Application

for

Certificate of Environmental Compatibility

APS Runway 230kV Power Line Project

Prepared for:

State of Arizona
Power Plant and Transmission Line Siting Committee

Submitted by:

Arizona Public Service Company

September 2022

Case No. _____

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INTRODUCTION

Pursuant to Arizona Revised Statute (ARS) 40-360 et seq. and associated administrative rules and regulations in Arizona Administrative Code Rule R14-3-219, Arizona Public Service Company (APS or Applicant) is seeking approval of a Certificate of Environmental Compatibility (CEC) granting authority to construct the Runway 230-kilovolt (230kV) Power Line Project (Project). The Project consists of a double-circuit 230kV transmission line that will extend from the APS 230kV Runway Substation to the APS White Tanks–West Phoenix 230kV transmission line.

Project Overview

The Project consists of a new, approximately 4.34-mile-long, double-circuit, overhead 230kV transmission line that will connect the existing APS 230kV Runway Substation and its planned expansion, located on the Microsoft data center (the customer) site (northeast of West Broadway Road and South Bullard Avenue) in Goodyear, to the existing White Tanks–West Phoenix 230kV transmission line in Avondale, Arizona. The anticipated in-service date for the Project is 2025. The Project was included in APS's Supplemental Ten-Year Plan, which was filed with the Arizona Corporation Commission (Commission) on April 16, 2021, and in APS's Ten-Year Plan, which was filed on January 31, 2022.

The Project includes the installation of a new double-circuit 230kV transmission line, with steel double-circuit 230kV monopole structures and a cut-in structure consisting of a modification to the monopole at the interconnection near Buckeye Road and the Agua Fria River. The structures will have a dulled gray or weatherized finish, and conductors will have a non-specular finish in order to reduce visibility. The new structures will be approximately 115 to 195 feet tall, depending on terrain and the crossing of bridges or other infrastructure, and the average span length between structures will range between approximately 400 and 1,000 feet, depending on final route design. The structures will be placed in new or existing rights-of-way (ROWs) or easements up to 120 feet wide. Variations may be required to achieve site-specific mitigation objectives or meet site-specific engineering requirements.

Double-circuit 230kV monopole tangent structures and turning structures will be used to connect the proposed transmission line to the Runway Substation at its southwestern end and a double-circuit 230kV cut-in structure will be used to connect the proposed line to the existing APS White Tanks–West Phoenix 230kV transmission line at its northeastern end. Where possible, existing transmission and/or distribution lines that exist along the final Project alignment will be co-located with the new line, and in those cases, the existing poles will be replaced with new weatherized or galvanized steel structures up to approximately 195 feet tall. The portion of the Project within the Agua Fria River corridor that will be co-located with a portion of an existing 69kV subtransmission line (Broadway–White Tanks) will entail upgrading the existing 69kV pole structures with double-circuit 230kV pole structures with the 69kV underbuilt.

Purpose and Need

The West Valley region of the Phoenix metropolitan area is currently experiencing high growth—including up to three large data centers (Microsoft, Stream, and STACK Infrastructure data centers) located in the vicinity of the Project—and additional growth is anticipated in the future. The Project is specifically intended to support the redundancy needs of the Microsoft data center, located northeast of Bullard Avenue and Broadway Road in Goodyear. The proposed 230kV transmission line will also allow for a future connection of the planned Diamond Substation within the STACK Infrastructure data center parcel.

Preferred Route

The Preferred Route for the Project (Figure 1), which is supported by the Cities of Avondale and Goodyear, was identified through a comprehensive public planning process that allowed for consideration of a broad range of alternative transmission line locations and involved public and agency stakeholder inputs. The process is designed to identify a feasible transmission line route that minimizes impacts while serving the Project purpose and need. This planning process is described in detail as part of the *APS Runway 230kV Power Line Project Environmental and Siting Process Summary Report* included in Exhibit B.

The Preferred Route location starts at the southern end of the existing APS Runway Substation, extends north for 0.15 mile and connects into the northern expansion of the Runway Substation, then continues directly north through the Microsoft property for 0.49 mile until it turns northeast immediately south of Maricopa County Highway 85 (MC 85). From that point, the route runs northeast and parallel with the southern edge of MC 85 for approximately 0.30 mile, where it then extends due east along the southern edge of West Lower Buckeye Road for approximately 0.36 mile, crossing through the Microsoft and Stream data center parcels. At the southwest corner of West Lower Buckeye Road and South Litchfield Road, the Preferred Route crosses South Litchfield Road diagonally for approximately 0.03 mile to the southeast corner of the intersection, before traveling south for approximately 0.48 mile along the east side of Litchfield Road within STACK Infrastructure's data center property. The route then turns east at STACK Infrastructure's southern property line and runs parallel to the north of an existing underground water pipeline easement for approximately 0.56 mile until reaching the existing APS 69kV subtransmission line (Broadway–White Tanks) within the Agua Fria River corridor. The Preferred Route would be co-located with the existing APS 69kV subtransmission line, extending north-northeast within the Agua Fria River corridor for approximately 1.92 miles, and crossing over the MC 85/West Buckeye Road and Union Pacific Railroad bridges. The Preferred Route will then extend east approximately 0.05 mile, crossing beneath an existing 345kV transmission line, where it will connect to the existing APS White Tanks–West Phoenix 230kV transmission line.

Conclusion

This Application for a CEC includes a detailed discussion of the environmental evaluation and provides documentation relevant to the Project, as specified by Arizona Administrative Code Rule R14-3-219. The Project requested in this CEC Application balances the need for an adequate, economical, and reliable supply of electric power with the desire to minimize impacts on Arizona's environment and ecology and is consistent with the public interest. The Project will result in minimal adverse impacts on the statutory factors considered by the Arizona Power Plant and Transmission Line Siting Committee (Siting Committee), including existing land use plans; fish, wildlife, and plant life; areas unique because of biological wealth; scenic areas, historic sites and structures, and archaeological sites; and the overall environment of the area. APS is committed to avoiding and minimizing environmental impacts. APS believes the Project's Preferred Route and subroute alternatives are environmentally compatible, and that the Preferred Route minimizes environmental impacts. Furthermore, through the Project's comprehensive public planning process, the Preferred Route gained the support of the Cities of Avondale and Goodyear. Given this, APS respectfully requests that the Siting Committee grant, and the Commission approve, the requested CEC for the Project.

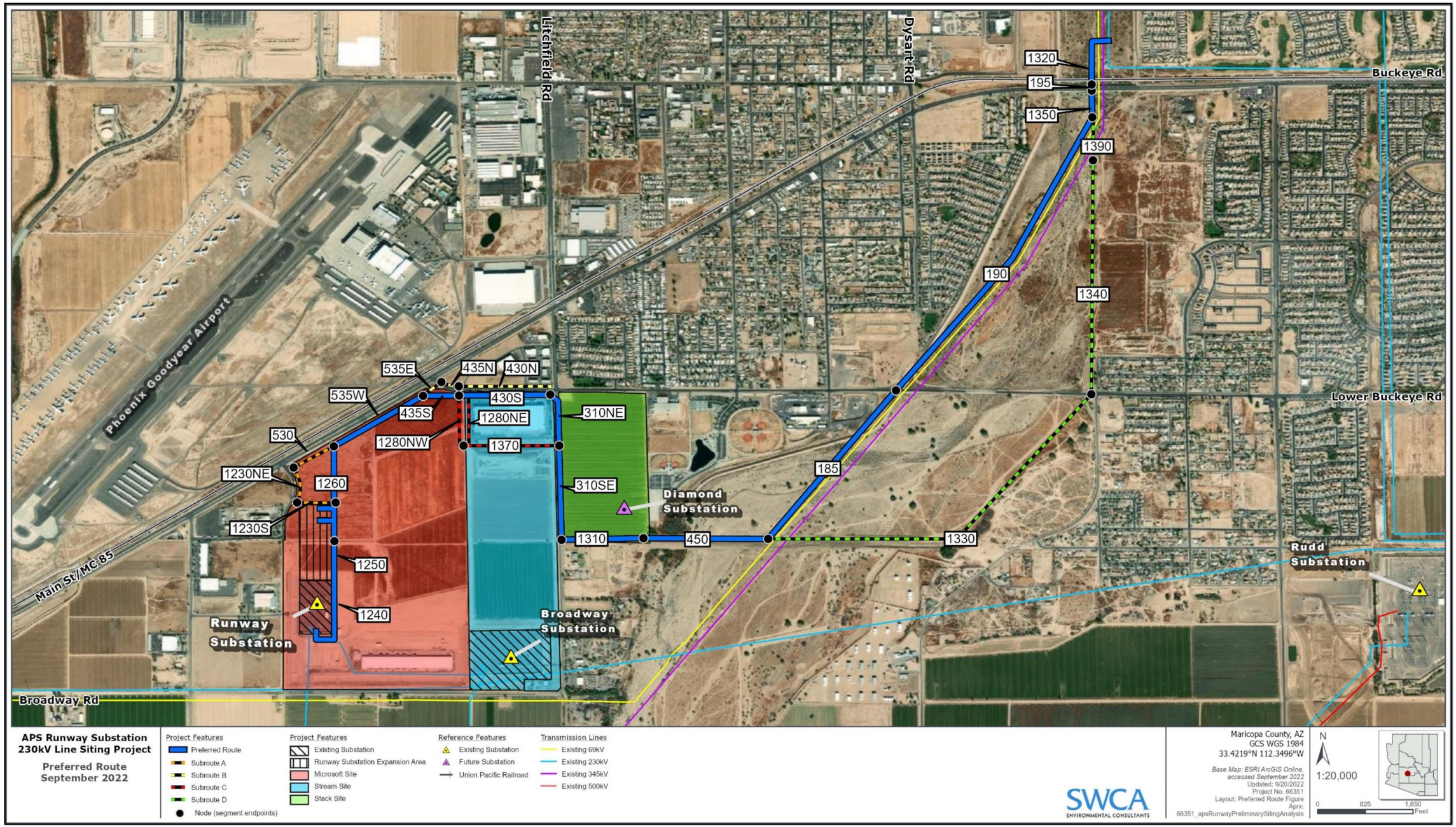

Figure 1. Preferred Route.

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APPLICATION FOR
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

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1. Name and address of the Applicant

Arizona Public Service Company
PO Box 53933
Phoenix, Arizona 85072-3933

2. Name, address, and telephone number of a representative of the 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

Stephen Eich
Senior Siting Consultant
Transmission and Facility Siting
Arizona Public Service Company
PO Box 53933, MS 3293
Phoenix, Arizona 85072-3933
(602) 493-4448

3. Date on which the applicant filed a Ten-Year Plan in compliance with A.R.S. § 40-360.02, in which the facilities for which this application is made were described

The Project was included in APS's Supplemental Ten-Year Plan, which was filed with the Commission on April 16, 2021, and in APS's Ten-Year Plan, which was filed on January 31, 2022.

4. Description of the proposed facility, including:

a. With respect to an electric generating plant:

There are no electrical generating plants included as part of the Project.

b. With respect to a proposed transmission line:

i. Nominal voltage for which the line is designed; description of the proposed structures and switchyards or substations associated therewith; and purpose for constructing said transmission line

(1) Nominal voltage:

The nominal voltage for the Project's transmission line is 230kV.

(2) Description of the proposed structures:

The Project includes the installation of a new double-circuit 230kV transmission line, with steel double-circuit 230kV monopole structures and a cut-in structure consisting of a modification to the monopole at the interconnection near Buckeye Road and the Agua Fria River. The majority of the 230kV structures will be capable of accommodating 69kV underbuild. The structures will have a dulled gray or weatherized finish, and conductors will have a non-specular finish in order to reduce

visibility. The new structures will be approximately 115 to 195 feet tall, depending on terrain and the crossing of bridges or other infrastructure, and the average span length between structures will range between approximately 400 and 1,000 feet, depending on final route design. The structures will be placed in new or existing ROWs or easements up to 120 feet wide. Variations may be required to achieve site-specific mitigation objectives or meet site-specific engineering requirements.

Double-circuit 230kV monopole tangent structures and turning structures will be used to connect the proposed transmission line to the Runway Substation at its southwestern end and a double-circuit 230kV cut-in structure will be used to connect the proposed line to the existing APS White Tanks–West Phoenix 230kV transmission line at its northeastern end. Where possible, existing transmission and/or distribution lines that exist along the final Project alignment will be co-located with the new line, and in those cases, the existing poles will be replaced with new weatherized or galvanized steel structures up to approximately 195 feet tall. The portion of the Project within the Agua Fria River corridor that will be co-located with a portion of an existing 69kV subtransmission line (Broadway–White Tanks) will entail upgrading the existing 69kV pole structures with double-circuit 230kV pole structures with the 69kV underbuilt.

Conceptual drawings showing the typical structures that may be used are provided in Exhibit G.

(3) Description of proposed switchyards and substations:

The Runway Substation and its expansion are located within the customer's site, approximately 0.35 mile northeast of the intersection of Broadway Road and Bullard Avenue, in Goodyear, Arizona.

The existing Runway Substation and the planned expansion will contain typical substation equipment including dead-end structures, buss work, switches, transformers, breakers, communication equipment, and a control structure.

(4) Purpose for constructing said transmission line:

The purpose of the Project is to support the redundancy needs of the Microsoft data center, located northeast of Bullard Avenue and Broadway Road in Goodyear. The proposed 230kV transmission line will also allow for a future connection of the planned Diamond Substation within the STACK Infrastructure data center parcel.

ii. Description of geographical points between which the transmission line will run, the straight-line distance between such points and the length of the transmission line for each alternative route for which the application is made

(1) Description of geographical points between which the transmission line will run:

The transmission line will originate at the existing APS Runway Substation within portions of Parcel 500-07-985 in Section 21, Township 1 North, Range 1 West, Gila and Salt River Baseline and Meridian. The Project will connect the Runway Substation to the existing APS White Tanks–West Phoenix 230kV transmission line at a point within Parcel 500-28-003C and/or Parcel 500-28-003A in Section 11, Township 1 North, Range 1 West, Gila and Salt River Baseline and Meridian.

(2) Straight-line distance between such points:

The straight-line distance between the points of connection for the Runway Substation and the existing APS White Tanks–West Phoenix 230kV transmission line is approximately 15,060 feet (2.85 miles).

(3) Length of the transmission line for each alternative route:

The length of the Preferred Route is approximately 22,920 feet (4.34 miles).

The lengths of the subroute alternatives vary: Subroute A is approximately 1,875 feet (0.36 mile), Subroute B is approximately 2,095 feet (0.40 mile), Subroute C is approximately 2,300 feet (0.44 mile), and Subroute D is approximately 10,660 feet (2.02 miles).

iii. Nominal width of right-of-way required, nominal length of spans, maximum height of supporting structures and minimum height of conductor above ground

(1) Nominal width of right-of-way required:

The ROW will be up to 120 feet wide and may be co-located with existing infrastructure, where practicable.

(2) Nominal length of spans:

The typical span length between structures will be approximately 400 to 1,000 feet, with variations made to achieve site-specific mitigation objectives and/or meet site-specific engineering requirements.

(3) Maximum height of supporting structures:

The height of supporting structures will not exceed 195 feet above ground.

(4) Minimum height of conductor above ground:

The minimum height of the conductor above existing grade will be 24 feet above ground.

iv. To the extent available, the estimated costs of proposed transmission line and route, stated separately. (If application contains alternative routes, furnish an estimate for each route and a brief description of the reasons for any variations in such estimates.)

- **Preferred Route:** The estimated cost for the transmission line along the Preferred Route would be approximately $19.185 million, which includes construction cost of approximately $16.285 million and ROW cost of approximately $2.9 million.

The utilization of one or more subroutes would change the estimated construction cost for the Project since each subroute would displace a segment of the Preferred Route. The following estimated costs for each subroute represent the net changes to the Preferred Route costs:

- **Subroute A:** The net change in cost for the Project would be approximately $810,000, which consists of a net change in construction cost of $800,000 and a net change in ROW cost of $10,000.

- **Subroute B:** The net change in cost for the Project would be approximately $93,000, which consists of a net change in construction cost of $79,000 and a net change in ROW cost of $14,000.
- **Subroute C:** The net change in cost for the Project would be approximately $93,000, which consists of a net change in construction costs of $79,000 and a net change in ROW cost of $14,000.
- **Subroute D:** The net change in cost for the Project would be approximately $1.766 million, which consists of a net change in construction costs of $1.5 million and a net change in ROW cost of $266,000.

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 Preferred Route location starts at the southern end of the existing APS Runway Substation, extends north and connects into the northern expansion of the Runway Substation, then continues directly north through the Microsoft property for 0.60 mile until it turns northeast immediately south of MC 85. From that point, the route runs northeast and parallel with the southern edge of MC 85 for approximately 0.26 mile, where it then extends due east along the southern edge of West Lower Buckeye Road for approximately 0.35 mile, crossing through the Microsoft and Stream data center parcels. At the southwest corner of West Lower Buckeye Road and South Litchfield Road, the Preferred Route crosses South Litchfield Road diagonally for approximately 0.03 mile to the southeast corner of the intersection, before traveling south for approximately 0.45 mile along the east side of Litchfield Road within STACK Infrastructure's data center property. The route then turns east at STACK Infrastructure's southern property line and runs due east parallel to the north of an existing underground water pipeline easement for approximately 0.60 mile until reaching the Agua Fria River corridor. The Preferred Route would be co-located with the existing APS 69kV subtransmission line (Broadway–White Tanks), extending north-northeast within the Agua Fria River corridor for approximately 1.8 miles, and crossing over the MC 85/West Buckeye Road and Union Pacific Railroad bridges. The Preferred Route will then extend east approximately 0.05 mile, crossing beneath an existing 345kV transmission line, where it will connect to the existing APS White Tanks–West Phoenix 230kV transmission line.

Various subroutes (i.e., alternative route segments) have been presented along with the Preferred Route within this application. The subroutes could replace portions of the Preferred Route and thus affect the distance and costs associated with the Project. The Preferred Route has been identified among the various alternatives because it balances the coinciding needs to minimize visual impacts to residences and recreation areas, avoid residential land use impacts, and limit land use impacts to non-data center landowners. The majority of the Preferred Route and subroutes are located on parcels with existing/planned data centers and/or existing transmission line ROW.

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.).

The Preferred Route and subroute alternatives are located on privately owned land except for portions crossing Maricopa County's and City of Goodyear's road ROWs, and City of Avondale and Flood Control District of Maricopa County properties in the Agua Fria River corridor (Tables 1 and 2).

Table 1. Land Ownership Along the Preferred Route

Landowner	Location	Preferred Route Approximate Length	Percentage of Preferred Route
Private	Microsoft, Stream, and STACK Infrastructure data center parcels; portions of the Agua Fria River corridor; Union Pacific Railroad ROW	2.56 miles (13,535 feet)	59%
Maricopa County	Road ROW along MC 85/West Buckeye Road, Litchfield Road, Lower Buckeye Road (east of Litchfield Road)	0.09 mile (450 feet)	2%
Flood Control District of Maricopa County	Portions of the Agua Fria River corridor	1.43 miles (7,550 feet)	33%
City of Avondale	Portions of the Agua Fria River corridor	0.25 mile (1,355 feet)	6%
City of Goodyear	Local roads (El Cielo/141st Avenue)	<0.01 mile (30 feet)	<1%
Total (approximate)		**4.34 miles (22,920 feet)**	**100%**

Table 2. Land Ownership Along the Subroutes

Landowner	Location	Length along Subroute A	Length along Subroute B	Length along Subroute C	Length along Subroute D
Private	Microsoft, Stream, and STACK Infrastructure data center parcels; portions of the Agua Fria River corridor; Union Pacific Railroad ROW	0.36 mile (1,875 feet)	0.35 mile (1,825 feet)	0.43 mile (2,270 feet)	1.07 miles (5,660 feet)
Maricopa County	Road ROW along MC 85/West Buckeye Road, Litchfield Road, Lower Buckeye Road (east of Litchfield Road)	N/A	N/A	N/A	0.02 mile (80 feet)
Flood Control District of Maricopa County	Portions of the Agua Fria River corridor	N/A	N/A	N/A	0.58 mile (3,080 feet)
City of Avondale	Portions of the Agua Fria River corridor	N/A	N/A	N/A	0.35 mile (1,840 feet)

Landowner	Location	Length along Subroute A	Length along Subroute B	Length along Subroute C	Length along Subroute D
City of Goodyear	Local roads (Lower Buckeye Road [west of Litchfield Road], El Cielo/ 141st Avenue, La Luna)	N/A	0.05 mile (270 feet)	<0.01 mile (30 feet)	N/A
Total (approximate)		0.36 mile (1,875 feet)	0.40 mile (2,095 feet)	0.44 mile (2,300 feet)	2.02 miles (10,660 feet)

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.

Portions of the Preferred Route and subroute alternatives are located within the jurisdiction of the City of Goodyear, the City of Avondale, and within unincorporated Maricopa County.
The Preferred Route and subroute alternatives are not contrary to the zoning ordinances or master plans of these jurisdictions.

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.

The Applicant has evaluated collected field data and available secondary sources related to biological resources, visual resources, cultural resources, recreational resources, land use, noise levels, and communications signals in the vicinity of the Preferred Route and subroute alternatives in order to assess the potential impacts that may result from the construction, operation, and maintenance of the Project. These evaluations are included in Exhibits B through I of this application.

The Applicant has also conducted an extensive public and agency outreach process to gather information and comments relative to the Project. Information collected and analyzed as part of the outreach process is included in Exhibit J of this application.

ARIZONA PUBLIC SERVICE COMPANY

/s/ Stephen Eich
By Stephen Eich, APS Senior Siting Consultant

I HEREBY CERTIFY that on this 29th day of September 2022, I have delivered to the Arizona Corporation Commission twenty-five (25) copies of this Application for a Certificate of Environmental Compatibility.

EXHIBIT A. LOCATION MAP AND LAND USE MAPS

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

> *Exhibit A:*
>
> 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 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.*
>
> ***If a topographic map is not commercially available, a map of similar scale, which reflects prominent or important physical features of the area in the vicinity of the proposed site or route, shall be substituted.*

Land Use Overview

The following exhibits are required by the Arizona Corporation Commission's Rules of Practice and Procedure (Arizona Administrative Code, Title 14, Chapter 3, Exhibit 1) to support the land use studies conducted for this application:

- Exhibit A-1 illustrates the land ownership and surface jurisdiction for the location of proposed Runway 230-kilovolt (230kV) Power Line Project (Project) facilities (Project Area) and land within 1 mile of the Project Area (Study Area).
- Exhibit A-2 illustrates existing land use within the Study Area.
- Exhibit A-3 illustrates future land use within the Study Area.

