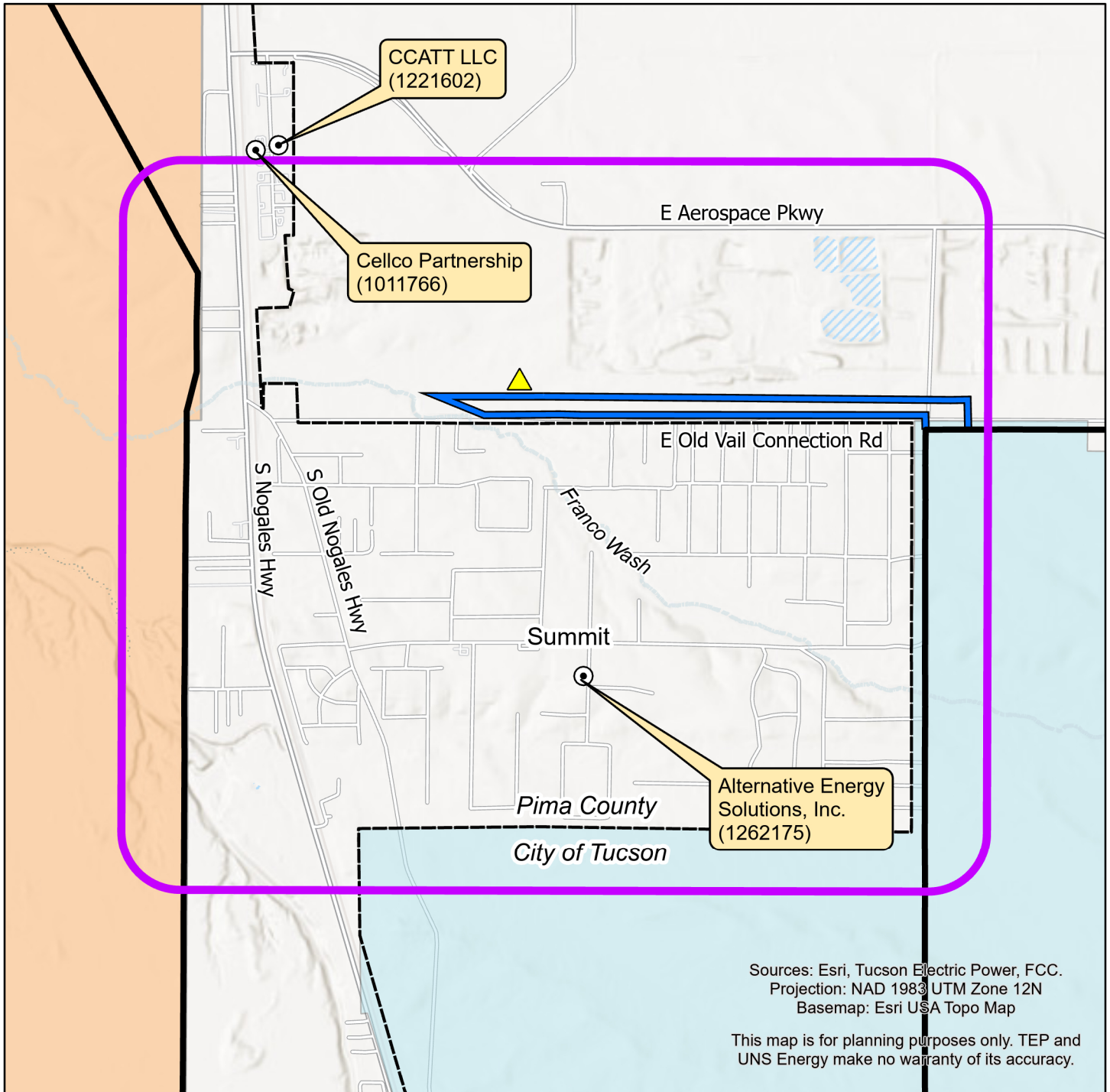
**Application for a Certificate of Environmental  
Compatibility**










**Aerospace Research Campus  
Transmission Project**

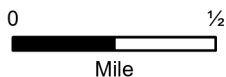
**Exhibit I-1**



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-  Proposed Route
-  Proposed Franco Wash Switchyard
-  Study Area
-  Existing 138kV Transmission Line
-  Registered Communication Tower
-  Municipal Boundaries
-  San Xavier District, Tohono O'odham Nation
-  State
-  Private (No Color)



Scale: 1:30,000



## Exhibit I-1

### Aerospace Research Campus Transmission Project

**Federal Communications  
Commission (FCC)**

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit I-2**

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Tucson Electric Power

P.O. Box 711, Mail Stop CB200  
Tucson, AZ 85702

Telephone: 520-528-1512

October 11, 2023

Mark S. Ray  
Alternative Energy Solutions, Inc.  
P.O. Box 448  
Alma, CO 80420

**Subject: Proposed Aerospace Research Campus Transmission Project**

Dear Mark S. Ray,

Tucson Electric Power (TEP) is preparing plans for new transmission facilities that will support aerospace and other supply chain industries planned for the Aerospace Research Campus. The Aerospace Research Campus Transmission Line Project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport.

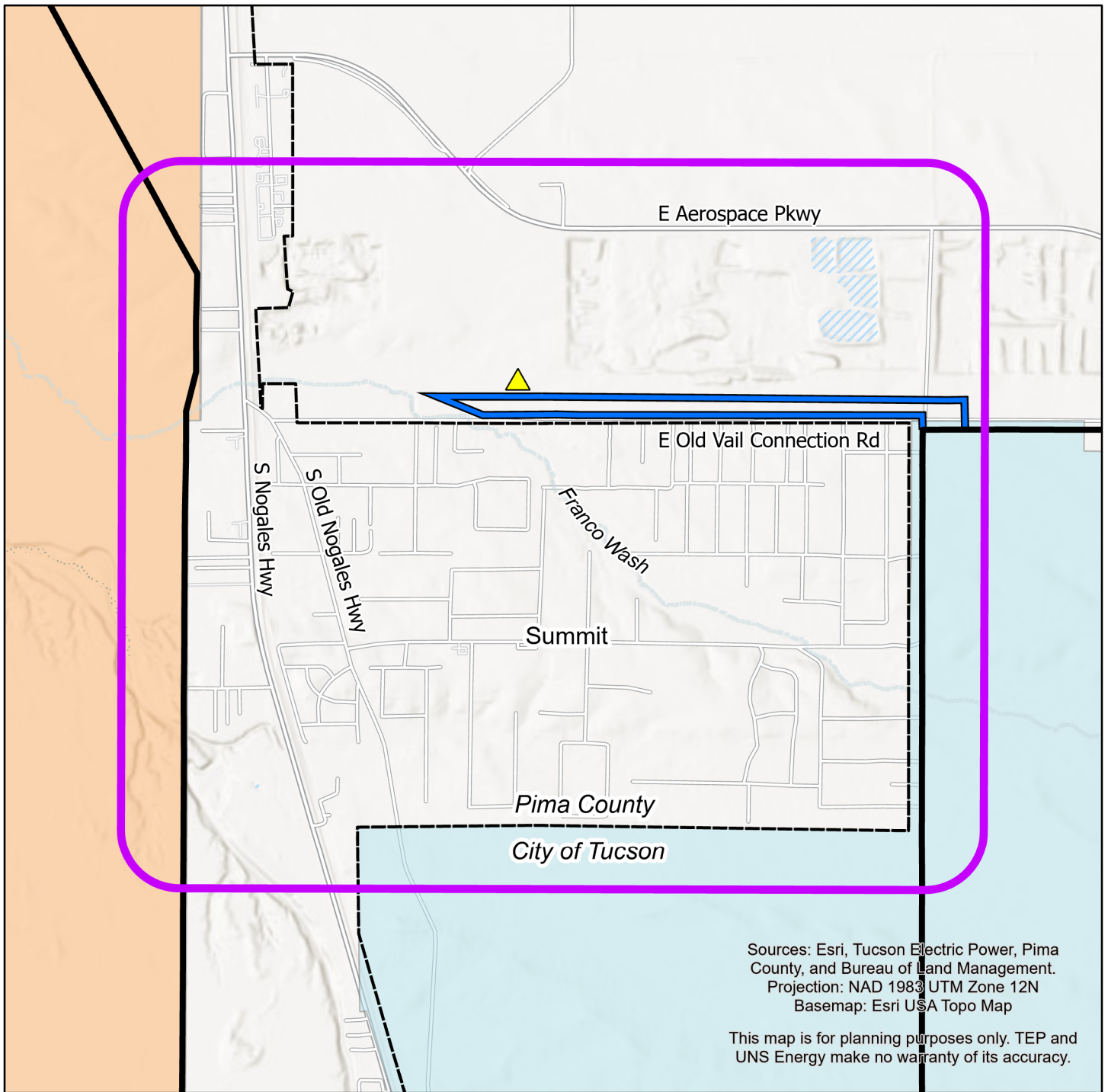
You have been identified through the Federal Communications Commission website as owning an antenna structure in the vicinity of the project. As part of TEP's line siting application with the Arizona Corporation Commission, we are soliciting comments from parties that may be affected. We invite you to share feedback by sending comments to [arc@tep.com](mailto:arc@tep.com), or calling 1-833-655-0399 and leaving a voicemail. For more information about the project, please visit [tep.com/aerospace-research-campus/](http://tep.com/aerospace-research-campus/).


Respectfully,

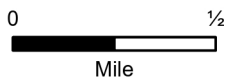
A handwritten signature in black ink that reads 'Adriana Mariñez'.

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power

Enclosure: Map of proposed route and switchyard



-  Proposed Route
-  Proposed Franco Wash Switchyard
-  Study Area
-  Existing 138kV Transmission Line
-  Municipal Boundaries
-  San Xavier District, Tohono O'odham Nation
-  State
-  Private (No Color)



Scale: 1:30,000



**Figure 1**  
**Aerospace Research Campus Transmission Project**

**Proposed Route**



Tucson Electric Power

P.O. Box 711, Mail Stop CB200  
Tucson, AZ 85702

Telephone: 520-528-1512

October 11, 2023

Regulatory Manager  
Celco Partnership  
5055 North Point Pkwy  
NP2NE Network Engineering  
Alpharetta, GA 30022

**Subject: Proposed Aerospace Research Campus Transmission Project**

Dear Regulatory Manager,

Tucson Electric Power (TEP) is preparing plans for new transmission facilities that will support aerospace and other supply chain industries planned for the Aerospace Research Campus. The Aerospace Research Campus Transmission Line Project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport.

You have been identified through the Federal Communications Commission website as owning an antenna structure in the vicinity of the project. As part of TEP's line siting application with the Arizona Corporation Commission, we are soliciting comments from parties that may be affected. We invite you to share feedback by sending comments to [arc@tep.com](mailto:arc@tep.com), or calling 1-833-655-0399 and leaving a voicemail. For more information about the project, please visit [tep.com/aerospace-research-campus/](http://tep.com/aerospace-research-campus/).

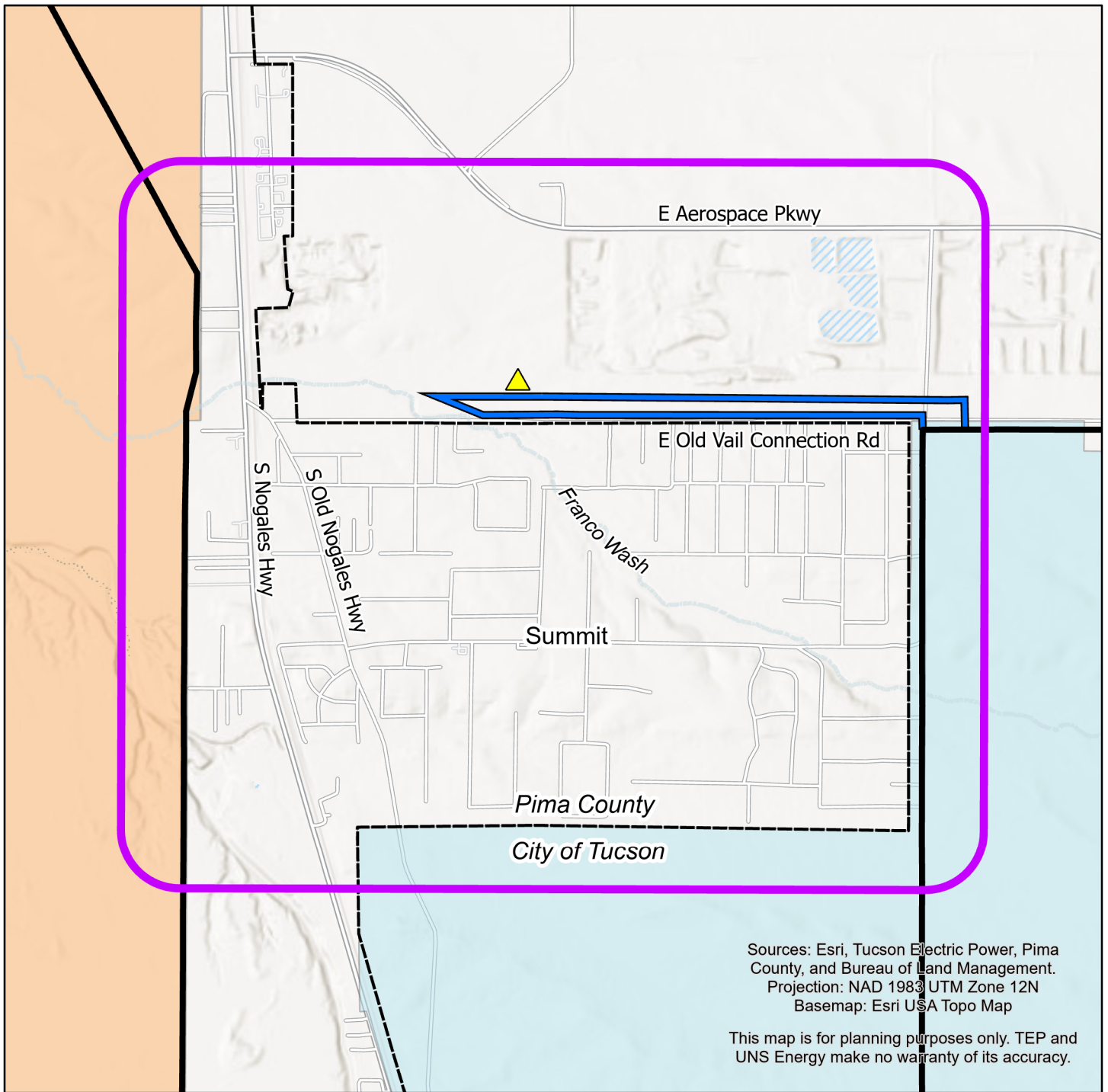
Respectfully,



A handwritten signature in black ink that reads 'Adriana Mariñez'.

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power

Enclosure: Map of proposed route and switchyard





-  Proposed Route
-  Proposed Franco Wash Switchyard
-  Study Area
-  Existing 138kV Transmission Line
-  Municipal Boundaries
-  San Xavier District, Tohono O'odham Nation
-  State
-  Private (No Color)



**Figure 1**  
**Aerospace Research Campus Transmission Project**

**Proposed Route**



Scale: 1:30,000



Tucson Electric Power

P.O. Box 711, Mail Stop CB200  
Tucson, AZ 85702

Telephone: 520-528-1512

October 11, 2023

Don Snyder  
Crown Castle  
2000 Corporate Drive  
Canonsburg, PA 15317

**Subject: Proposed Aerospace Research Campus Transmission Project**

Dear Don Snyder,

Tucson Electric Power (TEP) is preparing plans for new transmission facilities that will support aerospace and other supply chain industries planned for the Aerospace Research Campus. The Aerospace Research Campus Transmission Line Project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport.

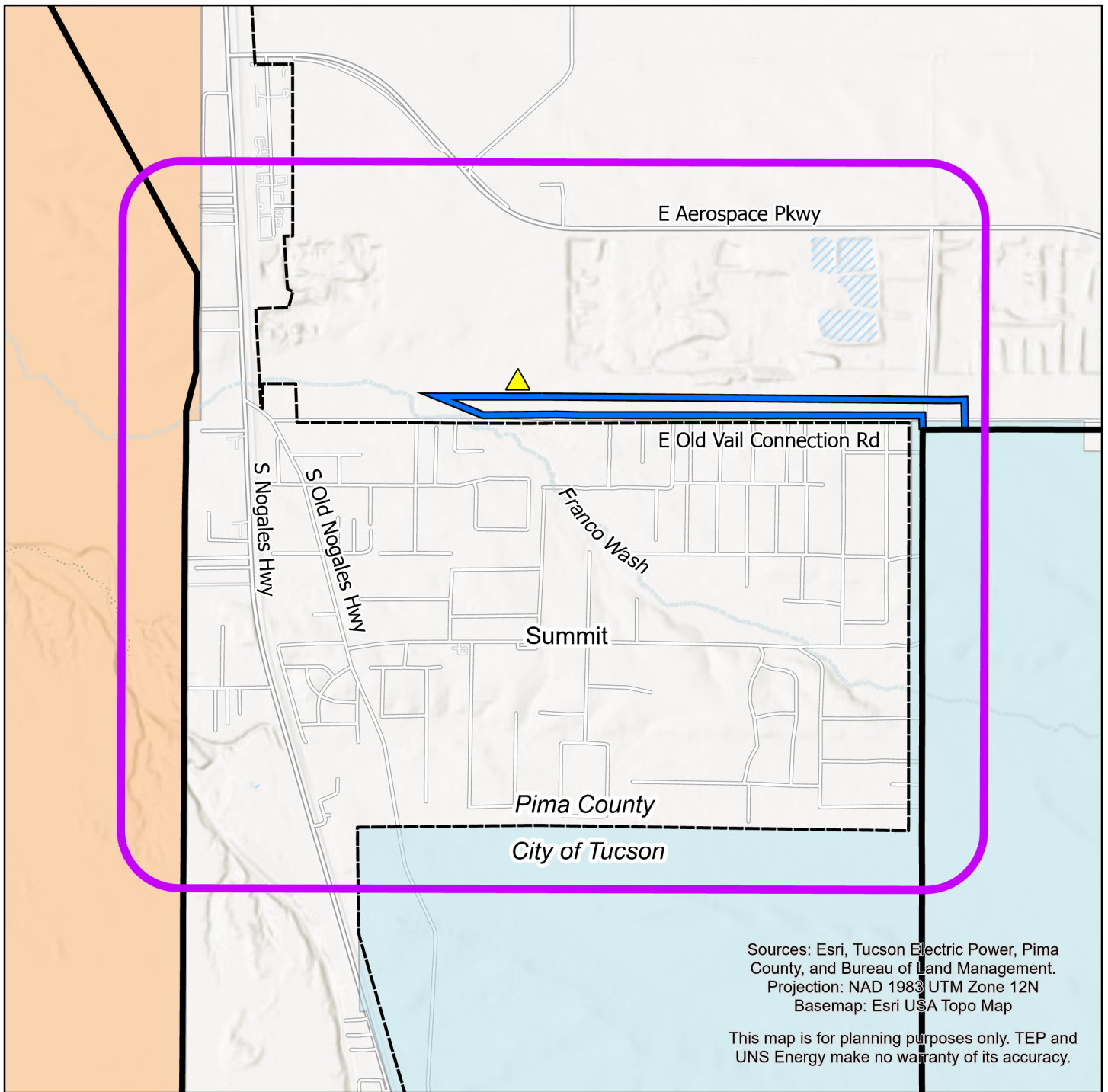
You have been identified through the Federal Communications Commission website as owning an antenna structure in the vicinity of the project. As part of TEP's line siting application with the Arizona Corporation Commission, we are soliciting comments from parties that may be affected. We invite you to share feedback by sending comments to [arc@tep.com](mailto:arc@tep.com), or calling 1-833-655-0399 and leaving a voicemail. For more information about the project, please visit [tep.com/aerospace-research-campus/](http://tep.com/aerospace-research-campus/).


Respectfully,

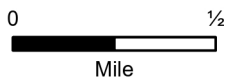
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Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power

Enclosure: Map of proposed route and switchyard



-  Proposed Route
-  Proposed Franco Wash Switchyard
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-  Municipal Boundaries
-  San Xavier District, Tohono O'odham Nation
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-  Private (No Color)



Scale: 1:30,000



**Figure 1**  
**Aerospace Research Campus Transmission Project**

**Proposed Route**

**EXHIBIT J**

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## EXHIBIT J: SPECIAL FACTORS

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As stated in Arizona Administrative Code R14-3-219 of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee Exhibits to Application, Exhibit J:

*Describe any special factors not previously covered herein, which applicant believes to be relevant to an informed decision on its application.*

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J.1 Introduction .....	J-1
J.2 Public Involvement Program Summary .....	J-1
J.2.1 Jurisdictional and Other Stakeholder Briefings .....	J-2
J.2.2 Jurisdictional and Other Stakeholder Summaries .....	J-2
J.2.3 News Media .....	J-3
J.2.4 Newsletters/Postcards/Fact Sheets.....	J-3
J.2.5 Public Open House.....	J-3
J.2.6 Telephone Information Line .....	J-5
J.2.7 Internet Website.....	J-5
J.3 Comments Received .....	J-5
J.4 Social Media.....	J-5
J.5 Environmental Justice.....	J-5

### **J.1 Introduction**

Public involvement for the project was initiated in June 2023 and continued through September 2023 to notify and inform the public, agencies, public officials, community leaders, and other affected stakeholders about the Project.

### **J.2 Public Involvement Program Summary**

Public participation is an important part of TEP’s environmental planning and siting process. Public involvement and communications activities were conducted to inform the public of the need and benefits of the Project and to solicit public input.

The public outreach process was intended to ensure effective and timely communication among TEP staff, the public, agencies, and stakeholders. TEP used several different public outreach efforts to inform affected members of the community within the Study Area. Those efforts included:

- One virtual stakeholder meeting (July 19, 2023)
- Individual stakeholder meetings with TAA and WAPA (July 13, 2023; August 15, 2023)
- Stakeholder email update (August 31, 2023)
- Two In-Person Public Open House Meetings (July 27, 2023; September 14, 2023)
- Tools:
  - One newsletter and postcard mailing, in English and Spanish
  - Project telephone information line in English and Spanish
  - Project email address
  - Project-specific webpage on TEP's Internet website [tep.com/aerospace-research-campus/](http://tep.com/aerospace-research-campus/), including an online comment form

Throughout the planning process, the public was provided the opportunity to review and comment on the Project and influence the line siting process. The various methods of communication and public interaction listed above are explained in Exhibit B and the Line Siting Study, Exhibit B-1.

#### J.2.1 Jurisdictional and Other Stakeholder Briefings

In order to introduce the Project, provide project updates, and gauge the level of stakeholder concern, TEP developed a Master List of Stakeholders (jurisdictions, agencies, utilities, etc.). Members of that list received all Project meeting invitations, notices, and updates (Exhibit J-1). At the Agency Briefing, TEP representatives explained the purpose and need for the Project, provided the Project's description and the planning and siting process, and solicited feedback on the preliminary segments and siting evaluation criteria. Discussions followed about sensitive resources within the Project Study Area, including a buffer for height sensitivities of existing developments north of East Aerospace Parkway, and the existing planned development for the ARC. The list of Agency Briefing attendees, the briefing's PowerPoint presentation, and a transcription of meeting comments are available in Exhibits J-1.1 through J-1.7. Email notices to Elected Officials are available in Exhibit J-9.1.

#### J.2.2 Jurisdictional and Other Stakeholder Summaries

Outside of stakeholder briefings, TEP engaged in specific conversations and correspondence with other agencies throughout the planning and siting process. These included discussions with TAA and WAPA, and email correspondence with Tucson Water, Kinder Morgan, and World View. Meeting summaries and correspondence can be found in Exhibits J-9.2 through J-9.7.

#### J.2.3 Tribal Coordination

The following tribal nations have expressed a historical connection to the land within the Study Area and have received notification of the Project: Pueblo of Zuni, Tohono O'odham Nation, Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, White Mountain Apache Tribe, Mescalero Apache Tribe, Pascua Yaqui Tribe, Hopi Tribe, and the Navajo Nation (see Exhibit J-6). The Tohono O'odham Nation requested, and was provided, copies of the cultural and biological

reports for the Project (Exhibit J-6.3). The White Mountain Apache Tribe issued a letter of “No Adverse Effect” (Exhibit J-6.4).

**J.2.4 News Media**

There has been no coverage of the Project by news media. There have been articles about the ABF and its economic boost to the economy of the region (Exhibits J-8.1 and J-8.2).

**J.2.5 Newsletters/Postcards/Fact Sheets**

TEP developed a mailing list that included property owners, residents, and business owners within one mile of the Project Study Area (“Project Notification Area”). The Company mailed notices about the Project to approximately 875 addresses. All mailings are in Exhibit J-2.1 to 2.2.

TEP prepared and mailed one newsletter and one postcard throughout the course of the project. The newsletter was mailed in early July 2023 to about 875 residents, business owners, landowners, and agency/organization representatives within the Project Notification Area. The mailing introduced the project and provided project details, including the Study Area, project purpose and benefits, preliminary segments, project timelines, the planning process, evaluation criteria, information about the first public open house and instructions on how to comment and participate.

The postcard announced the second public open house and Proposed Route, the availability of an interactive project map, and ways to comment on the Proposed Route and Project. It was mailed in early September 2023 to about 875 residents, business owners, landowners, and agency/organization representatives within the Project Notification Area.