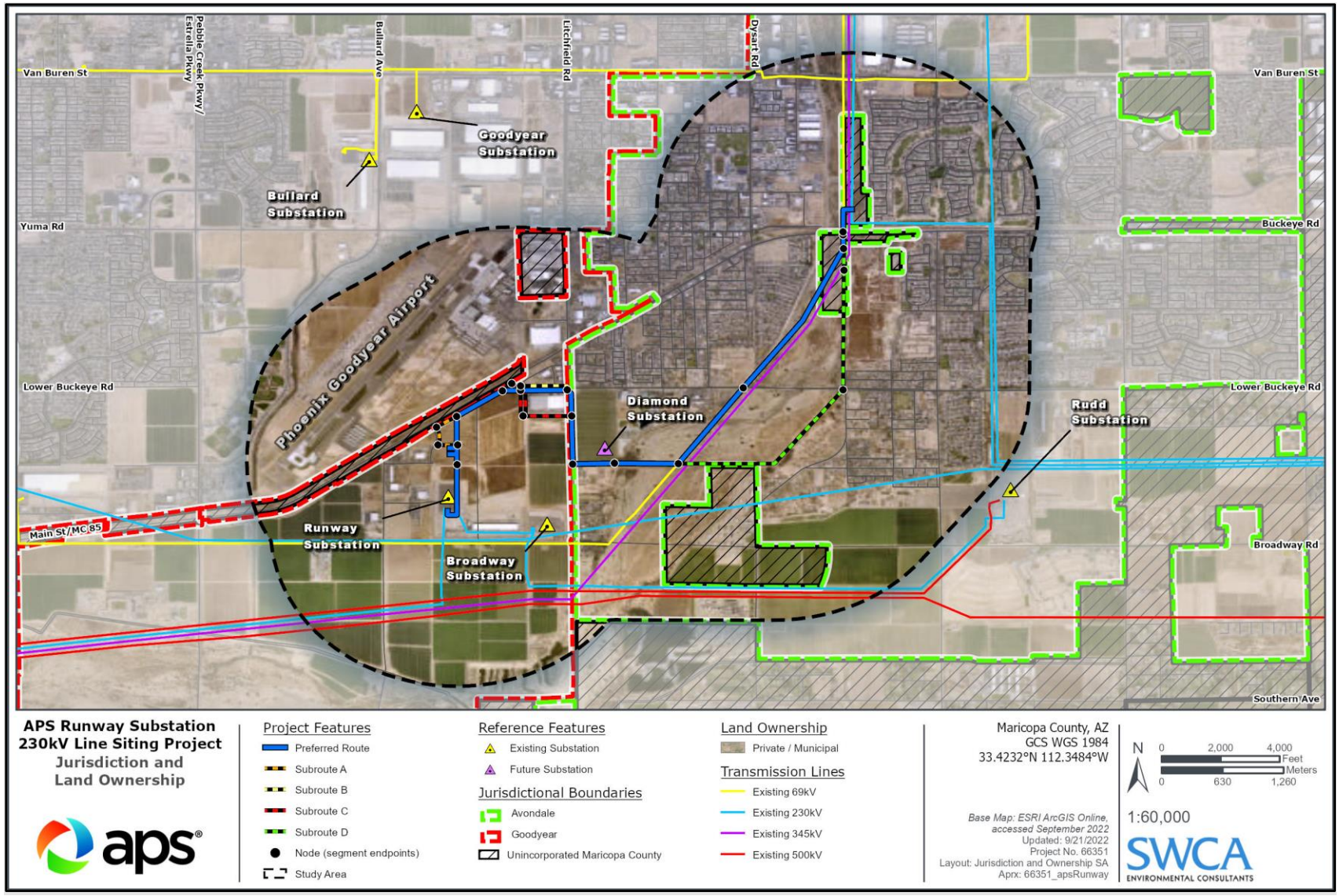

Exhibit A-1. Land ownership and surface jurisdiction in the Study Area.

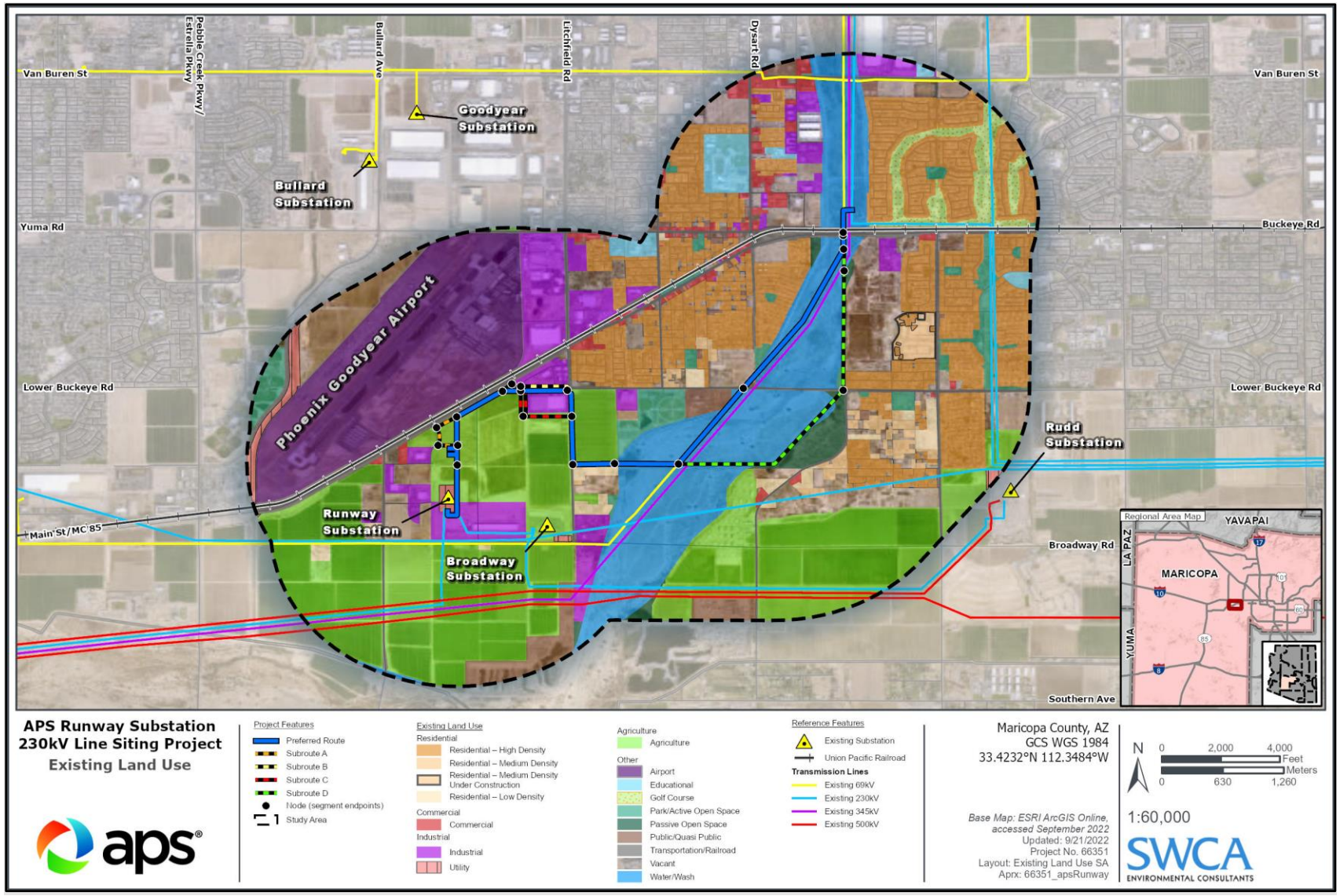

Exhibit A-2. Existing land use in the Study Area.

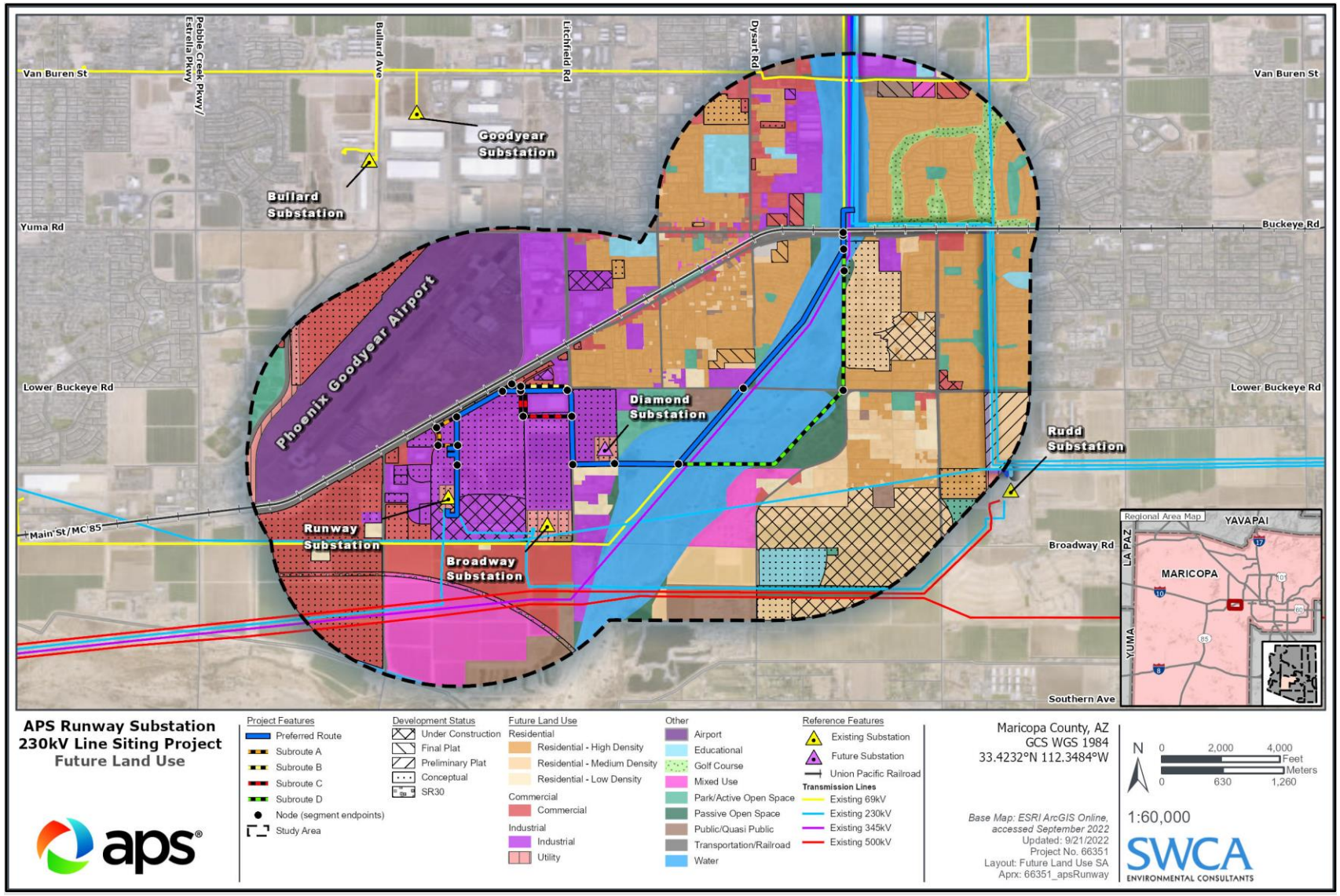

Exhibit A-3. Future land use in the Study Area.

EXHIBIT B. ENVIRONMENTAL STUDIES

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

> *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.*

Introduction

Arizona Public Service Company (APS or Applicant) retained SWCA Environmental Consultants (SWCA) to complete environmental studies for the Project, which included the completion of a full siting study and report, as well as impact assessments for existing and future land use, and biological, visual, cultural, and recreational resources within the Study Area. The Project Area includes the links that comprise the Preferred Route and subroute alternatives, including a 120-foot right-of-way (ROW) corridor along each link. The Study Area for the inventory of environmental resources includes the Project Area and a surrounding 1-mile buffer. Included in this exhibit are the siting report, as well as a detailed inventory of existing and future land uses and potential Project impacts to those land uses. The biological, visual, recreation, and cultural resource evaluations are discussed in detail in subsequent Exhibits C, D, E, and F.

Siting Study

The *APS Runway 230kV Power Line Project Environmental and Siting Process Summary Report* is included as Exhibit B-1.

Land Use

Inventory

SWCA completed a land use inventory to identify and map existing and future land uses within the Study Area. Existing and future planned land use data were compiled from the *Maricopa County Vision 2030 Comprehensive Plan* (Maricopa County 2016), the *City of Avondale 2030 General Plan Update* (City of Avondale 2012), the City of Goodyear's *Goodyear 2025 General Plan* (City of Goodyear 2014), the Maricopa Association of Governments (MAG) Land Use Explorer (MAG 2022), the Maricopa County Planning and Development Department's interactive mapping service (Maricopa County 2022), and the *Phoenix Goodyear Airport Master Plan Update* (Phoenix Goodyear Airport 2018). The data were compiled for the Study Area and displayed over aerial imagery for preliminary mapping inventory of land use resources. Field investigations of the Study Area were conducted in October 2021 and March 2022, to verify and refine the preliminary land use inventory mapping. In addition, SWCA coordinated with Maricopa County and the Cities of Avondale and Goodyear, along with other agency contacts and identified stakeholders, to request information regarding development plans and known planned projects. More details about this outreach can be found in Exhibit H. This information was used to support the inventory of existing and future planned land uses mapped in Exhibit A and summarized below.

Jurisdiction and Land Ownership

The Project Area and Study Area include lands under the jurisdiction of the City of Avondale and City of Goodyear, and lands in unincorporated Maricopa County, Arizona. Land ownership within the Study Area consists of privately and publicly owned parcels. Land ownership and jurisdiction within the Study Area is mapped on Exhibit A-1.

Existing Land Use

Existing land use categories within the Study Area are mapped on Exhibit A-2 and primarily include high-density and medium-density residential, industrial, commercial, utilities, water, and agricultural. Other existing land use categories in the Study Area include airport, educational, golf course, park/active open space, passive open space, public/quasi-public, transportation/railroad, and vacant land. Overall, the Study Area can be categorized as a developing urban/suburban area. Existing land uses within the Study Area are described in more detail below.

Agriculture – Large tracts of agricultural land are present in the southern portion of the Study Area while smaller, scattered parcels of agricultural land are present in the northern portion. Agricultural uses include multiple crop-farming operations as well as a feedlot.

Airport – The Phoenix Goodyear Airport is approximately 0.2 mile north of the Project. This airport is used as a relief airport for Phoenix Sky Harbor airport and accepts private and industrial air traffic.

Commercial – Commercial land use is scattered throughout the Study Area, with most parcels concentrated along major roadways such as Maricopa County Highway 85 (MC 85).

Educational – The Avondale Elementary, Littleton Elementary, Tolleson Union, and Agua Fria Union school districts serve the Study Area. Approximately 17 schools total from these districts are scattered throughout the Study Area, the closest of which is Agua Fria High School, located approximately 0.8 mile northwest of the Project. Rio Salado Community College, Avondale, is also located within the Study Area along North Central Avenue, north of West Western Avenue.

Golf Course – The Coldwater Springs Golf Course, associated with the Coldwater Springs residential community, is located in the northeastern portion of the Study Area at the intersection of West Buckeye Road and South El Mirage Road.

Industrial – Several industrial uses are present within the Study Area, with a large cluster surrounding the Phoenix Goodyear Airport. Most industrial facilities in this area are associated with large-scale retail storage and distribution (e.g., Amazon, Chewy, Michael Lewis, United Parcel Service), manufacturing (e.g., Lorts, Imsamet, American Precision Components), and data storage (e.g., Microsoft, Compass, Amazon, Quietco, Stream, STACK Infrastructure).

Park/Active Open Space – Multiple parks and active open space areas are present within the Study Area, including various public city parks (e.g., Goodyear Ballpark complex, Festival Fields Park) and private "pocket" parks associated with residential communities, as well as a golf course and other open-space areas. Other active open-space areas within the Study Area include the existing transmission corridors in the northeastern portion of the Study Area, specifically the White Tanks–West Phoenix Transmission Corridor. Additional information on parks and active open spaces can be found in Exhibit F.

Passive Open Space – Passive open space within the Study Area is associated with the Agua Fria River. The passive open space designation is located just south of Lower Buckeye Road on the eastern portion of the river, approximately 0.5 mile east of the Project.

Public/Quasi-Public – Public/quasi-public uses within the Study Area include churches, police and fire facilities, post offices, libraries, city jails, public works buildings, and community centers.

Residential – Several scattered residential developments (including high-density, medium-density, and low-density residential) are prevalent throughout the Study Area. While existing residential development is more concentrated within the northern portion of the Study Area, several scattered residential developments also exist within the southern portion, the closest of which is immediately south of the Project along Litchfield Road, approximately 0.5 mile south of Lower Buckeye Road.

Transportation/Railroad – Roads within the Study Area include a mixture of regional, collector, arterial, and local roadways. Notably, MC 85 runs diagonally through the western portion of the Study Area, paralleling the Union Pacific Railroad, immediately south of the Phoenix Goodyear Airport. The primary travel routes in the Study Area include East Van Buren Street, Yuma Road/East Western Avenue, MC 85/West Buckeye Road, West Lower Buckeye Road, East Lower Buckeye Road, West Broadway Road, South Bullard Avenue, Litchfield Road, North Dysart Road, and South El Mirage Road.

Utilities – Utility uses identified within the Study Area include the Broadway Substation, Rudd Substation, the planned Diamond Substation, and Runway Substation, to which the Project will connect. As shown in Table B-1, nine high-voltage transmission lines ranging from 69 kilovolts (kV) to 500 kV run throughout the Study Area. The Preferred Route would be co-located with the existing Broadway–White Tanks 69kV transmission line running through the Agua Fria River corridor. Additionally, a drainage swale associated with the City of Goodyear's drainage system runs along Bullard Avenue between Yuma Road and the Gila River.

Table B-1. Transmission Lines in the Immediate Vicinity of the Project

Owner	Name	Voltage
Arizona Nuclear Power Project	Kyrene–Jojoba	500kV
Arizona Public Service (APS)/ Salt River Project (SRP)	APS Palm Valley–Runway–Rudd and APS/SRP Palo Verde–Rudd	230kV and 500kV
Tucson Electric Power	Westwing–Pinal West	345kV
Western Area Power Administration (WAPA)	Lone Butte–Liberty and Liberty–West Phoenix	230kV and 230kV
WAPA/SRP	Westwing–Liberty and SRP Liberty–Rudd	230kV and 230kV
APS	White Tanks–Rudd and White Tanks–West Phoenix	230kV and 230kV
APS	Sarival–Broadway	69kV
APS	Broadway–White Tanks	69kV
APS	Coldwater–White Tanks	69kV

Note: If two names are listed under "Name", the line is a double-circuit transmission line.

Vacant – Scattered parcels of privately owned abandoned or undeveloped land are located throughout the Study Area.

Water/Wash – The Agua Fria River flows south through the center of the Study Area. This river eventually converges with the Gila River just south of the Study Area.

Future Land Use

Future land use data discussed in this section were derived from the *Goodyear 2025 General Plan* (City of Goodyear 2014), *Avondale General Plan 2030* (City of Avondale 2012), the *Vision 2030 Maricopa County Comprehensive Plan* (Maricopa County 2016), the *Phoenix Goodyear Airport Master Plan Update* (Phoenix Goodyear Airport 2018), the Arizona Department of Transportation (ADOT) *Loop 303 to Loop*

202 Study (ADOT 2020), field studies, and coordination with ADOT, the City of Goodyear, City of Avondale, and Maricopa County Planning and Development Departments.

Future land uses within the Study Area are mapped on Exhibit A-3 and can be generally characterized as developing urban/suburban with large plots of agricultural land that are planned to be developed into low-, medium-, and high-density residential; industrial; mixed-use; utility; and educational land uses. As growth in the region continues, planned land uses move through various stages of the development process from conceptual developments to those that have been permitted, to those under construction; the development status for identified future land uses is identified in Exhibit A-3.

Planned transportation projects within the Study Area include the ADOT proposed State Route (SR) 30, which would serve as a connection between the existing SR Loop 202 and the proposed SR Loop 303 expansion. Construction of SR 30 is expected in the 2026 fiscal year (ADOT 2020). SR 30 would run east-west through the southwestern portion of the Study Area, approximately 0.4 mile south of the existing Runway Substation and 0.5 mile south of the Project Area.

Impact Assessment

Land use impacts are defined primarily as restrictions on a land use, such as limitations on allowed uses within the ROW that would result from the construction or operation of the Project. Typically, restrictions on a land use would result from ROW or easement acquisition across a property.

The Preferred Route would include both private and publicly owned/managed land. The subroute alternatives include links on both private or publicly owned/managed lands, as well, and would have aerial crossings over roads that are under county or city jurisdiction. APS anticipates an up to 120-foot-wide ROW would be needed for the Project.

In order to assess Project impacts to land use, impact levels were assigned based on the sensitivity of each land use category crossed by the Project Area to the introduction of a new transmission line ROW or easement. Examples of impact levels include 1) acquisition of new ROW and pole placement across private residential property, resulting in high impact; 2) acquisition of new ROW and placement across agricultural operations, resulting in moderate impact; and 3) acquisition of ROW and pole placement across properties with industrial/utility land uses, resulting in low impact. In locations where pole placement would occur within existing utility ROW and the proposed transmission structures, impact levels would be lessened.

Results

In order to minimize land use impacts, the Preferred Route and subroute alternatives were sited to generally follow existing linear features, such as existing distribution or transmission lines, roadways, canal laterals, existing ROWs, or on the edge of properties (i.e., opportunities for siting), where feasible. The use of single-pole structures minimizes potential effects on land uses where structure footprints could directly interfere with land use activities, such as agricultural lands. As described in the *APS Runway 230kV Power Line Project Environmental and Siting Process Summary Report* (Siting Report), each land use was given a sensitivity ranking of either low, moderate-low, moderate, moderate-high, or high. The Preferred Route and subroute alternatives were given a compatibility ranking based on the land use sensitivities of the parcels crossed.

PREFERRED ROUTE

The Preferred Route consists of the following links (from southwest to northeast), as identified in the Siting Report: 1240, 1250, 1260, 535W, 435S, 430S, 310NE, 310SE, 1310, 450, 185, 190, 1350, 195, and 1320, entailing approximately 22,920 feet (4.34 miles) of new 230kV transmission infrastructure.

The Preferred Route begins at the existing APS-owned Runway Substation, which has a land use designation of “utility.” It then continues along parcels with planned “industrial” land use until reaching

the Agua Fria River corridor, which has a designated land use of "water." Once within the Agua Fria River corridor, the Preferred Route would be co-located with an existing 69kV subtransmission line and parallels several existing high-voltage transmission line until connecting with the existing White Tanks–West Phoenix 230kV transmission line. The "utility," "industrial," and "water" land uses associated with the Project are considered to have "low sensitivity," as described further in the Siting Report. The Preferred Route crosses parcels with a "low sensitivity" land use ranking, involves co-location with an existing 69kV subtransmission line, and parallels existing utility infrastructure and major roadways, which results in minimal impacts to land use.

ALTERNATIVES

Subroute A is composed of links 530, 1230S, and 1230NE and includes approximately 1,875 feet (0.36 mile) of new 230kV transmission infrastructure. Subroute B is composed of links 430N, 435N, and 535E and includes approximately 2,095 feet (0.40 mile) of new transmission infrastructure. Subroute C is composed of links 1280NE, 1280NW, and 1370 and includes approximately 2,300 feet (0.44 mile) of new transmission infrastructure. Subroutes A, B, and C would traverse parcels with a planned "industrial" land use and would parallel existing opportunities such as roads and existing distribution lines. Industrial land use is considered to have "low sensitivity," as discussed in the Siting Report.

Subroutes A, B, and C cross parcels with a "low sensitivity" land use ranking and take advantage of existing opportunities, which results in minimal impacts to land use. However, Subroute B crosses the arterial, Lower Buckeye Road, twice, creating potential temporary impacts to the road's "transportation" land use during construction, operation, or maintenance. Overall, Subroutes A and C would have similar land use impacts to the Preferred Route. Subroute B would have slightly greater impacts to land use than the Preferred Route, but impacts would generally be minimal.

Subroute D is composed of links 1330, 1340, and 1390 and includes approximately 10,660 feet (2.02 miles) of new transmission infrastructure. This route would not be co-located with existing infrastructure and would not parallel existing infrastructure. Subroute D crosses parcels with land use designations of "water/wash," "passive open space," and "vacant." Subroute D crosses parcels with "low sensitivity" land use ranking, which results in minimal impacts to land use. However, unlike the Preferred Route, Subroute D would not be co-located with existing infrastructure, resulting in additional poles within the Agua Fria River corridor creating potential impacts to the river corridor's "water/wash" land use. Overall, Subroute B would have greater impacts to land use than the Preferred Route, but impacts would generally be minimal.

CONCLUSIONS

Based on the assessment in this exhibit, the Project's Preferred Route and subroute alternatives would have low impacts to existing and future land uses and would be environmentally compatible. The Preferred Route minimizes overall land use impacts by limiting the crossings of existing transmission lines, avoiding siting on residential and park/active open space, limiting roadway crossings, and maximizing the placement of Project facilities on the data center customers' parcels while utilizing existing transmission line ROW within the Agua Fria River corridor.

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EXHIBIT B-1. APS RUNWAY 230KV POWER LINE PROJECT ENVIRONMENTAL AND SITING PROCESS SUMMARY REPORT


SWCA
APS RUNWAY 230KV POWER LINE PROJECT
ENVIRONMENTAL AND SITING PROCESS
SUMMARY REPORT
SEPTEMBER 2022
PREPARED FOR
Arizona Public Service Company
PREPARED BY
SWCA Environmental Consultants

APS RUNWAY 230KV POWER LINE PROJECT ENVIRONMENTAL AND SITING PROCESS SUMMARY REPORT

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SWCA Project No. 66351

September 2022

EXECUTIVE SUMMARY

Project Overview

Arizona Public Service Company (APS) is planning to construct the Runway 230-kilovolt (kV) Power Line Project (Project), a new, approximately 4.34-mile-long, double-circuit, overhead 230kV transmission line that will connect the existing Runway Substation and its planned expansion, located on the Microsoft data center (the customer) site in Goodyear to the existing White Tanks–West Phoenix 230kV transmission line in Avondale, Arizona. The West Valley region of the Phoenix metropolitan area is currently experiencing growth—including up to three large data centers located in the vicinity of the Project—and additional growth is anticipated in the future. The Project is specifically intended to support the additional load and redundancy needs of the Microsoft data center, located northeast of Bullard Avenue and Broadway Road in Goodyear. The proposed 230kV transmission line will also allow for a future connection with the planned Diamond Substation, and ensure reliable electric service for current and future customers in the cities of Avondale and Goodyear by creating redundancy in the power supply system.

The Project will include an interconnection that is greater than 115kV. Therefore, pursuant to Arizona Revised Statutes 40-360 et seq., a Certificate of Environmental Compatibility (CEC) is required for authorization to construct the Project. APS and its consultant, SWCA Environmental Consultants (SWCA), conducted a siting study to support the CEC application.

Siting Process

Between July 2021 and August 2022, APS and SWCA conducted a siting study to identify and analyze alternative routes for the Project, and ultimately to identify a technically feasible, environmentally suitable, and publicly acceptable route for the proposed 230kV double-circuit transmission line. APS and SWCA completed a comprehensive planning process, including identifying opportunities and constraints, delineating potential route links, conducting environmental studies (e.g., land use and visual resources) of those links, identifying engineering and constructability constraints for those links, and completing public involvement efforts to evaluate possible routes for the Project. The Preliminary Siting Area used for evaluating potential routes for the Project was defined to be large enough to encompass all identified opportunities and constraints for development of various route segments, yet reasonably sized to minimize any overly long or complex alternatives that could prove to be costly from an engineering perspective or lead to increased impacts by virtue of its length.

The siting process involved the development of a set of siting criteria. Preliminary links were generated in accordance with these criteria, then assessed and screened based on potential impacts to land use and visual resources and on constructability. Public outreach to potentially interested stakeholders—such as the City of Avondale, City of Goodyear, Maricopa County, Phoenix Goodyear Airport, Flood Control District of Maricopa County, Arizona Game and Fish Department, other agencies and organizations, owners of affected data centers, and residents and business owners within the Preliminary Siting Area—was conducted to solicit comments, questions, and concerns. Public and agency input, engineering and design requirements, and land availability factored into APS's decision in selecting a preferred transmission line route.

Results

The siting process resulted in the recommendation of a preferred route and a series of alternative subroutes. APS determined that these routes would meet APS's need for the Project and minimize impacts, and were supported by the commenting members of the public.

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1 PROJECT OVERVIEW

1.1 Project Description

Arizona Public Service Company (APS) is planning to construct the Runway 230-kilovolt (kV) Power Line Project (Project), which is a new, approximately 4.34-mile-long, double-circuit, overhead 230kV transmission line that will connect the existing Runway Substation and its planned expansion, located on the Microsoft data center (the customer) site in Goodyear to the existing White Tanks–West Phoenix 230kV transmission line in Avondale, Arizona. The Project will require construction of new electrical infrastructure including new wires and steel pole structures between the Runway Substation (northeast of Bullard Avenue and Broadway Road) and the APS White Tanks–West Phoenix 230kV transmission line. This existing 230kV transmission line is co-located with the APS White Tanks–Rudd 230kV transmission line, running generally north–south between Rudd Substation (northeast of El Mirage and Broadway Roads) and White Tanks Substation (northeast of 119th Avenue and McDowell Road) (Figure 1 and Figure 2). The Project may also involve replacing existing poles along a segment of an existing APS 69kV subtransmission line within the Agua Fria River corridor with larger poles that would allow for co-locating the existing 69kV line (Broadway–White Tanks) and the proposed 230kV line.

The Project will include a transmission line interconnection that is greater than 115kV. Therefore, pursuant to Arizona Revised Statutes 40-360 et seq., a Certificate of Environmental Compatibility (CEC) is required for authorization to construct the Project. APS and its consultant, SWCA Environmental Consultants (SWCA), conducted a siting study to support the CEC application.

1.2 Purpose and Need

The West Valley region of the Phoenix metropolitan area is currently experiencing high growth—including up to three large data centers (Microsoft, Stream, and Stack data centers) located in the vicinity of the Project—and additional growth is anticipated in the future. The Project is specifically intended to support the redundancy needs of the Microsoft data center, located northeast of Bullard Avenue and Broadway Road in Goodyear. The proposed 230kV transmission line will also allow for a future connection of the planned Diamond Substation within the Stack Data Center parcel. The Project will need to be in service in 2025.

1.3 Description of Facilities

The Project includes the installation of a new double-circuit 230kV transmission line. Steel double-circuit 230kV monopole tangent structures and turning structures will be used to connect the proposed transmission line to the Runway Substation at its southwestern end and a double-circuit 230kV cut-in structure will be used to connect the proposed line to the existing APS White Tanks–West Phoenix 230kV transmission line at its northeastern end. Example structures are displayed in Figure 3.
The structures will have a dulled gray or weatherized finish, and conductors will have a non-specular finish in order to reduce visibility. The new structures will be approximately 115 to 195 feet tall, depending on terrain and the crossing of bridges or other infrastructure, and the average span length between structures will range between approximately 400 and 1,000 feet, depending on final route design. The structures will be placed in new or existing rights-of-way (ROWs) or easements up to 120 feet wide. Variations may be required to achieve site-specific mitigation objectives or meet site-specific engineering requirements. Where possible, existing transmission and/or distribution lines that exist along the final Project alignment will be co-located with the new line, and in those cases, the existing poles will be replaced with new weatherized or galvanized steel structures up to approximately 195 feet tall.

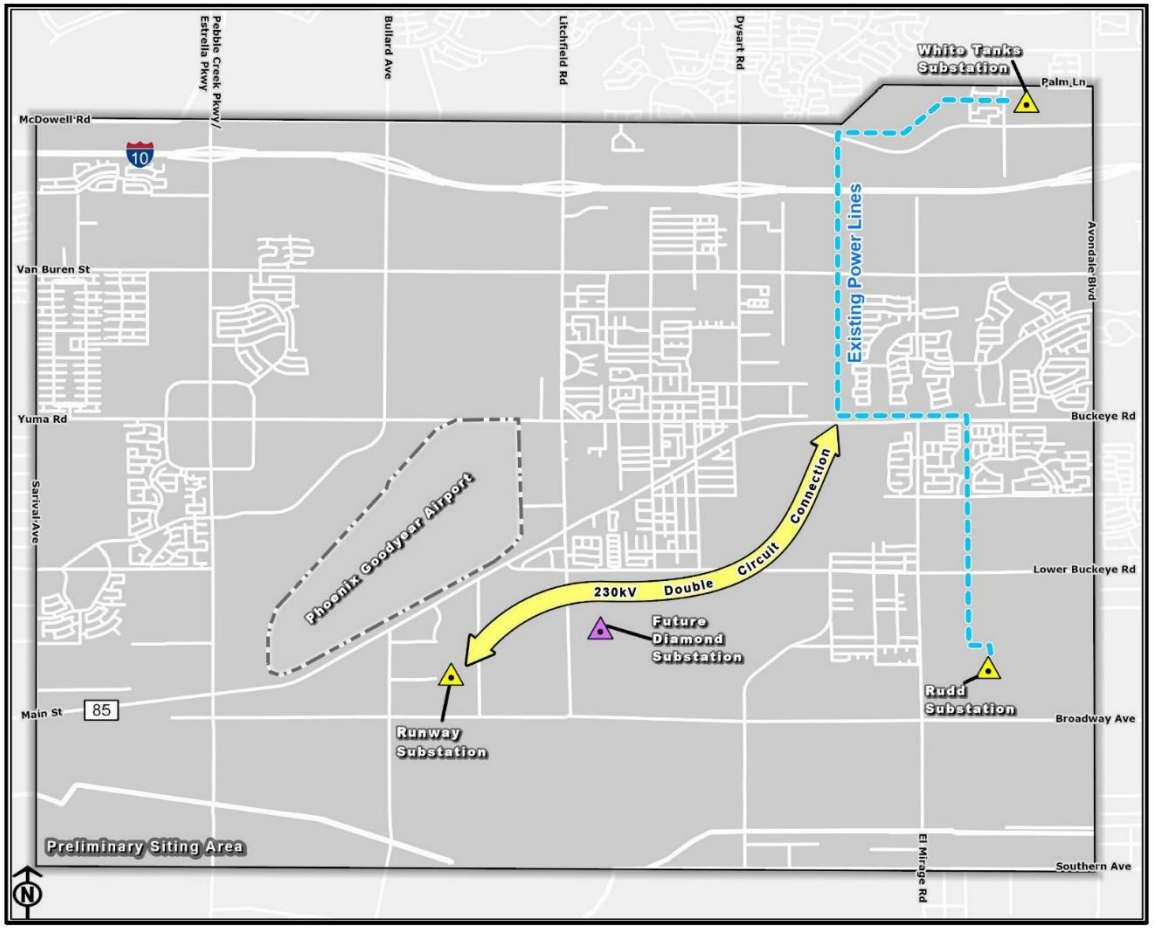


Figure 1. Conceptual Project plan.

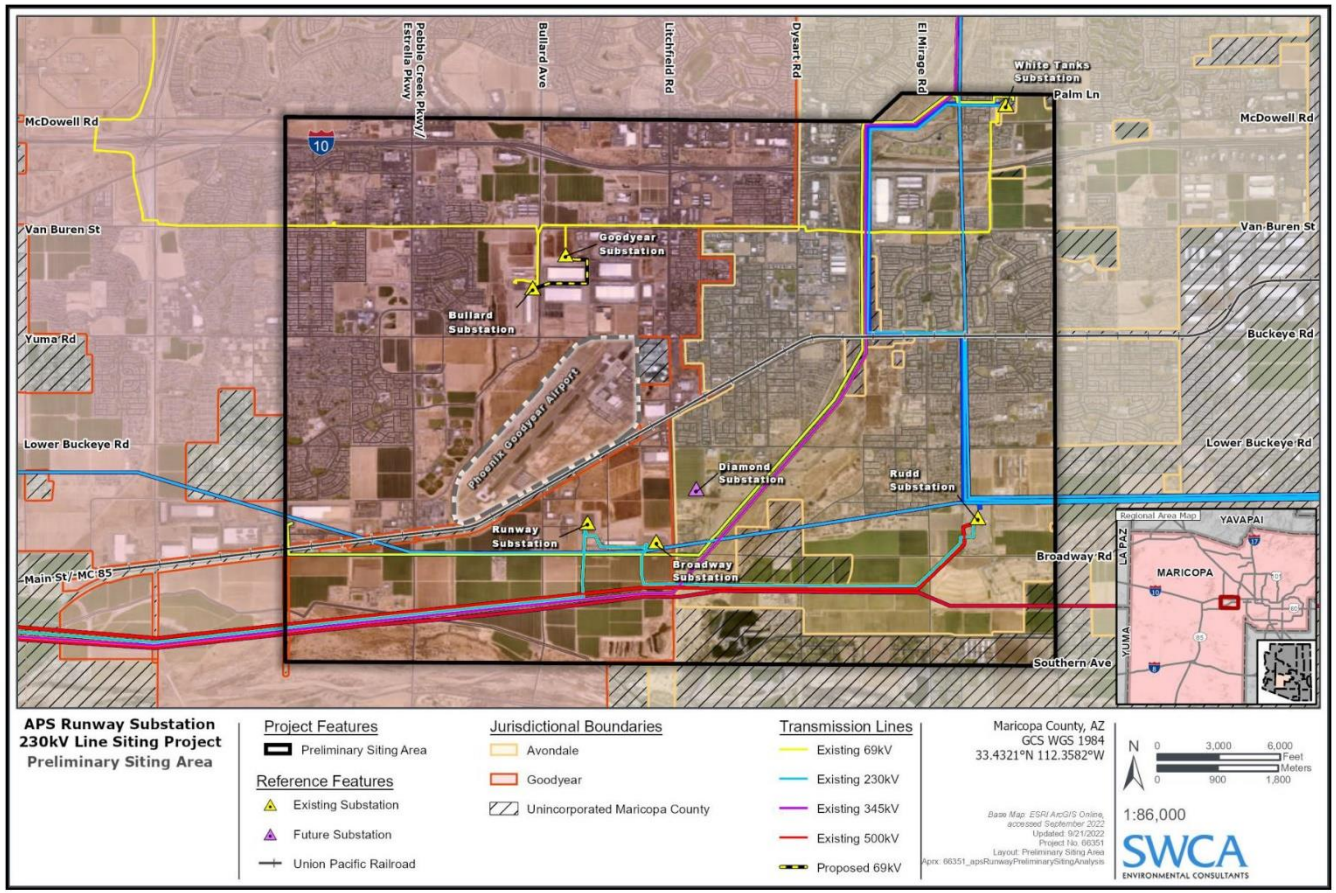


Figure 2. Preliminary Siting Area.

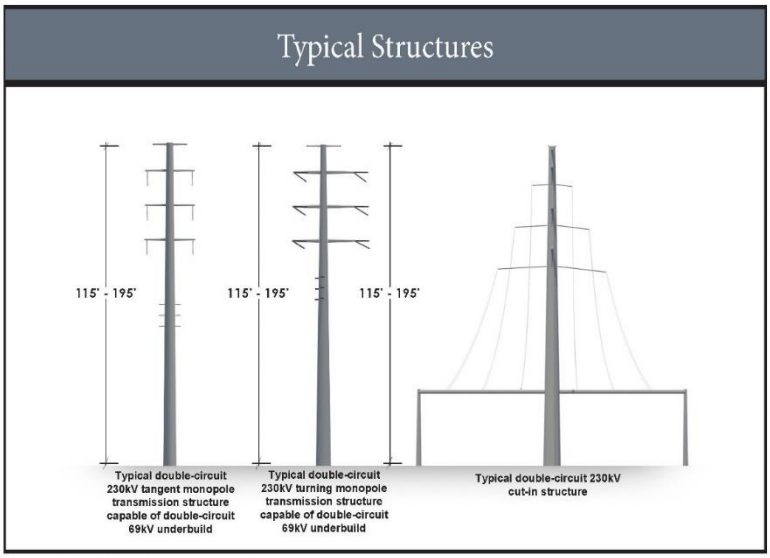


Figure 3. Structure examples.

2 SITING PROCESS

2.1 Introduction

Between July 2021 and August 2022, APS and SWCA conducted a siting study to identify and analyze alternative routes for the Project, and ultimately to identify a technically feasible, environmentally suitable, and publicly acceptable route for the proposed 230kV double-circuit transmission line that meets the Project purpose and need. APS and SWCA completed a comprehensive planning process, including identifying opportunities and constraints, delineating potential route links, conducting environmental studies (e.g., land use and visual resources) of those links, identifying engineering and constructability constraints for those links, and completing public involvement efforts to evaluate possible routes for the Project.

When siting new electrical facilities, APS strives to minimize impacts to sensitive resource areas and maximize use of siting opportunities. Environmental factors considered include existing and future land use as well as visual resources. Other factors considered in route identification are displayed in the graphic below (Figure 4).

The siting process involved developing siting criteria, identifying preliminary links, and assessing and screening those links based on compatibility with current and future land use, visual resources, engineering capabilities, ROW availability, construction and structural maintenance, and vegetation maintenance considerations. Public outreach to potentially interested stakeholders—such as the City of Avondale, City of Goodyear, Maricopa County, Phoenix Goodyear Airport, Flood Control District of Maricopa County, Arizona Game and Fish Department, and other agencies and organizations, owners of affected data centers, and residents and business owners within the Preliminary Siting Area—was conducted to solicit comments, questions, and concerns. Received input was incorporated with the

preliminary link analysis results to inform APS's decision in selecting a preferred transmission line route for the Project. The various steps for the siting process are discussed in more detail below.

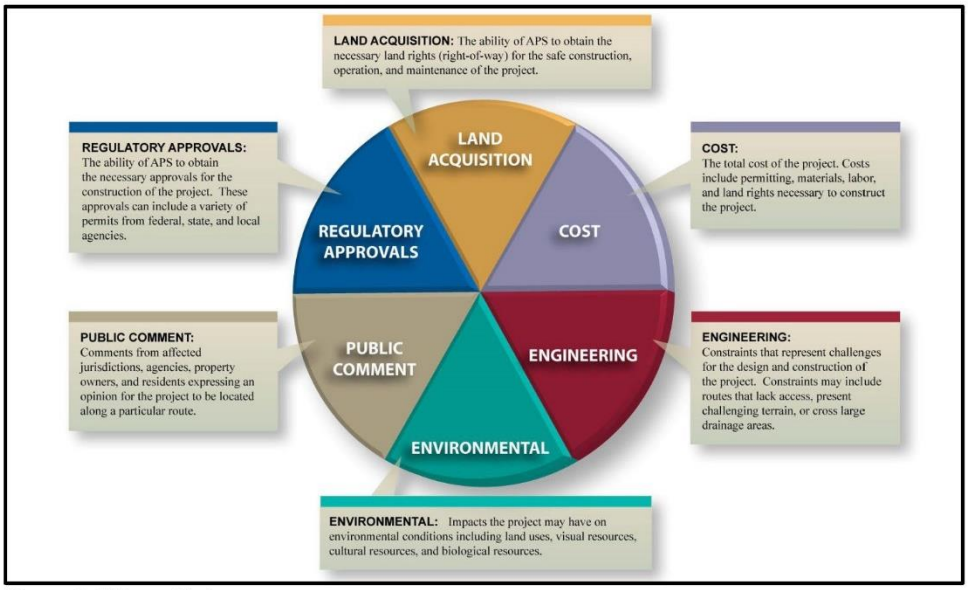


Figure 4. Siting criteria.

2.2 Siting Area

The Preliminary Siting Area used for evaluating potential routes for the Project was defined to be large enough to encompass all identified opportunities and constraints for development of various route segments, yet reasonably sized to minimize any overly long or complex alternatives that could prove to be costly from an engineering perspective or lead to increased impacts by virtue of its length.

The Preliminary Siting Area for the Project is bounded by McDowell Road and Palm Lane to the north, Avondale Boulevard to the east, Southern Avenue to the south, and Sarival Avenue to the west. This Preliminary Siting Area encompasses the substations and infrastructure needed to meet the Project need and allows for multiple potential transmission line routes to avoid existing or planned infrastructure (e.g., Phoenix Goodyear Airport). The Preliminary Siting Area includes portions within Goodyear, Avondale, and unincorporated Maricopa County, Arizona. This area primarily includes privately owned land, with the exception of state, county, and city transportation ROWs (e.g., Interstate 10, Maricopa County Highway 85).

2.3 Opportunities and Constraints Analysis

Once the Preliminary Siting Area was established, the next step in the siting process was the identification of potential opportunities and constraints for siting the proposed 230kV transmission line. An evaluation of existing and future land use (Figure 5 and Figure 6) and visual resources was conducted to identify areas that better accommodate a transmission line (opportunities), and locations that would be less

accommodating for a transmission line (constraints). Opportunities and constraints criteria were developed to help identify route opportunities and avoid or minimize impacts to sensitive areas (e.g., residences) from the construction, operation, and maintenance of the new 230kV transmission line.

To develop opportunities and constraints criteria, data were inventoried for jurisdiction, land ownership, and existing and future land uses within the Preliminary Siting Area. The inventories were based largely on the respective jurisdiction's general and comprehensive plans as well as secondary data (e.g., aerial imagery and geographic information system data sets), all of which were supplemented with on-site field reviews.

Opportunities for line siting include but are not limited to existing and planned linear features, such as transmission line corridors, highways, canals, and major and minor arterial and collector streets (Table 1, Figure 7). For example, an existing overhead transmission line is considered a high-ranking opportunity to install the new transmission line. Constraints for line siting include conflicts with current and future land uses, including but not limited to residences, schools, airports, recreational areas, religious institutions, and health care facilities (Table 2 and Table 3; see Figure 7). For example, an existing overhead transmission line ranks lower in a residential community (an area of high constraint) than it does within a commercial zone (an area of moderate constraint).