Both the newsletter and postcard provided information in English and Spanish.

**J.2.6 Public Open House**

Both public open house events were noticed to the public via a newsletter or postcard mailing and public notice in the newspaper. Copies of the public notices are in Exhibit J-2.3 to 2.4. Informational boards were displayed at each in-person open house. Copies of all exhibit boards are attached as Exhibits as indicated in Table 14 and Table 15.

**Table 14. Open House Information**

<b>OPEN HOUSE NO</b>	<b>DATE</b>	<b>LOCATION</b>	<b>METHOD</b>	<b>NUMBER ATTENDED</b>	<b>BOARDS EXHIBIT NO</b>
1	7/27/2023	Desert Diamond Casino	In-person	3	Exhibit J-3.1
2	9/14/2023	Desert Diamond Casino	In-person	1	Exhibit J-3.3



**Table 15. Stakeholder Meeting Information**

STAKEHOLDER BRIEFING NO	DATE	METHOD	NUMBER ATTENDED	PPT EXHIBIT NO
1	7/19/2023	Virtual only	28	Exhibit J-1.4

At each in-person open house, boards were displayed for people to view information. TEP staff and subject matter experts were present at each board, and throughout the Open House to allow each attendee the ability to ask questions (Table 16).

**Table 16. Open House Stations**

STATION	AVAILABLE INFORMATION OR ACTIVITY
Greeting Desk	Sign-in sheet, copies of the latest newsletter
Purpose and Need	Exhibit outlining the Project’s purpose and need
How Power Gets to You	Board illustrating the path of electricity from generation to users
Geographic Information System Station	GIS station to examine proposed transmission line segments or route in proximity to residences or other areas of interest
Opportunities and Constraints	Map of opportunities for segment routing to maximize use of existing corridors (Open House 1)
Suitability Factors	Board illustrating mapping analysis and modeling of preliminary segments leading to Proposed Route selection (Open House 2)
Line Siting Process	Exhibits outlining the state’s line siting process, the resources evaluated in the CEC, and the steps taken to evaluate potential segments and site the line
Visual Simulations	An interactive station of the existing and proposed conditions from various Key Observation Points (Open House 2)
Structure and Facility Details	Detail drawing and rendering of the proposed transmission line structures
Large Format Map	A large format map of the Study Area and preliminary segments (Open House 1) and Proposed Route (Open House 2) placed on a table for mark-up by attendees
Comment Forms	Comment forms available for attendees to complete for submittal at the meeting, or to take home and mail later

### J.2.7 Telephone Information Line

A toll-free telephone information line was established for the Project. The automated message offered in English and Spanish, encouraged callers to leave a message with their comments. The telephone number was advertised in the newsletter, postcard, and Project webpage. The information line voicemails were checked regularly. No messages have been received to date.

### J.2.8 Internet Website

The Internet is a primary source of information for the public. TEP maintains a website featuring project webpages for ongoing transmission line projects. The site address is tep.com. A page devoted to the Project was added to the TEP website before public participation activities commenced and was updated throughout the planning process. The Project page is available in English at tep.com/aerospace-research-campus/ (Exhibit J-4.1), and in Spanish at tep.com/proyecto-de-transmision-de-aerospace-research-campus/ (Exhibit J-4.2).

The Project webpage was regularly updated to include both general and specific information about the Project, including upcoming meetings, project maps, and meeting materials. Informational exhibits from the open houses were made available on the project webpage following each meeting. Viewers were also provided with multiple means to comment or contact the project team via an online comment form, project email address, project phone line, and mailing address.

Statistics for the website reveal that between June 2023 and September 2023, the Project's English webpage was viewed 567 times, with the Spanish version viewed 66 times within that same period of time. There were 410 unique visitors on the English page and 42 on the Spanish page, and the average time spent on the webpage for both was four minutes.

### J.3 **Comments Received**

At the time of preparation of the application, there were 0 (zero) public comments received on the Project, in writing, through voice mail, or via online submission form.

### J.4 **Social Media**

There were no social media advertisements for this Project.

### J.5 **Environmental Justice**

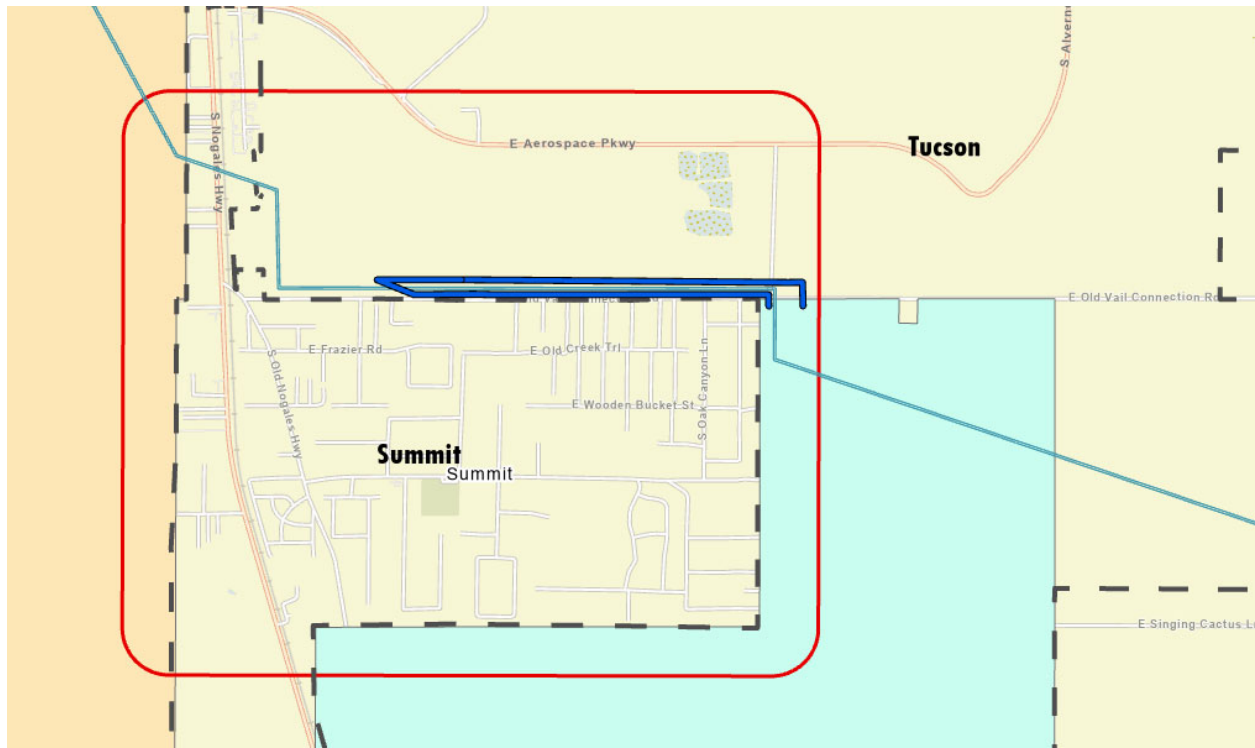
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was signed on February 16, 1994. It focuses attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities. The Office of Environmental Justice under the Environmental Protection Agency ("EPA") works to address disproportionately adverse human health and environmental impacts in overburdened or disadvantaged communities.

TEP has reviewed the proposed project and evaluated the Project area to determine if low-income or minority populations are being disproportionately impacted by the Proposed Route. Review of Census data indicates that the Census Designated Places ("CDP") Summit and Tucson overlap the Study Area. CDP

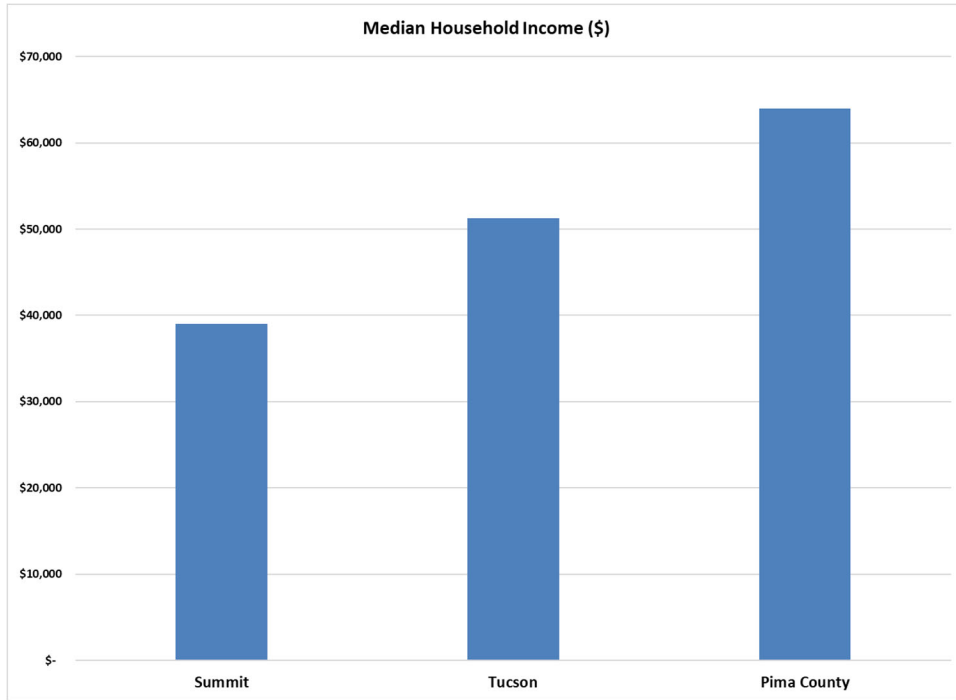
Summit is limited to the residential area south of East Old Vail Connection Road and along South Nogales Highway. CDP Tucson includes the entirety of the City of Tucson (Figure 3). The Proposed Route is entirely within the CDP Tucson.

CDP Summit has a lower income than CDP Tucson or Pima County (Figure 4), and the racial composition is more heavily Hispanic (USCB, 2020) (Figure 5). A report was also generated on the EPA's Environmental Justice Screening and Mapping Tool, Version 2.1 – EJScreen (EPA, 2023) (Figure 6, Exhibit J-7).

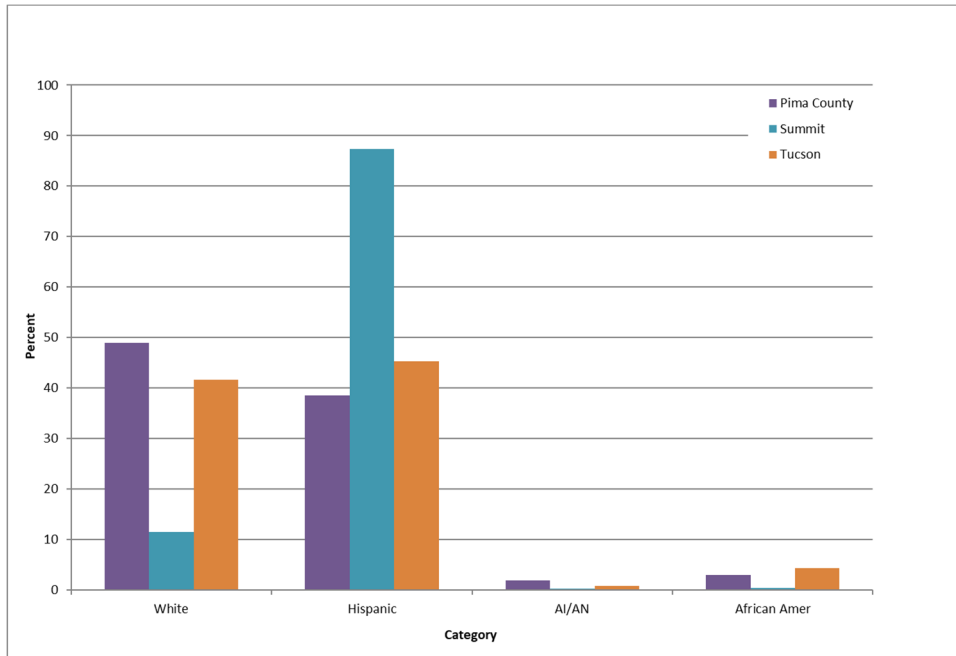
TEP has concluded that since the Proposed Route is in CDP Tucson, the lower income, minority community of CDP Summit would not be disproportionately impacted by the Project.



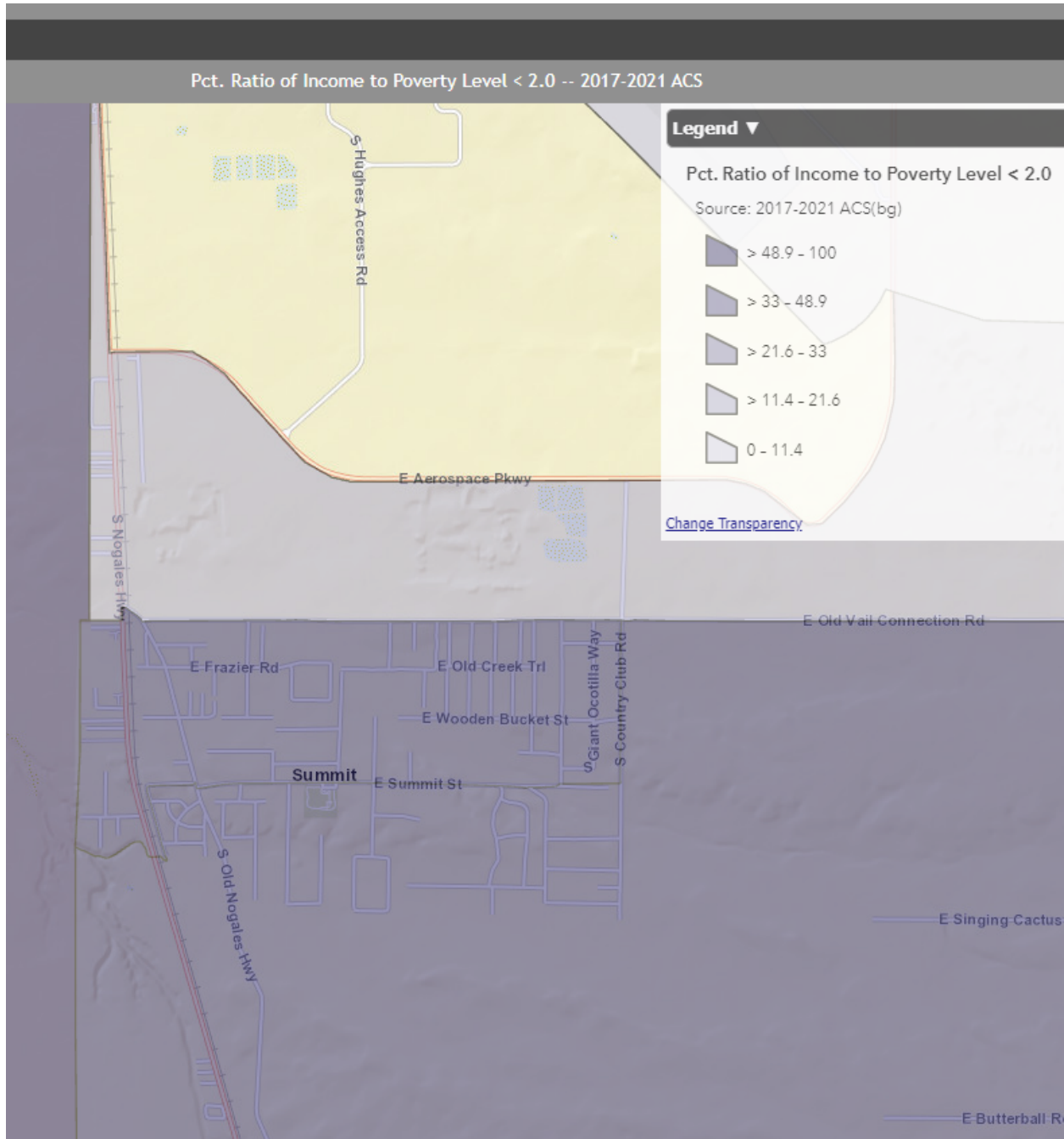
**Figure 3. Census Places in the Project Area**



**Figure 4. Median Household Income in Census Places in Project Area**



**Figure 5. Race Percentages in Census Places in Project Area**



**Figure 6. EJScreen Comparison of Poverty Level Census Places**

## J.6 References

EPA. (2023). *EJSscreen Environmental Justice Screening and Mapping Tool (v 2.2)*. Retrieved from EPA: <https://ejscreen.epa.gov/mapper/>

USCB. (2020). *Census Tables*. Retrieved from US Census Bureau: <https://data.census.gov/table>

**Application for a Certificate of Environmental  
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**Aerospace Research Campus  
Transmission Project**

**Exhibit J-1**

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# Aerospace Research Campus Transmission Project Stakeholders List

Exhibit J-1.1

LAST NAME	FIRST NAME	TITLE
<b>CITY</b>		
<b>City of Tucson</b>		
	Vacant	Energy Manager
Romero	Regina	Mayor
<b>City of Tucson, Mayor's Office</b>		
Mendoza	Charlene	Chief of Staff
<b>City of Tucson, Ward 5</b>		
Fimbres	Richard	Council Member
Kerr	Mark	Chief of Staff
<b>Department of Transportation and Mobility</b>		
Credio	Sam	Director
Graham	Mike	Public Information Officer
Raine	Robin	Deputy Director
<b>Historic Preservation Office</b>		
Brown	Jodie	
<b>Parks &amp; Recreation</b>		
Hemway	Lara	Director
<b>Planning and Development Services Department</b>		
Beall	John	Zoning Examiner
Bursuck	Daniel	Planning Commission
Hamblin	Elisa	Zoning Administrator
Swallow	Kristina	
<b>Real Estate Division</b>		
Cahill	John	Real Estate Administrator
<b>Tucson Historic Preservation Foundation</b>		
Clinco	Demion	
<b>Tucson Water</b>		
Gerber	Kathryn	Engineering Manager
Hunter	Bill	Civil Engineer
Kmiec	John	Director
Miller	Kevin	Project Manager, Distribution Design
Schladweiler	Scott	Deputy Director
Trammel	Dean	Civil Engineer



LAST NAME	FIRST NAME	TITLE
Van Winkle	John	Chief Engineer
<b>COUNTY</b>		
<b>Department of Transportation</b>		
Skinner	Kathryn	Director
<b>Development Services</b>		
Al Zubaidi	Hussein	Site Development Manager
Blackwell	Carla	Director
Godoy	Joseph	Deputy Director
<b>Economic Development</b>		
Vescovi-Chiordi	Heath	Director
<b>Engineering</b>		
Porter	Thomas	Civil Engineer
<b>Pima County</b>		
DeBonis, JR	Carmine	Deputy County Administrator
Durazo	Diana	Senior Advisor to County Administrator
Leshner	Jan	County Administrator
Neeley	Jenny	Program Manager, Conservation Science
<b>Pima County Board of Supervisors, Dist. 2</b>		
Heinz	Matt	Supervisor
Higuera	David	Chief of Staff
<b>Pima County Board of Supervisors, Dist. 5</b>		
Bagwell	Keith	Chief of Staff
Grijalva	Adelita	Chair
<b>Pima County Natural Resources, Parks, and Recreation</b>		
Simms	Karen	
<b>Public Works</b>		
de la Garza	Xavier	Public Works Manager
<b>Regional Wastewater Reclamation Department</b>		
McRae	Kent	
Suckow	Charles	
<b>Sustainability and Conservation</b>		
Ruther	Sherry	
<b>EDUCATION</b>		
<b>Summit View</b>		
Martinez	Melanie	Principal
<b>FEDERAL</b>		

LAST NAME	FIRST NAME	TITLE
<b>Congressman Grijalva, Dist. 7</b>		
Reyes	Ruben	District Director
<b>DMAFB-355 CES/CENP</b>		
Carter	Bonnie Kacey	Base Community Planner
<b>Federal Aviation Administration</b>		
Goodly	Nick	Air Traffic Organization
<b>Senator Kelly</b>		
Avalos	Karla	So. AZ Director
<b>Senator Sinema</b>		
Miller	Troy	So. AZ Manager
<b>United States Air Force</b>		
Borgan	Joel	
<b>INDUSTRY</b>		
<b>Raytheon</b>		
Kramkowski	Paul	Senior Director, Real Estate and Facilities
<b>Sun Corridor</b>		
Dumon	Susan	Senior Vice President, Strategy
Welsh	David	Executive Vice President
<b>World View</b>		
Failing	Ron	Vice President, Aviation Safety
Horton	Todd	
Jayson	Maria	Office Manager
Smith	Ashley	Vice President, People
<b>MPA</b>		
<b>Metropolitan Pima Alliance</b>		
Solomon	Allyson	Director
<b>PAG</b>		
<b>Pima Association of Governments</b>		
Storm	Sheila	Communications Director
<b>RAILROAD</b>		
<b>Union Pacific Railroad</b>		
Fowler	Gunner	Transportation and Operations Senior Leader
Givens	Bradley	Manager, Track Maintenance
Hughes	John	Sr Manager. Train Operations
Monge	Omar	Director, Track Maintenance
Villareal	Marco	Superintendent

LAST NAME	FIRST NAME	TITLE
<b>STATE</b>		
<b>Arizona Department of Transportation</b>		
Thompson	Priscilla	Utility Engineering Coordinator
<b>Arizona Dept. of Transportation</b>		
Lane	Rod	District Engineer
<b>Arizona State Historic Preservation Office (AZ SHPO)</b>		
Klebacha	Caroline	Archaeological Compliance Specialist
Walsh	Mary-Ellen	Cultural Resources Compliance Manager
<b>Arizona State Land Department</b>		
Grew	Tiffany	Archaeological Compliance Specialist
Sahid	Robyn	Commissioner
Westbrook-Hall	Simone	Natural Resources, Director
<b>AZ House Representative, Dist. 21</b>		
Hernandez	Consuelo	Representative
Stahl Hamilton	Stephanie	Representative
<b>AZ State Senate, Dist. 21</b>		
Gabaldon	Rosana	Senator
<b>Governor Katie Hobbs</b>		
Flores-Aguirre	Marisol	Southern Arizona Director
<b>TAA</b>		
<b>Tucson Airport Authority</b>		
Robidoux	Scott	Manager of Planning
Voorhees	Dutch	Vice President/Chief Revenue Officer
<b>TRIBAL</b>		
<b>San Carlos Apache</b>		
Grant	Vernelda	Tribal Historic Preservation Officer
<b>Tohono O'odham Nation</b>		
Norris	Ned	Chairman
Saunders	Wavalene	Vice Chairwoman
Steere	Peter	Tribal Historic Preservation Officer
<b>Tohono O'odham Nation, San Xavier District</b>		
Nunez	Austin	Chairman
Pugh	Mark	Planning Administrator
Tenorio	David	Natural Resources, Asst Supervisor
<b>UTILITY</b>		
<b>Kinder Morgan</b>		

LAST NAME	FIRST NAME	TITLE
	Unknown	
Box	Brice	Compliance Codes and Standards
Eppard	Mike	
Francese	Milo	Line Rider
Kimbell	Randy	
Nickless	Jeremiah	
Otto	Kevin	Corrosion Supervisor
Posey	Richard	Operations Supervisor
Reed	Glen	Operator
Sims	Kelley	Land Department
Ward	Scott	Manager
<b>Kinder-Morgan Energy Partners</b>		
Sidorewicz	A. Dianne	Engineering Administrator
<b>Southwest Gas</b>		
Cheney	Randy	Franchise Engineer
Rivas Cabrera	Hector	Engineer II

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**Subject:** You're invited: TEP's Aerospace Research Campus Transmission Line Project Agency Briefing  
**Location:** Microsoft Teams Meeting

**Start:** Wed 7/19/2023 1:00 PM  
**End:** Wed 7/19/2023 2:00 PM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Organizer:** Marinez, Adriana

Dear Stakeholder,

Tucson Electric Power (TEP) is preparing plans for new transmission facilities that will support aerospace and other supply chain industries planned for the Aerospace Research Campus. The Aerospace Research Campus Transmission Line Project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport.

**You, or a designee, are invited to participate in a virtual agency briefing on Wednesday, July 19 at 10 a.m.** to learn more about the project and provide feedback (meeting details below).

A public open house meeting will also be held on Thursday, July 27, 2023. Details about the open house will be made available on the [project webpage](#) as the date approaches. A project newsletter will also be mailed to area residents, businesses, and stakeholders about two weeks prior to the meeting.

Please let me know if you have any questions leading up to or proceeding the briefing. I look forward to seeing you then.