Table 1. Opportunities

Opportunities	Opportunity Level
Overhead Transmission Line Corridors	High
Overhead Distribution Lines adjacent to or within roadway ROW	High
Utility	High
Highways (State Route or Interstate)	High
Major Roadway ROW	Moderate
Water/Wash	Moderate
Passive Open Space - General Plan	Moderate
Arterial Roadways	Low

Table 2. Existing Land Use Constraints

Existing Land Use	Sensitivity Level
Residential - High Density	High
Residential - High Density Under Development	High
Residential - Medium Density	High
Residential - Medium Density Under Development	High
Residential - Low Density	High
Residential - Low Density Under Development	High
Airport	High
Educational	High
Parks/Active Open Space	High
Public/Quasi-Public - Religious Institution	High
Public/Quasi-Public - Health Care Facility	High
Public/Quasi-Public - Community Center	High
Public/Quasi-Public - Government Building/ Facility	Moderate
Passive Open Space	Moderate
Commercial	Moderate
Commercial Under Development	Moderate
Golf Course	Moderate
Industrial	Low
Utility	Low
Agriculture	Low
Transportation/Railroad	Low
Vacant	Low
Water/Wash	Low

Table 3. Future Land Use Constraints

Future Land Use	Sensitivity Level
Mixed Use - Final Plat	High
Mixed Use - Preliminary Plat	Moderate
Mixed Use - General Plan	Moderate
Mixed Use - Conceptual	Moderate
Residential - Under Construction	High
Residential - Final Plat	High
Residential - Preliminary Plat	Moderate
Residential - General Plan	Moderate
Residential - Conceptual	Moderate
Commercial - Under Construction	Moderate
Commercial - Final Plat	Moderate
Commercial - Preliminary Plat	Low
Commercial - General Plan	Low
Commercial - Conceptual	Low
Industrial - Under Construction	Low
Industrial - Preliminary Plat	Low
Industrial - General Plan	Low
Industrial - Conceptual	Low
Utility - Conceptual	Low
Park/Active Open Space - General Plan	Moderate
Park/Active Open Space - Conceptual	Moderate
Passive Open Space - Final Plat	Moderate
Passive Open Space - General Plan	Moderate
Passive Open Space - Conceptual	Low
Public/Quasi-Public - General Plan	Low
Public/Quasi-Public - Final Plat	Low
Public/Quasi-Public - Conceptual	Low

The opportunity levels for each of the opportunities and the environmental resource sensitivities for each of the constraints were then mapped (see Figure 7) and used to assist in the identification of preliminary links.

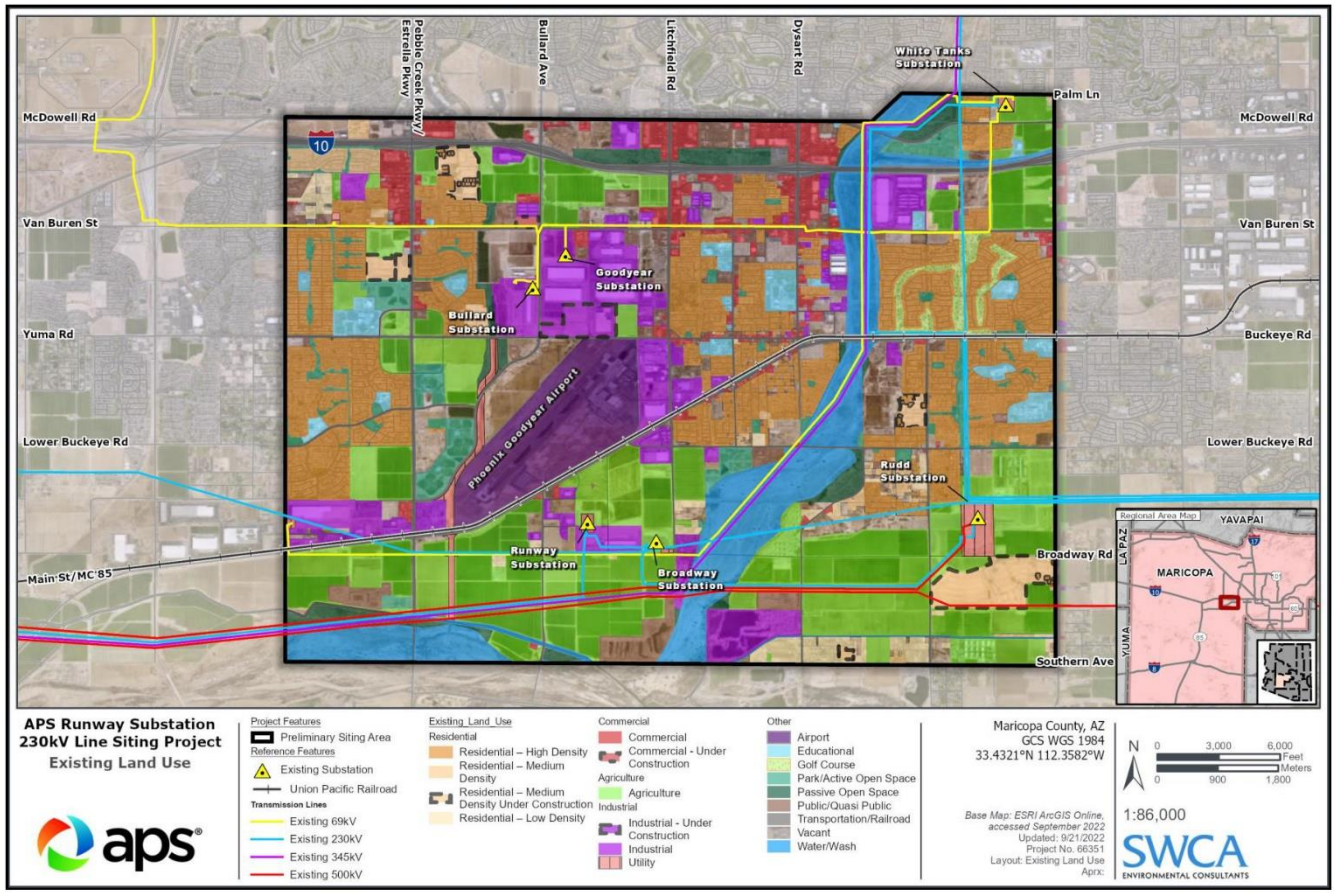


Figure 5. Existing land use.

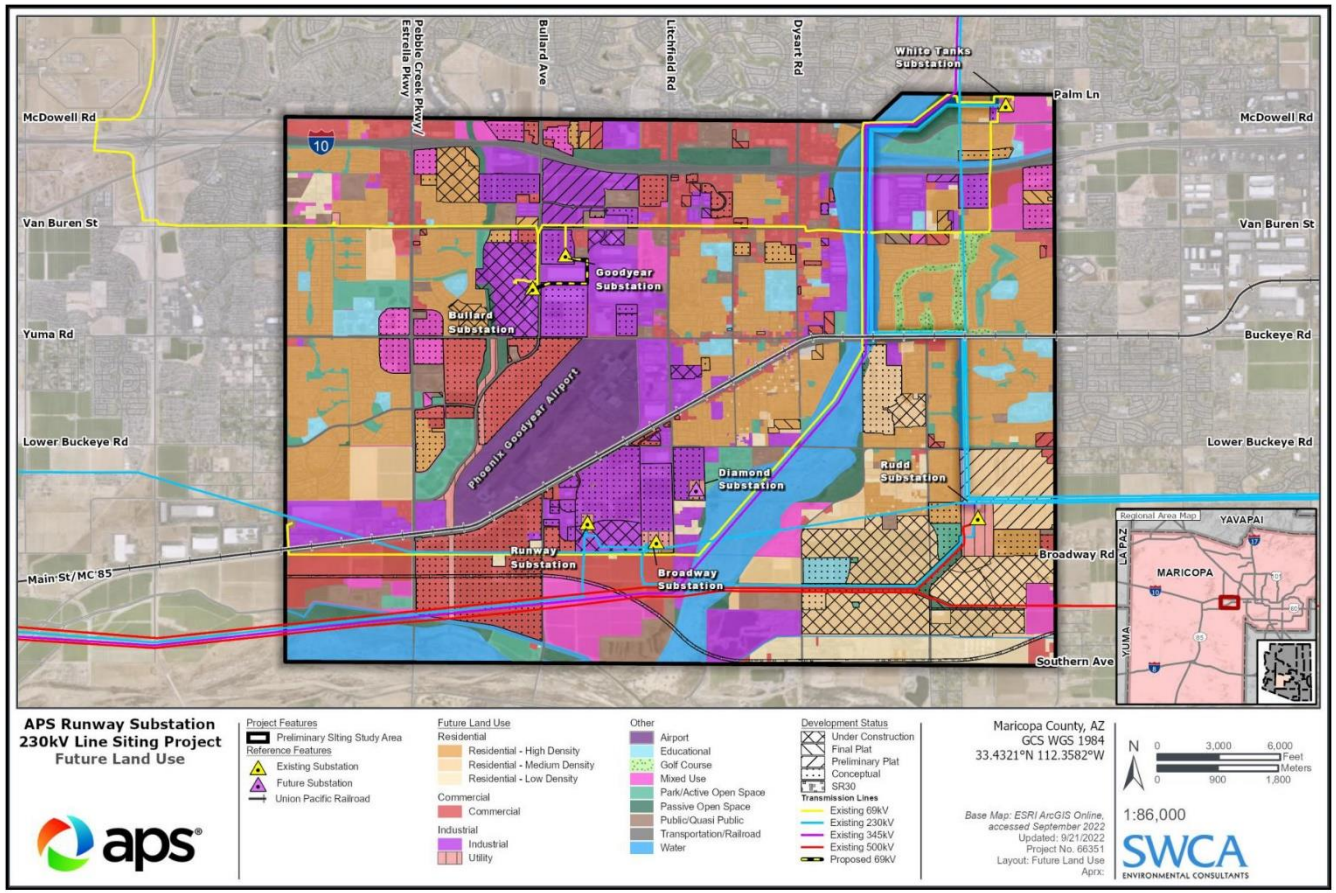


Figure 6. Future land use.

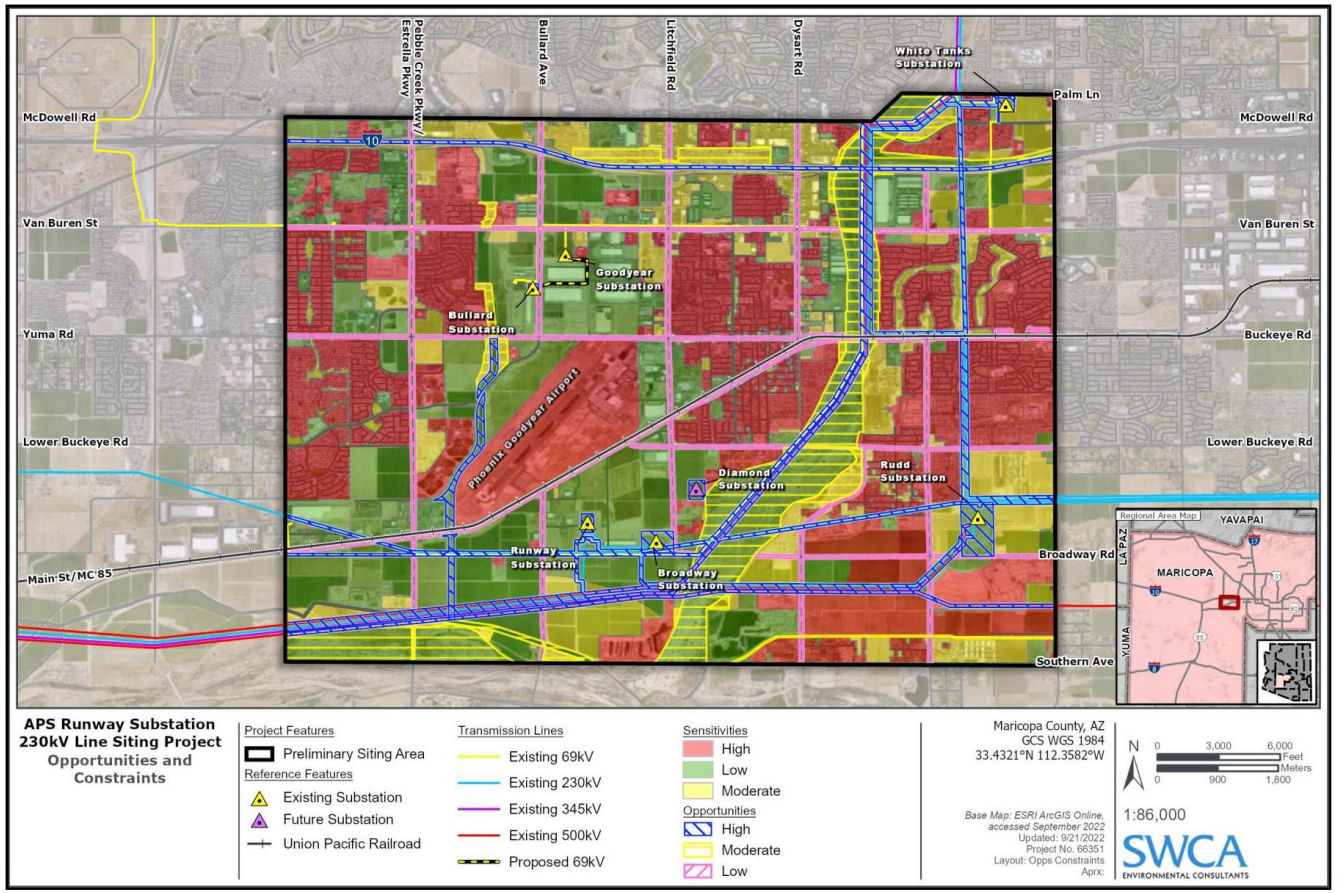


Figure 7. Opportunities and constraints.

2.4 Preliminary Links Identification

The development of preliminary links began after the opportunity and constraints analysis. Using the opportunities and constraints mapping, preliminary links were identified with a preference for areas of higher opportunity and/or lower constraint (Figure 8). The identified preliminary links avoid areas of high or moderate constraint to the extent possible (e.g., existing or planned residential developments, parks, trails, and commercial or retail properties). However, in the developing cities of Goodyear and Avondale, siting opportunities exist within areas of moderate or high constraint and were retained for further analysis.

A link is defined as a discrete connection, that when added together with other links, can create a transmission line route. Each link has a unique identifier, or link number, for easy identification and so they can be tracked throughout the impact analysis. A node represents the start and end point for each link.

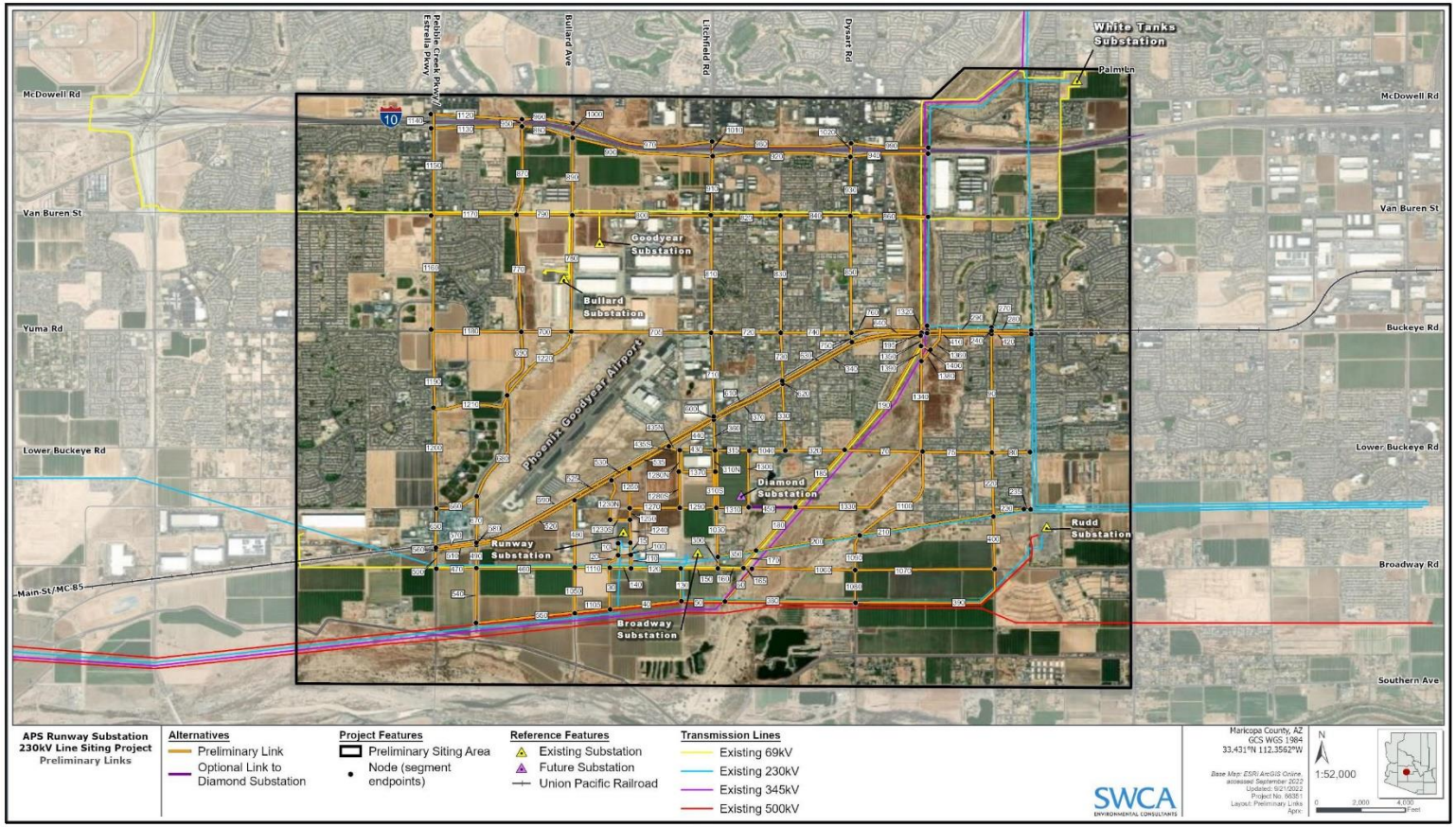


Figure 8. Preliminary links.

2.5 Detailed Link Analysis

After preliminary links were identified, a detailed analysis and comparison of compatibilities was completed for each link. This analysis identified features along each link that would support or hinder the construction, operation, and maintenance of a 230kV transmission line. At this stage, links located along transportation corridors were split into two separate links (one for each side of the roadway) to account for instances where ratings differed from one side to the other (e.g., Link 1150 was split into Link 1150E and Link 1150W to account for separate links on the east and west sides of the road, respectively). Some links also required splitting to add a new node(s) and link(s); for example, Link 310 was split into north and south links (Link 310N and Link 310S) to allow for the addition of Link 1370, and those two links were further split into east and west links to account for each side of the road (i.e., Links 310NE, 310NW, 310SE, and 310SW).

Each of the revised preliminary links was evaluated and rated with regard to land use, visual resources, ROW, engineering, construction/structural maintenance, and vegetative maintenance on a scale of 1 (most compatible) to 5 (least compatible) (Figure 9). Maps were prepared that illustrate the land use, visual resources, and overall compatibility of the preliminary links with revised link numbers (Figure 10, Figure 11, and Figure 12). Table A-1 in Appendix A shows the ratings of the 224 individual links in each of these categories, as well as the overall compatibility of each link and a recommendation for elimination or retention as part of the preferred route or alternative route.

Figure 9. Compatibility rating scale.

2.5.1 Land Use

Land use compatibility was rated based on the ability for the Project to share use of the land with existing and future land uses (see Figure 5 and Figure 6). An inventory was conducted to determine where existing land uses may be affected by the construction, operation, and maintenance of the proposed 230kV transmission line. Information was compiled from the available maps and planning documents, as well as aerial photography and field studies conducted in October 2021 and March 2022. The Project team gathered available data on the Preliminary Siting Area primarily from the jurisdictions of Goodyear, Avondale, and Maricopa County, Arizona. Data collected included information on existing and future land use, land ownership, and municipal regulations. Additional data were collected through electronic data sources, such as Esri and Google Earth, as well as through field verification. A map was created illustrating the land use compatibility ratings for each link (see Figure 10).

2.5.2 Visual Resources

Visual compatibility was rated based on factors such as the visual contrast of the proposed line with existing structures, viewer sensitivity, and viewing distance. Visual analysis included the development of key observation points (KOPs) and the rating of compatibility based on visual contrast of the proposed 230kV transmission line with existing structures, viewer sensitivity, and viewing distance from the KOPs

to the Project. KOPs were chosen in high-traffic areas, which are likely to have sensitive viewers, such as nearby residences, high-travel routes, or recreation areas. A map was created illustrating the visual resource ratings for each link (see Figure 11).

2.5.3 Engineering, Right-of-Way, and Constructability/Maintenance

Following the land use and visual compatibility reviews for each of the preliminary links, APS engineers and other specialized staff analyzed and rated each link for its compatibility with engineering, ROW, construction/maintenance, and vegetation maintenance requirements. Examples of engineering and construction/maintenance compatibility considerations include but are not limited to conflicts with an existing transmission line or building, Federal Aviation Administration height concerns, and inadequate horizontal or vertical clearance. ROW compatibility excluded residential property, areas in proximity to the airport runway, and inadequate ROW width. Vegetation maintenance compatibility excluded areas with heavy vegetation and/or large trees.

2.5.4 Overall Compatibility

The ratings for each of the categories discussed above (i.e., land use, visual resources, engineering, ROW, construction/maintenance, and vegetation maintenance) were reviewed and considered collectively to determine the overall compatibility rating for each link (Table A-1 in Appendix A; see Figure 12).

2.5.5 Elimination of Links

Once the individual resource analysis was complete, overall compatibility was calculated for each link. The least compatible links (i.e., all links with an overall compatibility of 5) were eliminated from further analysis, as were any isolated links that no longer provided a connection as a result of the prior eliminations (i.e., consequential eliminations). Subsequently, links that required additional route length (associated with additional cost and number of impacted landowners) but did not provide additional environmental benefit or impact avoidance were eliminated. All other links were retained for consideration when developing potential alternative routes. A map was created illustrating the eliminated links in comparison with the retained links (Figure 13).

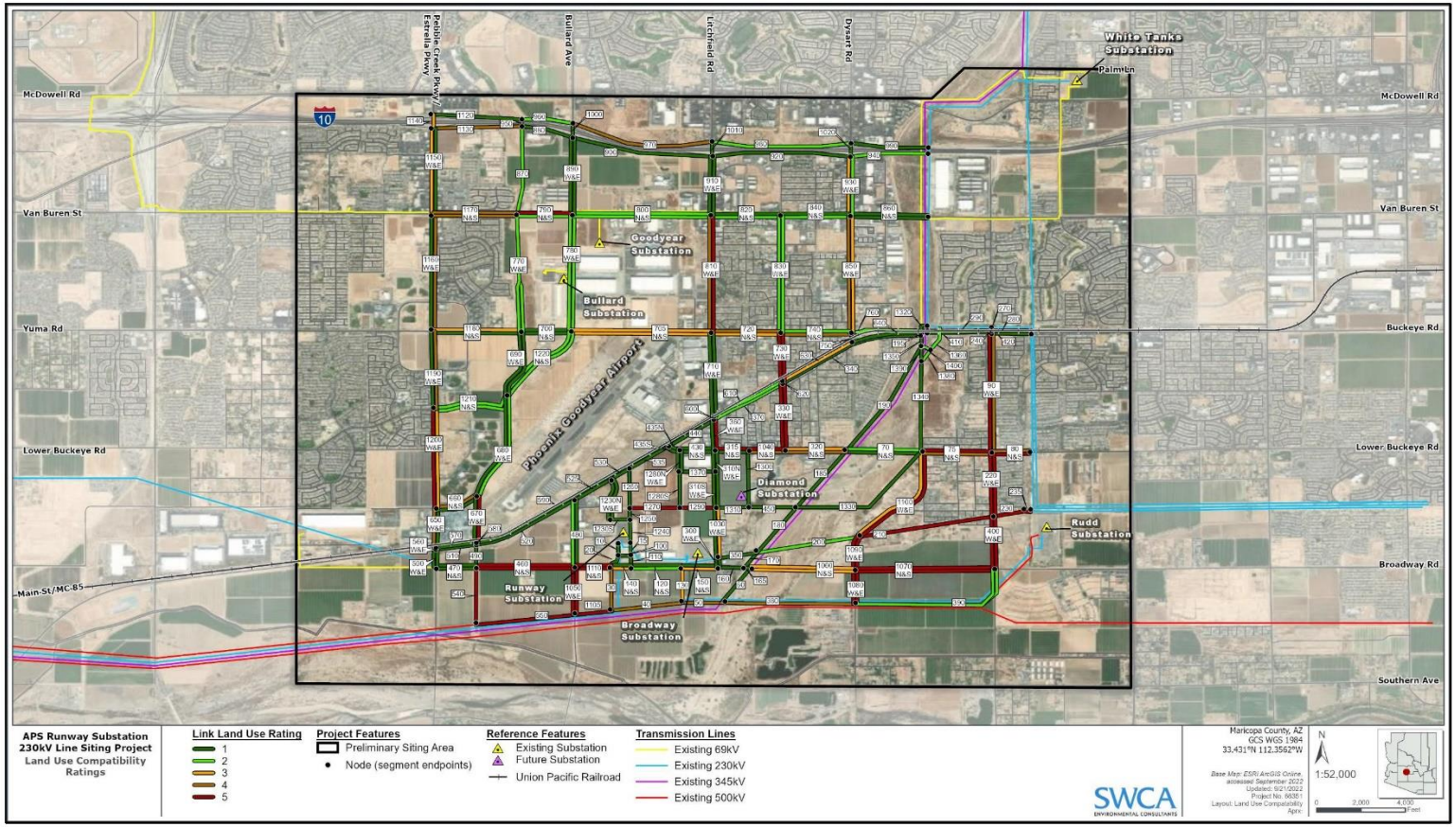


Figure 10. Land use compatibility ratings.

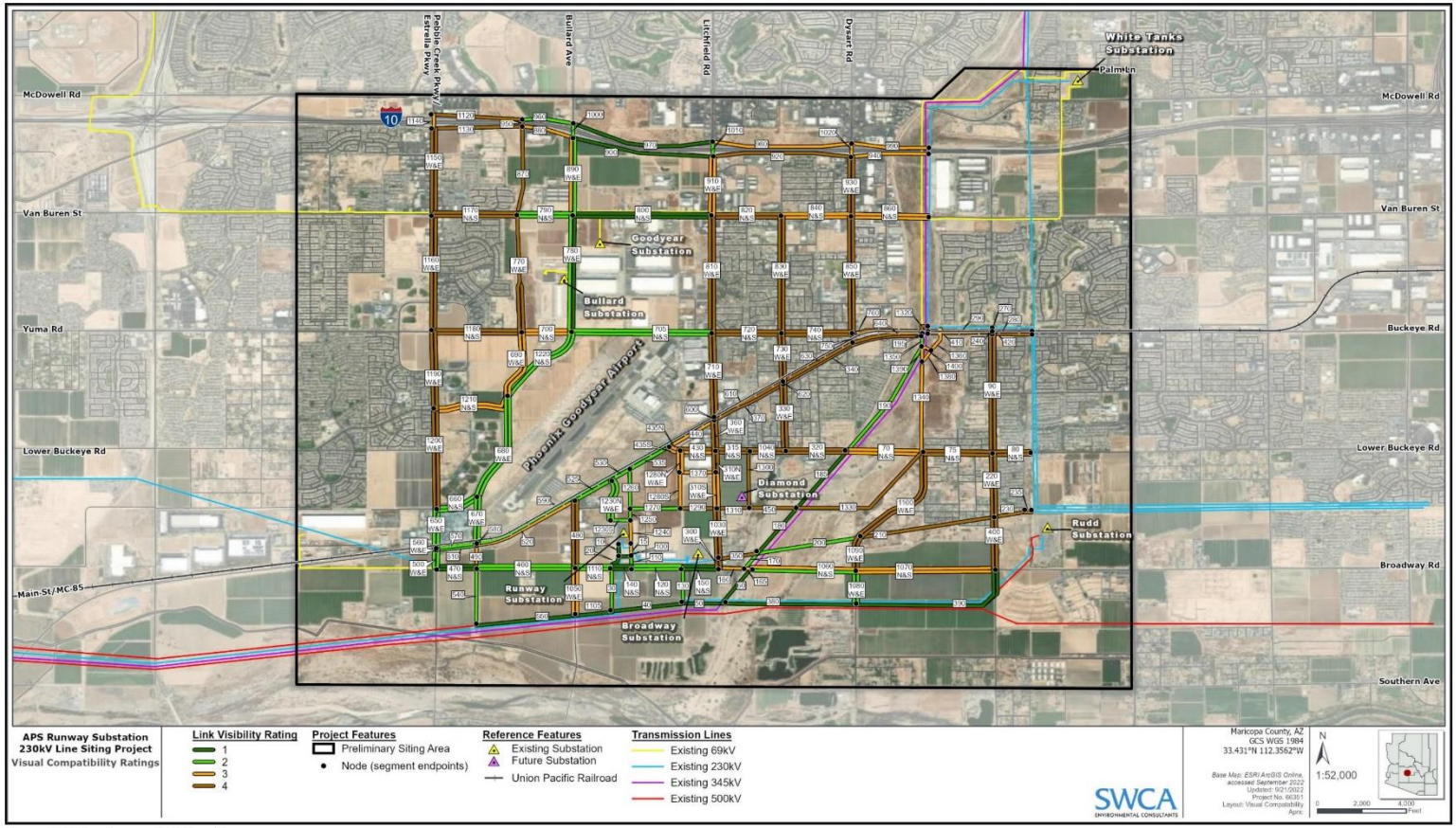


Figure 11. Visual compatibility ratings.

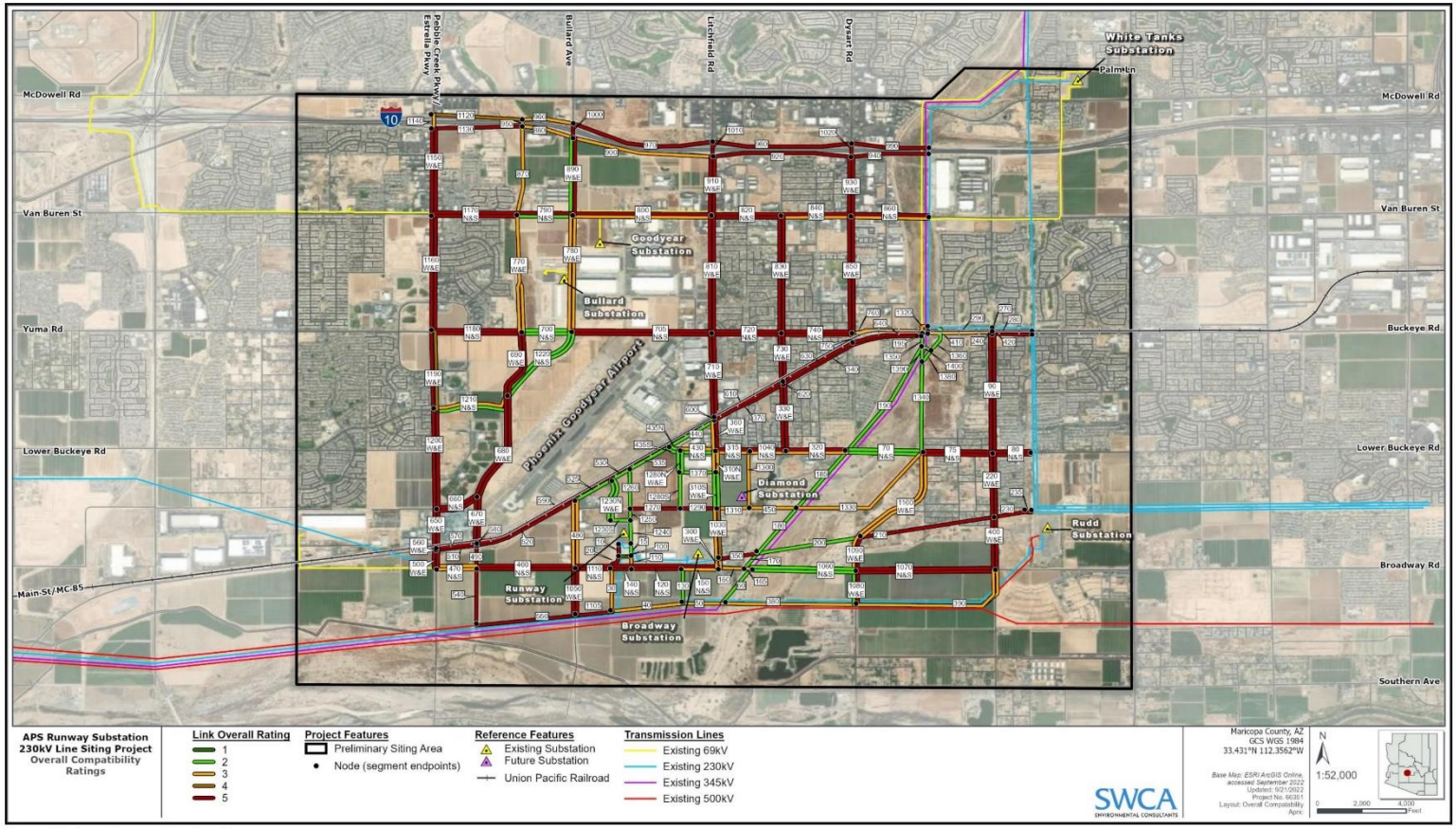


Figure 12. Overall compatibility ratings.

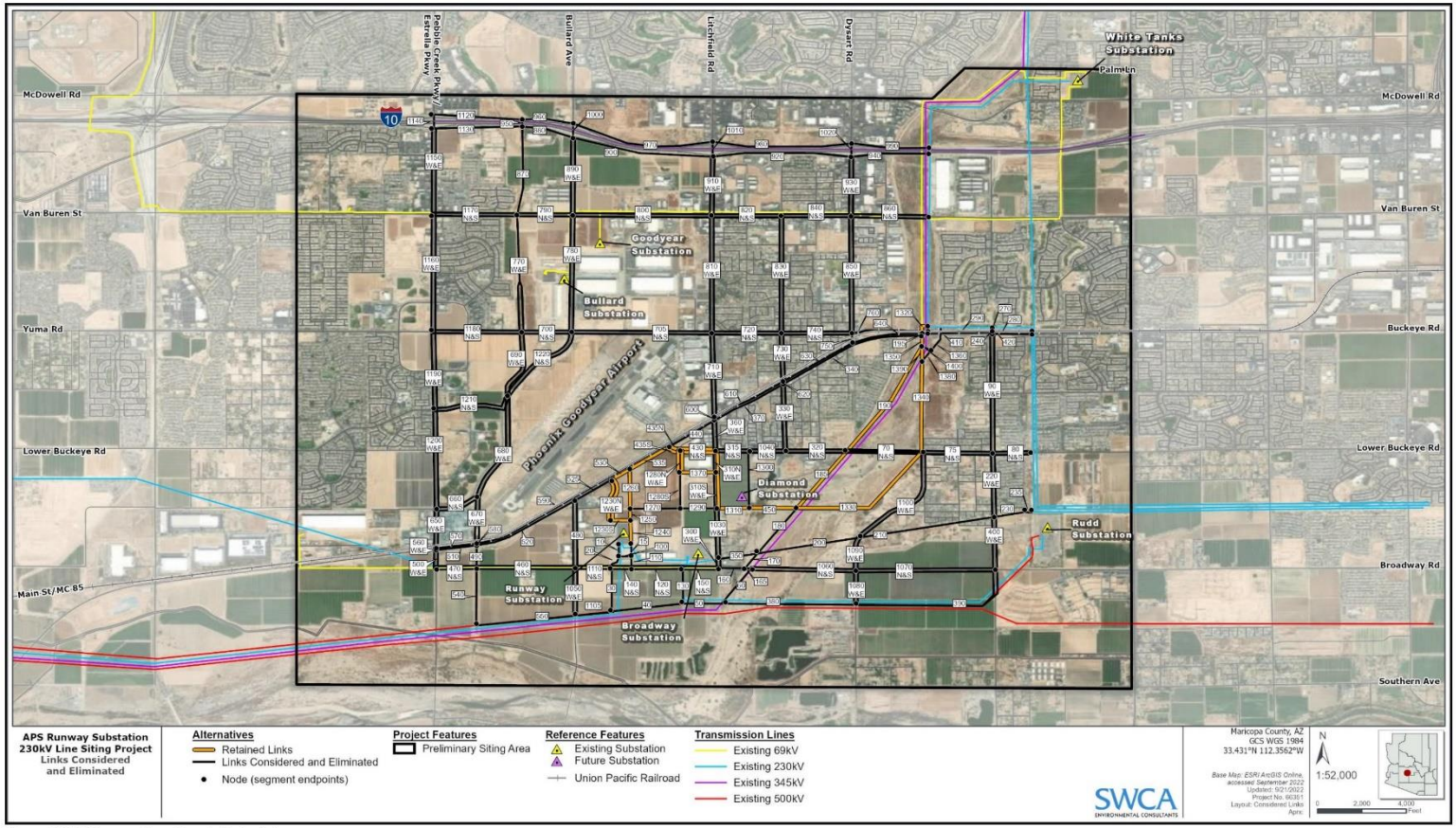


Figure 13. Links considered and eliminated.

2.6 Development of Preferred Route and Alternatives

Route identification is the process of combining retained preliminary links into proposed alternative routes that satisfy Project needs and minimize impacts. Following the detailed link analysis and elimination of links, the remaining links were assessed for potential route combinations that would connect the Runway Substation to the existing White Tanks–West Phoenix 230kV transmission line. The process of combining links into route alternatives was completed by identifying logical direct routing connections between links via pathways that met the Project purpose and needs. A preliminary preferred route and a series of alternative subroutes were identified. Subsequent input from relevant agencies and stakeholders during the public involvement process (see Section 3) then helped to reshape the preferred route and subroutes. Namely, the City of Avondale expressed a strong preference for links that avoided the residential development within its boundaries (e.g., the area north of Lower Buckeye Road and east of Litchfield Road) and the Festival Fields Park frontage (south of Lower Buckeye Road and east of Litchfield Road). Additionally, private landowners along Lower Buckeye Road (i.e., Microsoft, Stream, and Stack/Lumberjack data centers) expressed preferences for where the preferred route crossed their properties. The final preferred route and series of alternative routes that incorporate agency and stakeholder input are shown in Figure 14. The compatibility ratings of the individual links that make up the preferred route and alternative subroutes are provided in Table 4 through Table 8.

Table 4. Preferred Route Compatibility

Note: Compatibility ratings color chart:

Link ID	Land Use Compatibility	Visual Compatibility	ROW Compatibility	Engineering Compatibility	Construction & Maintenance Compatibility	Vegetative Maintenance Compatibility	Overall Compatibility
185							
190							
195							
310NE							
310SE							
430S							
435S							
450							
535W							
1240							
1250							
1260							
1310							
1320							
1350							

Table 5. Subroute A Compatibility

Note: Compatibility ratings color chart:

Link ID	Land Use Compatibility	Visual Compatibility	ROW Compatibility	Engineering Compatibility	Construction & Maintenance Compatibility	Vegetative Maintenance Compatibility	Overall Compatibility
530							
1230NE							
1230S							

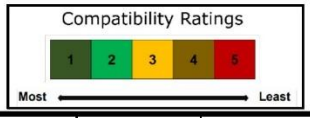
Table 6. Subroute B Compatibility

Note: Compatibility ratings color chart:

Link ID	Land Use Compatibility	Visual Compatibility	ROW Compatibility	Engineering Compatibility	Construction & Maintenance Compatibility	Vegetative Maintenance Compatibility	Overall Compatibility
430N							
435N							
535E							

Table 7. Subroute C Compatibility

Note: Compatibility ratings color chart:



Link ID	Land Use Compatibility	Visual Compatibility	ROW Compatibility	Engineering Compatibility	Construction & Maintenance Compatibility	Vegetative Maintenance Compatibility	Overall Compatibility
1280NE							
1280NW							
1370							

Table 8. Subroute D Compatibility

Note: Compatibility ratings color chart:

Link ID	Land Use Compatibility	Visual Compatibility	ROW Compatibility	Engineering Compatibility	Construction & Maintenance Compatibility	Vegetative Maintenance Compatibility	Overall Compatibility
1330							
1340							
1390							

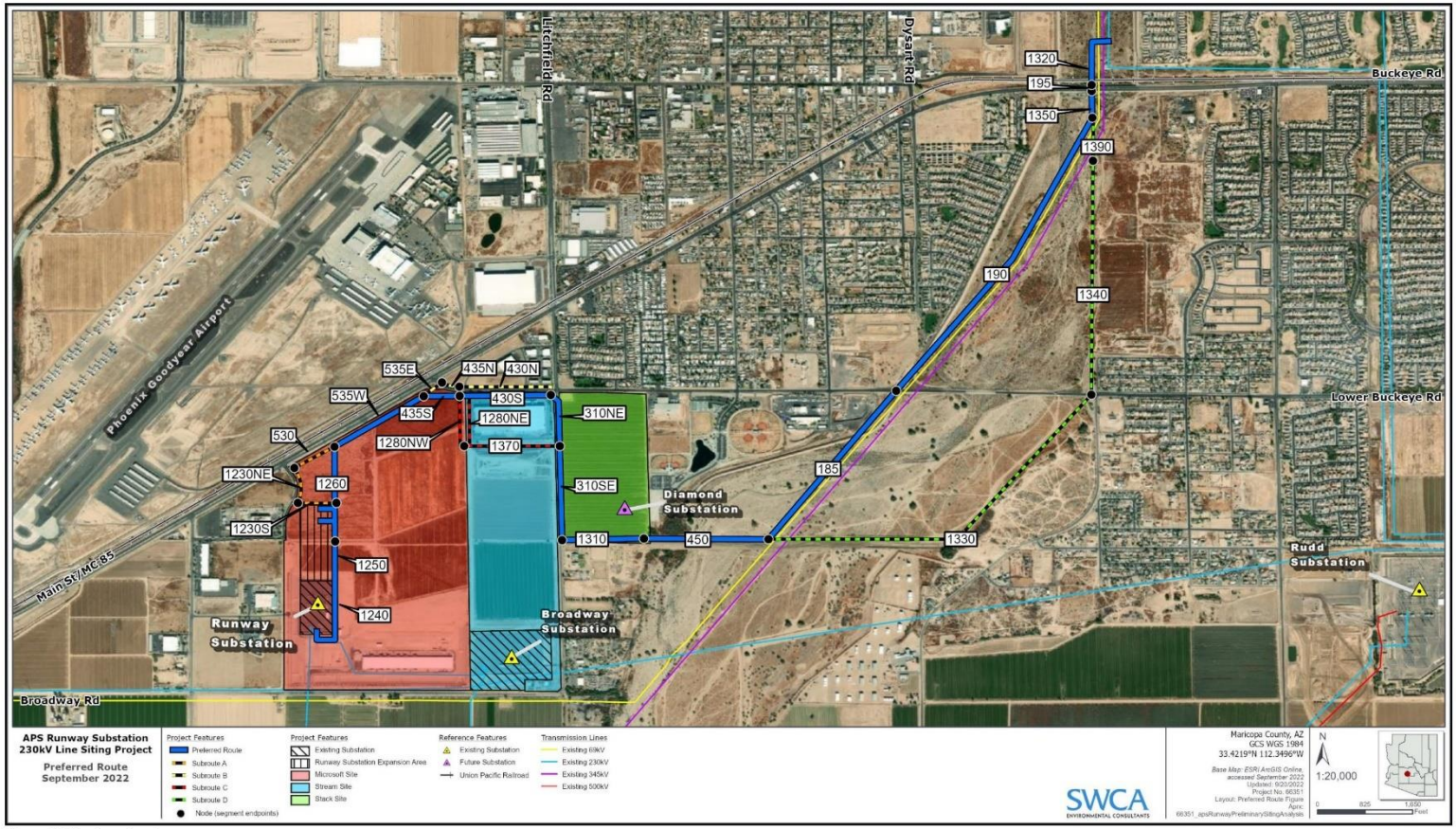


Figure 14. Preferred route.

3 AGENCY AND PUBLIC INVOLVEMENT

APS conducted agency and public involvement efforts throughout the siting process. Relevant agency and public stakeholder input regarding opportunities and constraints, preliminary links, and potential route alternatives is an integral part of the planning process. The goals of the public involvement process are to introduce the Project to the public and relevant agencies, identify the scope of their concerns and recommendations, and incorporate their feedback into the selection of a preferred route and alternative routes.

Agency and stakeholder outreach is ongoing, and to-date has involved the following:

- Notifying over 18,000 residents, businesses, landowners, agencies, and key stakeholders within the siting area via Project newsletters, a Project website, paid advertisements in two local newspapers, social media posts, a Project telephone line, and in-person and virtual open houses.
- Email and phone correspondence with select stakeholders:
    - City of Avondale
    - City of Goodyear
    - Flood Control District of Maricopa County
    - Maricopa County
    - Arizona Game and Fish Department
    - City of Phoenix Aviation Department (Phoenix Goodyear Airport)
    - Private representatives for the three planned data centers along Lower Buckeye Road (i.e., Microsoft, Stream, and Stack/Lumberjack)

Opportunities provided for agency and stakeholder comments include:

- Virtual open houses (accessible starting January 10, 2022, updated on June 14, 2022, and remaining available for the entire duration of the Project): comment forms were provided.
- In-person open house (June 14–15, 2022): comment forms were provided and APS and SWCA staff were available to talk to in person.
- Website (accessible starting January 5, 2022): www.aps.com/runway.
- Email: Stephen Eich, APS Project Manager, at RunwaySiting@aps.com.
- Phone: Comments and questions could be submitted by phone at (623) 267-1051.
- CEC Hearing: Opportunities for public comments will take place during the CEC hearing anticipated in November 2022, and the Arizona Corporation Commission Open Meeting anticipated in January 2023.