Kind regards,

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)

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## Microsoft Teams meeting

**Join on your computer, mobile app or room device**

[Click here to join the meeting](#)

Meeting ID: 260 380 087 166

Passcode: RrT3HL

[Download Teams](#) | [Join on the web](#)

**Or call in (audio only)**

[+1 520-363-4143,,71598292#](#) United States, Phoenix

Phone Conference ID: 715 982 92#

[Find a local number](#) | [Reset PIN](#)

[Learn More](#) | [Meeting options](#)

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# Aerospace Research Campus Transmission Project Stakeholders Briefing Attendance - 7/19/2023

Exhibit J-1.3

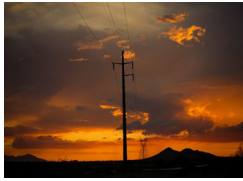

LAST NAME	FIRST NAME	TITLE
<b>CITY</b>		
<b>Department of Transportation and Mobility</b>		
Graham	Mike	Public Information Officer
Raine	Robin	Deputy Director
<b>Planning and Development Services Department</b>		
Beall	John	Zoning Examiner
Bursuck	Daniel	Planning Commission
Hamblin	Elisa	Zoning Administrator
<b>Real Estate Division</b>		
Cahill	John	Real Estate Administrator
<b>Tucson Water</b>		
Gerber	Kathryn	Engineering Manager
Hunter	Bill	Civil Engineer
Miller	Kevin	Project Manager, Distribution Design
<b>COUNTY</b>		
<b>Department of Transportation</b>		
Skinner	Kathryn	Director
<b>Development Services</b>		
Blackwell	Carla	Director
Godoy	Joseph	Deputy Director
<b>Economic Development</b>		
Vescovi-Chiordi	Heath	Director
<b>Engineering</b>		
Porter	Thomas	Civil Engineer
<b>Pima County</b>		
Durazo	Diana	Senior Advisor to County Administrator
Neeley	Jenny	Program Manager, Conservation Science
<b>Public Works</b>		
de la Garza	Xavier	Public Works Manager
<b>Regional Wastewater Reclamation Department</b>		
McRae	Kent	
Suckow	Charles	



LAST NAME	FIRST NAME	TITLE
<b>INDUSTRY</b>		
<b>Raytheon</b>		
Kramkowski	Paul	Senior Director, Real Estate and Facilities
<b>Sun Corridor</b>		
Dumon	Susan	Senior Vice President, Strategy
<b>World View</b>		
Failing	Ron	Vice President, Aviation Safety
Horton	Todd	
Jayson	Maria	Office Manager
<b>RAILROAD</b>		
<b>Union Pacific Railroad</b>		
Hughes	John	Sr Manager. Train Operations
<b>STATE</b>		
<b>Arizona State Historic Preservation Office (AZ SHPO)</b>		
Klebacha	Caroline	Archaeological Compliance Specialist
<b>TRIBAL</b>		
<b>Tohono O'odham Nation, San Xavier District</b>		
Pugh	Mark	Planning Administrator
<b>UTILITY</b>		
<b>Kinder Morgan</b>		
Eppard	Mike	

# Aerospace Research Campus Transmission Project

ADRIANA MARIÑEZ, TRANSMISSION LINE SITING PROJECT MANAGER


1

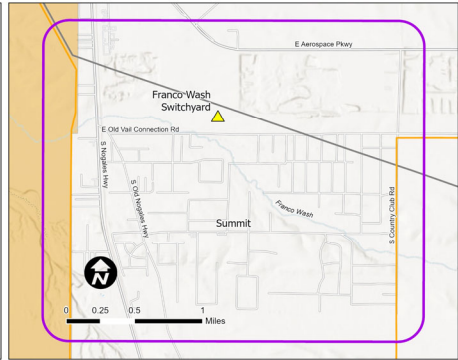
## Study Area

**LEGEND**

- Study Area
- San Xavier District, Tohono O'odham Nation
- Existing 138kV Line (TEP)
- Existing 115kV Line (WAPA)
- ▲ Proposed Switchyard

This map is for planning purposes only. It does not represent the accuracy of the survey.





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## Agenda

- Introductions
- Study Area
- Purpose and Need
- About the Project / Aesthetics
- Transmission Line Siting Process
- Evaluation Criteria
- Preliminary Segments
- Timeline
- Public Participation
- Questions



2

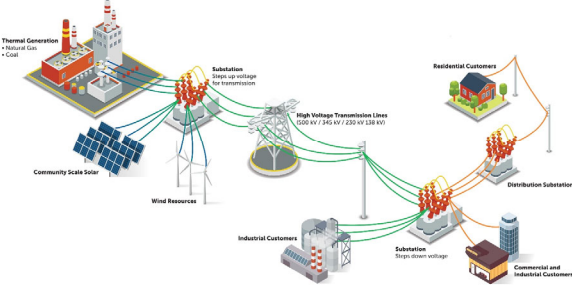
## Purpose and Need

- New facilities will serve aerospace and other supply chain industries planned at the Aerospace Research Campus.
- Support economic development and job creation.
- Help meet current and future energy needs without impacting service to existing customers.




5

## How Power Gets to You




Generation    
 Transmission    
 Sub-Transmission and Distribution



3

## About the Project

- A **138 kilovolt (kV) transmission line** will be built over approximately 1.5 miles, extending service to a **proposed switchyard**.
- **Transmission lines** transmit electricity at a high voltage (115 kV and above).
- A **Switchyard** is an enclosed power facility that contains breakers and switches that move power from one area to another while preventing electrical overload.



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## Transmission Lines

**Pole Characteristics**


Type: Tubular, weathering steel monopoles


Pole height: ~75 feet (typical)

Span length: 600-1,000 feet (distance between poles)

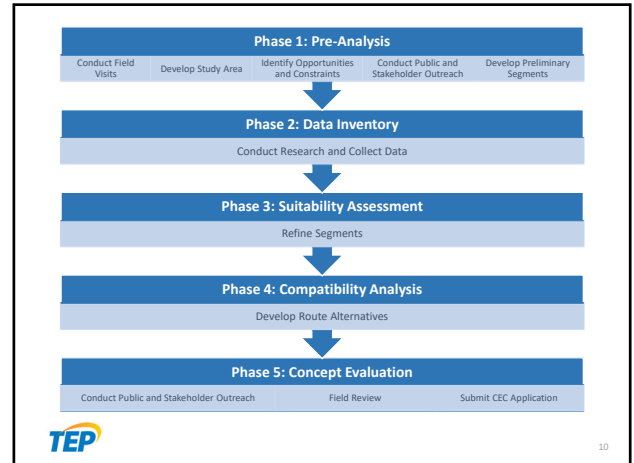
Poles per mile: 5-9 structures

Right of way width: Up to 100 feet




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## Switchyard





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## Evaluation Criteria


- Impact on existing and planned land uses by state, local and private entities
- Impact on fish, wildlife, and plants
- Impact on special status species and their habitat
- Proximity to sensitive noise receptors
- Proximity to licensed communication sites
- Impact on designated scenic areas
- Impact on historic and archaeological sites
- Overall environmental impact
- Ability to construct and maintain facilities
- Cost
- Compliance with state, county or city ordinances


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## Transmission Line Siting Process

- Under state law, TEP must secure a Certificate of Environmental Compatibility (CEC) to build the transmission line.
- TEP plans to file a CEC application in fall 2023 with the Arizona Power Plant and Transmission Line Siting Committee, which reviews CEC applications in a public process that allows neighbors and other stakeholders to provide comments.
- The Arizona Corporation Commission (ACC) must review and approve the CEC before TEP can begin construction.


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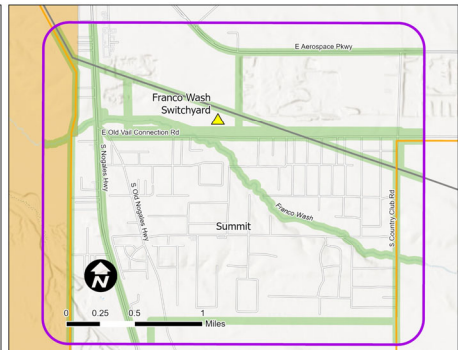
## Opportunities


**LEGEND**

- Study Area
- San Xavier District, Tohono O'odham Nation
- Existing 138KV Line (TEP)
- Existing 115KV Line (WAPA)
- ▲ Proposed Switchyard
- Opportunities

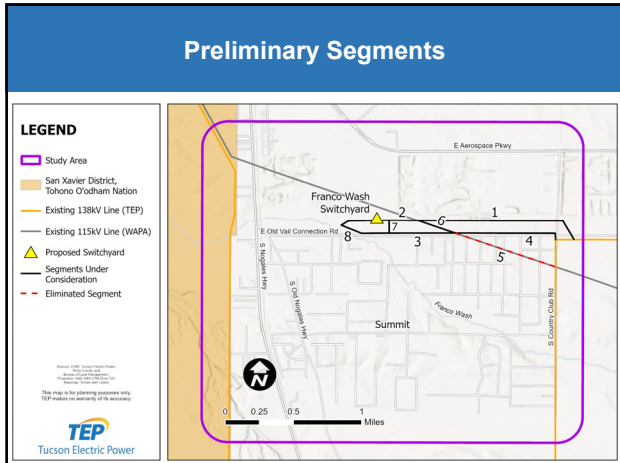
Source: TEP, Google Earth, San Xavier District, Tohono O'odham Nation, WAPA, and other public sources.  
This map is for planning purposes only. TEP makes no warranty of its accuracy.



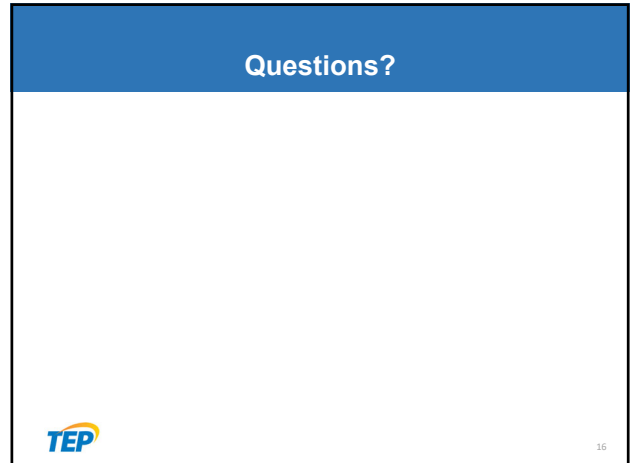



12

12



13



16

- ### Timeline
- Public Open House #1 – July 27
  - Public Open House #2 – Sept. '23
  - CEC Application Submittal – fall '23
  - Transmission Line Siting Committee Hearing – late '23
  - ACC Open Meeting – Q1 2024
  - Project in Service – 2026
- 14

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### Public Participation

- Mail a letter with comments to:
  - P.O. Box 711
  - ATTN: Aerospace Research Campus
  - Mail Stop CB200
  - Tucson, AZ 85701-0711
- Send comments to [arc@tep.com](mailto:arc@tep.com)
- Fill out an [online comment form](#)
- Call 1-833-655-0399 and leave a voicemail message



[tep.com/aerospace-research-campus](http://tep.com/aerospace-research-campus)

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Jenny Neeley:

Hi, thanks. Yeah, this is Jenny Neeley with Pima County's Office of Sustainability. Our question is how is this project related to the segment of WAPA that TEP took on? The Vail to Tortolita segment that was part of WAPA and TEP in the last couple of years took that segment on and we've been in discussions with TEP regarding some reroutes around the airport and this is in the exact same area so I'm wondering, is this part of that reroute segment? Is it the same project or is this a wholly different transmission line?

Clark:

Good question, Jenny, thank you for posing that. So, this is a completely different project, it just happens to be in the same area. So, if you can see what Adriana's still showing on the screen with those preliminary segments, the reroute of the WAPA 115kV line that will now be a double-circuit 230 and 115 kV line would be located essentially in between those two east/west running routes that we have. So, if you see where like that 3 and 4 are at and the 1 and 2 are at, that line would go just north of the 3 and 4 and just south of the 2 and 1. So we'd essentially be proposing some type of a transmission corridor through that roughly one-mile stretch.

Jenny Neeley:

Okay so just to follow up, we were told a couple years ago that that was going to have to go back through the CEC. So, what you're saying is this project is going to go and try to get CEC and that project is going to get a separate CEC. Is that correct?

Clark:

So that project has already been approved and it actually did get CEC but, in the end, since it's a partnership with a federal entity, the CEC actually didn't apply so it's going through the NEPA process.

Jenny Neeley:

So, that other reroute's already been decided then. We haven't heard any updates about it until we got to this project. So, it never had to go through the CEC despite what we were told in 2020.

Clark:

So, it actually did go through the CEC but in the end, the attorneys and everyone deciding those things, decided that that was actually an unnecessary step.

Jenny Neeley:

Okay.

Clark:

We'd be happy to discuss that project in more detail if you want, we can follow up with you afterwards and schedule a discussion so we can fill you in on where that project is at.

Jenny Neeley:

Yeah, that would be great. We're very curious about where that ended up because we were trying to participate in the siting of that and then we just haven't heard anything. So, yeah that would be great, thank you very much.

Clark:

We don't mean to be a black hole so we'll share with you what we can.

Jenny Neeley:

Appreciate it.

Clark:

Sure thing.

Heath Vescovi-Chiordi:

Hey everybody, thank you. Just really quickly I wanted to make sure, so, in December of 2022 we entered into an agreement with a company called American Battery Factory who's going to be locating out at the Aerospace Research Campus and originally their intent was to work with TEP to be able to tap into that 138 kilovolt line on the East Side along Country Club Road, but the area south of Aerospace Parkway between Aerospace Parkway and East Old Vail Connection Road is owned by the county. So, I want to make sure that, to a certain extent, we're working with what the planned area development is for American Battery Factory wherever that that line extension is going to be going. It's very important that we make sure that we have as much of that information upfront as possible to make sure that we're coinciding with the development priorities of that area because as you talked about, it is an area slated for economic development opportunities.

Adriana:

Right, thank you. I appreciate you bringing that up. American Battery Factory is the customer that we will initially be serving as part of this project.

Heath Vescovi-Chiordi:

Wonderful, thank you, and then I think, as always, I would note we always want to be a great partner with Raytheon and I know there's height restrictions out there when it comes to what their needs are, so just wanted to throw that out there as a consideration as well.

Adriana:

Yes, thank you.

Heath Vescovi-Chiordi:

Thank you.

Adriana:

Appreciate it. We have received some preliminary height restriction information but it's my understanding that we have to actually submit before we know for sure but we have at least an idea of the height restrictions which will be helpful, and we're happy to work with you, Heath, and American Battery Factory on, you know, whatever feedback that you have about the location of the line.

Heath Vescovi-Chiordi:

Absolutely, we would love that, and we can send you over kind of the preliminary area for their Phase 1, Phase 2, and Phase 3 so hopefully we can coordinate those appropriately.

Adriana:

Yes, I definitely haven't seen it, I don't know if anyone else from TEP has but that would be wonderful, I'd appreciate that.

Heath Vescovi-Chiordi:

Yeah, I think if anyone has at this point it would be Camilla Martins-Bekat and Matthew Miller, who's new with you guys.

Adriana:

Okay, great. Thank you.

Heath Vescovi-Chiordi:

No problem.

Maria Jayson:

Hi there, this is Maria from World View, and as wondering what percentage of the energy will be from renewable sources, or approximately how much?

Adriana:

That is a good question, I know we plan to provide 80% by 2030, 80% renewable energy by 2030. If I'm wrong on that, somebody from TEP please correct me, but I believe that's correct. So, that's part of our generation portfolio and so we do have plans to make our grid cleaner and greener, but it will take us some time to get there.

Maria Jayson:

Thank you.

Rustyn:

Yeah, hi Adriana, good morning, everyone. I think it was 70% of our generation mixed by 2035 and 80% carbon reduction, I think that's where we are there.

Adriana:

Okay, thank you. I know we have it on our website so I can try to track that down and throw it in the chat as well. It goes into more detail on the website, so Maria, in case you're interested in learning more about our plans, I just need to track it down here. Thank you, Rustyn.



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**From:** Marinez, Adriana <AMarinez@tep.com>  
**Sent:** Wednesday, July 19, 2023 11:42 AM  
**To:** Marinez, Adriana  
**Subject:** Agency Briefing Presentation : Aerospace Research Campus Transmission Project  
**Attachments:** ARC Agency Briefing PPT \_ July 2023.pdf

Dear Stakeholder,

I've attached the presentation we'll review at this morning's agency briefing for the [Aerospace Research Campus Transmission Project](#).

If you're unable to attend, there are still ways to stay engaged and provide input. We encourage your participation at next week's in-person Public Open House (details below) and are also happy to accommodate individual briefing requests.

**Public Open House Meeting**

Thursday, July 27 | 6–8 p.m.

Desert Diamond Casino

Conference Room A

7350 S. Nogales Hwy

Tucson, AZ 85756

Please reach out with any questions or concerns.

Kind regards,

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)

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**From:** Marinez, Adriana <AMarinez@tep.com>  
**Sent:** Thursday, August 31, 2023 12:03 PM  
**To:** jan.lesher@pima.gov; carmine.debonis@pima.gov; Kathryn.Skinner@pima.gov; carla.blackwell@pima.gov; heath.vescovi-chiordi@pima.gov; RWRDUtilityCoord@pima.gov; Sherry.Ruther@pima.gov; Diana.Durazo@pima.gov; karen.simms@pima.gov; thomas.porter@pima.gov; joseph.godoy@pima.gov; hussein.alzubaidi@pima.gov; xavier.delagarza@pima.gov; jenny.neely@pima.gov; charles.suckow@pima.gov; sstorm@pagregion.com; sam.credio@tucsonaz.gov; Robin.Raine@tucsonaz.gov; Jodie.Brown@tucsonaz.gov; demion.clinco@preservetucson.org; michael.graham@tucsonaz.gov; energyoffice@tucsonaz.gov; kristina.swallow@tucsonaz.gov; elisa.hamblin@tucsonaz.gov; lara.hemway@tucsonaz.gov; john.beall@tucsonaz.gov; john.vanwinkle@tucsonaz.gov; daniel.bursuck@tucsonaz.gov; bill.hunter@tucsonaz.gov; kevin.miller@tucsonaz.gov; john.cahill@tucsonaz.gov; john.kmiec@tucsonaz.gov; dean.trammel@tucsonaz.gov; scott.schladweiler@tucsonaz.gov; kathryn.gerber@tucsonaz.gov; rlane@azdot.gov; pthompson@azdot.gov; mwalsh@azstateparks.gov; robyn.sahid@azland.gov; tgrew@azland.gov; swestbrookhall@azland.gov; joel.borgan@us.af.mil; bonnie.carter@us.af.mil; nick.goodly@faa.gov; contactus@tonation-nsn.gov; contactus@tonation-nsn.gov; anunez@waknet.org; mpugh@waknet.org; peter.steere@tonation-nsn.gov; dtenario@waknet.org; apachevern@yahoo.com; hector.rivasCabrera@swgas.com; tucswgfranchisegroup@swgas.com; brice\_box@kindermorgan.com; glen\_reed@kindermorgan.com; wards@kindermorgan.com; ottok@kindermorgan.com; milo\_francese@kindermorgan.com; randon\_kimbell@kindermorgan.com; sidorewiczd@kindermorgan.com; richard.posey@kindermorgan.com; eppamic1@kindermorgan.com; bagivens@up.com; gafowle1@up.com; omonge@up.com; cjmoore@up.com; mvillar@up.com; hahughes@up.com; jvoorhees@flytucson.com; srobidou@flytucson.com; allyson@mpaaz.org; Paul.S.Kramkowski@rtx.com; rfailing@worldview.space; david.welsh@suncorridorinc.com; susan.dumon@suncorridorinc.com; asmith@worldview.space; rfailing@worldview.space; thorton@worldview.space  
**Subject:** Update: TEP Aerospace Research Campus Transmission Project  
**Attachments:** TEP Aerospace Research postcard v6.pdf

Dear Stakeholder,

Tucson Electric Power (TEP) has identified a potential route for new transmission facilities for the [Aerospace Research Campus Transmission Project](#).

The proposed route was identified following a thorough review of environmental and land use impacts and an evaluation of several potential route segments. A map of the route is available on the [project webpage](#) and photographic simulations depicting the proposed line will be posted soon.

TEP is seeking input about the proposed route and invites you and the public to participate in an upcoming Public Open House.

**Public Open House Meeting**

Thursday, Sept. 14 | 6–8 p.m.

Desert Diamond Casino

Conference Room C

7350 S. Nogales Hwy

Tucson, AZ 85756

We also invite you to share feedback by filling out an [online comment form](#), sending comments to [arc@tep.com](mailto:arc@tep.com), or calling 1-833-655-0399 and leaving a voicemail.

The attached postcard, which includes details about the upcoming meeting and how to submit comments, will be mailed to area residents, businesses, and stakeholders early next week. Public notice will also run in the Arizona Daily Star on Sunday, Sept. 10.

If you would like more information or are interested in an individual briefing, please let me know.

Kind regards,

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)

**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-2**

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## TEP Plans for New Transmission Facilities to Support Economic Development, Job Creation

Tucson Electric Power (TEP) is preparing plans for new transmission facilities that will increase energy capacity at the Aerospace Research Campus, a 500-acre business campus run by Pima County, supporting economic development and new jobs in our community.

The Aerospace Research Campus Transmission Project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport. This upgrade to TEP's local energy grid will support new aerospace development and other supply chain industries planned for the campus without impacting the reliability of service to other customers in the area.

The transmission line will be built over an approximately 1.5-mile area, extending service to the proposed switchyard.

Public input is an important part of TEP's planning process. We encourage area residents and other stakeholders to share their comments using one of the public participation methods listed in this newsletter.

### Project Benefits

- **Service for growing energy needs.** New infrastructure will help meet customers' current and future energy needs. The new line will tie into TEP's 138 kV transmission system to accommodate increasing energy demands.
- **Support for job growth and economic development.** TEP works closely with

commercial customers to support their electric needs. New transmission facilities will support new commercial businesses at the Aerospace Research Campus, including American Battery Factory's planned headquarters and first battery cell gigafactory in the United States. The factory, which will be located south of South Raytheon and South Aerospace parkways, will produce lithium iron phosphate battery cells and has long-term plans to add 1,000 jobs to the region.

### Planning and Siting Process

Identifying a suitable location for new transmission facilities involves several phases, each informed by public input. Area residents and other stakeholders can provide local insight to help identify opportunities and constraints, areas to avoid and specific route segments.

Stakeholders play a crucial role in helping TEP to evaluate and prioritize the importance of the criteria used to assess potential routes. TEP will use the criteria to evaluate and rank each potential route segment, ultimately developing a preferred transmission line route.

Under state law, potential routes must be evaluated using the criteria listed in this newsletter. However, TEP also can consider additional criteria such as local community values when assessing potential segments.

TEP welcomes your comments about the criteria listed in the graphic, and about additional criteria we should consider throughout the route selection process.

## Aerospace Research Campus Transmission Project



### Please Join Us Public Open House Meeting

Thursday, July 27 | 6-8 p.m.  
Desert Diamond Casino  
Conference Room A  
7350 S. Nogales Hwy  
Tucson, AZ 85756

[tep.com/aerospace-research-campus](http://tep.com/aerospace-research-campus)



### Energy Grid Improvements

TEP is preparing plans for new transmission facilities at the Aerospace Research Campus that will support economic development and job creation in our community.



## Aerospace Research Campus Transmission Project

### Evaluation Criteria

1. Impact on existing and planned land uses by state, local and private entities
2. Impact on fish, wildlife, and plants
3. Impact on special status species and their habitat
4. Proximity to sensitive noise receptors (schools, hospitals, assisted living and daycare facilities)
5. Proximity to licensed communication sites
6. Impact on designated scenic areas
7. Impact on historic and archaeological sites
8. Overall environmental impact
9. Ability to construct and maintain facilities
10. Cost
11. Compliance with state, county or city ordinances

Arizona Power Plant and Transmission Line Siting Committee, which reviews CEC applications in a public process that allows neighbors and other stakeholders to provide comments. The Arizona Corporation Commission must review and approve the CEC before TEP can begin construction.

### Public Participation

TEP invites the public to attend the open house meeting listed on the front of this newsletter to ask questions and submit comments about the project. You can also share your input by:

- Mailing a letter with comments to:  
P.O. Box 711  
ATTN: Aerospace Research Campus  
Mail Stop CB200  
Tucson, AZ 85701-0711
- Sending comments to [arc@tep.com](mailto:arc@tep.com)
- Filling out an online comment form at [tep.com/aerospace-research-campus](http://tep.com/aerospace-research-campus)
- Calling 1-833-655-0399 and leaving a voicemail message

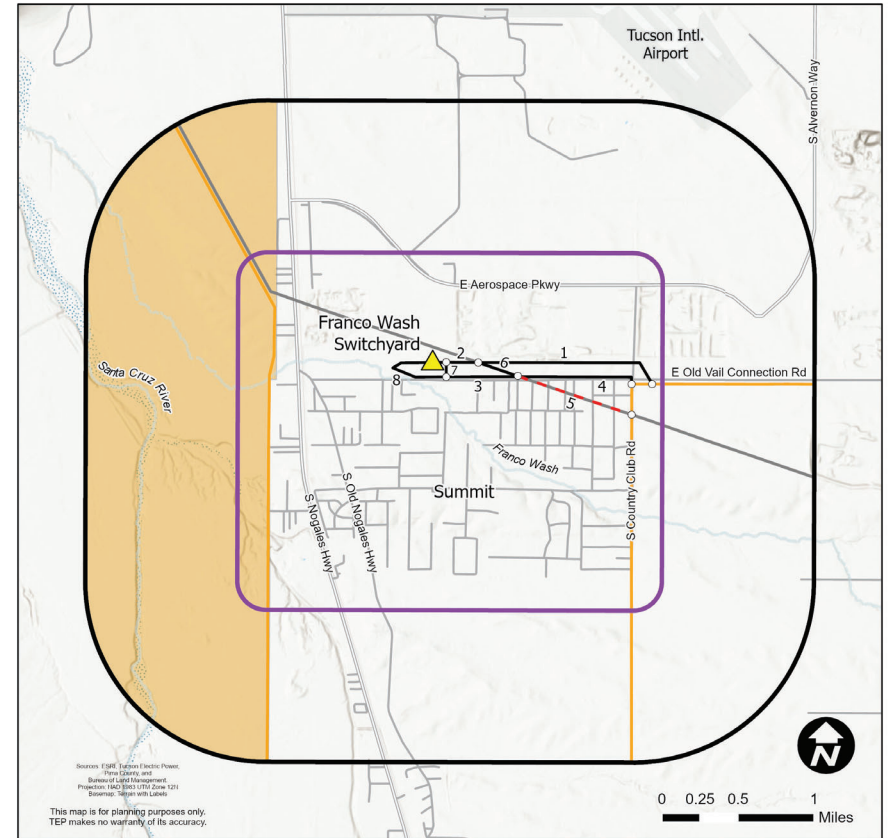
An interactive map will be posted on our website.