3.1 Public Notifications and Open Houses

Two virtual open houses and one in-person open house were held to provide Project information and solicit feedback from public stakeholders. Newsletters advertising the first and second open houses for the Project were mailed or emailed to stakeholders that reside within the Preliminary Siting Area or otherwise likely have an interest in the Project on January 11, 2022, and May 16, 2022, respectively. Newsletters were distributed to a mailing list of stakeholders that included approximately 18,280 addresses.
The newsletters provided dates, a website address, and comment period information for the open houses, as well as a brief Project description, current Project schedule, and solicitation for public input. Links to

the virtual open house and Project websites, both of which provide opportunities for public comment, were advertised on Facebook and Instagram between January 20 and February 5, 2022, and between June 2 and June 16, 2022, respectively.

The virtual open houses were published online at Runwayopenhouse.com. The first virtual open house was launched January 10, 2022, and remained available for public viewing and commenting until the site was updated for the second virtual open house that launched June 14, 2022. The comment period for the second open house began June 13, 2022, and will continue to be available through the entire duration of the Project. The virtual open houses allowed for a central, 24/7 accessible location that provided Project information and comment opportunities for extended periods of time. The in-person open house was held on June 14 and 15, 2022, at the Avondale Elementary School District boardroom in Avondale, Arizona. APS representatives provided informational display boards and were available to answer questions.

A third newsletter will be mailed and/or emailed to stakeholders in October 2022 to provide an update on the final preferred route and alternative routes identified through completion of the siting process and to provide notice of the CEC hearing.

Thirty-nine public comments were received throughout the process. Comments were submitted and received via mail, e-mail, virtual open house, and telephone, as well as in-person at the public open house meetings.

3.2 Agency and Stakeholder Coordination

As part of the public outreach, APS regularly coordinated with relevant agencies and stakeholders via email to update them on the Project and seek feedback (Table 9). Throughout the coordination, APS discussed the Project purpose and need, potential routing options, and preliminary issues or concerns noted by agencies or stakeholders.

Table 9. Agency and Stakeholder Meetings

Agency/Stakeholder	Meeting Dates
City of Avondale	11/18/2021, 3/22/2021, and 3/31/2022 (with City staff); 4/11/2022 (Council meeting)
City of Goodyear	11/15/2021 and 3/18/2022 (with City staff), 12/14/21 and 4/4/2022 (Council meetings)
Flood Control District of Maricopa County	12/1/2021 and 3/22/2022
Maricopa County	11/10/2021 and 3/17/2022
City of Phoenix Aviation Department (Phoenix Goodyear Airport)	11/15/2021 and 3/16/2022
Microsoft	10/11/2022, 10/28/2022, 12/14/2022, 2/8/2022, 2/14/2022, 2/24/2022, 3/17/2022, 3/25/2022, and 4/2/2022
Stream	3/18/2022, 7/19/2022, and 6/7/2022
Stack/Lumberjack	3/18/2022, 6/3/2022, and 6/8/2022

APPENDIX A

Overall Compatibility Table

Table A-1. Overall Compatibility Ratings of Each Preliminary Link

Note: Compatibility ratings color chart:

Link ID	Land Use Compatibility	Visual Compatibility	ROW Compatibility	Engineering Compatibility	Construction & Maintenance Compatibility	Vegetative Maintenance Compatibility	Overall Compatibility	Recommendation
10								Eliminate
15								Consequential Elimination
20								Eliminate
30								Consequential Elimination
40								Consequential Elimination
50								Consequential Elimination
60								Consequential Elimination
70S								Consequential Elimination
70N								Consequential Elimination
75S								Eliminate
75N								Eliminate
80S								Eliminate
80N								Eliminate
90E								Eliminate
90W								Eliminate
100								Consequential Elimination
110								Consequential Elimination
120S								Eliminate
120N								Eliminate
130								Consequential Elimination
140S								Eliminate
140N								Eliminate
150S								Consequential Elimination
150N								Eliminate
160								Consequential Elimination
165								Consequential Elimination
170								Consequential Elimination
180								Consequential Elimination
185								**Preferred Route**
190								**Preferred Route**
195								**Preferred Route**
200								Consequential Elimination
210								Eliminate
220E								Eliminate
220W								Eliminate
230								Eliminate
235								Eliminate
240								Consequential Elimination
250								Consequential Elimination
260								Consequential Elimination
270								Consequential Elimination
280								Eliminate
290								Eliminate
300E								Consequential Elimination
300W								Consequential Elimination
310NE								**Preferred Route**
310NW								Eliminated due to landowner feedback
310SE								**Preferred Route**
310SW								Eliminated due to landowner feedback
315S								Eliminated due to landowner feedback
315N								Eliminate
320S								Consequential Elimination
320N								Eliminate
330E								Eliminate
330W								Eliminate
340								Eliminate
350								Eliminate
360E								Eliminate
360W								Consequential Elimination
370								Eliminate
380								Consequential Elimination
390E								Consequential Elimination
390W								Consequential Elimination
400E								Eliminate
400W								Eliminate
410								Consequential Elimination
420								Eliminate
430N								Subroute B
430S								**Preferred Route**
435N								Subroute B
435S								**Preferred Route**
440								Consequential Elimination
450								**Preferred Route**
460N								Eliminate

Link ID	Land Use Compatibility	Visual Compatibility	ROW Compatibility	Engineering Compatibility	Construction & Maintenance Compatibility	Vegetative Maintenance Compatibility	Overall Compatibility	Recommendation
460S								Eliminate
470N								Consequential Elimination
470S								Consequential Elimination
480E								Consequential Elimination
480W								Consequential Elimination
490								Eliminate
500E								Eliminate
500W								Eliminate
510								Eliminate
520								Eliminate
525								Consequential Elimination
530								Subroute A
535W								**Preferred Route**
535E								Subroute B
540								Eliminate
550								Eliminate
560E								Eliminate
560W								Eliminate
570								Eliminate
580								Eliminate
590								Eliminate
600								Consequential Elimination
610								Eliminate
620								Eliminate
630								Eliminate
640								Eliminate
645								Eliminate
650E								Eliminate
650W								Eliminate
660S								Eliminate
660N								Eliminate
670W								Eliminate
670E								Eliminate
680E								Eliminate
680W								Eliminate
690E								Eliminate
690W								Eliminate
700S								Consequential Elimination
700N								Consequential Elimination
705S								Eliminate
705N								Eliminate
710W								Eliminate
710E								Eliminate
720S								Eliminate
720N								Eliminate
730W								Eliminate
730E								Eliminate
740S								Eliminate
740N								Eliminate
750								Consequential Elimination
760								Consequential Elimination
770E								Consequential Elimination
770W								Consequential Elimination
780E								Consequential Elimination
780W								Consequential Elimination
790S								Consequential Elimination
790N								Eliminate
800S								Eliminate
800N								Eliminate
810W								Eliminate
810E								Eliminate
820S								Eliminate
820N								Eliminate
830W								Eliminate
830E								Eliminate
840S								Consequential Elimination
840N								Eliminate
850W								Eliminate
850E								Eliminate
860S								Consequential Elimination
860N								Eliminate
870								Consequential Elimination
880								Consequential Elimination
890W								Consequential Elimination
890E								Eliminate

Link ID	Land Use Compatibility	Visual Compatibility	ROW Compatibility	Engineering Compatibility	Construction & Maintenance Compatibility	Vegetative Maintenance Compatibility	Overall Compatibility	Recommendation
900								Consequential Elimination
910W								Eliminate
910E								Eliminate
920								Eliminate
930W								Eliminate
930E								Eliminate
940								Eliminate
950								Consequential Elimination
960								Consequential Elimination
970								Eliminate
980								Eliminate
990								Eliminate
1000								Eliminate
1010								Eliminate
1020								Eliminate
1030E								Consequential Elimination
1030W								Consequential Elimination
1040S								Consequential Elimination
1040N								Eliminate
1050W								Eliminate
1050E								Eliminate
1060S								Consequential Elimination
1060N								Consequential Elimination
1070S								Eliminate
1070N								Eliminate
1080E								Eliminate
1080W								Consequential Elimination
1090E								Eliminate
1090W								Consequential Elimination
1100E								Consequential Elimination
1100W								Consequential Elimination
1105								Eliminate
1110S								Eliminate
1110N								Eliminate
1120								Consequential Elimination
1130								Eliminate
1140								Consequential Elimination
1150W								Eliminate
1150E								Eliminate
1160E								Eliminate
1160W								Eliminate
1170S								Eliminate
1170N								Eliminate
1180S								Eliminate
1180N								Eliminate
1190W								Eliminate
1190E								Consequential Elimination
1200W								Eliminate
1200E								Eliminate
1210S								Consequential Elimination
1210N								Consequential Elimination
1220E								Consequential Elimination
1220W								Consequential Elimination
1230NW								Consequential Elimination
1230NE								Subroute A
1230S								Subroute A
1240								**Preferred Route**
1250								**Preferred Route**
1260								**Preferred Route**
1270								Eliminate
1280NE								Subroute C
1280NW								Subroute C
1280S								Consequential Elimination
1290								Eliminate
1300								Eliminated due to landowner feedback
1310								**Preferred Route**
1320								**Preferred Route**
1330								Subroute D
1340								Subroute D
1350								**Preferred Route**
1360								Consequential Elimination
1370								Subroute C
1380								Consequential Elimination
1390								Subroute D
1400								Consequential Elimination

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EXHIBIT C. AREAS OF BIOLOGICAL WEALTH

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

> *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 effects, if any, the proposed facilities will have thereon.*

Introduction

Areas of biological wealth and any rare and/or endangered species that may be located at or in the vicinity of the Project were identified through a biotic resource review conducted by SWCA. The Project Area for this review comprises the Preferred Route and subroute alternatives for the proposed transmission line. The Study Area comprises the Project Area and a 1-mile buffer. The data sources consulted for the review include:

- Topographical and aerial maps and land use, land cover, and elevation data
- The U.S. Fish and Wildlife Service (USFWS) species list for the proposed Runway 230kV Power Line Project obtained from the USFWS online Information for Planning and Consultation (IPaC) system (Exhibit C-1)
- Species information obtained from the USFWS Environmental Conservation Online System (ECOS) and the USFWS Arizona Ecological Services document library
- Environmental review for the proposed Runway 230kV Power Line Project obtained from the Arizona Game and Fish Department (AGFD) Online Environmental Review Tool (Exhibit C-2).

The AGFD Online Environmental Review Tool database query establishes a buffer beyond the Project Area to search for occurrence records and the presence of modeled habitat. The size of the buffer depends on the type of project being considered. For the Project, the buffer is 3 miles beyond the Project Area. This buffer fully encompasses the Study Area.

In addition, SWCA biologists with expertise in the biology of flora and fauna of the region surveyed the Project Area on July 6 and July 19, 2022. The July 6 survey focused on the West Buckeye Road bridge over the Agua Fria River at the northern end of the Project Area. The July 19 survey focused on observing and recording the wildlife, plants, and habitat characteristics in the Project Area.

Laws and Policies

Applicable laws and policies regarding special-status species in Arizona include the following:

- The USFWS administers the **Endangered Species Act of 1973 (ESA), as amended,** which protects wildlife species listed as threatened or endangered from "take" (generally, directly, or indirectly harming or disturbing listed species). However, the ESA does not provide the same take protections for listed plant species, except on federal land. The ESA also allows for the designation of critical habitat for listed species, although designation of critical habitat is not required. Critical habitat is an administrative designation of a defined area with specific

characteristics important to the survival and recovery of a listed species. Designation of critical habitat can affect federal actions, but not state or private actions without a federal nexus.

- The **Migratory Bird Treaty Act (MBTA)** provides for the protection of migratory birds and prohibits their unlawful take or possession. The act bans "taking" any native birds; "taking" can mean killing a wild bird or possessing parts of a wild bird, including feathers, nests, or eggs. Exceptions are allowed for hunting game birds and for research purposes, both of which require permits.
- The **Bald and Golden Eagle Protection Act (BGEPA)** prohibits any form of possession or taking of bald eagles (*Haliaeetus leucocephalus*) or golden eagles (*Aquila chrysaetos*). A 1962 amendment to the MBTA created a specific exemption for possession of an eagle or eagle parts (e.g., feathers) for religious purposes of Native American tribes. The amendment provided for not only the preservation of the golden eagle, but also the preservation of Native American cultural practices.
- The AGFD manages and conserves wildlife in Arizona. Arizona does not have a counterpart to the federal ESA, but nearly all take of wildlife is regulated in some manner through the **AGFD's hunting and fishing license system**. A list of rare species **(Wildlife Species of Concern [WSC])** was created in 1996 without creating any specific statutory protections for those species (AGFD 1996). However, hunting regulations are used to provide some protection. While WSC is no longer a valid category, AGFD continues to track these species due to an existing Memorandum of Understanding (MOU) between the USFWS and AGFD. Generally, no hunting or capture of WSC is allowed, with some exceptions for managed recreational fisheries of native fish (AGFD 2017), and recreational capture of certain reptiles (AGFD 2015).
- Arizona prepared a Comprehensive Wildlife Conservation Strategy in 2006 (AGFD 2006), later renamed the **State Wildlife Action Plan (SWAP)**, through a state-federal partnership and grant program. The SWAP was updated in 2012 (AGFD 2012a). The SWAP identifies **Species of Greatest Conservation Need (SGCN)**, in several tiers. Tier 1A species are those for which the AGFD has entered into an agreement or has legal or other contractual obligations or warrants the protection of a closed season. This tier includes all ESA-listed threatened and endangered species and other rare species. Tier 1B represents the remainder of the species meeting the AGFD's vulnerability criteria, including species that are not listed but are regionally rare or declining, species with a U.S. range primarily in Arizona that are dependent on conservation efforts within the state, and other species with identified conservation issues that may warrant management action. Tier 1C species are those for which existing data were insufficient to score one or more vulnerability criteria due to substantial data gaps and unknown conservation status, but where conservation concern may be warranted. Other tiers include species that are common, widespread, or in stable populations. Species identified as WSC in 1996 are included as SGCNs in the SWAP and are addressed as SGCNs in Table C-l and the discussion in this exhibit.
- Native plants in Arizona are managed by the Arizona Department of Agriculture (ADA) under the **Arizona Native Plant Law** (ANPL; Arizona Revised Statute 3-903; Arizona Administrative Code R3-3-208), which regulates harvest, salvage, and transport of plants. Harvest or salvage of most plant species may be permitted or required, and fees may be assessed on state land. Plants listed in the Highly Safeguarded category may only be taken or salvaged for scientific or conservation purposes. The ANPL identifies a lengthy list of plant species—largely cacti, agaves, yuccas, and desert trees—that are susceptible to removal for collection, landscaping, sale, or other commercial uses. The ANPL states that these plants shall not be taken, transported, or possessed from any land without permission and a permit from the ADA; it also requires notification prior to land clearing even if the plants will be destroyed.

- The ADA administers the **state noxious weed law** under Arizona Administrative Code R3-4-245. Arizona maintains a list of noxious weeds in three categories: Class A, Class B, and Class C (ADA 2022). Class A species are those that are not known to occur in Arizona and are of limited distribution, and are of high priority for quarantine, control, or mitigation. Class B noxious weeds are species known to occur but are of limited distribution in Arizona and may be high-priority pests for quarantine, control, or mitigation if a significant threat to crop, commodity, or habitat exists. Class C noxious weeds are plant species that are widespread but may be recommended for active control based on risk assessment.

Inventory

SWCA biologists surveyed the West Buckeye Road Bridge on July 6, 2022, and the remaining portion of the Preferred Route within the Project Area on July 19, 20222. The biologist documented existing conditions and noted any habitat features that may be important to special-status species or related to areas of biological wealth in the Project Area and Study Area.

On August 16, 2022, the USFWS IPaC database was queried to generate an unofficial list of ESA-listed species that have the potential to occur in the Study Area (USFWS 2022a; see Exhibit C-1). In addition, the AGFD Online Environmental Review Tool was queried on August 16, 2022, to generate a list of special-status species with records within 3 miles of the Project Area and a list of SGCN with modeled suitable habitat intersecting the Project Area (AGFD 2022a) (Exhibit C-2).

Summary of Occurrence

The USFWS and AGFD data sources identified several rare, endangered, threatened, candidate, and other special-status species that are known to occur or could occur in the region (i.e., within the Study Area for USFWS and within Project Area plus a 3-mile buffer for AGFD). The likelihood of the identified protected areas and special-status species being present in the vicinity of the proposed Project are addressed below in four sections: 1) Areas of Biological Wealth, 2) Federally Listed Threatened and Endangered Species, 3) Other Special-Status Species, and 4) State-Protected Native Plants (AGFD 2022a; USFWS 2022a).

Areas of Biological Wealth

No designated or proposed critical habitat is present within the Project Area or Study Area (USFWS 2022a).

The Project Area and Study Area intersect with two wildlife linkages (see Exhibit C-1). The two wildlife linkages that intersect with the Project and Study Areas are described in the *Maricopa County Wildlife Connectivity Assessment: Report on Stakeholder Input* (AGFD 2012b):

- The Project Area intersects with the Agua Fria River Riparian Movement Area (i.e., for wildlife through riparian areas), which the target species use to move between the Lake Pleasant Regional Park, Gila River, and Sierra Estrella habitat blocks. Target species for this movement area include mule deer (*Odocoileus hemionus*), javelina (*Dicotyls tajacu*), waterfowl (general), quail (Family Odontophoridae), raptors (general), white-tailed deer (*Odocoileus virginianus*), and mountain lion (*Puma concolor*) (AGFD 2012b). Threats and barriers identified in this wildlife linkage include urbanization, agriculture, roads, railroads, sand/gravel mining, U.S. Route 60 expansion, and Interstate 10.
- The Study Area intersects the Gila River Riparian Movement Area, which the target species use to move along the Gila River corridor from the Salt River Confluence to the Colorado River. Target species for this movement area include water fowl (general), migratory birds (general),

beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), skunk (Family Mephitidae), raccoon (*Procyon lotor*), reptiles (general), amphibians (general), small mammals (general), osprey (*Pandion haliaetus*), javelina, mule deer, yellow-billed cuckoo (*Coccyzus americanus*), southwestern willow flycatcher (*Empidonax traillii extimus*), burrowing owl (*Athene cunicularia*), bighorn sheep (*Ovis canadensis*), Mississippi kite (*Ictinia mississippiensis*), and Yuma Ridgway's (clapper) rail (*Rallus obsoletus yumanensis*) (AGFD 2012b). Threats and barriers identified in this wildlife linkage include urbanization, agriculture, diversion dams, water diversion, flood control projects, and proposed freeways, including SR Loop 303, SR 801, or other Interstate 10 bypass projects.

No Important Bird Areas (IBAs) are present within the Project Area. However, the southern portion of the Study Area overlaps with the Lower Salt and Gila Rivers Ecosystem IBA (National Audubon Society [Audubon] 2022). The Lower Salt and Gila Rivers Ecosystem IBA consists of the Salt River from 83rd Avenue, connecting with the Gila River at 115th Avenue, then extending west and south along the Gila River to Gillespie Dam (Audubon 2022). This IBA contains four designated wildlife areas, areas of perennial flow within the Gila River, and the Tres Rios Wetlands, and is home to a large number and diversity of fish-eating birds (Audubon 2022).

Federally Listed Threatened and Endangered Species

Five species listed as endangered, one species listed as threatened, and one candidate species were identified in the USFWS species list for the Study Area (USFWS 2022a). The ESA-listed threatened and endangered species are Sonoran pronghorn (*Antilocapra americana sonoriensis*), California least tern (*Sterna antillarum browni*), southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's (clapper) rail. The candidate species is monarch butterfly (*Danaus plexippu*s). The species' federal status and potential for occurrence in the vicinity of the Project are presented in Table C-1.

Table C-1. Evaluation of Federally Listed Species with Occurrences in the Vicinity of the Study Area

Common Name (Scientific Name)	Status*	Range or Habitat Requirements	Occurrence Status
Birds			
California least tern (*Sterna antillarum browni*)	E	Forms nesting colonies on barren to sparsely vegetated areas. Nests in shallow depressions on open sandy beaches, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, and drainage systems at elevations below 2,000 feet above mean sea level (amsl). Species is migratory, arrives in breeding locations in April–May and leaves breeding locations in September (Burton and Terrill 2012). Found in Maricopa, Mohave, and Pima Counties.	Unlikely to occur in the Project and Study Areas. This species is known to occur within the Vulcan Materials quarry area just south of Camelback Road (approximately 3 miles north of the Study Area) (eBird 2022) and has had successful breeding at the Glendale Recharge ponds (USFWS 2020) along with numerous occurrence records (eBird 2022) at these recharge ponds approximately 5.5 miles northeast of the Study Area. USFWS is aware of migratory records for this species in Arizona, but it rarely breeds in Arizona, with the last known successful nest occurring in 2009 at the Salt River Project Glendale Recharge Ponds (personal communication from Kathy Robertson, USFWS, to Eleanor Gladding, SWCA, April 30, 2019; USFWS 2020). This species is unlikely to occur in the Project Area or Study Area because: 1) the Project Area is outside the range of this species (USFWS 2020); 2) this species has an extremely low likelihood of occurrence in Arizona; 3) no suitable breeding habitat (open sandy beaches, gravel pits, exposed flats along shorelines) is present in the Project or Study Areas; and 4) the Project Area does not contain water sources similar to those where this species would occur (e.g., shallow water, small fish).
Southwestern willow flycatcher (*Empidonax traillii extimus*)	E	Found in dense riparian habitats along streams, rivers, and other wetlands where cottonwood (*Populus* spp.), willow (*Salix* sp.), boxelder (*Acer negundo*), saltcedar (*Tamarix* spp.), Russian olive (*Elaeagnus angustifolia*), buttonbush (*Cephalanthus* spp.), and arrowweed (*Pluchea sericea*) are present. Nests are found in thickets of trees and shrubs, primarily those that are 13 to 23 feet high, among dense, homogeneous foliage. Habitat occurs at elevations below 8,500 feet amsl.	Unlikely to occur in the Project or Study Areas due to lack of dense riparian habitat, water channels, or suitable vegetation that the species prefers. The occurrence records within 3 miles of the Project Area (AGFD 2022a) likely originate from the Gila River.
Yellow-billed cuckoo (*Coccyzus americanus*)	T	Typically found in riparian woodland vegetation (cottonwood, willow, or saltcedar) at elevations below 6,600 feet amsl. Dense understory foliage appears to be an important factor in nest site selection. The highest concentrations in Arizona are along the Agua Fria, San Pedro, upper Santa Cruz, and Verde River drainages and Cienega and Sonoita Creeks.	Unlikely to occur in the Project or Study Areas due to lack of suitable riparian habitat. The Study Area is unlikely to be used for breeding, migration, or dispersal due to the scarcity of riparian trees, native or nonnative, in the Study Area. The occurrence records within 3 miles of the Project Area (AGFD 2022a) likely originate from the Gila River.
Yuma Ridgway's (clapper) rail (*Rallus obsoletus yumanensis)*	E	Found in freshwater and brackish marshes below 4,500 feet amsl.	Unlikely to occur in the Project or Study Areas due to lack of marsh habitat suitable for this species. This species has occurrence records from the Tres Rios Wetlands (eBird 2022). The occurrence records within 3 miles of the Project Area (AGFD 2022a) likely originate from the Gila River.

Common Name (Scientific Name)	Status*	Range or Habitat Requirements	Occurrence Status
Insects			
Monarch butterfly (*Danaus plexippus*)	C	Habitat is complex. Generally, breeding areas are virtually all patches of milkweed (*Asclepias* sp.). The species occurs throughout Arizona during the summer and migrates to winter in Mexico and California, though small numbers do overwinter in the low deserts of southwestern Arizona.	May occur in the Project and Study Areas. This species may be present as transients during migration or as occasional individuals passing through the Study Area enroute to larval food plants or nectar resources. No milkweed was observed in the Project Area for larval use, but nectar sources are available for foraging and migration. While no occurrences have been recorded in the Project or Study Areas, occurrence records for monarch butterflies, breeding monarch butterflies, and milkweed plants in other locations are common within the Phoenix metropolitan area (Western Monarch Milkweed Mapper 2022).
Mammals			
Sonoran pronghorn (*Antilocapra americana sonoriensis*)	E/NEP	Found in Sonoran Desertscrub within broad, intermountain alluvial valleys with creosote bush (*Larrea tridentata*)–bursage (*Ambrosia* spp.) and paloverde (*Parkinsonia* spp.)–mixed cacti associations at elevations between 2,000 and 4,000 feet amsl. The only extant U.S. population is in southwestern Arizona; however, the USFWS has established a 10(j) area for reintroductions. The only current reintroduction is in and near the Kofa National Wildlife Refuge.	Unlikely to occur in the Project or Study Areas as they are outside the species' currently known range and are not within a potential reintroduction site.

Note: Table lists the species named in USFWS official species list (USFWS 2022a) and in the Arizona Online Environmental Review Tool (AGFD 2022a).

* Status abbreviations: C = Candidate, E = Endangered, NEP = Non-Essential Experimental Population, T = Threatened.

Other Special-Status Species

Other special-status species that may occur within the Project Area or Study Area include:

- Eagles protected by the BGEPA.
- Birds of Conservation Concern (BCC), which are bird species—beyond those designated as federally threatened or endangered—that represent the USFWS's highest conservation priorities. The relevant BCCs for this analysis are those identified by the USFWS (2021) as occurring in Bird Conservation Region (BCR) 33.
- SGCN in Arizona, which are species identified by the AGFD as warranting heightened attention because of low and declining populations.

The species in these categories that have occurrence records or predicted habitat modeled within 3 miles of the Project Area (AGFD 2022a) and are not also designated as federally threatened or endangered (see Federally Listed Threatened and Endangered Species section above), are discussed below in Table C-2. These species were evaluated for potential occurrence based on the results of Project Area surveys, familiarity with the vicinity, and freely available information sources including: AGFD's Heritage Data Management System (HDMS) (AGFD 2022b); the online field guide *Reptiles and Amphibians of Arizona* (Brennan 2012); the *Arizona Breeding Bird Atlas* (Corman and Wise-Gervais 2005); the online field guide *All About Birds* (Cornell Lab of Ornithology 2022); eBird (2022); Google Earth (2022); and the USFWS ECOS (USFWS 2022b).

Table C-2. Other Special-Status Species with Potential to Occur in the Vicinity of the Study Area

Common Name (Scientific Name)	Habitat and Notes	Status*		Occurrence Status
		Federal	State	
Amphibians				
Arizona toad (*Anaxyrus microscaphus*)	Found river canyons or foothill streams in areas of shallow, flowing water over sandy or rocky substrates. Will also use artificial habitats including golf courses and irrigated croplands. In Arizona, found in the Virgin, Bill Williams, Hassayampa, Agua Fria, Verde, Salt, San Francisco, Blue, and Little Colorado River drainages, as well as at Eagle and Bonita Creeks that drain to the Gila River.	–	SGCN (1B)	Unlikely to occur in the Project or Study Areas as they are outside of this species' range.
Lowland leopard frog (*Lithobates yavapaiensis*)	Typically occurs in rivers, streams, ciénagas, cattle tanks, irrigation canals, and other aquatic systems up to 6,000 feet above mean sea level (amsl). In Arizona, found within central and southeastern part of state, with most localities occurring in central Arizona below the Mogollon Rim; now absent from the lower Colorado River and experiencing significant decline in southeastern Arizona.	–	SGCN (1A)	May occur in the Project and Study Areas due to presence of suitable desert/suburban/ agricultural habitat.
Sonoran Desert toad (*Incilius alvarius*)	Found in Sonoran Desertscrub, Semidesert Grasslands, oak, and occasionally pine-oak woodland habitats up to about 5,800 feet amsl. Associated with major rivers, edges of agriculture; though often tied to permanent water, can be found miles from water during summer monsoon season, in some areas.	–	SGCN (1B)	May occur in Project and Study Areas due to presence of suitable desert/suburban/ agricultural habitat.
Birds				
Abert's towhee‡ (*Melozone aberti*)	Common in riparian woodlands or mesquite bosques near water and in agricultural settings.	MBTA	SGCN (1B)	Known to occur in the Project Area and may occur in the Study Area. Suitable desert/suburban/ agricultural habitat is present within the Project and Study Areas.
American avocet (*Recurvirostra americana*)	Prefers shorelines of ponds, wetlands, marshes, and lakes.	MBTA BCC	–	May occur in the Study Area. Suitable pond habitat is present within the Study Area but not present within the Project Area.
American bittern (*Botaurus lentiginosus)*	Marshlands and very wet meadows. Occurs along rivers, lakes, and ponds with developed wetland habitat.	MBTA	SGCN (1B)	May occur in the Study Area. Suitable pond habitat is present within the Study Area but not present within the Project Area.
Arizona Bell's vireo (*Vireo bellii arizonae*)	A summer resident to Arizona that resides near riparian habitat of willow and mesquite trees.	MBTA	SGCN (1B)	Unlikely to occur in Project or Study Areas due to lack of suitable habitat.

Common Name (Scientific Name)	Habitat and Notes	Status*		Occurrence Status
		Federal	State	
Bald eagle (*Haliaeetus leucocephalus*)	Prefers large bodies of water with fish for prey. Nesting site in the Sonoran Desert are primarily in large trees in riparian areas.	MBTA BGEPA	SGCN (1A)	May occur in the Project and Study Areas due to presence of suitable dispersal habitat. This species has occurrence records within 3 miles of the Project Area (AGFD 2022a).
Bendire's thrasher (*Toxostoma bendirei*)	Desert grasslands, shrublands, and agricultural areas.	MBTA BCC	–	May occur in Project and Study Areas due to presence of suitable desert/suburban/ agricultural habitat.
Black skimmer (*Rynchops niger*)	Coastal habitats with open sandy areas.	MBTA BCC	–	Unlikely to occur in the Project or Study Areas as they are outside the species' known range and contain no suitable coastal habitat.
Black-chinned sparrow (*Spizella atrogularis*)	Dry brushlands, typically breed on rocky hillsides and winter downslope in desertscrub.	MBTA BCC	–	Unlikely to occur in Project or Study Areas due to lack of suitable habitat.
Brewer's sparrow (*Spizella breweri*)	Wintering habitat in the desert Southwest and Mexico.	MBTA	SGCN (1C)	May occur in the Project and Study Areas. The species overwinters in the vicinity.
Brown-crested flycatcher (*Myiarchus tyrannulus)*	Found in open woodland, shrubby habitat, or riparian areas.	MBTA	SGCN (1C)	Unlikely to occur in the Project or Study Areas due to lack of woodland or riparian habitat.
California thrasher (*Toxostoma redivivum*)	Prefers coastal chaparral habitats.	MBTA BCC	–	Unlikely to occur in the Project or Study Areas as they are outside the species' known range and contain no suitable coastal chaparral habitat.
Clark's grebe (*Aechmophorus clarkii*)	Aquatic habitats with open water such as lakes, marshes, ponds, and oceans.	MBTA BCC	–	May occur in the Study Area. Suitable pond habitat is present within the Study Area but not present within the Project Area.
Costa's hummingbird (*Calypte costae*)	Found is Sonoran and Mojave desertscrub near washes of native desert vegetation or rocky slopes of saguaro (*Carnegiea gigantea*) and creosote bush (*Larrea tridentata*) lowlands.	MBTA BCC	SGCN (1C)	May occur in the Project and Study Areas due to presence of suitable habitat.
Curve-billed thrasher (Palmer's) (*Toxostoma curvirostre palmeri*)	Favors open country with creosote bush, saguaro, paloverde (*Parkinsonia* spp.), and cholla (*Cylindropuntia* sp.)	MBTA BCC	–	May occur in the Project and Study Areas due to presence of suitable habitat.
Eastern meadowlark (*Sturnella magna)*	Grasslands, pastures, hayfields, old or abandoned fields, and native prairies and savannahs. Mostly a winter species in central Arizona but can be found year-round.	MBTA BCC†	SGCN (1C)	May occur in the Project and Study Areas due to presence of suitable agricultural habitat.
Elf owl (*Micrathene whitneyi*)	Wooded canyons in Sonoran Desertscrub with saguaros.	MBTA	SGCN (1C)	Unlikely to occur in the Project or Study Areas due to lack of wooded canyon habitat.
Ferruginous hawk (*Buteo regalis*)	Open scrublands and woodlands, grasslands and semidesert grasslands.	MBTA BCC†	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable open habitat.

Common Name (Scientific Name)	Habitat and Notes	Status*		Occurrence Status
		Federal	State	
Gila woodpecker (*Melanerpes uropygialis*)	Sonoran Desertscrub with saguaros present, or riparian woodlands with mature trees.	MBTA BCC	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable open habitat.
Gilded flicker (*Colaptes chrysoides*)	Sonoran Desertscrub with saguaros present, or riparian woodlands with mature trees.	MBTA BCC	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable habitat.
Grace's warbler (*Setophaga graciae*)	Prefers pine and pine-oak forests, only present during breeding season.	MBTA BCC	–	Unlikely to occur in the Project or Study Areas. due to lack of forest habitat.
Gray flycatcher (*Empidonax wrightii*)	Breeds in high desert, and nests in sagebrush (*Artemisia* spp.) and open habitat with evergreen plants. Migrants prefer along streams or oases of green vegetation within deserts.	MBTA	SGCN (1C)	May occur in the Study Area. Suitable oasis habitat is present in the Study Area but not the Project Area.
Gull-billed tern (*Gelochelidon nilotica*)	Prefers barrier beaches and dunes, salt marshes, rivers, and freshwater lagoons.	MBTA BCC	–	Unlikely to occur in the Project or Study Areas as they are outside the species' known range and contain no suitable coastal habitat.
Lawrence's goldfinch (*Spinus lawrencei*)	In Arizona, winters in desert arroyos, floodplains, mesquite bosques, weedy fields, cultivated fields, or roadsides.	MBTA BCC	–	May occur in the Project and Study Areas for wintering due to presence of suitable cultivated habitat.
Least bittern (*Ixobrychus exilis*)	Found in marshes and coastal and inland wetlands. Often use golf courses or sewage treatment ponds.	MBTA	SGCN (1C)	May occur in the Study Area. Suitable ponds for stopover habitat (e.g., associated with Festival Fields Park or gravel mining operations) are present in the Study Area but not the Project Area.
LeConte's thrasher (*Toxostoma lecontei*)	Sonoran Desertscrub dominated by creosote bush, with scattered trees used for nesting.	MBTA BCC	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of Sonoran Desertscrub dominated by creosote bush habitat.
Lincoln's sparrow (*Melospiza lincolnii*)	Winters in central Arizona, prefers dense, brushy areas, often near water.	MBTA	SGCN (1B)	May occur in the Project and Study Areas for wintering due to presence of suitable brushy habitat.
Long-eared owl (*Asio otus*)	Winters in central Arizona, prefers to roost in groves of trees such as saltcedar (*Tamarix* spp.).	MBTA BCC	–	Unlikely to occur in the Project or Study Areas due to lack of suitable habitat.
Lucy's warbler (*Oreothlypis luciae*)	Mesquite bosques and xeroriparian washes.	MBTA BCC	SGCN (1C)	May occur in the Project and Study Areas due to presence of suitable xeroriparian wash habitat.
Marbled godwit (*Limosa fedoa*)	Non-breeding visitor to central Arizona, prefers wetlands and marshes with shorelines.	MBTA BCC-nb	–	May occur in the Study Area. Suitable ponds for stopover habitat (e.g., associated with Festival Fields Park or gravel mining operations) are present in the Study Area but not the Project Area.

Common Name (Scientific Name)	Habitat and Notes	Status*		Occurrence Status
		Federal	State	
Marsh wren (*Cistothorus palustris)*	Habitats are marshes or wetlands with cattails (*Typha* spp.), bulrushes (*Schoenoplectus* spp.), and cordgrass (*Spartina* sp.) present.	MBTA BCC†	SGCN (1C)	May occur in the Study Area. Suitable ponds for stopover habitat (e.g., associated with Festival Fields Park or gravel mining operations) are present in the Study Area but not the Project Area.
Mountain plover (*Charadrius montanus*)	Non-breeding visitor to Arizona, in winter prefers dry plains and agricultural fields.	MBTA BCC-nb	–	May occur in the Project and Study Areas for wintering due to presence of suitable agricultural habitat.
Pacific wren (*Troglodytes pacificus)*	Coniferous forests, especially spruce and fir.	MBTA	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of suitable habitat.
Pinyon jay (*Gymnorhinus cyanocephalus*)	Prefers foothills and mid-elevations, most often in pinyon-juniper (*Pinus edulis–Juniperus* sp.) woodland.	MBTA BCC	–	Unlikely to occur in the Project or Study Areas due to lack of suitable habitat.
Pyrrhuloxia (*Cardinalis sinuatus*)	Upland deserts, riparian woodlands, desert scrublands, farm fields, and residential areas.	MBTA BCC	–	May occur in the Project and Study Areas due to presence of suitable habitat.
Red-naped sapsucker (*Sphyrapicus nuchalis*)	Wintering habitat includes pine-oak woodlands, deciduous trees, and orchards.	MBTA	SGCN (1C)	Unlikely to occur in the Project or Study Areas due to lack of suitable habitat.
Rufous-winged sparrow (*Peucaea carpalis*)	Prefers Sonoran desertscrub, characterized by scattered spiny trees and shrubs.	MBTA BCC	–	Unlikely to occur in the Project or Study Areas as they are outside the species' known range and contain no suitable coastal habitat.
Sage thrasher (*Oreoscoptes montanus)*	A winter species in central Arizona that favors grasslands to open desert.	MBTA BCC†	SGCN (1C)	May occur in the Project and Study Areas for wintering due to presence of suitable habitat.
Savannah sparrow (*Passerculus sandwichensis)*	Open grasslands, meadows, pastures, grassy roadsides, and cultivated fields planted with cover crops.	MBTA	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable habitat.
Snowy plover (*Charadrius nivosus*)	Prefers open sandy coastal beaches and barren shores of inland saline lakes or river bars.	MBTA BCC	–	Unlikely to occur in the Project or Study Areas as they are outside the species' known range and contain no suitable coastal habitat.
Tricolored blackbird (*Agelaius tricolor*)	Prefers freshwater marshes dominated by cattails or bulrushes.	MBTA BCC	–	Unlikely to occur in the Project or Study Areas as they are outside the species' known range and contain no suitable marsh habitat.
Verdin (Southwest)‡ (*Auriparus flaviceps acaciarum*)	Occurs in arid habitats in the desert Southwest as a year-round resident. Often occurs along washes. The Southwest subspecies is associated with the Sonoran Desert from southern California to Mexico.	MBTA BCC	–	Known to occur in the Project Area and may occur in the Study Area due to presence of suitable habitat.

Common Name (Scientific Name)	Habitat and Notes	Status*		Occurrence Status
		Federal	State	
Waterfowl and occasional-use birds	Waterfowl and other birds may use the existing and planned new evaporation ponds within the Project Area as loafing ponds—midday stops where birds rest before feeding or heading back to the roost. Other birds may be attracted to the water in the evaporation ponds, but not use the area for nesting, roosting, foraging, or reproduction.	MBTA	–	May occur in the Study Area. Suitable ponds for stopover habitat (e.g., associated with Festival Fields Park or gravel mining operations) are present in the Study Area but not the Project Area.
Western burrowing owl (*Athene cunicularia hypugaea*)	Open areas with low brush cover, including grasslands, agricultural margins, and desertscrub. Year-round resident or migratory.	MBTA BCC	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable flat, open habitat, and suitable burrows. Species has occurrence records within 3 miles of the Project Area (AGFD 2022a).
Western grebe (*Aechmophorus occidentalis*)	Aquatic habitats with open water such as lakes, marshes, ponds, and oceans.	MBTA BCC	–	May occur in the Study Area. Suitable ponds for stopover habitat (e.g., associated with Festival Fields Park or gravel mining operations) are present in the Study Area but not the Project Area.
Willet (*Tringa semipalmata*)	Nonbreeding visitor to Arizona, prefers shorelines of marshes, rivers, and lakes.	MBTA BCC-nb	–	May occur in the Study Area. Suitable ponds for stopover habitat (e.g., associated with Festival Fields Park or gravel mining operations) are present in the Study Area but not the Project Area.
Wood duck (*Aix sponsa*)	Prefers streams and ponds with trees and other dense vegetation.	MBTA	SGCN (1B)	May occur in the Study Area. Suitable ponds for stopover habitat (e.g., associated with Festival Fields Park or gravel mining operations) are present in the Study Area but not the Project Area.
Yellow warbler (*Setophaga petechia* ssp. *sonorana*)	Migrates through and breeds in central Arizona using riparian areas and landscaping, often near water.	MBTA BCC	SGCN (1B)	May occur in the Project and Study Areas for migration due to presence of suitable habitat.
Yellow-footed gull (*Larus livens*)	Non-breeding visitor to California, prefers beaches and mudflats.	MBTA BCC-nb	–	Unlikely to occur in the Project or Study Areas as they are outside the species' known range and contain no suitable coastal habitat.
Reptiles				
Desert mud turtle (*Kinosternon sonoriense sonoriense)*	Inhabits rivers, streams, or aquatic impoundments in desertscrub, semidesert grasslands, or oak/pine-oak woodlands.	–	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of suitable habitat.
Gila monster (*Heloderma suspectum*) includes banded Gila monster (*Heloderma suspectum cinctum*)	Sonoran Desertscrub, typically absent from disturbed and developed areas.	–	SGCN (1A)	May occur in the Project and Study Areas for dispersal because both the Project and Study Areas contain undeveloped portions that are contiguous with the Gila River and other wild areas.

Common Name (Scientific Name)	Habitat and Notes	Status*		Occurrence Status
		Federal	State	
Regal horned lizard (*Phrynosoma solare*)	Valley bottoms in Sonoran Desertscrub and desert grasslands, avoids the lowest elevations.	–	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable habitat.
Resplendent shovel-nosed snake (*Chionactis annulata*)	Intermontane valleys and lower bajadas in Sonoran Desertscrub. Prefers sandy washes and loose soil.	–	SGCN (1C)	May occur in the Project and Study Areas due to presence of suitable habitat.
Sonoran coralsnake (*Micruroides euryxanthus*)	Common in rocky terrain with drainages, vegetated washes, and canyons.	–	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of suitable habitat.
Sonoran desert tortoise (*Gopherus morafka*i)	Occurs on primarily rocky, and often steep, hillsides and bajadas of Mohave and Sonoran Desertscrub, typically at elevations below 7,800 feet amsl. May occur, but is less likely to occur, in desert grassland, juniper woodland, and interior chaparral habitats and even pine communities.	CCA	SGCN (1A)	Unlikely to occur in the Project or Study Areas due to lack of suitable rocky slope habitat.
Tiger rattlesnake (*Crotalus tigris*)	Rocky slopes in Sonoran Desertscrub.	–	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of suitable habitat.
Variable sandsnake (*Chilomeniscus stramineus*)	Sandy valleys in Sonoran Desertscrub.	–	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of suitable habitat.
Mammals				
American beaver (*Castor canadensis*)	Occurs in permanent water. Constructs dams out of trees, mud, and rocks.	–	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of suitable habitat.
Antelope jackrabbit (*Lepus alleni*)	Occurs in arid grasslands with scattered shrubs and deserts, foothills, mesas, and bajadas.	–	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable habitat.
Arizona myotis (*Myotis occultus)*	Ponderosa pine (*Pinus ponderosa*) and pine-oak woodlands near water. Also, along lower Colorado and Verde Rivers. Roosts in mines, caves, trees, buildings, bridges, and bat boxes.	–	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of suitable woodland habitat.
Brazilian free-tailed bat (*Tadarida brasiliensis*)	A migratory species that may spend the entire year in southern Arizona. Roosts in caves, tunnels, bridges, and buildings. Forages widely, often over farmlands.	–	SGCN (1B)	May occur in the Project and Study Areas. Suitable roosting habitat in buildings and bridges may occur within the Study Area outside of the Project Area, and the species could use the Project and Study Areas for foraging.
California leaf-nosed bat (*Macrotus californicus*)	Year-round resident in Arizona that favors day roosts in rock shelters, caves, and mines during the summer months. In the winter months, mines that extend over 100 from the entrance are preferred for warmth. Little variation to summer and winter ranges as the species is common in central, south-central, southwest, and west-central parts of Arizona.	–	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable foraging habitat. This species has been observed within 3 miles of the Project Area (AGFD 2022a).