### Required Approvals and Timeline

Under state law, TEP must secure a Certificate of Environmental Compatibility (CEC) to build the transmission line and switchyard. TEP plans to file a CEC application in fall 2023 with the

*Tucson Electric Power (TEP) está haciendo planes para nuevas instalaciones de transmisión que aumentarán la capacidad de energía en el Aerospace Research Campus, y apoyarán el desarrollo económico y la creación de nuevos puestos de trabajo en nuestra comunidad. TEP invita al público en general a asistir a la próxima reunión abierta que aparece en el frente de este boletín informativo para hacer preguntas y presentar comentarios sobre el proyecto. Alentamos a los vecinos, propietarios y otros a compartir sus opiniones y comentarios rellenando un formulario de comentarios en línea, enviando un correo electrónico a [arc@tep.com](mailto:arc@tep.com) o llamando al 1-833-655-0399. Gracias por su interés en este proyecto.*

## Aerospace Research Campus Transmission Project



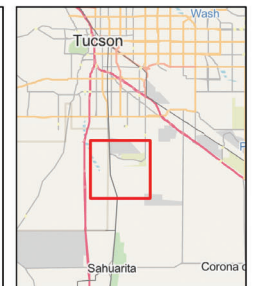
### Preliminary Segments

Aerospace Research Campus  
Transmission Project



#### Legend

- Study Area
- Notification Area
- Segment Under Consideration
- Eliminated Segment
- Proposed Switchyard
- Existing 138kV Line (TEP)
- Existing 115kV Line (WAPA)
- San Xavier District, Tohono O'odham Nation





Tucson Electric Power

# Aerospace Research Campus Transmission Project Public Open House – Thursday, Sept. 14 | 6-8 p.m.

Tucson Electric Power (TEP) has identified a potential route for a new transmission line that will serve Pima County's Aerospace Research Campus, supporting economic development and new jobs in our community.

The Aerospace Research Campus Transmission Project will link TEP's 138-kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport. This upgrade will support new aerospace development and other supply chain industries planned for the 500-acre business campus with no impact on service reliability for other customers.

TEP identified a proposed route following a thorough review of environmental and land use impacts and an evaluation of several potential route segments. A map of the proposed route and photographic simulations depicting the proposed line will be posted on the project website at [tep.com/aerospace-research-campus](http://tep.com/aerospace-research-campus).

TEP must secure a Certificate of Environmental Compatibility (CEC) from the Arizona Corporation Commission before building the line. TEP plans to file a CEC application in early October and participate in a public hearing before the Arizona Power

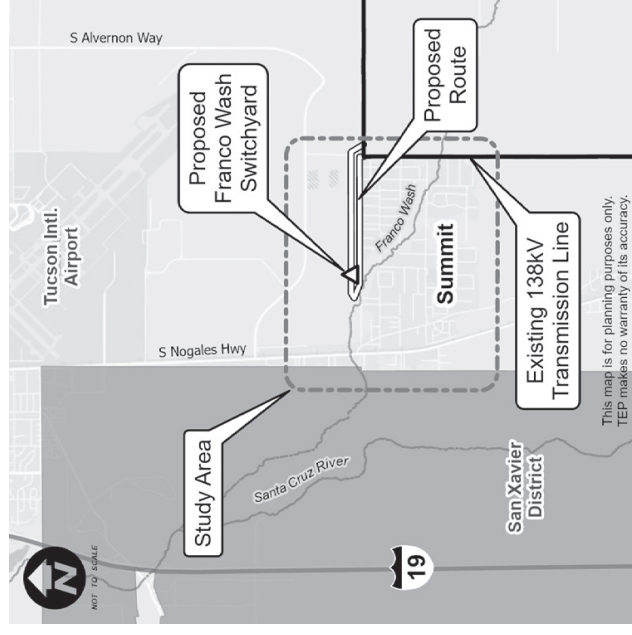
Plant and Transmission Line Siting Committee in December.

We encourage residents and other stakeholders to attend a public open house on Sept. 14, 2023. We also invite you to share feedback on the proposed route by filling out an online comment form on the project website, by sending comments to [arc@tep.com](mailto:arc@tep.com), by calling 1-833-655-0399, or by mailing a letter to the return address on this postcard.

*Tucson Electric Power (TEP) ha identificado una ruta potencial para una nueva línea de transmisión que prestara servicios de energía en el Aerospace Research Campus, y respaldarán el desarrollo económico y la creación de nuevos empleos en nuestra comunidad.*

*TEP identificó la ruta propuesta tras una revisión exhaustiva de los aspectos medioambientales e impactos de uso territoriales, y una evaluación de varios posibles segmentos de la ruta. Un mapa que muestra la ruta propuesta y simulaciones fotográficas que representan la línea de transmisión de 138 kilovoltios propuesta estarán disponibles en el sitio web del proyecto en [tep.com/proyecto-de-transmission-de-aerospace-research-campus](http://tep.com/proyecto-de-transmission-de-aerospace-research-campus).*

*Alentamos a los residentes y otras partes interesadas a asistir a una reunión pública el 14 de septiembre de 2023. También lo invitamos a compartir comentarios sobre la ruta propuesta completando un formulario de comentarios en línea en el sitio web del proyecto, enviando comentarios a [arc@tep.com](mailto:arc@tep.com), llamando al 1-833-655-0399 o enviando una carta a la dirección del remitente que figura en esta postal.*



This map is for planning purposes only. TEP makes no warranty of its accuracy.



**Aerospace Research Campus  
Transmission Project**

**Please Join Us  
Public Open House**  
Thursday, Sept. 14 | 6-8 p.m.  
Desert Diamond Casino  
Conference Room C  
7350 S. Nogales Hwy  
Tucson, AZ 85756

[tep.com/aerospace-research-campus](http://tep.com/aerospace-research-campus)



Tucson Electric Power  
P.O. Box 711  
Attn: Transmission Line Siting  
Mail Stop CB200  
Tucson, AZ 85701-0711

First Class Mail  
Presorted  
**US Postage Paid**  
Tucson AZ  
Permit #21

# Public Notice

## Aerospace Research Campus Transmission Project

Tucson Electric Power (TEP) is preparing plans for new transmission facilities that will increase energy capacity at the Aerospace Research Campus, a 500-acre business campus run by Pima County, supporting economic development and new jobs in our community.

The Aerospace Research Campus Transmission Project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport. This upgrade to TEP's local energy grid will support new aerospace development and other supply chain industries planned for the campus without impacting the reliability of service to other customers in the area.

Project website: [tep.com/aerospace-research-campus](http://tep.com/aerospace-research-campus)

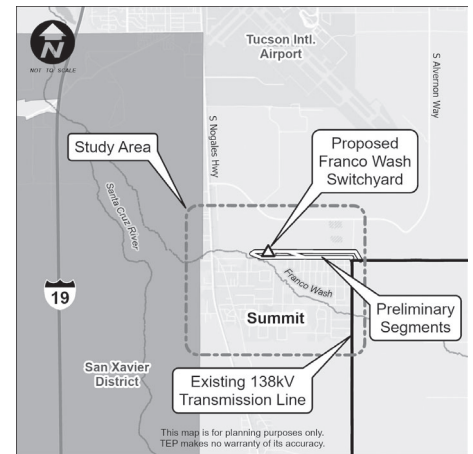


TEP invites the public to attend the open house meeting listed here to ask questions and submit comments about the project.

### Public Open House Meeting

Thursday, July 27 | 6-8 p.m.  
Desert Diamond Casino  
Conference Room A  
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Abuse

From A1

The report, "Abuses at the U.S.-Mexico Border," was co-authored by Martens and Adam Isacson, director of defense oversight for the Washington Office on Latin America, or WOLA, a D.C.-based research and advocacy group that promotes human rights and social justice in Latin America and the Caribbean.

The report includes a live database of more than 400 incidents, or summaries of multiple similar incidents, logged between January 2020 and August 2023. The events were drawn from news accounts and reports from migrant shelters along the border, primarily Kino Border Initiative. The Catholic-led nonprofit provides humanitarian and legal aid to migrants on the border and has been helping migrants file formal complaints about abuse allegations since 2015.

The misconduct doesn't reflect the behavior of most border agents under U.S. Customs and Border Protection, which is part of DHS, but the lack of accountability for even serious human rights violations harms the credibility of border enforcement agencies, the report's authors say.

"Respecting human rights goes hand in hand with good border governance," Martens said. "I don't see those things as mutually exclusive."

The report describes multiple "failure points" where complaints submitted to DHS tend to be lost or stalled. This includes during transfers between DHS' four accountability offices or when complaints are submitted to the wrong office — a common mistake, as the offices have overlapping areas of responsibility.

The report's level of detail helps identify realistic ways to fix the flawed system, said Katherine Hawkins, senior legal analyst with the Project on Government Oversight, or POGO, a watchdog group that investigates and exposes government waste, corruption and efforts to silence whistleblowers.

"We knew the (DHS) complaint process was broken, but seeing the specific failure points is extremely helpful," Hawkins said.

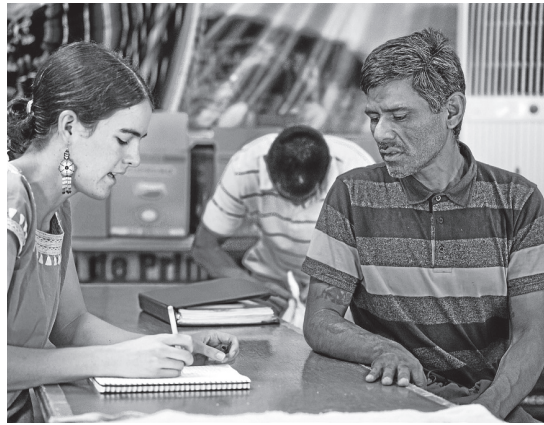
In addition to improving the complaints process, CBP should encourage agents to speak up when they see bad behavior and respond to those concerns with meaningful disciplinary action or policy changes, Isacson said.

"The key to stopping (human rights violations) is for the majority to be able to speak up about it," he said. "Right now, too many of the good ones believe that's career death, and that's a huge disincentive — you put your career on the line and then nothing happens."

CBP response

In an emailed statement on Thursday, a U.S. Customs and Border Protection spokesperson defended the agency's commitment to accountability and highlighted recent reforms that bolster it.

"CBP takes all allegations of misconduct seriously, investigates thoroughly, and holds employees accountable when policies are violated," the statement said in part. "We have also implemented significant reforms that make CBP more transparent and accountable to the American people. CBP recently updated our enhanced vehicle pursuit policy to ensure it is safer and more impactful. We have enhanced our commitment to transparency: deploying thousands of body-worn cameras to the field, and expeditiously releasing information and body-



LARRY HANELIN

Kino Border Initiative executive director Joanna Williams helps a migrant file a complaint about his treatment by border agents at Kino's original migrant aid shelter in Nogales, Sonora in 2017. Advocates with KBI have been assisting migrants in reporting human rights violations to the U.S. Department of Homeland Security since 2015. The group began tracking the outcomes of those formal complaints in 2020 and have found most never result in disciplinary action or policy changes.

worn camera footage following critical incidents. In addition, we have strengthened our internal investigative processes when employees are accused of misconduct."

Former CBP Commissioner Chris Magnus, who was ousted in January after less than a year on the job, oversaw the implementation of some of those accountability measures. Magnus said in a Friday email to the Star that "actions, not platitudes, are what count."

"Accountability and transparency should be among the highest priorities for CBP and all law enforcement agencies," said Magnus, former Tucson chief of police. "Unfortunately, these are easy terms to throw around in speeches, press releases, and mission statements. These are things that must be demonstrated through policies that reflect best practices, leadership at the top willing to support change, and meaningful consequences for those who violate policies and laws."

Documentation matters

Kino's complaint-filing effort, which began in 2015, has evolved into an ongoing test of the DHS accountability system, which the report describes as "bewildering, opaque and slow-moving."

When Kino staffers began raising migrants' accounts of abuse with local CBP officers, CBP said they needed specific examples and names to take action, Martens said.

"We took them at their word" and began filing formal complaints, Martens said. "It's an act of faith, and an act of hope, that these offices will live up more fully to what their missions really are."

Documenting these abuses can feel like "yelling into a void," said Chelsea Sachau, managing attorney for Tucson-based Florence Immigrant and Refugee Rights Project, which provides free legal services to detained adults and children facing deportation. Sachau is on the nonprofit's border action team, which spends most of the week working at KBI's migrant aid shelter.

The Kino Border Initiative and WOLA's database of documented abuses is an important "labor of love," Sachau said.

"Documentation matters, because what we see every day is

often out of sight, out of mind or unknown to much of the U.S.," she said. "It's at least a tangible recognition for the victims that the public knows about this. Even if we can't effect an outcome for you personally, we want to be sure we are building out an archive of how often this is happening."

Long delays

The report recommends DHS create a portal that allows complainants to create an account and follow the progress of their case. Currently, Martens said, most migrants never get a response to their complaints or the response comes years later, when the victim has already moved on and can no longer be interviewed.

She recounted the story of Carlos, a Guatemalan migrant apprehended by border agents in the Arizona desert in late 2020. He told Kino workers that before crossing the U.S. border, he'd been held hostage and forced to work for an organized crime group in northern Mexico, after he couldn't pay the smugglers' fee for the final leg of his journey to the U.S.

After escaping his captors and fleeing north, he told U.S. border agents what happened and that he feared for his life. Agents nevertheless released him in Nogales, Sonora at 2 a.m., Martens said, citing the complaint he filed at the time.

When Carlos asked why he was being released in Mexico instead of being sent to his native Guatemala, he said an agent called him an idiot in Spanish, struck him on the knee with a baton and threatened to hit him again if he kept asking questions. When Carlos arrived at the Kino Border Initiative, he could barely walk and thought his knee was broken, Martens said.

Kino's staff helped Carlos file a formal complaint with DHS. Nearly two years later, in August 2022, Martens finally got a response when DHS' Office of Civil Rights and Civil Liberties called. They were forwarded the complaint from the DHS Office of the Inspector General, which has first right of refusal on all complaints, and they were trying to find Carlos to interview him.

By that time, Martens had no way to reach Carlos, she said. She asked for more details on the investigation, but the investigator

said she'd have to file a public records request under the Freedom of Information Act, a process that can take years, Martens said. The investigator said Carlos, too, would have had to file a records request to get the details of his own complaint.

This account "really illustrates a lot of issues with the system: the delays, the different offices where complaints get passed back and forth, and the lack of transparency, even for the people who experienced this abuse themselves," Martens said.

Inspector general questioned

The current head of one of DHS' most powerful accountability offices, the Office of the Inspector General, has a problematic history, said Hawkins of the Project on Government Oversight.

POGO has extensively investigated DHS inspector general Joseph Cuffari, a Trump appointee, who recently settled a lawsuit accusing him of retaliating against a whistleblower. The nearly \$1.2 million settlement prompted top Democrats to issue a joint letter in July calling for further investigation.

Cuffari's own testimony "raises serious concerns about your possibly retaliatory actions and lack of candor, improper use of taxpayer dollars, and lack of truthfulness in your communications with Congress," wrote Reps. Bennie Thompson, D-Miss., and Jamie Raskin, D-Md.

One of the report's recommendations is the dismissal of Cuffari. "DHS is too important to not have an inspector general who is really effective and who is keeping the organization in a state of high morale and high efficiency," Isacson said.

Lawmaker support needed

Over the years, KBI staff have formed relationships with frontline workers in DHS' four accountability offices, Martens said she solicited their feedback on the feasibility of the report's policy recommendations.

Often, Martens said, "their response was that the (recommended change) makes a lot of sense, but it comes down to money and resources."

Among the report's recommendations is more congressional support. Legislators should push CBP to release required public reports on time, such as an overdue report on integrity and accountability, Isacson said. Accountability offices must be adequately staffed and funded, and lawmakers should keep human-rights abuses in the public eye by raising the issue in funding discussions with DHS, he said.

"The committees that are supposed to oversee and fund them can ask all the questions they want," he said. "They're appropriating the money."

In an emailed statement on Friday, U.S. Rep. Raúl Grijalva, a Tucson Democrat, said the abuses highlighted in the report are "unconscionable and unacceptable, especially as the Tucson Sector is under a permanent injunction for past abuses...I urge the Biden administration to hold accountable those at the Department of Homeland Security and CBP responsible for these actions. We have both a moral and legal obligation to do better."

U.S. Sen. Mark Kelly, D-Ariz., said in an email that migrants must be treated with dignity wherever they are encountered.

"As the son of two police officers, I have great appreciation for our law enforcement. That is why I have secured and continue to fight for more resources and support for our CBP officers and Border Patrol agents who have difficult jobs on the border. At the same time, there has to be accountability. And Congress needs to do its job and step up to fix our broken immigration system."

"Act of courage"

Martens said it's "an act of courage" for migrants to get on the record with their experience of mistreatment by filing a complaint, especially knowing they're unlikely to get a response.

"We don't want to mislead people. We explain pretty clearly that there likely won't be a personal benefit for them," she said. Many file a complaint anyway, in hopes of helping others avoid the same experience, she said.

She recalled a father and his teenaged son whom she met last summer: They had traveled from Chiapas in southern Mexico, fleeing persecution by criminal organizations. The man told Martens he couldn't go to the local police because some were connected to the criminal groups.

He reported that border agents forced him and his son to sign return paperwork to go back to Mexico, without channeling them to an asylum officer, Martens said. The man said agents told him, "Mexico isn't that dangerous. You should just go talk to the police," showing a lack of understanding of the connection between government and organized crime in Mexico, Martens said.

At Kino, Martens offered to help the man file a complaint about the violation of his right to request asylum. She explained he likely wouldn't get justice in his case, but that documenting it could help improve the system for others. The man quickly agreed, saying, "Don't worry — we're used to lack of justice in our own country," Martens recalled.

The comment stuck with her. "These are our U.S. accountability systems. I think we'd assume they are more effective than in places where we know impunity is widespread," as in Mexico, she said. "We must, and we can, do better."

Contact Star reporter Emily Bregel at ebregel@tucson.com. On X, formerly Twitter: @EmilyBregel

Public Notice
Aerospace Research Campus Transmission Project

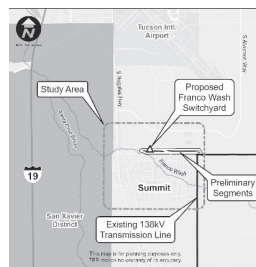
Tucson Electric Power (TEP) has identified a potential route for a new transmission line that will serve Pima County's Aerospace Research Campus, supporting economic development and new jobs in our community.

The Aerospace Research Campus Transmission Project will link TEP's 138-kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport. TEP identified a proposed route following a thorough review of environmental and land use impacts and an evaluation of several potential route segments.

We encourage residents and other stakeholders in the project study area to attend an upcoming open house to learn more.

Public Open House
Thursday, Sept. 14 | 6-8 p.m.
Desert Diamond Casino
Conference Room C
7350 S. Nogales Hwy
Tucson, AZ 85756

Tucson Electric Power (TEP) ha identificado una ruta potencial para una nueva línea de transmisión que prestará servicios de energía en el Aerospace Research Campus, y respaldarán el desarrollo económico y la creación de nuevos empleos en nuestra comunidad. TEP identificó la ruta propuesta tras una revisión exhaustiva de los aspectos medioambientales e impactos de uso territorial, y una evaluación de varios posibles segmentos de la ruta. Atentamos a los residentes y otras partes interesadas a asistir a una reunión pública el 14 de septiembre de 2023.



tep.com/aerospace-research-campus



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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-3**



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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-3.1**

**Open House 1**

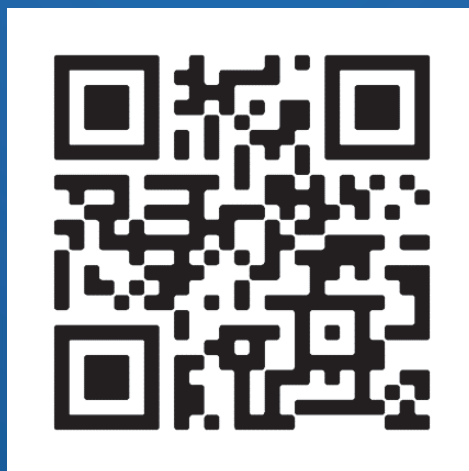
**7/27/2023**

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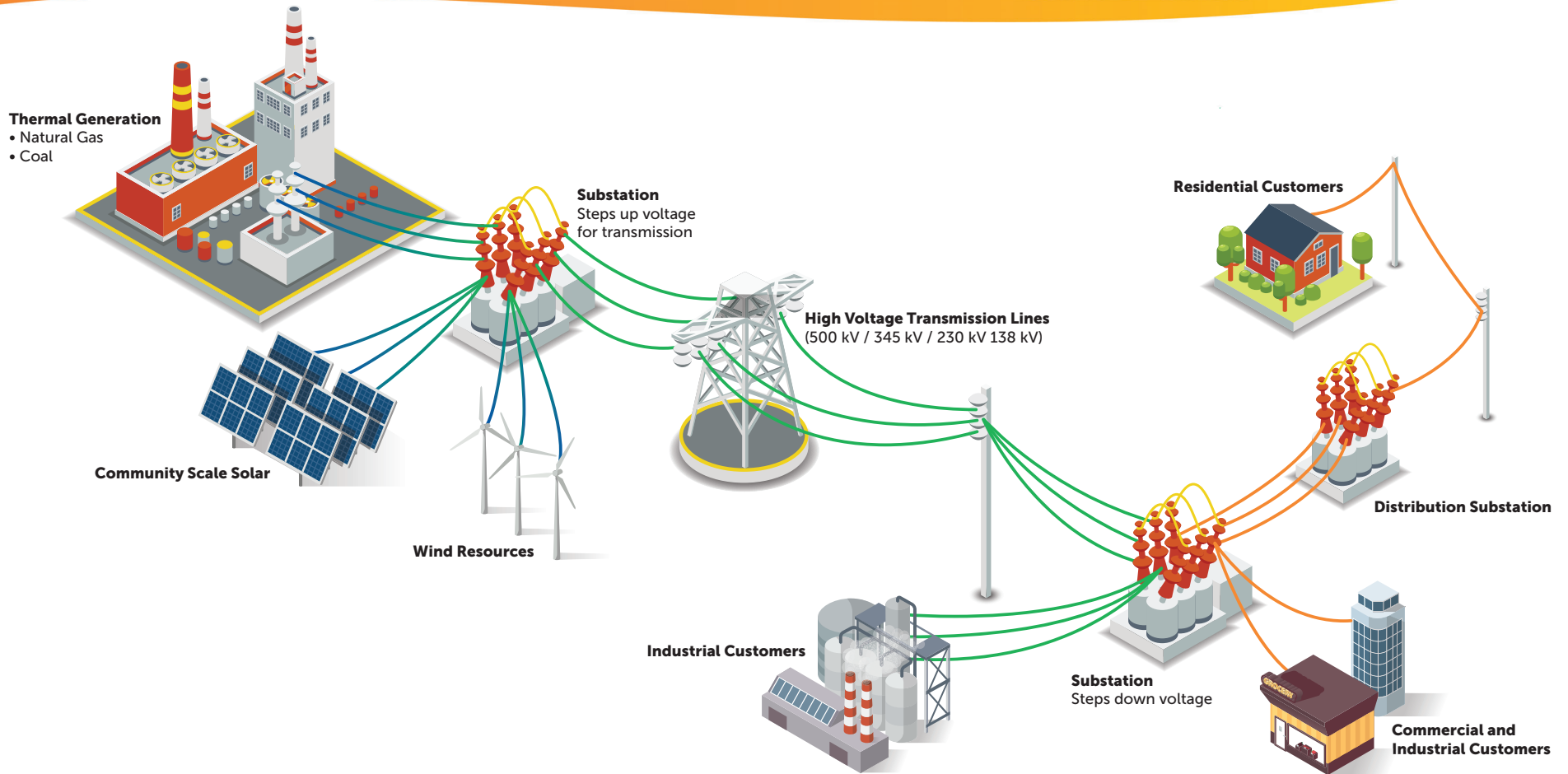
**Welcome**  
**Please Sign In**  
**Bienvenidos**  
**(Hablamos Español)**

**Por Favor Regístrese**

**For more information - Para más información:**



# Aerospace Research Campus Transmission Project



Generation

Transmission

Sub-Transmission and Distribution

# Aerospace Research Campus Transmission Project



## PURPOSE AND NEED

- New facilities will serve aerospace and other supply chain industries planned at the Aerospace Research Campus
- Support economic development and job creation
- Help meet current and future energy needs without impacting service to existing customers

# Aerospace Research Campus Transmission Project



## Phase 1: Pre-Analysis

Conduct Field Visits

Develop Study Area

Identify Opportunities and  
Constraints

Conduct Public and  
Stakeholder Outreach

Develop Preliminary  
Segments



## Phase 2: Data Inventory

Conduct Research and Collect Data



## Phase 3: Suitability Assessment

Refine Segments



## Phase 4: Compatibility Analysis

Develop Route Alternatives



## Phase 5: Concept Evaluation

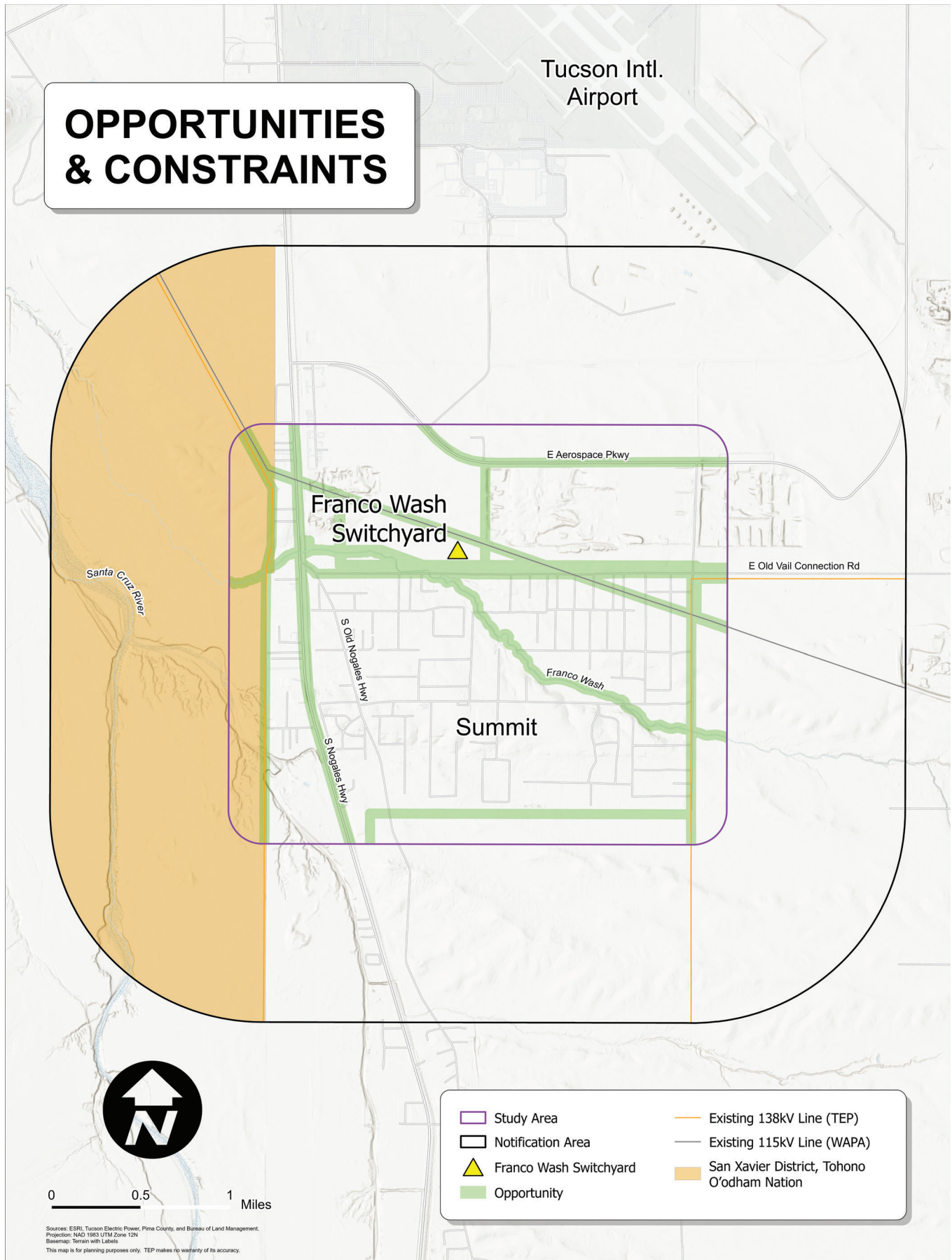
Conduct Public and Stakeholder Outreach

Field Review

Submit CEC Application

# Aerospace Research Campus Transmission Project

## OPPORTUNITIES & CONSTRAINTS



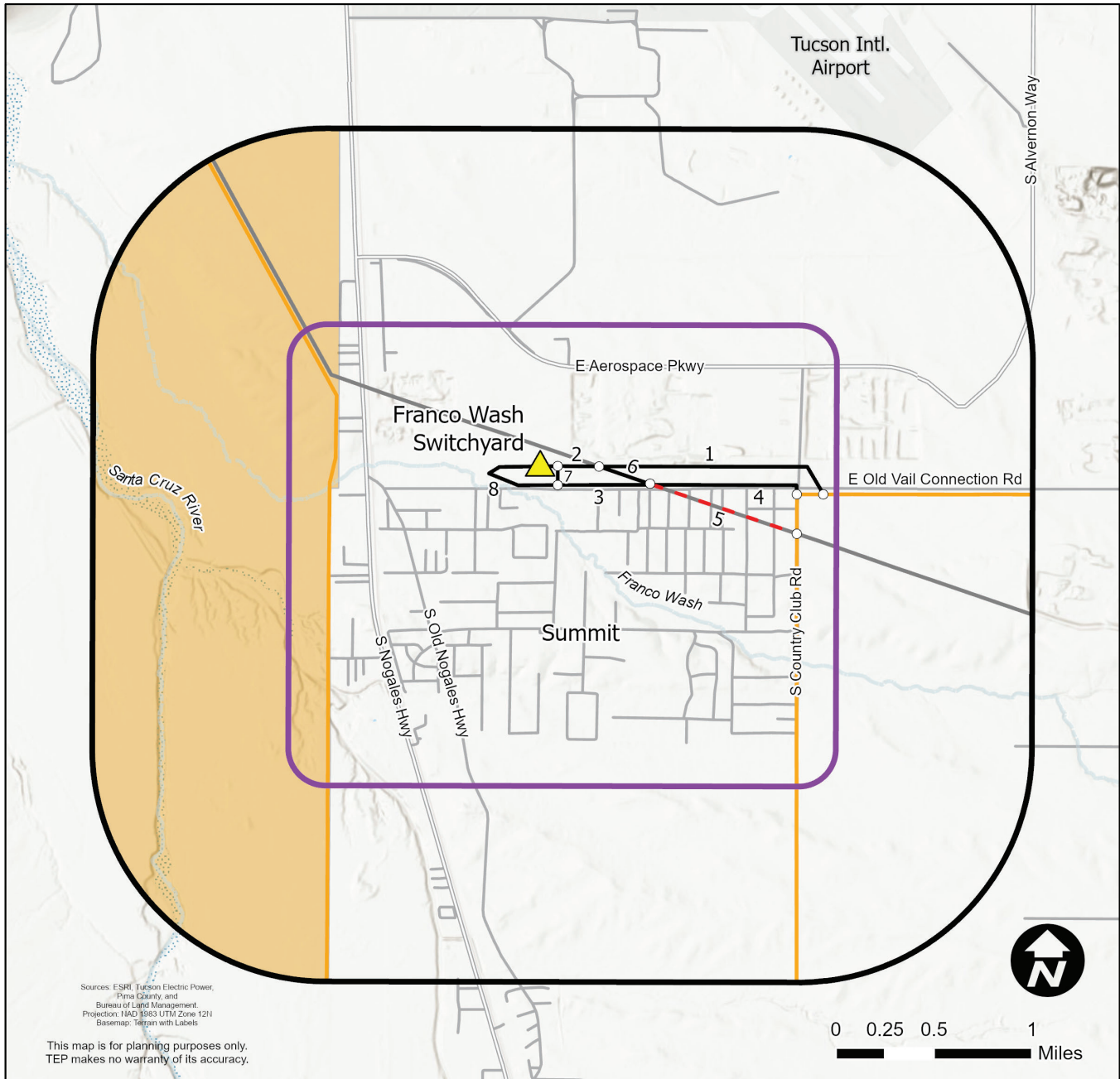
0 0.5 1 Miles

- Study Area
- Notification Area
- Franco Wash Switchyard
- Opportunity
- Existing 138kV Line (TEP)
- Existing 115kV Line (WAPA)
- San Xavier District, Tohono O'odham Nation

Sources: ESRI, Tucson Electric Power, Pima County, and Bureau of Land Management.  
Projection: NAD 1983 UTM Zone 12N  
Basemap: Terrain with Labels  
This map is for planning purposes only. TEP makes no warranty of its accuracy.



# Aerospace Research Campus Transmission Project

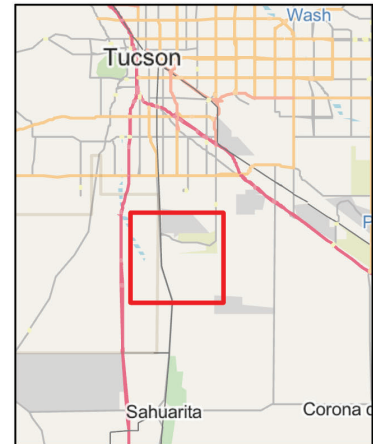


## Preliminary Segments

Aerospace Research Campus  
Transmission Project

**Legend**

- Study Area
- Notification Area
- Segment Under Consideration
- Eliminated Segment
- Proposed Switchyard
- Existing 138kV Line (TEP)
- Existing 115kV Line (WAPA)
- San Xavier District, Tohono O'odham Nation



## Structure Characteristics

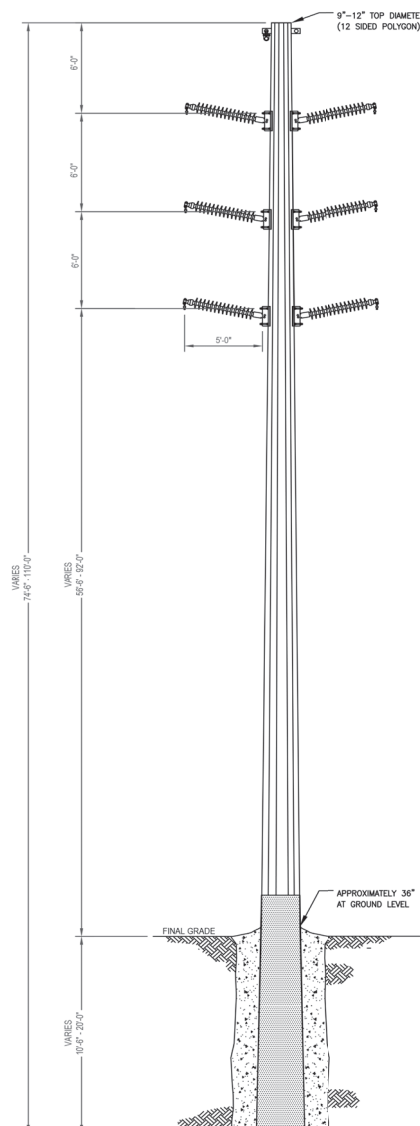
**Type:** Tubular, self weathering steel monopoles

**Pole Height:** 75 feet (Typical)

**Span length:** 600-1,000 feet  
(distance between poles)

**Poles per mile:** 5-9 Structures

**Right of way width:** Up to 100 feet



*A typical weathering steel monopole supporting a 138 kilovolt transmission line*

The Arizona Corporation Commission will consider several factors before approving a Certificate of Environmental Compatibility. These factors, used by TEP to analyze potential line routes, include:



Wildlife and plant life



Scenic areas, historic sites and archaeological sites and structures



Environment



Noise emission levels and interference with communication signals



Potential public recreational uses



Existing development plans



Engineering feasibility and challenges



Project costs and potential impacts on customer rates



Public input

# Aerospace Research Campus Transmission Project

Public Open House – Thursday, July 27, 2023



	Full Name	Address	Email	Phone
1.	Virginia Applegate			
2.	Gene Applegate			
3.	Harry Young	9902 S Agave Coctus Way		
4.				
5.				
6.				
7.				
8.				
9.				
10.				

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-3.3**

**Open House 2**

**9/14/2023**

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**Welcome**  
**Please Sign In**  
**Bienvenidos**  
**(Hablamos Español)**

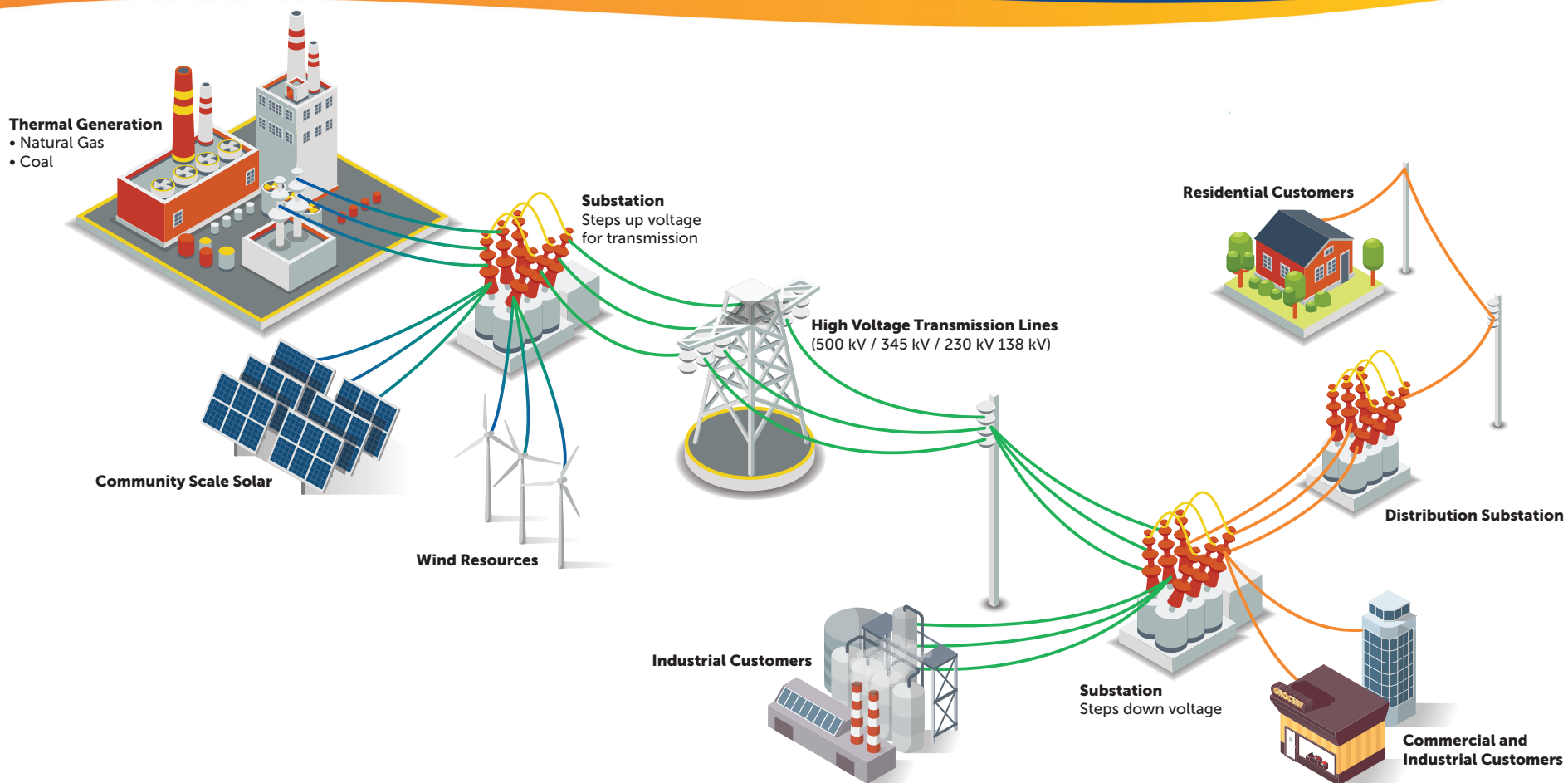
**Por Favor Regístrese**

**For more information - Para más información:**





# Aerospace Research Campus Transmission Project



Generation

Transmission

Sub-Transmission and Distribution

# Aerospace Research Campus Transmission Project



## PURPOSE AND NEED

- New facilities will serve aerospace and other supply chain industries planned at the Aerospace Research Campus
- Support economic development and job creation
- Help meet current and future energy needs without impacting service to existing customers

# Aerospace Research Campus Transmission Project



## Phase 1: Pre-Analysis

Conduct Field Visits

Develop Study Area

Identify Opportunities and  
Constraints

Conduct Public and  
Stakeholder Outreach

Develop Preliminary  
Segments



## Phase 2: Data Inventory

Conduct Research and Collect Data



## Phase 3: Suitability Assessment

Refine Segments



## Phase 4: Compatibility Analysis

Develop Route Alternatives



## Phase 5: Concept Evaluation

Conduct Public and Stakeholder Outreach

Field Review

Submit CEC Application

# Aerospace Research Campus Transmission Project



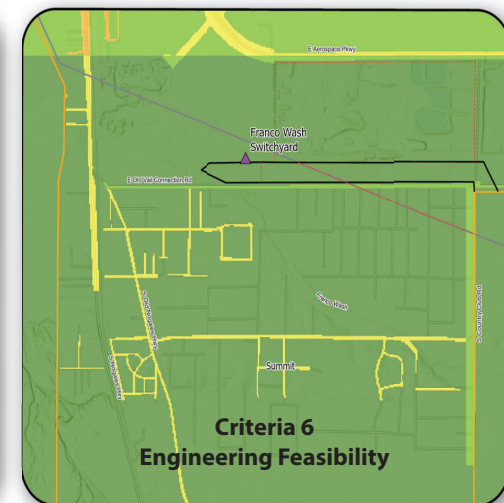
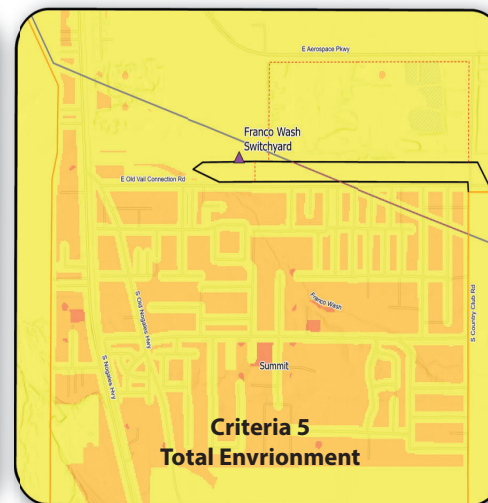
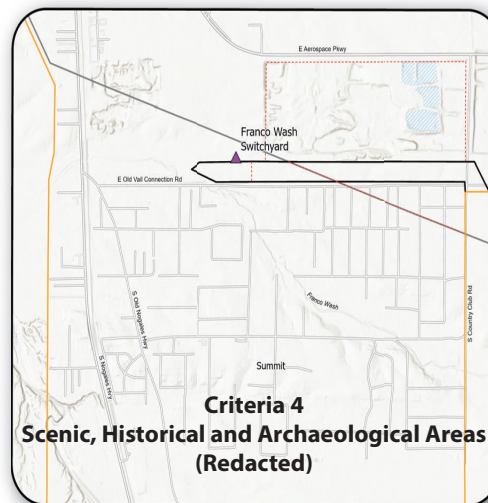
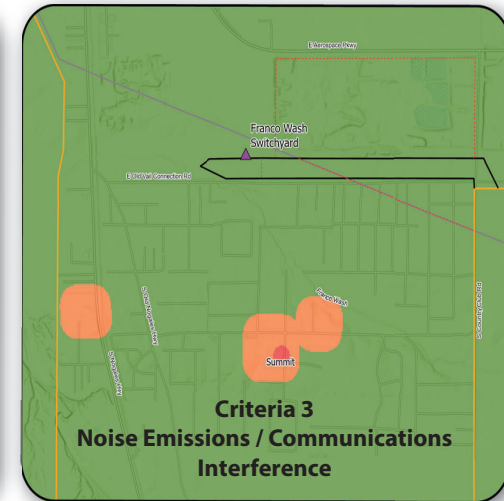
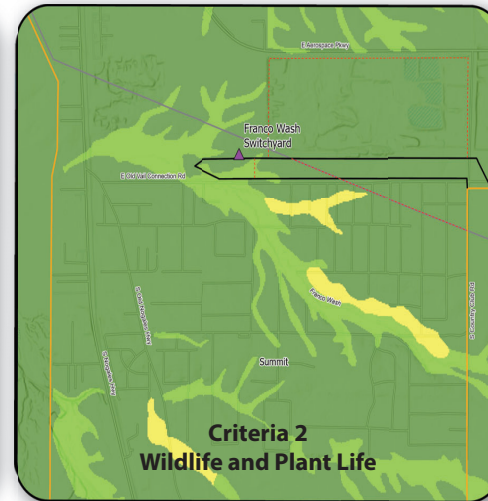
## SUITABILITY FACTORS

### LEGEND

- Proposed Franco Wash Switchyard
- Proposed Route
- Eliminated Segment
- Existing 138kV Line (TEP)
- Existing 115kV Line (WAPA)

### Suitability Analysis

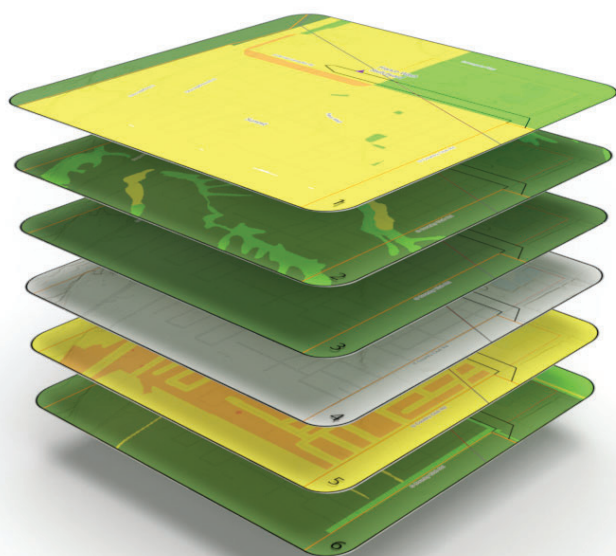
- High Compatibility
- Low Compatibility



# Aerospace Research Campus Transmission Project

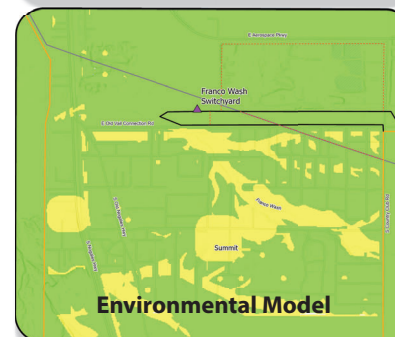
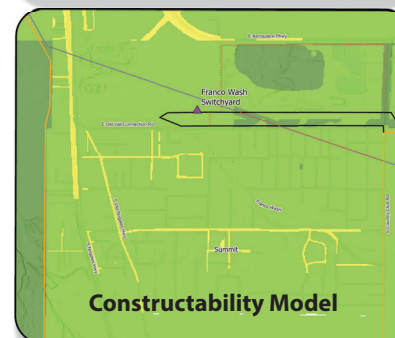
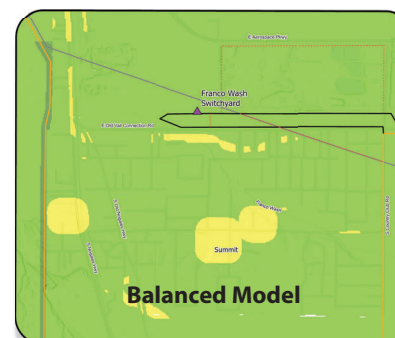


## COMPOSITE SUITABILITY MODELS



Criteria 1 x Weight  
+  
Criteria 2 x Weight  
+  
Criteria 3 x Weight  
+  
Criteria 4 x Weight  
+  
Criteria 5 x Weight  
+  
Criteria 6 x Weight

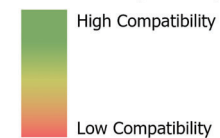
Suitability factor models are weighted differently based on model and added together.



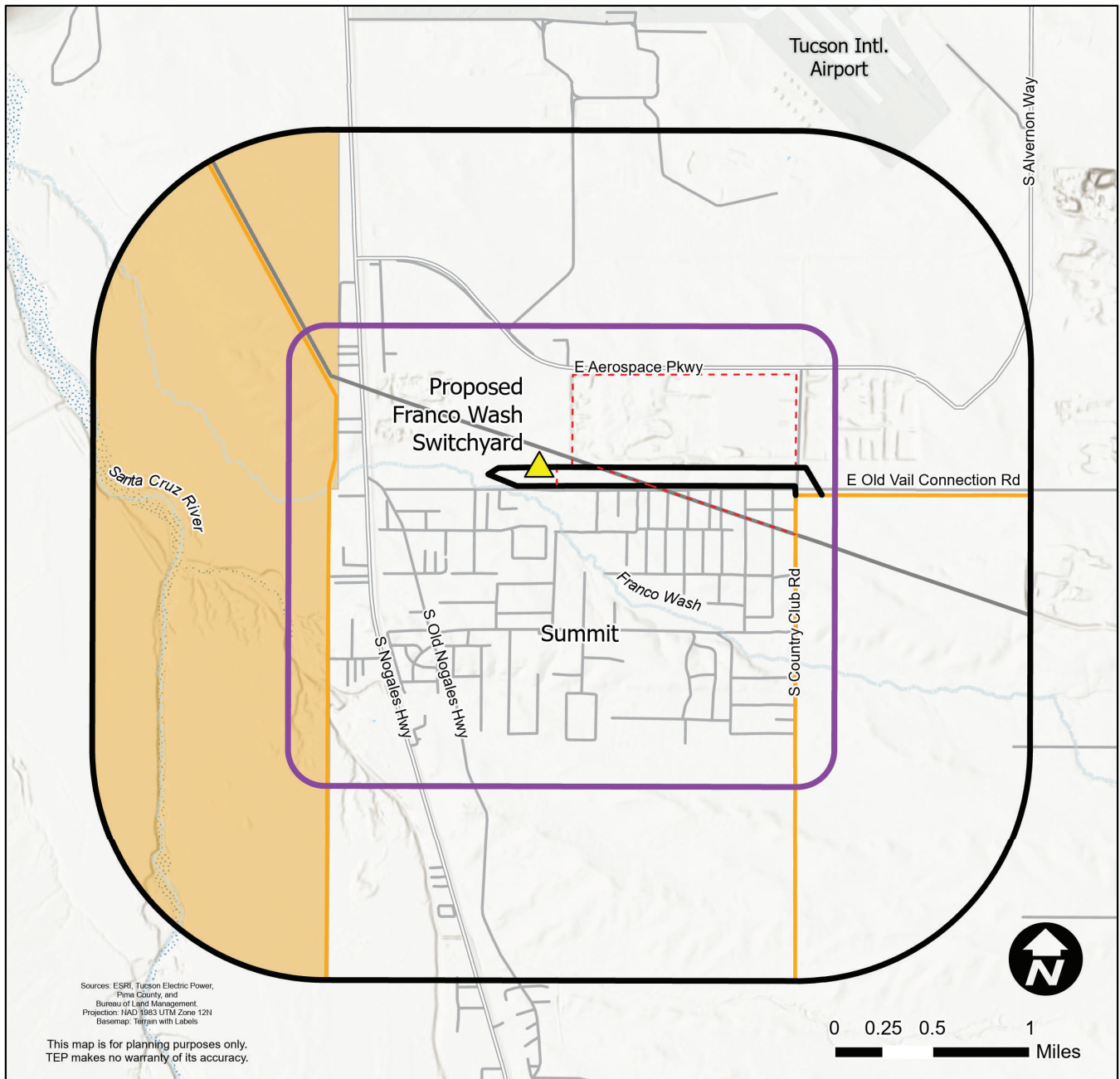
### LEGEND

- Proposed Franco Wash Switchyard
- Proposed Route
- Eliminated Segment
- Existing 138kV Line (TEP)
- Existing 115kV Line (WAPA)

### **Suitability Analysis**




# Aerospace Research Campus Transmission Project




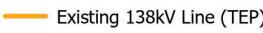

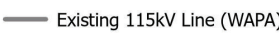




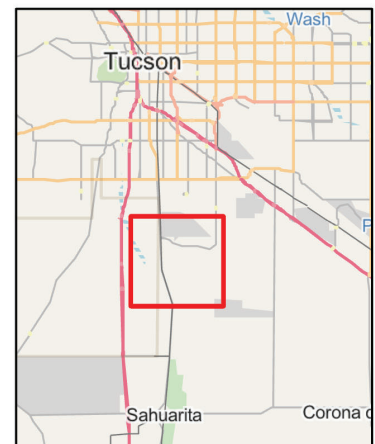
## Proposed Route

Aerospace Research Campus  
Transmission Project



### Legend

 Study Area	 Proposed Switchyard
 Notification Area	 Existing 138kV Line (TEP)
 Segment Under Consideration	 Existing 115kV Line (WAPA)
 Eliminated Segment	 San Xavier District, Tohono O'odham Nation



The Arizona Corporation Commission will consider several factors before approving a Certificate of Environmental Compatibility. These factors, used by TEP to analyze potential line routes, include:



Wildlife and plant life



Scenic areas, historic sites and archaeological sites and structures



Environment



Noise emission levels and interference with communication signals



Potential public recreational uses



Existing development plans



Engineering feasibility and challenges



Project costs and potential impacts on customer rates



Public input

# Aerospace Research Campus Transmission Project

Public Open House – Thursday, Sept. 14, 2023



	Full Name	Address	Email	Phone
1.	Heath Vesic - Child	201 N. Skun Ave Tucson, AZ 85701	HeathVesic@gmail	480 252 5808
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				



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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-4**

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[Español](#)

# Aerospace Research Campus Transmission Project

Tucson Electric Power (TEP) has identified a potential route for a new transmission line that will serve Pima County's Aerospace Research Campus, supporting economic development and job creation in our community.

The Aerospace Research Campus Transmission Project will link TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport. This upgrade will support new aerospace development and other supply chain industries planned for the 500-acre business campus with no impact on service reliability for other customers.

Public input is an important part of TEP's planning process. We encourage neighbors and other stakeholders to share their comments using one of the public participation methods listed below.

## Project Details

Maps	+
Project Benefits	+
Public Participation	+
Required Approvals and Timeline	+
Outreach Materials	+





## More Information

- Proposed Route:  
[PDF Map](#) | [Interactive Map](#)
- [Comment Form](#)
- [Newsletter No. 1](#) — July 2023
- [Public Open House Postcard](#) — Sept. 2023

## Answers to Questions about Underground Electric Lines

Most of TEP's electrical facilities are installed above ground, but some lower-voltage distribution lines are installed underground. To learn more, please review answers to frequently asked questions about the potential underground installation of [transmission lines](#) and [distribution lines](#).

## Call us

Our Customer Care team is available to assist you, Monday - Friday, 7 a.m. - 6 p.m. at 520-623-7711

Please report all outages or emergencies to: Emergency Hotline - 520-623-7711

## Connect with us



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[Privacy](#)

[Social Media Policy](#)

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[OASIS](#) 

[Investor Information](#)

[UNS Energy Corporation](#) 

[Volunteer Site](#)

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Inglés

# Proyecto de transmisión de Aerospace Research Campus

Tucson Electric Power (TEP) ha identificado una ruta potencial para una nueva línea de transmisión que prestara servicios de energía en el Aerospace Research Campus, y respaldarán el desarrollo económico y la creación de nuevos empleos en nuestra comunidad.

El Proyecto de Transmisión del Aerospace Research Campus interconectará el sistema de transmisión de 138 kilovoltios (kV) existente de TEP con el propuesto centro de transmisión Franco Wash, ubicado al sur del Aeropuerto Internacional de Tucson. Esta actualización en la red energética local de TEP respaldará el desarrollo aeroespacial y otras industrias de la cadena de suministro planificadas para el campus, sin afectar la confiabilidad del servicio para otros clientes en el área.

## Detalles del proyecto

Mapa	+
Beneficios del proyecto	+
Participación pública	+
Aprobaciones requeridas y cronograma	+
Materiales de difusión	+





- Ruta Propuesta:  
[PDF](#) | [Mapa interactivo](#)
- [Formulario de comentarios](#)
- [Boletín informativo julio de 2023](#)
- [Postal](#) — septiembre de 2023

## Call us

Our Customer Care team is available to assist you, Monday - Friday, 7 a.m. - 6 p.m. at 520-623-7711

Please report all outages or emergencies to: Emergency Hotline - 520-623-7711

## Connect with us



## Download our app



[Privacy](#)

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[Investor Information](#)

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-5**

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# Aerospace Research Campus Transmission Line Project

**Please note:** Comments submitted will become part of the project record.

## Name

First Name

Last Name

## Address

Street Address

Street Address Line 2

City

State / Province

Postal / Zip Code

## Email

## Phone Number

(000) 000-0000

Please enter a valid phone number.

---

**Please indicate your interest in the project (check all that apply):**

- Resident in Study Area
- Business Owner in Study Area
- Live/Work Near Study Area
- Special Interest Group
- Other Interested Party

**Please indicate any issues that are important to you in evaluating the project:**

**Is there any additional information that you would like to contribute that could add value to this project:**

**I would like additional information about:**

I heard about this project through:

- Project Website
- Newsletter Mailing
- Public Meeting
- Word of Mouth
- Other

Submit

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-6**



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Name	Title	Tribe	Office	Address1	Address2	Phone	Email
Governor Arden Kucate	Governor	Pueblo of Zuni	Heritage and Historic Preservation Office	P. O. Box 339	Zuni, NM 87327	(505) 782-4481 ext. 111	arden.kucate@ashwi.org
Dr. Kurt Dongoske	Director, Tribal Historic Preservation Officer	Pueblo of Zuni	Heritage and Historic Preservation Office	P.O. Box 1149	Zuni, NM 87327	(505) 782-4814	kdongoske@gmail.com
Mr. Ned Norris Jr., Chairman	Chairman	Tohono O'odham Nation		P. O. Box 837	Sells, AZ 85634	(520) 383-2028	
Mr. Jefford Francisco	Cultural Resource Specialist	Tohono O'odham Nation	Cultural Affairs Office	P. O. Box 837	Sells, AZ 85634	(520) 383-3622 x103	jefford.francisco@tonation-nsn.gov
Mr. Peter Steere	Tribal Historic Preservation Officer	Tohono O'odham Nation	Cultural Affairs Office	P. O. Box 837	Sells, AZ 85634	(520) 383-3622 x. 103	peter.steere@tonation-nsn.gov
Karen Howe	Ecologist and Invasive Species Coordinator	Tohono O'odham Nation	Natural Resource Department	PO Box 837	Sells, AZ 85634	(520) 383-1513	karen.howe@tonation-nsn.gov
Mr. Robert Miguel, Chairman	Chairman	Ak-Chin Indian Community		42507 W. Peters & Nail Rd	Maricopa, AZ 85138	(520) 568-1000	RMiguel@ak-chin.nsn.us
Ms. Elaine Peters	Director	Ak-Chin Indian Community	Him Dak Eco-Museum	42507 W. Peters and Nail Rd	Maricopa, AZ 85138	(520) 568-1359	EPeters@ak-chin.nsn.us
Ms. Carmen Narcia	Cultural Resources Specialist	Ak-Chin Indian Community		42507 W. Peters and Nail Rd	Maricopa, AZ 85138	(520) 568-1337	
Governor Stephen Roe Lewis	Governor	Gila River Indian Community		P.O. Box 97	Sacaton, AZ 85147	(520) 562-9840	
Barnaby V. Lewis	Tribal Historic Preservation Officer	Gila River Indian Community	Tribal Historic Preservation Office	P.O. Box 2193	Sacaton, AZ 85147	520-562-7152	Barnaby.Lewis@gric.nsn.us
M. Kyle Woodson	Director	Gila River Indian Community	Cultural Resource Management Program	P.O. Box 2140	Sacaton, AZ 85147	520-562-7169	Kyle.Woodson@gric.nsn.us
President Martin Harvir	President	Salt River Pima-Maricopa Indian Community	Admin Elyse Lewis	10005 E Osborn Road	Scottsdale, AZ 85256	(480) 362-7465	
Shane Anton	Tribal Historic Preservation Officer	Salt River Pima-Maricopa Indian Community	Cultural Resources Department	10005 E Osborn Road	Scottsdale, AZ 85256	480-362-6331	shane.anton@srpmic-nsn.gov
Chairman Kasey Velasquez	Chairman	White Mountain Apache Tribe		P.O. Box 700	Whiteriver, AZ 85941	(928) 338-2500	kasey.velasquez@wmat.us
Mr. Ramon Riley	Cultural Resource Office Repatriation Specialist	White Mountain Apache Tribe	Historic Preservation Office	P.O. Box 507	Fort Apache, AZ 85926	(928) 338-4625	rxrapache@yahoo.com
Mr. Mark Alataha	Tribal Historic Preservation Officer	White Mountain Apache Tribe	Historic Preservation Office	P.O. Box 1032	Fort Apache, AZ 85926	(928) 338-3033	markalataha@wmat.us
Mr. Eddie Martinez, President	President	Mescalero Apache Tribe		P.O. Box 227	Mescalero, NM 88340	(575) 464-4494	emartinez@mescaleroapachetribe.com
Ms. Holly Houghten	Tribal Historic Preservation Officer	Mescalero Apache Tribe		P.O. Box 227	Mescalero, NM 88340	(575) 464-3005	holly@mescaleroapachetribe.com
Mr. Peter Yucupicio, Chairman	Chairman	Pascua Yaqui Tribe		7474 S. Camino de Oeste	Tucson, AZ 85746	(520) 883-5000	Peter.Yucupicio@pascuayaqui-nsn.gov
Mr. Karl A. Hoerig, Ph.D.	Tribal Historic Preservation Officer	Pascua Yaqui Tribe		7777 S. Camino Huiwim, Building C	Tucson, AZ 85757	(520) 883-5116	Karl.Hoerig@pascuayaqui-nsn.gov
Mr. Alfred Urbina	Attorney General	Pascua Yaqui Tribe		7777 S. Camino Huiwim, Bldg. C	Tucson, AZ 85746	(520) 883-5101	alfred.urbina@pascuayaqui-nsn.gov
Timothy L. Nuvangyaoma, Chairman	Chairman	Hopi Tribe		P. O. Box 123	Kykotsmovi, AZ 86039	(928) 734-3102	tnuvangyaoma@hopi.nsn.us
Stewart Koyiyumptewa	Tribal Historic Preservation Officer	Hopi Tribe	Hopi Tribe Cultural Preservation Office	P.O. Box 123	Kykotsmovi, AZ 86039	(928) 734-3615	SKoyiyumptewa@hopi.nsn.us
President Jonathan Nez	President	Navajo Nation		P.O. Box 7440	Window Rock, Arizona 86515	(928) 871-7000	jonathannez@navajo-nsn.gov
Richard Begay	THPO / NNHPD Director	Navajo Nation	Heritage & Historic Preservation Department	P.O. Box 4950	Window Rock, AZ 86515	(928) 871-7139	r.begay@navajo-nsn.gov
Ms. Bidtah Becker	Exec Director Division of Natural Resources	Navajo Nation		DNR, P.O. Box 9000	Window Rock, AZ 86515	(928) 871-6593	bidtah-becker@navajo-nsn.gov

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**From:** Marinez, Adriana <AMarinez@tep.com>  
**Sent:** Monday, October 9, 2023 2:51 PM  
**To:** arden.kucate@ashiwi.org; kdongoske@gmail.com; jefford.francisco@tonation-nsn.gov; peter.steere@tonation-nsn.gov; karen.howe@tonation-nsn.gov; RMiguel@ak-chin.nsn.us; EPeters@ak-chin.nsn.us; Barnaby.Lewis@gric.nsn.us; Kyle.Woodson@gric.nsn.us; shane.anton@srpmic-nsn.gov; kasey.velasquez@wmat.us; rxrapache@yahoo.com; markaltaha@wmat.us; emartinez@mescaleroapachetribe.com; holly@mescaleroapache.org; Peter.Yucupicio@pascuayaqui-nsn.gov; Karl.Hoerig@pascuayaqui-nsn.gov; alfred.urbina@pascuayaqui-nsn.gov; tnuvangaoma@hopi.nsn.us; SKoyiyumtewa@hopi.nsn.us; jonathannez@navajo-nsn.gov; r.begay@navajo-nsn.gov; bidtah-becker@navajo-nsn.gov  
**Subject:** TEP's Aerospace Research Campus Transmission Project

Dear Stakeholder,

Tucson Electric Power (TEP) is preparing plans for new transmission facilities that will support aerospace and other supply chain industries planned for the Aerospace Research Campus. The Aerospace Research Campus Transmission Line Project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport.

For the latest project information, including a map of the proposed route and photographic simulations, please visit: <https://www.tep.com/aerospace-research-campus/>

Under state law, TEP must secure a Certificate of Environmental Compatibility (CEC) before building the transmission line. TEP plans to file its CEC application on Friday, October 20, with the Arizona Power Plant and Transmission Line Siting Committee, which reviews CEC applications. A public hearing before the Arizona Power Plant and Transmission Line Siting Committee will be held on Monday, December 4, beginning at 5:30 p.m. Public comment will be accepted during the hearing and will be taken in-person at the Doubletree Tucson Airport or virtually. Information about how to comment during the hearing, will be posted to the [project webpage](#) as the date approaches.

As a valued project stakeholder, we also invite you to share feedback at any time by filling out an [online comment form](#), sending comments to [arc@tep.com](mailto:arc@tep.com), or calling 1-833-655-0399 and leaving a voicemail.

Please let me know if you have any questions or concerns.

Kind regards,

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)

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**From:** Marinez, Adriana  
**Sent:** Monday, October 9, 2023 9:37 AM  
**To:** 'Peter Steere' <Peter.Steere@tonation-nsn.gov>  
**Subject:** Aerospace Research Campus Transmission Project: Cultural and Biological Resource Studies

Good morning, Peter- Thank you for your patience. I've attached the final cultural (unredacted) and biological resource studies. Please let me know if you have any questions. Best, Adriana

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)

---

**From:** Marinez, Adriana <AMarinez@tep.com>  
**Sent:** Monday, July 24, 2023 2:37 PM  
**To:** Peter Steere <Peter.Steere@tonation-nsn.gov>  
**Subject:** RE: [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

Good afternoon Peter –

We aren't expecting a federal decision as part of this project or the need for formal consultation but would be happy to meet and discuss the project with the Tohono O'odham Nation in whatever setting you feel is appropriate.

While an Environmental Assessment is also not required, we will conduct an environmental evaluation. The evaluation is required by state law and is necessary to obtain a Certificate of Environmental Compatibility (CEC), which we'll need prior to building the line.

I will share the cultural and biological studies as soon as they're completed. Please let me know if you'd like to meet or if I can answer any other questions in the meantime.

Best,

Adriana

---

**From:** Peter Steere <[Peter.Steere@tonation-nsn.gov](mailto:Peter.Steere@tonation-nsn.gov)>

**Sent:** Wednesday, July 19, 2023 11:45 AM

**To:** Martinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Subject:** [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

You don't often get email from [peter.steere@tonation-nsn.gov](mailto:peter.steere@tonation-nsn.gov). [Learn why this is important](#)

---

Adriane Martinez

TEP

Please send me copies of archaeological and biological survey reports for this project before you meet for formal consultation with the Tohono O'odham Nation

I assume that you are preparing an environmental assessment – what is the status of this

Peter L. Steere

THPO

Tohono O'odham Nation

**From:** Martinez, Adriana [<mailto:AMarinez@tep.com>]

**Sent:** Wednesday, July 19, 2023 8:42 AM

**To:** Martinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Subject:** Agency Briefing Presentation : Aerospace Research Campus Transmission Project

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Dear Stakeholder,

I've attached the presentation we'll review at this morning's agency briefing for the [Aerospace Research Campus Transmission Project](#).

If you're unable to attend, there are still ways to stay engaged and provide input. We encourage your participation at next week's in-person Public Open House (details below) and are also happy to accommodate individual briefing requests.

**Public Open House Meeting**

Thursday, July 27 | 6–8 p.m.

Desert Diamond Casino

Conference Room A

7350 S. Nogales Hwy

Tucson, AZ 85756

Please reach out with any questions or concerns.

Kind regards,

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)



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# White Mountain Apache Tribe

Office of Historic Preservation

PO Box 1032

Fort Apache, AZ 85926

Ph: (928) 338-3033 Fax: (928) 338-6055

**To:** Adriana Martinez, Transmission Line Siting Project Manager TEP

**Date:** October 13, 2023

**Re:** *Aerospace Research Campus Transmission Line Project*

.....

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the project dated; October 09, 2023. In regards to this, please refer to the following statement(s) below.

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to the above proposed new transmission facilities that will support aerospace and other supply chain industries, located south of the Tucson International Airport, Pima County, Arizona.

Please be advised, we have reviewed the consultation letter and the information provided, we have reviewed the information provided and determined the proposed transmission line project will have "*No Adverse Effect*" to the tribe's traditional cultural properties and/or historic properties.

Thank you for the continued tribal engagement and consultation, and collaborations in protecting and preserving places of cultural and historical importance.

Sincerely,

*Mark Altaha*

White Mountain Apache Tribe – THPO  
Historic Preservation Office

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**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-7**

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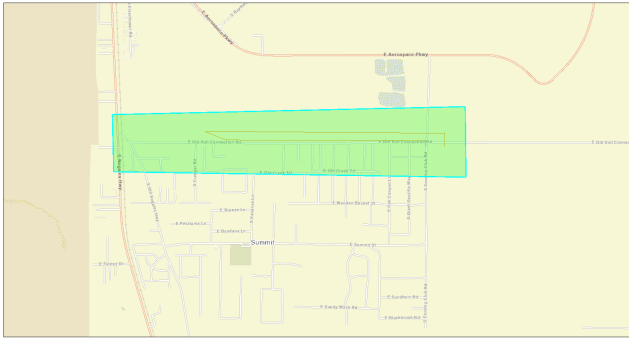


# EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

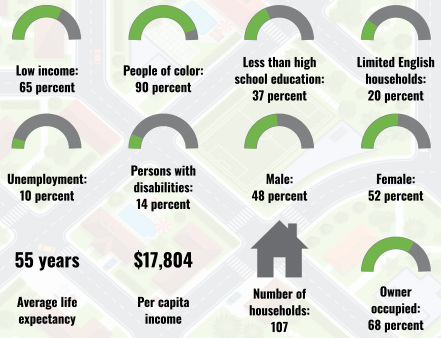
## Tucson, AZ

the User Specified Area  
Population: 447  
Area in square miles: 0.82

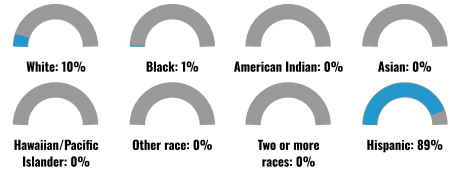


October 4, 2023  
Project 1  
proposed\_route\_centerline  
1:18,056  
0 0.17 0.35 0.71 1.42 km  
0 0.3 0.6 1.2 mi  
For Comments, Maps, Complaints, or Contact: EPA, ARES, Grants, Research, Information, and Reporting (314) 673-6744  
EPA's Environmental Justice (EJ) Office (314) 673-6744

### COMMUNITY INFORMATION



### BREAKDOWN BY RACE



### BREAKDOWN BY AGE



### LIMITED ENGLISH SPEAKING BREAKDOWN



### LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
No language data available.	

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2017-2021. Life expectancy data comes from the Centers for Disease Control.

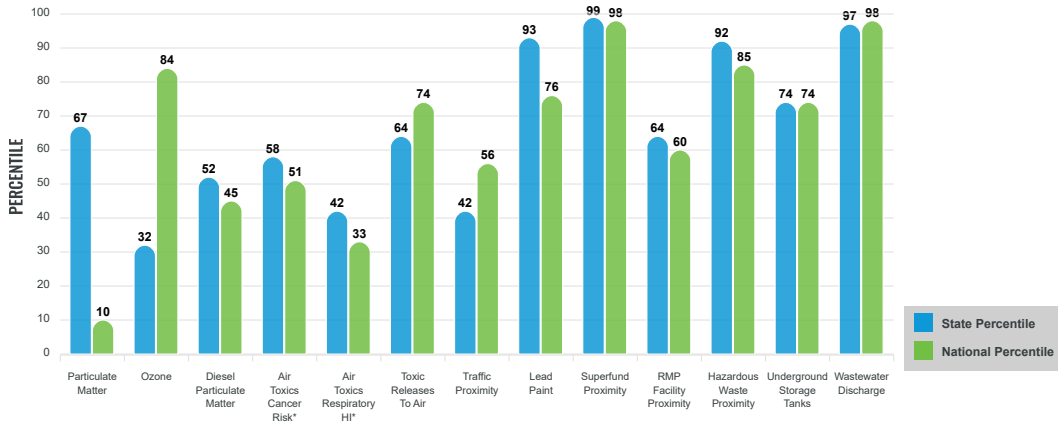
# Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the [EJScreen website](#).

## 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.

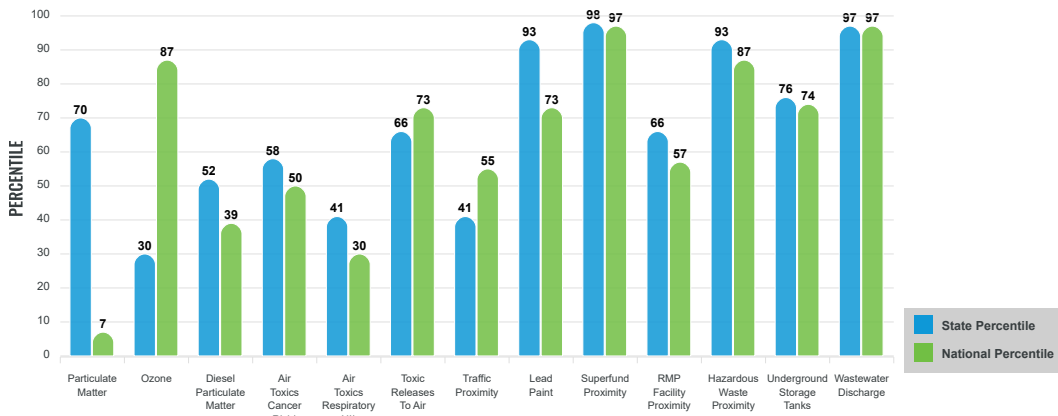
### EJ INDEXES FOR THE SELECTED LOCATION



## SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

### SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for the User Specified Area

# EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
<b>POLLUTION AND SOURCES</b>					
Particulate Matter ( $\mu\text{g}/\text{m}^3$ )	4.78	5.87	28	8.08	2
Ozone (ppb)	60.9	66.1	11	61.6	48
Diesel Particulate Matter ( $\mu\text{g}/\text{m}^3$ )	0.0902	0.278	18	0.261	13
Air Toxics Cancer Risk* (lifetime risk per million)	20	25	13	25	5
Air Toxics Respiratory HI*	0.2	0.31	10	0.31	4
Toxic Releases to Air	200	2,800	27	4,600	32
Traffic Proximity (daily traffic count/distance to road)	16	190	14	210	21
Lead Paint (% Pre-1960 Housing)	0.1	0.089	77	0.3	35
Superfund Proximity (site count/km distance)	0.25	0.077	97	0.13	89
RMP Facility Proximity (facility count/km distance)	0.081	0.38	27	0.43	22
Hazardous Waste Proximity (facility count/km distance)	0.66	0.71	73	1.9	54
Underground Storage Tanks (count/km <sup>2</sup> )	0.36	1.7	39	3.9	36
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.66	5.8	78	22	90
<b>SOCIOECONOMIC INDICATORS</b>					
Demographic Index	77%	38%	93	35%	94
Supplemental Demographic Index	29%	14%	93	14%	94
People of Color	90%	44%	90	39%	89
Low Income	65%	32%	90	31%	91
Unemployment Rate	10%	6%	80	6%	80
Limited English Speaking Households	20%	4%	95	5%	93
Less Than High School Education	37%	12%	93	12%	95
Under Age 5	9%	5%	79	6%	80
Over Age 64	10%	20%	35	17%	26
Low Life Expectancy	16%	19%	15	20%	19

\*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/raqs/air-toxics-data-update>

## Sites reporting to EPA within defined area:

Superfund .....	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities .....	0
Water Dischargers .....	0
Air Pollution .....	0
Brownfields .....	0
Toxic Release Inventory .....	0

## Other community features within defined area:

Schools .....	0
Hospitals .....	0
Places of Worship .....	0

## Other environmental data:

Air Non-attainment .....	No
Impaired Waters .....	No

Selected location contains American Indian Reservation Lands* .....	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community .....	Yes
Selected location contains an EPA IRA disadvantaged community .....	Yes

Report for the User Specified Area



## EJScreen Environmental and Socioeconomic Indicators Data

### HEALTH INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	16%	19%	15	20%	19
Heart Disease	5.9	6	57	6.1	48
Asthma	11.9	10.6	89	10	90
Cancer	4	6.1	20	6.1	11
Persons with Disabilities	14.8%	13.9%	63	13.4%	64

### CLIMATE INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	8%	6%	76	12%	58
Wildfire Risk	99%	48%	74	14%	94

### CRITICAL SERVICE GAPS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	11%	13%	59	14%	50
Lack of Health Insurance	31%	10%	97	9%	98
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Footnotes

Report for the User Specified Area

**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-8**

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# AMERICAN BATTERY FACTORY SELECTS TUCSON, ARIZONA AS SITE FOR ITS FIRST BATTERY CELL GIGAFACTORY IN UNITED STATES



NEWS PROVIDED BY  
**American Battery Factory** →  
06 Dec, 2022, 13:09 ET

*Landmark site in Pima County marks major milestone for American Battery Factory's launch of the first in a planned network of giga-factories to produce LFP battery cells*

TUCSON, Ariz., Dec. 6, 2022 /PRNewswire/ -- Arizona Governor Doug Ducey and Paul Charles, President and CEO of American Battery Factory (ABF), today announced that Tucson, Ariz. has been selected as the site for the first in a planned series of battery cell gigafactories based in the United States. The site will serve as ABF's official headquarters and will be the country's largest gigafactory for the production of lithium iron phosphate (LFP) battery cells at approximately 2 million square feet, providing an estimated \$1.2 billion in capital investment, \$3.1 billion in economic impact to the state and accelerating the growth of the clean energy economy across the country. Approximately 300 high-paying jobs will be provided in the first phase of the factory's opening, scaling up to 1,000 cumulative jobs. Positions include operations, production, scientific and technology jobs including research and development, automation and robotics, executive and other headquarter positions.

"Arizona is proud to be home to American Battery Factory's first U.S. facility and headquarters," said Governor Ducey. "This transformational investment proves once again that Arizona is the premier destination for emerging technologies. The state-of-the-art factory will produce battery cells critical to our energy future right here in Tucson. My thanks to Paul Charles and the entire team at American Battery Factory for choosing our state for its innovative facility."

The LFP battery cell chemistry ABF will employ allows for the production of the safest, longest-lasting, most reliable and eco-friendly batteries currently available. Avoiding the use of nickel and cobalt, ABF's materials are more ethically sourced and last more than double the average performance of other batteries, making them an ideal option for durable and dependable energy storage systems. The cells will empower consumers, households, business owners and electric utilities to automate the

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**American Battery Factory announced today it's building USA's largest gigafactory for LFP battery cells in Tucson, Ariz.**

[X Tweet this](#)

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management of their own inventory of power, gaining the independence to optimize and transform energy usage on their own terms. Energy storage made possible by ABF can power on-the-go lifestyles, off-the-grid living and industrial utilities as well as public industries and sectors.

"This investment represents a generational opportunity both for us as a company and for Tucson as a community as a means to truly make energy independence a reality for everyone," said Charles. "Batteries make shifting to an entirely green energy economy possible. With this first factory, we will secure a strategically positioned company headquarters while taking the critical first steps in making it possible to one day move the country and the entire world to 100% renewable power. We are honored to start this journey in Tucson and give back to the community through innovation, quality job creation, revenue generation and environmental protection."

To be located on 267 acres in Pima County's renowned Aerospace Research Campus - close to world-class companies like Raytheon Missiles & Defense - ABF's headquarters will be the home of energy storage innovation, with opportunities for new technology development. Through rapid modular construction, the company plans to have the headquarters, R&D center and initial factory module built within the next 18 to 24 months. Using cutting-edge construction technology, the building will greatly limit waste at the site, be airtight and will ensure the protection of the battery cells during production.

With high-capacity border and transportation infrastructure, Tucson is an ideal fit for ABF's vision and will provide the necessary access to ship battery cells to nearby markets. Plans for the gigafactory aim to enhance Pima County's already growing economy and support Arizona's business community by cultivating an environment that fosters innovation as well as attracting and retaining residents to the Tucson economy.

Project partners include Governor Doug Ducey, Arizona Commerce Authority, Sun Corridor Inc., Pima County, City of Tucson, Pima Community College and Tucson Electric Power.

"With this announcement, American Battery Factory has elevated Arizona's reputation as a national epicenter for battery manufacturing," said Sandra Watson, president & CEO of the Arizona Commerce Authority. "American Battery Factory's new facility and headquarters will advance Southern Arizona's vibrant technology ecosystem while creating hundreds of skilled jobs and drive further economic growth to our state."

"Today's decision by the Board is another significant return on investment made by the County and taxpayers 10 years ago when the Board took positive steps to acquire the Aerospace Research Campus," Board of Supervisors Chair Sharon Bronson said. "American Battery Factory is exactly the type of high-wage employer we hoped to attract. I welcome them to Pima County and wish them many years of success."

"The City of Tucson is a national leader on climate action. We are a hub for resiliency and innovation," said Tucson Mayor Regina Romero. "Tucson is a perfect city for American Battery Factory to partner with and we look forward to working together to support the energy storage industry."

"American Battery Factory joins prominent regional and corporate headquarters in Southern Arizona, such as Raytheon Missiles & Defense, Caterpillar and Hexagon's Mining division, among others," said Joe Snell, president & CEO, Sun Corridor Inc. "This marquee project catapults Tucson into the national spotlight, ensuring this region has a prominent place in the energy storage and EV manufacturing supply chain being developed right here. With key advancements from ABF, Tucson will be a cutting-edge leader ushering in new EV technology and improved energy storage efficiency."

"With our Advanced Manufacturing Center opening next year, PCC's strategy and focus on Centers of Excellence was another key reason ABF chose Southern Arizona," said Lee Lambert, chancellor & CEO, Pima Community College. "We are strongly positioned to train the workforce ABF needs and partner with this new facility to fast-track next-generation battery innovations to full production capacity. We're looking forward to partnering with ABF on apprenticeship and internship programs for our students."

"Energy storage not only drives powerful environmental benefits for our region, but economic benefits as well. TEP was a close partner on this project every step of the way, providing critical infrastructure and competitive pricing," said Susan Gray, president & CEO, Tucson Electric Power. "ABF represents an ideal investment in our region, designed to meet unprecedented global demand for energy storage and battery cells required for renewable, independent, efficient and affordable energy solutions."

ABF has secured strategic partnerships to make this landmark development a reality, partnering with Celgard (along with their parent company Asahi Kasei) for innovation and key cell components and Anovion for synthetic graphite. ABF plans to work with Honeywell to provide automation, cybersecurity and optimization products and services.

For photo renderings of the gigafactory, please click on this link:  
<https://ca7.app.box.com/s/fs07339xf9y47fd5mgf4bnxjfkfxf5ys>

#### **ABOUT AMERICAN BATTERY FACTORY**

American Battery Factory Inc., a Lithium Iron Phosphate (LFP) battery cell manufacturer, is developing the first-ever network of safe LFP cell giga-factories in the United States. The company is dedicated to making energy independence and renewable energy a reality for the United States by creating a domestic battery supply chain. Along with creating domestic manufacturing jobs, ABF will play a crucial role in meeting federal and state government climate change initiatives and "Made-in-USA" national security requirements. For more information on American Battery Factory, please visit [www.americanbatteryfactory.com](http://www.americanbatteryfactory.com).

SOURCE American Battery Factory



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## ARIZONA

# Construction plans delayed for lithium phosphate battery factory in Tucson



**Sarah Lapidus**  
Arizona Republic

Published 6:02 a.m. MT Sept. 14, 2023 | Updated 6:02 a.m. MT Sept. 14, 2023

Plans to construct a lithium phosphate battery factory in Tucson are delayed until November.

The American Battery Factory, an emerging battery manufacturer, originally planned to begin construction by September 2, but postponed construction until Nov. 3, following initial survey work.

“Based on that preliminary data, they have determined an additional level of geotechnical assessment and surveying is necessary,” said Deputy County Administrator Carmine DeBonis Jr. during a Pima County Board of Supervisors meeting on Sept. 5.

According to a county memo, additional geotechnical and survey data will better support the construction design work of the gigafactory.

American Battery Factory aims to be the first to develop a network of lithium iron phosphate battery cell gigafactories in the U.S. with its headquarters located on 267 acres of Pima County’s Aerospace Research Campus, a 500-acre area in the Tucson area. The facility’s two million-square-foot site will require a \$1.2 billion capital investment.

Their goal is to create the first U.S.-owned vertical manufacturing supply chain and research and development for lithium iron phosphate battery cells.

The company named Zhenfang “Jim” Ge as the CEO in April. Ge has a decade of experience sourcing and supplying Lithium-ion batteries to manufacturing companies, according to a company press release.

The company also recently named U.S. Army veteran John Kem as president. He said he joined the company to be involved in new, cutting-edge technology.

“A lot of people make batteries. But there’s almost nobody in the energy storage battery cell business at this point in the U.S.,” Kem said.

According to American Battery Factory, LFP battery cell chemistry does not contain nickel and cobalt, which is known to be volatile and toxic. Additionally, the mining of these elements has been connected to environmental and human rights abuses.

Expanding lithium cell and battery manufacturing to the U.S. is critical to national security and essential to developing “resilient defense supply chains” and helping create equitable clean-energy jobs in the U.S. according to the National Blueprint for Lithium Batteries developed by the Federal Consortium for Advanced Batteries.

With lithium-ion batteries used in electric vehicles, consumer electronics and for the electric grid, the federal government has made it a goal to support the creation of a competitive and sustainable domestic battery manufacturing industry, stated the blueprint.

Currently, China dominates the supply chain for the battery-making industry. American Battery Factory wants to help increase battery cell manufacturing and local material processing in the U.S.

Other companies have also started trying to bring lithium iron phosphate manufacturing to the U.S. In October 2022, ICL, an Israeli specialty minerals company, broke ground in August for its \$400 million lithium iron phosphate cathode active material manufacturing plant in St. Louis.

Kem reiterated the need to bring the processing of raw battery materials stateside to reduce dependence on sources abroad as the need for electrification increases.

“We need more resilient and sustainable power... we need reliability so that when there are problems in one part of the country, power can get to other parts of the country,” Kem said.

The facility is slated to bring millions of dollars and thousands of jobs to Arizona.



*Reach the reporter at [sarah.lapidus@gannett.com](mailto:sarah.lapidus@gannett.com). The Republic's coverage of southern Arizona is funded, in part, with a grant from Report for America. Support Arizona news coverage with a tax-deductible donation at [supportjournalism.azcentral.com](http://supportjournalism.azcentral.com).*

**Application for a Certificate of Environmental  
Compatibility**

**Aerospace Research Campus  
Transmission Project**

**Exhibit J-9**

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**From:** Bravo, Teresa <Teresa.Bravo@tep.com>  
**Sent:** Friday, July 7, 2023 11:19 AM  
**To:** Mark Kerr  
**Cc:** Richard Fimbres; Lupita Robles; Mary Kuchar  
**Subject:** RE: [EXTERNAL E-Mail] Re: TEP Aerospace Research Campus Transmission Project

Good morning, Councilmember Fimbres and Mr. Kerr,

Please see below in **purple text** the response to your questions regarding the [Aerospace Research Campus Transmission Project](#).

Feel free to reach out with any additional questions you may have.

Best,

-Teresa

**Teresa Bravo**

Government Relations Rep. | Local Affairs  
88 East Broadway Boulevard | Mail Stop HQE504  
Tucson, AZ 85701  
[teresa.bravo@tep.com](mailto:teresa.bravo@tep.com)  
520-633-1112



---

**From:** Mark Kerr <Mark.Kerr@tucsonaz.gov>  
**Sent:** Wednesday, July 5, 2023 11:27 AM  
**To:** Bravo, Teresa <Teresa.Bravo@tep.com>  
**Cc:** Richard Fimbres <Richard.Fimbres@tucsonaz.gov>; Lupita Robles <Lupita.Robles@tucsonaz.gov>; Mary Kuchar <Mary.Kuchar@tucsonaz.gov>  
**Subject:** [EXTERNAL E-Mail] Re: TEP Aerospace Research Campus Transmission Project

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**\*\*\* UNS WARNING - EXTERNAL EMAIL \*\*\***

Do NOT open attachments or click links that you are not expecting.

If the content or request made in this email seems unusual in any way, please contact the sender, via phone or in-person, to verify that this is a legitimate request.

**\*\*\* REPORT ANYTHING SUSPICIOUS \*\*\***

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Teresa:

Thank you for your Email on this proposed project.

After reviewing, some questions:

Has TEP filed any paperwork or application on this project and if so, how does it start or affect any timeline for review, public comment and final consideration by the Line Siting Committee and the ACC?

TEP must secure a Certificate of Environmental Compatibility (CEC) before building the transmission line. TEP plans to file its CEC application this fall. The Arizona Power Plant and Transmission Line Siting Committee is scheduled to review the application in late 2023. The application will include all public comment received prior to the filing of the application. Public comment received after the filing of the application, but before the Arizona Corporation Commission's (ACC) decision, will be considered by the ACC.

Public comment - why is this project only taking written comments only?

There are many ways for the public to comment. In addition to submitting an online comment form, mailing a written comment, or emailing a comment, the public may call and leave a message on the project phone line or participate in the upcoming public open houses, scheduled for Thursday, July 27, and Sept. 2023 (tent.).

Explain the 1,000 jobs listed as being created further?

The 1,000 jobs cited on the project website reference Sun Corridor's press release concerning the American Battery Factory. Please contact Sun Corridor for more information.

What communication has TEP had with the businesses or homeowners in the area?

Next week, approximately 1,300 residents, businesses and stakeholders within the project notification area will be mailed a project newsletter notifying them of the project and inviting them to participate in the upcoming meeting. Public notice will also run in the Arizona Daily Star on Sunday, July 23.

Thursday, July 27 | 6–8 p.m.

Desert Diamond Casino

Conference Room A

7350 S. Nogales Hwy

Tucson, AZ 85756

Public official and agency briefings will also take place in mid-July.

What happens if the expansion of businesses in the area doesn't pan out?

TEP's system investments in the area are designed to be cost effective while [serving the needs](#) of our customers and the community. TEP can amend or defer plans, as necessary.

Will this come before the Tucson Mayor and Council and if so, what is a potential time frame?

We do not anticipate this item coming before Mayor and Council. The switchyard will be located on private property and is a permitted use (Zone I-2).

The Arizona Power Plant and Line Siting Committee is scheduled to hear TEP's request for a CEC Dec. 4-8, 2023. The ACC is expected to consider the committee's recommendation in early 2024.

If approved, when would the construction start, construction jobs created and otherwise?

Construction will begin approximately 1 to 2 years after ACC approval. TEP employees or contractors will construct the approx. 1.5-mile line and switchyard.

Thank you again Teresa.

Mark Kerr  
Chief of Staff - Ward 5 Council Office  
Councilmember Richard Fimbres

---

**From:** Bravo, Teresa <[Teresa.Bravo@tep.com](mailto:Teresa.Bravo@tep.com)>  
**Sent:** Wednesday, July 5, 2023 9:25 AM  
**To:** Richard Fimbres <[Richard.Fimbres@tucsonaz.gov](mailto:Richard.Fimbres@tucsonaz.gov)>  
**Cc:** Mark Kerr <[Mark.Kerr@tucsonaz.gov](mailto:Mark.Kerr@tucsonaz.gov)>; Ward5 <[Ward5@tucsonaz.gov](mailto:Ward5@tucsonaz.gov)>  
**Subject:** [EXTERNAL] TEP Aerospace Research Campus Transmission Project

Dear Councilmember Fimbres,

Tucson Electric Power (TEP) is preparing plans for a new transmission facility that will increase energy capacity at the Aerospace Research Campus. This transmission project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport. The new facilities will serve aerospace and other supply chain industries planned for the campus.

TEP has prepared a webpage which can be viewed at <https://www.tep.com/aerospace-research-campus/>. In this link page you can learn more about TEP's purpose and need for the project, the study map area, as well as methods for the public to provide comment.

If you would like to learn more about this transmission project, I would be happy to help schedule a briefing for you to provide information about the project and/or help answer any questions you may have.

Best regards,

-Teresa

**Teresa Bravo**

Government Relations Rep. | Local Affairs  
88 East Broadway Boulevard | Mail Stop HQE504  
Tucson, AZ 85701  
[teresa.bravo@tep.com](mailto:teresa.bravo@tep.com)  
520-633-1112



---

**From:** Bravo, Teresa <Teresa.Bravo@tep.com>  
**Sent:** Wednesday, July 5, 2023 12:23 PM  
**To:** Adelita Grijalva  
**Cc:** Keith Bagwell; District5  
**Subject:** TEP Aerospace Research Campus Transmission Project

Dear Chair Grijalva,

Tucson Electric Power (TEP) is preparing plans for a new transmission facility that will increase energy capacity at the Aerospace Research Campus. This transmission project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport. The new facilities will serve aerospace and other supply chain industries planned for the campus.

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Best regards,

-Teresa

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Tucson, AZ 85701  
[teresa.bravo@tep.com](mailto:teresa.bravo@tep.com)  
520-633-1112



---

**From:** Bravo, Teresa <Teresa.Bravo@tep.com>  
**Sent:** Wednesday, July 5, 2023 12:23 PM  
**To:** district2@pima.gov; David.Higuera@pima.gov  
**Subject:** TEP Aerospace Research Campus Transmission Project

Dear Supervisor Heinz,

Tucson Electric Power (TEP) is preparing plans for a new transmission facility that will increase energy capacity at the Aerospace Research Campus. This transmission project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport. The new facilities will serve aerospace and other supply chain industries planned for the campus.

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Best regards,

-Teresa

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Tucson, AZ 85701  
[teresa.bravo@tep.com](mailto:teresa.bravo@tep.com)  
520-633-1112





---

**From:** Bravo, Teresa <Teresa.Bravo@tep.com>  
**Sent:** Wednesday, July 5, 2023 12:24 PM  
**To:** Mayor.Romero@tucsonaz.gov  
**Cc:** Charlene Mendoza  
**Subject:** TEP Aerospace Research Campus Transmission Project

Dear Mayor Romero,

Tucson Electric Power (TEP) is preparing plans for a new transmission facility that will increase energy capacity at the Aerospace Research Campus. This transmission project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport. The new facilities will serve aerospace and other supply chain industries planned for the campus.

TEP has prepared a webpage which can be viewed at <https://www.tep.com/aerospace-research-campus/>. In this link page you can learn more about TEP's purpose and need for the project, the study map area, as well as methods for the public to provide comment.

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Best regards,

-Teresa

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Tucson, AZ 85701  
[teresa.bravo@tep.com](mailto:teresa.bravo@tep.com)  
520-633-1112



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**From:** Bravo, Teresa <Teresa.Bravo@tep.com>  
**Sent:** Thursday, August 31, 2023 11:34 AM  
**To:** Richard Fimbres  
**Cc:** Mark Kerr; 'Ward5'  
**Subject:** Update: TEP Aerospace Research Campus Transmission Project  
**Attachments:** TEP Aerospace Research postcard v6.pdf

Dear Councilmember Fimbres,

Tucson Electric Power (TEP) has identified a potential route for new transmission facilities for the [Aerospace Research Campus Transmission Project](#).

The proposed route was identified following a thorough review of environmental and land use impacts and an evaluation of several potential route segments. A map of the route is available on the [project webpage](#) and photographic simulations depicting the proposed line will be posted soon.

TEP is seeking input about the proposed route and invites you and the public to participate in an upcoming Public Open House.

**Public Open House Meeting**

Thursday, Sept. 14 | 6–8 p.m.  
Desert Diamond Casino  
Conference Room C  
7350 S. Nogales Hwy  
Tucson, AZ 85756

We also invite you to share feedback by filling out an [online comment form](#), sending comments to [arc@tep.com](mailto:arc@tep.com), or calling 1-833-655-0399 and leaving a voicemail.

The attached postcard, which includes details about the upcoming meeting and how to submit comments, will be mailed to area residents, businesses, and stakeholders early next week. Public notice will also run in the Arizona Daily Star on Sunday, Sept. 10.

If you would like more information or are interested in an individual briefing, please let me know.

Best regards,

-Teresa

**Teresa Bravo**

Government Relations Rep. | Local Affairs  
88 East Broadway Boulevard | Mail Stop HQE504  
Tucson, AZ 85701  
[teresa.bravo@tep.com](mailto:teresa.bravo@tep.com)  
520-633-1112

---

**From:** Bravo, Teresa <Teresa.Bravo@tep.com>  
**Sent:** Thursday, August 31, 2023 11:22 AM  
**To:** Adelita Grijalva  
**Cc:** Keith Bagwell; District5  
**Subject:** Update: TEP Aerospace Research Campus Transmission Project  
**Attachments:** TEP Aerospace Research postcard v6.pdf

Dear Chair Grijalva,

Tucson Electric Power (TEP) has identified a potential route for new transmission facilities for the [Aerospace Research Campus Transmission Project](#).

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Best regards,

-Teresa

**Teresa Bravo**

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88 East Broadway Boulevard | Mail Stop HQE504  
Tucson, AZ 85701  
[teresa.bravo@tep.com](mailto:teresa.bravo@tep.com)  
520-633-1112

---

**From:** Bravo, Teresa <Teresa.Bravo@tep.com>  
**Sent:** Thursday, August 31, 2023 11:35 AM  
**To:** Matt Heinz  
**Cc:** David.Higuera@pima.gov; district2@pima.gov  
**Subject:** Update: TEP Aerospace Research Campus Transmission Project  
**Attachments:** TEP Aerospace Research postcard v6.pdf

Dear Supervisor Heinz,

Tucson Electric Power (TEP) has identified a potential route for new transmission facilities for the [Aerospace Research Campus Transmission Project](#).

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Thursday, Sept. 14 | 6–8 p.m.  
Desert Diamond Casino  
Conference Room C  
7350 S. Nogales Hwy  
Tucson, AZ 85756

We also invite you to share feedback by filling out an [online comment form](#), sending comments to [arc@tep.com](mailto:arc@tep.com), or calling 1-833-655-0399 and leaving a voicemail.

The attached postcard, which includes details about the upcoming meeting and how to submit comments, will be mailed to area residents, businesses, and stakeholders early next week. Public notice will also run in the Arizona Daily Star on Sunday, Sept. 10.

If you would like more information or are interested in an individual briefing, please let me know.

Best regards,

-Teresa

**Teresa Bravo**

Government Relations Rep. | Local Affairs  
88 East Broadway Boulevard | Mail Stop HQE504  
Tucson, AZ 85701  
[teresa.bravo@tep.com](mailto:teresa.bravo@tep.com)  
520-633-1112

---

**From:** Bravo, Teresa <Teresa.Bravo@tep.com>  
**Sent:** Thursday, August 31, 2023 11:25 AM  
**To:** MayorRomero  
**Cc:** Charlene Mendoza  
**Subject:** Update: TEP Aerospace Research Campus Transmission Project  
**Attachments:** TEP Aerospace Research postcard v6.pdf

Dear Mayor Romero,

Tucson Electric Power (TEP) has identified a potential route for new transmission facilities for the [Aerospace Research Campus Transmission Project](#).

The proposed route was identified following a thorough review of environmental and land use impacts and an evaluation of several potential route segments. A map of the route is available on the [project webpage](#) and photographic simulations depicting the proposed line will be posted soon.

TEP is seeking input about the proposed route and invites you and the public to participate in an upcoming Public Open House.

**Public Open House Meeting**

Thursday, Sept. 14 | 6–8 p.m.  
Desert Diamond Casino  
Conference Room C  
7350 S. Nogales Hwy  
Tucson, AZ 85756

We also invite you to share feedback by filling out an [online comment form](#), sending comments to [arc@tep.com](mailto:arc@tep.com), or calling 1-833-655-0399 and leaving a voicemail.

The attached postcard, which includes details about the upcoming meeting and how to submit comments, will be mailed to area residents, businesses, and stakeholders early next week. Public notice will also run in the Arizona Daily Star on Sunday, Sept. 10.

If you would like more information or are interested in an individual briefing, please let me know.

Best regards,

-Teresa

**Teresa Bravo**

Government Relations Rep. | Local Affairs  
88 East Broadway Boulevard | Mail Stop HQE504  
Tucson, AZ 85701  
[teresa.bravo@tep.com](mailto:teresa.bravo@tep.com)  
520-633-1112

---

**From:** Marinez, Adriana <AMarinez@tep.com>  
**Sent:** Thursday, August 17, 2023 7:20 AM  
**To:** Maria Jayson <MJayson@worldview.space>  
**Subject:** RE: [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

Hi Maria – Thanks for checking in. The next Open House is tentatively scheduled for Sept. 14. As soon as I have everything confirmed I will send an email update to the stakeholders. Looking forward to seeing you then. Best, Adriana

---

**From:** Maria Jayson <MJayson@worldview.space>  
**Sent:** Tuesday, August 15, 2023 9:37 AM  
**To:** Marinez, Adriana <AMarinez@tep.com>  
**Subject:** RE: [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

---

Good Morning Adriana,  
I hope this email finds you well.  
I just wanted to follow up to see if there is a date for the next in person stakeholder meeting?

Thank you,

**Maria Jayson**  
**World View Enterprises, Inc.**  
Office Manager  
E: [mjayson@worldview.space](mailto:mjayson@worldview.space)  
C: +1 (520) 496-4297  
[www.worldview.space](http://www.worldview.space)  
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---

**From:** Maria Jayson  
**Sent:** Friday, July 28, 2023 2:34 PM

**To:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Subject:** RE: [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

Thank you Adriana! You too!

**Maria Jayson**  
**World View Enterprises, Inc.**  
Office Manager  
E: [mjayson@worldview.space](mailto:mjayson@worldview.space)  
C: +1 (520) 496-4297  
[www.worldview.space](http://www.worldview.space)  
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**From:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Sent:** Friday, July 28, 2023 2:18 PM

**To:** Maria Jayson <[MJayson@worldview.space](mailto:MJayson@worldview.space)>

**Subject:** [EXTERNAL] RE: [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

Yes, I can do that. I will add them to the stakeholder list. Thank you Maria. Have a great weekend!

---

**From:** Maria Jayson <[MJayson@worldview.space](mailto:MJayson@worldview.space)>

**Sent:** Friday, July 28, 2023 2:16 PM

**To:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Subject:** RE: [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

---

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---

Thank you Adriana.

Is there a way we can receive an electronic invitation to the following recipients?

- [Asmith@worldview.space](mailto:Asmith@worldview.space)
- [rfailing@worldview.space](mailto:rfailing@worldview.space)
- [thorton@worldview.space](mailto:thorton@worldview.space)
- [mjayson@worldview.space](mailto:mjayson@worldview.space)

Thank you,

**Maria Jayson**  
**World View Enterprises, Inc.**  
Office Manager  
E: [mjayson@worldview.space](mailto:mjayson@worldview.space)  
C: +1 (520) 496-4297  
[www.worldview.space](http://www.worldview.space)  
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---

**From:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>  
**Sent:** Friday, July 28, 2023 2:15 PM  
**To:** Maria Jayson <[MJayson@worldview.space](mailto:MJayson@worldview.space)>  
**Subject:** [EXTERNAL] RE: [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

Hi Maria – We will have another open house in September where we plan to share route alternatives with the public. You should receive an invitation to the meeting in the mail. Best, Adriana

---

**From:** Maria Jayson <[MJayson@worldview.space](mailto:MJayson@worldview.space)>  
**Sent:** Friday, July 28, 2023 11:07 AM  
**To:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>  
**Subject:** [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

---

Thank you Adriana!  
I'm sorry we missed this recent open house.  
Is there another one we can attend?

Thank you,

**Maria Jayson**  
**World View Enterprises, Inc.**  
Office Manager  
E: [mjayson@worldview.space](mailto:mjayson@worldview.space)  
C: +1 (520) 496-4297  
[www.worldview.space](http://www.worldview.space)  
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---

**From:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Sent:** Wednesday, July 19, 2023 8:42 AM

**To:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Subject:** [EXTERNAL] Agency Briefing Presentation : Aerospace Research Campus Transmission Project

Dear Stakeholder,

I've attached the presentation we'll review at this morning's agency briefing for the [Aerospace Research Campus Transmission Project](#).

If you're unable to attend, there are still ways to stay engaged and provide input. We encourage your participation at next week's in-person Public Open House (details below) and are also happy to accommodate individual briefing requests.

**Public Open House Meeting**

Thursday, July 27 | 6–8 p.m.

Desert Diamond Casino

Conference Room A

7350 S. Nogales Hwy

Tucson, AZ 85756

Please reach out with any questions or concerns.

Kind regards,

Adriana Mariñez

Transmission Line Siting Project Manager

Tucson Electric Power & UniSource Energy Services

520-528-1512 (c)

**From:** Marinez, Adriana <AMarinez@tep.com>  
**Sent:** Wednesday, July 19, 2023 5:01 PM  
**To:** Maria Jayson <MJayson@worldview.space>  
**Subject:** RE: [EXTERNAL E-Mail] RE: TEP Meeting follow up

Hi Maria – We won't be generating power as part of this project, only transmitting it. At least 35% of the power used in 2026 will come from renewable resources (generated outside of the project study area). Thanks again for your interest and time. Best, Adriana

---

**From:** Maria Jayson <MJayson@worldview.space>  
**Sent:** Wednesday, July 19, 2023 2:47 PM  
**To:** Marinez, Adriana <AMarinez@tep.com>  
**Subject:** [EXTERNAL E-Mail] RE: TEP Meeting follow up

You don't often get email from [mjayson@worldview.space](mailto:mjayson@worldview.space). [Learn why this is important](#)

---

Thank you Adriana for the follow up and sending TEPs goals for 2035!

Do you know what % of renewables will be used when the project opens in 2026?  
Will you be using coal at this facility?

Since it's going to be a new build, I hope TEP does its absolute best to use the most sustainable resources possible.

Thank you,

**Maria Jayson**  
**World View Enterprises, Inc.**  
Office Manager  
E: [mjayson@worldview.space](mailto:mjayson@worldview.space)  
C: +1 (520) 496-4297  
[www.worldview.space](http://www.worldview.space)  
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---

**From:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>  
**Sent:** Wednesday, July 19, 2023 2:39 PM  
**To:** Maria Jayson <[MJayson@worldview.space](mailto:MJayson@worldview.space)>  
**Subject:** [EXTERNAL] Meeting follow up

Good afternoon Maria –

Thank you for participating in today’s project briefing for the Aerospace Research Project. To follow up on your question. TEP plans to provide more than 70 percent of our power from wind and solar resources as part of a cleaner energy portfolio that will reduce carbon emissions 80 percent by 2035.

More information about our plans can also be found on the [our website](#) and in the attached infographic.

Please let me know if you have any further questions.

Best,

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)

---

**From:** Sims, Kelley B (Kelley) <Kelley\_Sims@Kindermorgan.com>  
**Sent:** Monday, July 17, 2023 4:08 PM  
**To:** Marinez, Adriana <AMarinez@tep.com>  
**Subject:** RE: [EXTERNAL E-Mail] RE: You're invited: TEP's Aerospace Research Campus Transmission Line Project Agency Briefing

---

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---

Thank you, Adriana,  
There aren't any EPNG pipelines within your study area, so I can be removed from future notices about this project.  
Thank you for checking,

*Kelley*

**Kelley Sims, SR/WA**

Senior ROW Agent



El Paso Natural Gas  
Company, L.L.C.  
a Kinder Morgan company

Tucson Area / Southeastern Arizona

5151 E. Broadway, Suite 1680, Tucson, AZ 85711

(520) 663-4223 | [Kelley\\_Sims@KinderMorgan.com](mailto:Kelley_Sims@KinderMorgan.com)

---

**From:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Sent:** Monday, July 17, 2023 1:26 PM

**To:** Sims, Kelley B (Kelley) <[Kelley\\_Sims@Kindermorgan.com](mailto:Kelley_Sims@Kindermorgan.com)>

**Subject:** FW: [EXTERNAL E-Mail] RE: You're invited: TEP's Aerospace Research Campus Transmission Line Project Agency Briefing

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Hi Kelley – Please see attached. Thanks, Adriana

---

**From:** Sims, Kelley B (Kelley) <[Kelley\\_Sims@Kindermorgan.com](mailto:Kelley_Sims@Kindermorgan.com)>

**Sent:** Monday, July 17, 2023 9:59 AM

**To:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Subject:** [EXTERNAL E-Mail] RE: You're invited: TEP's Aerospace Research Campus Transmission Line Project Agency Briefing

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---

Adriana,

Do you have a map showing the Sections, Twps, Rngs the new route crosses?

Kelley

-----Original Appointment-----

**From:** Marinez, Adriana <[AMarinez@tep.com](mailto:AMarinez@tep.com)>

**Sent:** Monday, June 26, 2023 9:39 AM

**To:** Marinez, Adriana; [jan.lesher@pima.gov](mailto:jan.lesher@pima.gov); [carmine.debonis@pima.gov](mailto:carmine.debonis@pima.gov); [Kathryn.Skinner@pima.gov](mailto:Kathryn.Skinner@pima.gov); [carla.blackwell@pima.gov](mailto:carla.blackwell@pima.gov); [heath.vescovi-chiordi@pima.gov](mailto:heath.vescovi-chiordi@pima.gov); [RWRDUtilityCoord@pima.gov](mailto:RWRDUtilityCoord@pima.gov); [Sherry.Ruther@pima.gov](mailto:Sherry.Ruther@pima.gov); [Diana.Durazo@pima.gov](mailto:Diana.Durazo@pima.gov); [karen.simms@pima.gov](mailto:karen.simms@pima.gov); [sstorm@pagregion.com](mailto:sstorm@pagregion.com); [sam.credio@tucsonaz.gov](mailto:sam.credio@tucsonaz.gov); [Robin.Raine@tucsonaz.gov](mailto:Robin.Raine@tucsonaz.gov); [Jodie.Brown@tucsonaz.gov](mailto:Jodie.Brown@tucsonaz.gov); Bryner, Clark; [demon.clinco@preservetucson.org](mailto:demon.clinco@preservetucson.org); [michael.graham@tucsonaz.gov](mailto:michael.graham@tucsonaz.gov); [energyoffice@tucsonaz.gov](mailto:energyoffice@tucsonaz.gov); [kristina.swallow@tucsonaz.gov](mailto:kristina.swallow@tucsonaz.gov); [lara.hemway@tucsonaz.gov](mailto:lara.hemway@tucsonaz.gov); [john.kmiec@tucsonaz.gov](mailto:john.kmiec@tucsonaz.gov); [dean.trammel@tucsonaz.gov](mailto:dean.trammel@tucsonaz.gov); [rlane@azdot.gov](mailto:rlane@azdot.gov); [pthompson@azdot.gov](mailto:pthompson@azdot.gov); [mwalsh@azstateparks.gov](mailto:mwalsh@azstateparks.gov); [robyn.sahid@azland.gov](mailto:robyn.sahid@azland.gov); [tgrew@azland.gov](mailto:tgrew@azland.gov); [swestbrookhall@azland.gov](mailto:swestbrookhall@azland.gov); [joel.borgan@us.af.mil](mailto:joel.borgan@us.af.mil); [bonnie.carter@us.af.mil](mailto:bonnie.carter@us.af.mil); [nick.goodly@faa.gov](mailto:nick.goodly@faa.gov); [contactus@tonation-nsn.gov](mailto:contactus@tonation-nsn.gov); [anunez@waknet.org](mailto:anunez@waknet.org); [peter.steere@tonation-nsn.gov](mailto:peter.steere@tonation-nsn.gov); [dtenario@waknet.org](mailto:dtenario@waknet.org); [apachevern@yahoo.com](mailto:apachevern@yahoo.com); Sims, Kelley B (Kelley); [steve.sousa@swgas.com](mailto:steve.sousa@swgas.com); [hector.rivasCabrera@swgas.com](mailto:hector.rivasCabrera@swgas.com); [tucswgfranchisegroup@swgas.com](mailto:tucswgfranchisegroup@swgas.com); Box, Brice; Reed, Glen; Ward, Scott; Otto, Kevin; Francese, Milo; Kimbell, Randon L (Randy); [sidorewicz@kindermorgan.com](mailto:sidorewicz@kindermorgan.com); [rjrobison@up.com](mailto:rjrobison@up.com); [bagivens@up.com](mailto:bagivens@up.com); [gafowle1@up.com](mailto:gafowle1@up.com); [omonge@up.com](mailto:omonge@up.com); [cjmoore@up.com](mailto:cjmoore@up.com); [ike.cruse@cox.com](mailto:ike.cruse@cox.com); [jvoorhees@flytucson.com](mailto:jvoorhees@flytucson.com); [allyson@mpaaz.org](mailto:allyson@mpaaz.org); [Paul.S.Kramkowski@rtx.com](mailto:Paul.S.Kramkowski@rtx.com); [david.welsh@suncorridorinc.com](mailto:david.welsh@suncorridorinc.com); [mjayson@worldview.space](mailto:mjayson@worldview.space)

**Subject:** You're invited: TEP's Aerospace Research Campus Transmission Line Project Agency Briefing

**When:** Wednesday, July 19, 2023 10:00 AM-11:00 AM (UTC-07:00) Arizona.

**Where:** Microsoft Teams Meeting

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Dear Stakeholder,

Tucson Electric Power (TEP) is preparing plans for new transmission facilities that will support aerospace and other supply chain industries planned for the Aerospace Research Campus. The Aerospace Research Campus Transmission Line Project will interconnect TEP's existing 138 kilovolt (kV) transmission system to the proposed Franco Wash Switchyard, located south of the Tucson International Airport.

**You, or a designee, are invited to participate in a virtual agency briefing on Wednesday, July 19 at 10 a.m.** to learn more about the project and provide feedback (meeting details below).

A public open house meeting will also be held on Thursday, July 27, 2023. Details about the open house will be made available on the [project webpage](#) as the date approaches. A project newsletter will also be mailed to area residents, businesses, and stakeholders about two weeks prior to the meeting.

Please let me know if you have any questions leading up to or proceeding the briefing. I look forward to seeing you then.

Kind regards,

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)

---

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**From:** Kathryn Gerber <no-reply@comms.tep.com>  
**Sent:** Wednesday, July 19, 2023 10:35 AM  
**To:** ARC <arc@tep.com>  
**Subject:** Re: Aerospace Research Campus Transmission Line Project - Kathryn Gerber

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**Aerospace Research Campus Transmission Line Project**

Name	Kathryn Gerber
Address	Street Address: 310 W Alameda City: Tucson State / Province: AZ Postal / Zip Code: 85701
Email	<a href="mailto:kathryn.gerber@tucsonaz.gov">kathryn.gerber@tucsonaz.gov</a>
Phone Number	(520) 837-2212
Is there any additional information that you would like to contribute that could add value to this project:	Tucson Water has a 12" water main along Old Vail Connection Road from Old Nogales Highway to a well site 1/2 mile east of Country Club. Just an FYI. Other than that, no conflicts expected. We have a reservoir and booster site at the south end of Eisenhower road in the area, but that should not be in conflict. If you would like any maps feel free to reach out. -Kathryn Gerber, System Planning, Tucson Water, <a href="mailto:kathryn.gerber@tucsonaz.gov">kathryn.gerber@tucsonaz.gov</a>



*This page intentionally left blank*

**From:** Kathryn Gerber <Kathryn.Gerber@tucsonaz.gov>  
**Sent:** Wednesday, August 2, 2023 12:25 PM  
**To:** Marinez, Adriana <AMarinez@tep.com>  
**Subject:** [EXTERNAL E-Mail] RE: Aerospace Research Campus Transmission Line Project - Kathryn Gerber

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---

Hi Adriana,

Attached is a snapshot from our internal GIS. Please excuse the simple graphics. We don't have a lot in the area, but I wanted to let you know what we have and where. If you need valve maps for any area in particular you can request the from [TWMMapInfo@tucsonaz.gov](mailto:TWMMapInfo@tucsonaz.gov).

Kindly,  
Kat

**Kathryn Gerber, PE**  
Engineering Manager | System Planning  
Office (520) 837-2212  
[Kathryn.Gerber@tucsonaz.gov](mailto:Kathryn.Gerber@tucsonaz.gov)



---

**From:** Marinez, Adriana <AMarinez@tep.com>  
**Sent:** Wednesday, August 2, 2023 10:54 AM  
**To:** Kathryn Gerber <Kathryn.Gerber@tucsonaz.gov>  
**Subject:** [EXTERNAL] RE: Aerospace Research Campus Transmission Line Project - Kathryn Gerber

Hi Kathryn – Just wanted to check in on the maps. Can you also please let me know what type of pipes are used in the area? Thanks so much, Adriana

---

**From:** ARC  
**Sent:** Tuesday, July 25, 2023 6:57 AM  
**To:** 'kathryn.gerber@tucsonaz.gov' <[kathryn.gerber@tucsonaz.gov](mailto:kathryn.gerber@tucsonaz.gov)>  
**Subject:** RE: Aerospace Research Campus Transmission Line Project - Kathryn Gerber

Good morning Kathryn – Thank you for submitting comments on the Aerospace Research Campus Transmission Project. If you could please send the maps that would be great. Thanks again. All my best, Adriana

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)

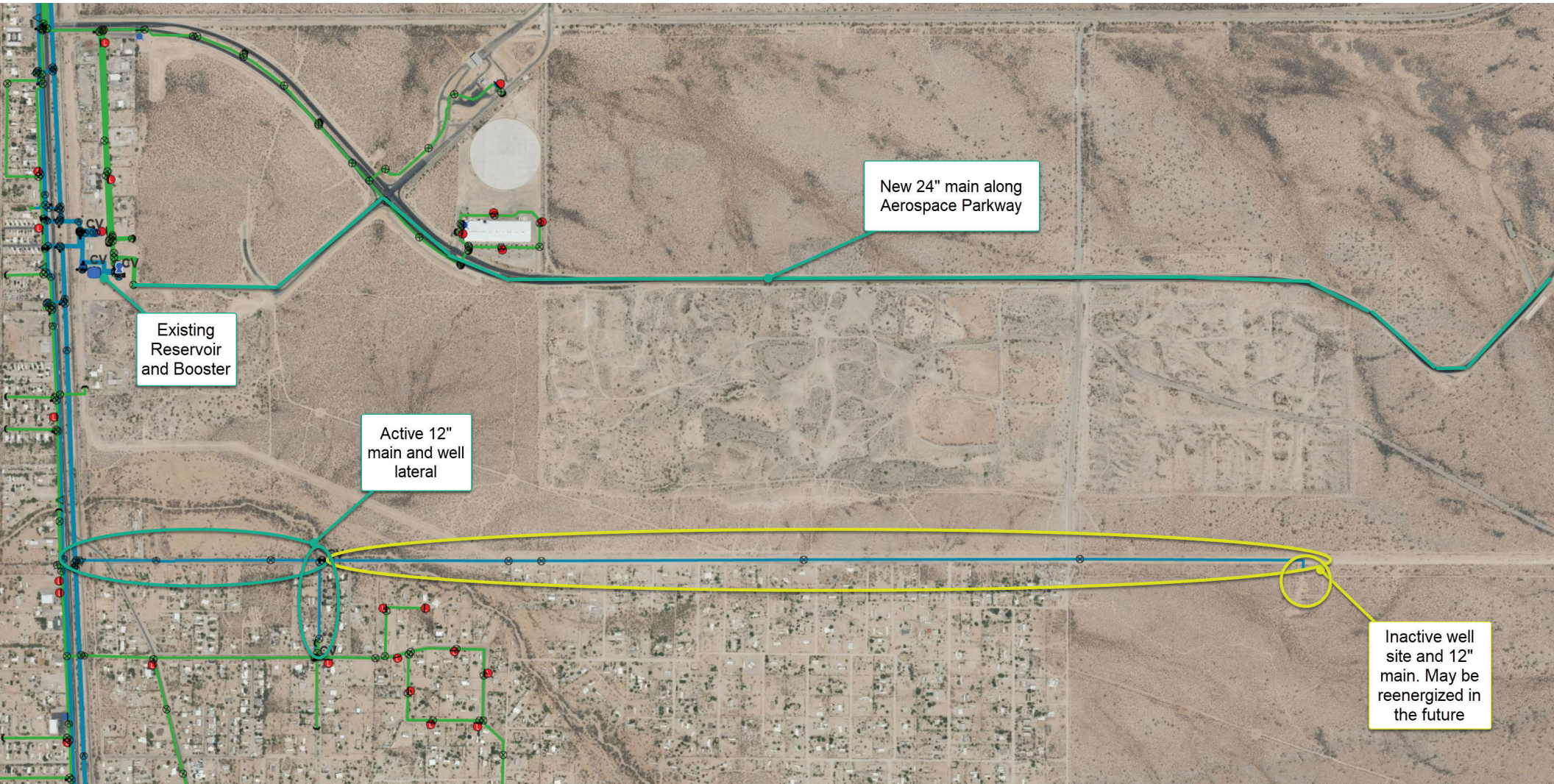
---

**From:** Kathryn Gerber <[no-reply@comms.tep.com](mailto:no-reply@comms.tep.com)>  
**Sent:** Wednesday, July 19, 2023 10:35 AM  
**To:** ARC <[arc@tep.com](mailto:arc@tep.com)>  
**Subject:** Re: Aerospace Research Campus Transmission Line Project - Kathryn Gerber

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### Aerospace Research Campus Transmission Line Project

Name	Kathryn Gerber
Address	Street Address: 310 W Alameda City: Tucson State / Province: AZ Postal / Zip Code: 85701
Email	<a href="mailto:kathryn.gerber@tucsonaz.gov">kathryn.gerber@tucsonaz.gov</a>
Phone Number	(520) 837-2212
Is there any additional information that you would like to contribute that could add value to this project:	Tucson Water has a 12" water main along Old Vail Connection Road from Old Nogales Highway to a well site 1/2 mile east of Country Club. Just an FYI. Other than that, no conflicts expected. We have a reservoir and booster site at the south end of Eisenhower road in the area, but that should not be in conflict. If you would like any maps feel free to reach out. -Kathryn Gerber, System Planning, Tucson Water, <a href="mailto:kathryn.gerber@tucsonaz.gov">kathryn.gerber@tucsonaz.gov</a>



Existing Reservoir and Booster

Active 12" main and well lateral

New 24" main along Aerospace Parkway

Inactive well site and 12" main. May be reenergized in the future

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**From:** Casey Moore <cjmoore@up.com>  
**Sent:** Wednesday, July 19, 2023 12:26 PM  
**To:** Marinez, Adriana <AMarinez@tep.com>  
**Subject:** [EXTERNAL E-Mail] RE: Agency Briefing Presentation : Aerospace Research Campus Transmission Project

You don't often get email from [cjmoore@up.com](mailto:cjmoore@up.com). [Learn why this is important](#)

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**\*\*\* UNS WARNING - EXTERNAL EMAIL \*\*\***

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**\*\*\* REPORT ANYTHING SUSPICIOUS \*\*\***

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Hi Adriana,

I am not the correct UP contact for this request.

For your appropriate utilities contact, please visit the following website → <https://www.uprr.com/reus/contacts/mgrcontacts/index.cfm> and choose "utilities" and then choose your appropriate location for your correct contact. Please save and use the link provided for future use.

Thank you.

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**From:** Marinez, Adriana <AMarinez@tep.com>  
**Sent:** Wednesday, July 19, 2023 10:42 AM  
**To:** Marinez, Adriana <AMarinez@tep.com>  
**Subject:** Agency Briefing Presentation : Aerospace Research Campus Transmission Project

Some people who received this message don't often get email from [amarinez@tep.com](mailto:amarinez@tep.com). [Learn why this is important](#)

**\* PROCEED WITH CAUTION - This email was sent from outside the Company \***

Dear Stakeholder,

I've attached the presentation we'll review at this morning's agency briefing for the [Aerospace Research Campus Transmission Project](#).

If you're unable to attend, there are still ways to stay engaged and provide input. We encourage your participation at next week's in-person Public Open House (details below) and are also happy to accommodate individual briefing requests.

**Public Open House Meeting**

Thursday, July 27 | 6–8 p.m.

Desert Diamond Casino

Conference Room A

7350 S. Nogales Hwy

Tucson, AZ 85756

Please reach out with any questions or concerns.

Kind regards,

Adriana Mariñez  
Transmission Line Siting Project Manager  
Tucson Electric Power & UniSource Energy Services  
520-528-1512 (c)

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