Common Name (Scientific Name)	Habitat and Notes	Status*		Occurrence Status
		Federal	State	
Cave myotis (*Myotis velifer*)	Occurs in desertscrub containing creosote bush, paloverde, and cacti. Roosts in caves, mines, and bridges. Forages in desertscrub, often near water. Will occasionally roost in buildings, bridges, culverts, and swallow nest, but prefers caves.	–	SGCN (1B)	May occur in the Project and Study Areas. Suitable roosting habitat in buildings and bridges may occur within the Study Area outside of the Project Area, and the species could use the Project and Study Areas for foraging.
Greater western bonneted bat (*Eumops perotis californicus*)	Favors desert habitat near cliffs where the species uses rock crevices for roosting. Forages widely for insects.	–	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable foraging habitat.
Harris' antelope squirrel (*Ammospermophilus harrisii*)	Creosote bush–bursage (*Ambrosia* sp.) or saltbush–creosote bush deserts, usually in areas with rocky soil and slopes.	–	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable habitat.
Kit fox (*Vulpes macrotis*)	Prefers open, flat desert, with soft or sandy soils for ease to excavate burrows.	–	SGCN (1B)	May occur in the Project and Study Areas due to presence of suitable habitat.
Lesser long-nosed bat (*Leptonycteris yerbabuenae*)	Sonoran Desertscrub, grasslands, and forests with saguaros and agaves (*Agave* sp.). Roosts in caves, abandoned mines, and unoccupied buildings near foraging resources. This species is only an occasional migrant when found in Maricopa County.	–	SGCN (1A)	May occur in the Project and Study Areas. Suitable roosting habitat in buildings may occur within the Study Area outside of the Project Area, and the species could use the Study Area for foraging. No saguaros or agaves were observed during the field visit; however, the species could traverse the Project Area while foraging.
Little pocket mouse (*Perognathus longimembris*)	Occurs in sandy soil within valleys, on slopes with widely spaced shrubs.	–	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of suitable slope habitat.
Pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)	Found in desertscrub up to coniferous forests. Roosts in caves, mines, lava tubes, and occasionally abandoned buildings.	–	SGCN (1B)	May occur in the Project and Study Areas. Suitable roosting habitat in buildings may occur within the Study Area outside of the Project Area, and the species could use the Project and Study Area for foraging.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	Roosts in rock crevices in high cliffs and occasionally in buildings. Forages near any water source from lakes, rivers, irrigation canals, and cattle water tanks.	–	SGCN (1B)	May occur in the Project and Study Areas. Suitable roosting habitat in buildings may occur within the Study Area outside of the Project Area, and the species could use the Project and Study Areas for foraging.
Spotted bat (*Euderma maculatum*)	Roosts in high cliffs and canyons, prefer to forage high above water and is common in lower desert valleys.	–	SGCN (1B)	Unlikely to occur in the Project or Study Areas due to lack of suitable slope habitat.
Western red bat (*Lasiurus blossevillii*)	Riparian and wooded areas. Roosts in trees, particularly cottonwoods. May roost in saguaro cavities.	–	SGCN (1B)	May occur in the Project and Study Areas. Suitable roosting habitat in wooded areas may occur within the Study Area outside of the Project Area, and the species could use the Project and Study Areas for foraging.

Common Name (Scientific Name)	Habitat and Notes	Status*		Occurrence Status
		Federal	State	
Western yellow bat (*Lasiurus xanthinus*)	Associated with palm trees and riparian tree species in urban and riparian locations; likely a year-round resident in Arizona.	–	SGCN (1B)	May occur in the Project and Study Areas. Suitable roosting habitat (Washington fan palm trees [*Washingtonia robusta*]) occurs in the Project Area and may occur in the Study Area, and the species could use the Project and Study Areas for foraging.
Yuma myotis (*Myotis yumanensis*)	Occurs in a wide variety of habitats, including riparian, desertscrub, woodlands, and forests. Roosts in buildings, bridges, cliffs, cave, and mines. Forages over or near water.	–	SGCN (1B)	May occur in the Project and Study Areas. Suitable roosting habitat in buildings and bridges may occur within the Study Area outside of the Project Area, and the species could use the Project and Study Areas for foraging.

Source: Range or habitat information is from AGFD (2022a, 2022b); Brennan (2012); Corman and Wise-Gervais (2005); Cornell Lab of Ornithology (2022); eBird (2022); USFWS (2022a, 2022b).

Note: Notes regarding documented occurrence, other than observations made during SWCA's Project-specific surveys, are from AGFD (2022a, 2022b).

* Federal Status Definitions

BCC = Bird of Conservation Concern.

BCC† = Bird of Conservation Concern for regions other than Bird Conservation Region 33. Included in table because they are also Arizona SGCN.

BCC-nb = Bird of Conservation Concern with nonbreeding status

BGEPA = Bald and Golden Eagle Protection Act

ESA = Endangered Species Act

MBTA = Migratory Bird Treaty Act

State Status Definitions

SGCN = Species of Greatest Conservation Need; species identified by AGFD (2012a) as having conservation priority. Tier 1B species are those categorized as "vulnerable" but not fitting the Tier 1A criteria for highest priority. Tier 1C species are those for which existing data were insufficient to score one or more vulnerability criteria.

‡ Species that were observed in the Project Area during the July 2022 field survey.

BALD AND GOLDEN EAGLES

Bald eagles typically nest on cliff ledges, rock pinnacles, and cottonwood trees (*Populus* spp.) in Arizona (Southwestern Bald Eagle Management Committee 2022) and golden eagles favor nest sites in cliffs within mountainous areas (AGFD 2022b). While there are occurrence records for this species within 3 miles of the Project Area (AGFD 2022a), the Project Area, Study Area, and vicinity includes developed/urban land with many residential communities, agricultural land, and the Agua Fria River. The Project Area and Study Area provide no nesting habitat for bald eagle. The nearest known bald eagle nest is located at the Pee Posh Wetlands along the Salt River, approximately 3 miles southeast of the Study Area boundary (Southwestern Bald Eagle Management Committee 2022). It is possible that a bald eagle would use the Project Area and Study Area for foraging or other activities during the non-breeding season (see Table C-2). Impacts to bald eagle would be unlikely to occur because there is a large amount of suitable habitat outside of the Project and Study Areas and because the area is already extremely disturbed. No suitable nesting or foraging habitat for golden eagle is present in or near the Project Area or Study Area, and no impact to individuals or nests would occur. These species were not observed or documented by SWCA during the surveys of the Project Area and Study Area in July 2022.

BIRDS OF CONSERVATION CONCERN

The Study Area is within BCR 33 (USFWS 2021), for which 27 BCC species are listed. Seventeen of the 27 species may occur or are known to occur in the Study Area (see Table C-2), consisting of American

avocet (*Recurvirostra americana*), Bendire's thrasher (*Toxostoma bendirei*), Clark's grebe (*Aechmophorus clarkii*), Costa's hummingbird (*Calypte costae*), Palmer's curve-billed thrasher (*Toxostoma curvirostre palmeri*), Gila woodpecker (*Melanerpes uropygialis*), gilded flicker (*Colaptes chysoides*), Lawrence's goldfinch (*Spinus lawrencei*), Lucy's warbler (*Oreothlypis luciae*), marbled godwit (*Limosa fedoa*), mountain plover (*Charadrius montanus*), pyrrhuloxia (*Cardinalis sinuatus*), verdin (southwest) (*Auriparus flaviceps acaciarum*), western burrowing owl (*Athene cunicularia hypugaea*), western grebe (*Aechmophorus occidentalis*), willet (*Tringa semipalmata*), and yellow warbler (*Setophaga petechia* ssp. *sonorana*). The following species may occur in the Study Area but not the Project Area: American avocet, Clarke's grebe, western grebe, willit, and marbled godwit. These species are likely to be associated with ponds at Festival Fields Park or gravel mining operations within the Study Area. A verdin was observed during the July 2022 field surveys.

BCC for regions other than BCR 33 but that are classified as SGCN in Arizona are discussed in the following section. Waterfowl and other birds may use the ponds associated with Festival Fields Park or gravel mining operations within the Study Area. Other birds may be attracted to the water in the ponds and then use the Study Area for nesting, roosting, foraging, or reproduction.

SPECIES OF GREATEST CONSERVATION NEED

Twenty-eight species categorized as SGCN Tier 1A or 1B may occur in the Study Area (see Table C-2). The two amphibian species that may occur are lowland leopard frog (*Lithobates yavapaiensis*) and Sonoran Desert toad (*Incilius alvarius*). The 11 birds that may occur or are known to occur are Abert's towhee (*Melozone aberti*), American bittern (*Botaurus lentiginosus*), bald eagle, ferruginous hawk (*Buteo regalis*), Gila woodpecker, gilded flicker, Lincoln's sparrow (*Melospiza lincolnii*), Savannah sparrow (*Passerculus sandwichensis*), western burrowing owl, wood duck (*Aix sponsa*), and yellow warbler. The two reptile species that may occur are Gila monster (*Heloderma suspectum*) and regal horned lizard (*Phrynosoma solare*). The 13 mammal species that may occur are antelope jackrabbit (*Lepus alleni*), Brazilian free-tailed bat (*Tadarida brasiliensis*), California leaf-nosed bat (*Macrotus californicus*), cave myotis (*Myotis velifer*), greater western bonneted bat (*Eumops perotis californicus*), Harris' antelope squirrel (*Ammospermophilus harrisii*), kit fox (*Vulpes macrotis*), lesser long-nosed bat (*Leptonycteris yerbabuenae*), pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), and Yuma myotis (*Myotis yumanensis*). No fish SGCN are likely to occur within 3 miles of the proposed Project Area. An Abert's towhee was observed in the Project Area during the July 2022 field surveys.

The following SGCN species may occur in Study Area but not the Project Area: American bittern and wood duck. These species are likely to be associated with ponds at Festival Fields Park or gravel mining operations within the Study Area.

Nine species listed as SGCN Tier 1C may occur within 3 miles of the Project Area (see Table C-2): Brewer's sparrow (*Spizella breweri*), Costa's hummingbird, eastern meadow lark (*Sturnella magna*), gray flycatcher (*Empidonax wrightii*), least bittern (*Ixobrychus exilis*), Lucy's warbler, marsh wren (*Cistothorus palustris*), sage thrasher (*Oreoscoptes montanus*), and resplendent shovel-nosed snake (*Chionactis annulata*). Of those nine species, three would occur in the Study Area but not the Project Area: gray flycatcher, least bittern, and marsh wren. These species are likely to be associated with ponds at Festival Fields Park, gravel mining operations, or other water sources within the Study Area.

State-Protected Native Plants

Native plants protected under the ANPL occur within the Project Area, as observed during the July 2022 field surveys. Yellow paloverde (*Parkinsonia microphylla*) trees were observed within the portion of the Project Area along the Agua Fria River. In the portion of the Project Area outside of the Agua Fria River,

velvet mesquite (*Prosopis velutina*) and yellow paloverde trees were observed. Both velvet mesquite and yellow paloverde are salvage-assessed protected native plants, and velvet mesquite is additionally a harvest-restricted native plant. Additional native trees, cacti, and succulents have the potential to occur in the Study Area.

Noxious Weeds

Noxious weeds are known to occur just outside the Project and Study Areas (iMap Invasives 2022). Noxious weeds were observed within the Project Area during the July 19, 2022, field survey. These species consisted of the Class B species stinknet (*Oncosiphon piluliferum*) and Saharan mustard (=Asian mustard) (*Brassica tournefortii*), and the Class C species saltcedar (*Tamarix ramosissima*). Measures will be taken to avoid spreading noxious weeds in the Project and Study Areas.

Summary of Potential Effects

Areas of Biological Wealth

The proposed Project would likely have a short-term negative impact on the use of the Agua Fria River Riparian Movement Area as a dispersal or migratory corridor during construction since the increase of human activity and noise in the Agua Fria River migratory corridor could cause individuals to avoid the area or change their behavior. After construction is complete, operation of the new transmission line would have minimal long-term impacts on species using this wildlife corridor, as it would not substantially increase the fragmentation in the area or create a significant additional barrier to wildlife movement. Short-term impacts, including avoidance or behavior changes, could occur during maintenance activities. The portions of Subroutes A, B, and C that differ from the Preferred Route are located outside of Agua Fria River Riparian Movement Area and therefore there would be no difference in the impacts to this wildlife corridor if one or more of these subroutes are chosen to modify the Preferred Route. Although Subroute D has a different footprint than the Preferred Route within the Agua Fria River, impacts to the wildlife corridor would be similar in kind. As Subroute D is longer than the Preferred Route, impacts to the Agua Fria River Riparian Movement Area would be higher in proportion to the amount of disturbance. However, regardless of whether one or more of the subroute alternatives are chosen, the impacts would still be short-term, with minimal long-term impacts.

Wildlife impacts from Project construction, maintenance, or operations are unlikely to extend to the Gila River Riparian Movement Area or the Lower Salt and Gila Rivers Ecosystem IBA. The wildlife corridor value of the Gila River and the species richness within the IBA will not be impacted.

No proposed or designated critical habitat is present within the Project Area or Study Area.

Federally Listed Threatened and Endangered Species

No suitable habitat is present within the Study Area for the following species that are listed under the ESA: California least tern, southwestern willow flycatcher, yellow-billed cuckoo, or Yuma Ridgway's (clapper) rail. These species would be unlikely to occur. In addition, the California least tern is extremely rare in Arizona. Therefore, the Project would be unlikely to impact these species.

Habitat in the Project and Study Areas may be suitable for the monarch butterfly, a candidate species. No milkweed was observed in the Project Area; monarch butterflies may use plants in the Project Area for foraging but would not use the area for reproduction. Therefore, impacts to this species would be minor. A very small portion of suitable dispersal or foraging habitat would be lost, relative to the total amount of habitat in the vicinity. Individuals may experience injury, mortality, change of behavior, and/or loss of forage as a result of the Project. Individuals would be expected to largely shift activity to nearby suitable habitat. The environmental conditions (including high levels of previous disturbance, current land

use, and vegetation) along the subroutes appear very similar to those of the Preferred Route, which was visited during field reconnaissance. It is therefore unlikely that milkweed would occur in the construction footprint of subroutes and impacts to this species would be minor regardless of whether one or more of the subroute alternatives are chosen.

Other Special-Status Species

The following sections refer to species with special status that are not federally listed or candidates for federal listing.

MAMMALS

The Project Area contains roosting habitat for bat species. During the field study on July 6, 2022, the West Buckeye Road bridge was found to have suitable crevices and concrete habitat for roosting bats. During the field study on July 19, 2022, Washington fan palms (*Washingtonia robusta*) were observed within the Project Area. The Study Area may additionally contain riparian trees and buildings (abandoned or otherwise) that bats may use for roosting.

The proposed transmission line would cross over West Buckeye Road bridge and the adjacent railroad bridge that could also shelter roosting bats. In particular, the Brazilian free-tailed bat, cave myotis, and Yuma myotis are known to roost under bridges, although other bat species may occur. This transmission line construction will not require any changes to these bridges, as the line would span over the bridges. However, construction activities may occur on the West Buckeye Road bridge (i.e., placement of equipment for stringing the conductors on the new transmissions structures), which could cause vibrations and noise on the bridge. All construction activities would occur during daylight hours (i.e., when bats are roosting and not active). While bridge roosting habitat would not be destroyed by the Project, impacts to roosting bats arising from noise and vibration may occur, including avoidance, behavior changes, or loss of fitness for individuals. The impacts to bats would be the same regardless of whether one or more of the subroute alternatives are chosen because all alternative subroutes would cross over the West Buckeye Road bridge and adjacent railroad bridge. The removal of Washington fan palm trees would impose minor impacts on western yellow bats due to the loss of habitat, but the species would be expected to shift its use to palm trees in the surrounding Study Area or vicinity.

The following bat species have the potential to roost in abandoned buildings, if any are present within the Project or Study Areas: Brazilian free-tailed bat, cave myotis, lesser long-nosed bat, pale Townsend's big-eared bat, and pocketed free-tailed bat. Western red bats may occur if riparian areas or riparian trees are present within the Project or Study Areas. Impacts to these species from noise or vibration would likely be minor, as the severity of these impacts decreases with increasing distance to construction.

Bat species can collide with human-made structures during long-distance migration. Migrating bats often fly high above ground level and do not actively echolocate. However, during normal foraging activity, bats actively use echolocation and are typically able to detect and avoid features such as overhead transmission lines (Arnett et al. 2015). No information suggests that transmission lines in a setting such as the Project or Study Areas would pose a risk to bats.

BIRDS

Golden eagles are unlikely to occur in the Project Area or Study Area because golden eagle habitat is not present in these areas. Therefore, no impacts to golden eagles resulting from the Project would be expected. Bald eagles may occur within the Project and Study Areas; however, no lakes or rivers with suitable prey species are present and therefore bald eagles are not drawn to the areas. Because bald eagles (if present at all) are expected to fly over or disperse across the Project and Study Areas, impacts are expected to be minor and short term; bald eagles would be expected to change their behavior to avoid the area during construction or maintenance activities.

Six special-status bird species (see Table C-2) only occur in the vicinity of the Project Area for wintering or migration and therefore have no potential for nesting impacts. Potential impacts to special-status bird species could include changes in behavior due to Project-related noise, vibration, and the presence of workers and equipment; loss of breeding and foraging habitat; and impacts to nesting species. Potential impacts to nesting birds and their eggs covered under the MBTA, including burrow nests of the western burrowing owl, would be avoided and/or minimized either by limiting ground clearing/vegetation removal activities to outside the breeding season (generally March to September, with the exception of raptors breeding generally January to June) or through surveys to identify active nests and placement of buffers around those active nests until the young fledge or the nest fails.

Transmission lines can pose a collision risk to birds, including raptors (Avian Power Line Interaction Committee [APLIC] 2012). However, many factors influence whether birds are likely to collide with a specific transmission line. Collision risk is relatively low when multiple transmission lines are co-located or placed near other infrastructure (APLIC 2012). The Project would be constructed in an area with numerous existing transmission lines and is not likely to contribute to an increase in bird mortality within the Project or Study Areas. To minimize that risk, the Applicant will construct the proposed transmission line following the guidelines outlined in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012). Measures to minimize collision risks will include designing lines without ground wires and the installation of bird diverters on wires per APLIC standards.

Electrical transmission and distribution lines can also cause bird electrocution, although the risk is highest with lower-voltage lines. Electrocution occurs when a bird simultaneously contacts energized and grounded electrical components. High-voltage lines require spacing between those components that cannot be spanned even by very large birds, so that electrocution risk is almost entirely precluded (APLIC 2012).

REPTILES

Potential Project-related impacts on special-status reptile species would include changes in behavior due to the presence of workers and equipment, including moving away from sources of noise and vibration; the potential for individuals being crushed or buried during ground-disturbing activities; and the loss of habitat.

AMPHIBIANS

Potential impacts to amphibian species include death, injury, or impacts arising from behavior changes and would be similar to those described for terrestrial mammals. Potential impacts from the loss, degradation, and fragmentation of amphibian habitat from Project activities would be the same as those described for terrestrial mammals.

FISH

There are currently no special-status fish species known or expected to occur within the Project or Study Areas. The Project would have no impact on special-status fish species because no habitat for special-status fish species is present in the Project or Study Areas. Project activities would not impact perennial water outside of the Project or Study Areas.

State-Protected Native Plants

Plant species protected under the ANPL could be removed during the Project's vegetation-clearing activities. No Highly Safeguarded plant species, or any other rare plant species, are likely to be present in the Project or Study Areas. While protected native plants occur in the Project Area, much of the Project Area has been previously disturbed from agriculture, roads, development, and other ground-disturbing

activities. Because the Project Area is largely previously disturbed by the existing development, the loss of vegetation in the Project Area will result in minor impacts to protected native plants.

Plant species protected by the ADA under the ANPL occur in the Project Area. Consequently, a Notice of Intent to Clear Land Form must be filed with the ADA prior to ground clearing. The submittal time frame depends on the acreage of the area to be cleared, as noted on the form found in Exhibit C-3.

Noxious Weeds

Measures will be taken to avoid introducing or spreading noxious weeds in the Project Area, and therefore the Project would be unlikely to contribute to an increase of noxious weeds, in extent or abundance, in the vicinity of the Project.

Mitigation

The following mitigation measures would reduce the potential for impacts to special-status species as a result of the Project:

- Transmission lines pose a risk of collisions and electrocution for birds, particularly raptors. To minimize that risk, the Applicant will construct the proposed transmission line following the guidelines outlined in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012).
- If vegetation-disturbing activities are planned during the migratory bird nesting season (March–September generally, or January–June for raptors), measures to avoid any active bird nests within the Project Area, such as preconstruction surveys for migratory bird nests by a qualified biologist, should be taken to maintain compliance with the MBTA since suitable nesting habitat for migratory bird species is present within the Project Area.
- If native plants listed under the ANPL will be removed, the ADA Notice of Intent to Clear Land should be submitted prior to ground clearing. The submittal time frame depends on the acreage of the area to be cleared, as noted on the form.
- To minimize the introduction and spread of invasive species and noxious weeds, standard best management practices (BMPs) will be used during construction. These BMPs can include measures such as washing equipment prior to and following mobilization to the Project Area.

Conclusion

Based on the assessment in this exhibit, the Project's Preferred Route and subroute alternatives would have low impacts to areas of biological wealth and would be environmentally compatible. The impacts from the subroute alternatives would not appreciably differ from the impacts from the Preferred Route.

No ESA-listed species have the potential to be present within the Project and Study Areas, and therefore none would experience adverse impacts from the proposed Project. One candidate species, the monarch butterfly, may occur as a seasonal disperser, and only minor impact to individuals would be expected to occur. Impacts to monarch butterflies would not be expected to differ among the subroute alternatives as Project activities are occurring in similar types of habitats regardless of whether one or more of the subroute alternatives are chosen.

Bat roosts have the potential to be impacted by Project activities. Roosting habitat would not be permanently lost, but any individuals that use the West Buckeye Road bridge during construction may be impacted in the short term. Because the roosting habitat will remain after construction, and because many

bridges suitable for bat roosting occur in the Study Area and vicinity, Project activities are unlikely to cause population-level impacts to any species. Because the subroute alternatives do not differ at the West Buckeye Road Bridge and adjacent railroad bridge, there would be no difference in impacts to bats regardless of whether one or more of the subroute alternatives are chosen.

Short-term impacts to the Agua Fria River Riparian Movement Area that intersects with the Project Area are expected, but the Project would not permanently alter the value of this wildlife corridor. There would be no difference in impacts between the Preferred Route and Subroutes A, B, or C, and the difference between the Preferred Route and Subroute D would be negligible. While the Study Area intersects with the Gila River Riparian Movement Area and the Lower Salt and Gila Rivers Ecosystem IBA, construction, maintenance, and operation of the Project would not be expected to impair these areas of biological wealth because they are distant from the Project Area. No proposed or designated critical habitat is present within the Project or Study Areas and therefore none would be impacted by the Project.

The risk that electrical infrastructure poses to birds would be addressed by following standard guidelines as design features for the Project, and preconstruction surveys for migratory bird nests would aid in compliance with the MBTA.

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EXHIBIT D. BIOLOGICAL RESOURCES

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

> *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.*

Introduction

The Project Area for this review comprises the Preferred Route and subroute alternatives for the proposed transmission line. The Study Area comprises the Project Area plus a 1-mile buffer. To identify the plant and wildlife species that may occur in the Study Area (i.e., Project Area with 1-mile buffer), SWCA consulted publicly available data sources, including:

- Topographical and aerial maps
- AGFD Online Environmental Review Tool (AGFD 2022a)
- *Biotic Communities: Southwestern United States and Northwestern Mexico* (Brown 1994)
- Regional checklists, reports, and publications (e.g., Brennan and Holycross 2006; eBird 2022; Hoffmeister 1986; iNaturalist 2022; Kesner and Marsh 2010)

In addition, SWCA biologists with expertise in the biology of flora and fauna of the region surveyed the Preferred Route portion of the Project Area on July 6 and July 19, 2022. The July 6 survey focused on the West Buckeye Road bridge over the Agua Fria River at the northern end of the Project Area. The July 19 survey focused on observing and recording the wildlife, plants, and habitat characteristics in the Project Area.

Results

Ecological Setting

The Project Area and Study Area are located within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community (Brown 1994) with an elevational range of approximately 915 to 985 feet above mean sea level. The Project Area extends north and east from the Runway Substation at its southwestern end—along roadways and across agricultural fields, commercial development, and the Aqua Fria River corridor—to its connection with an existing 230kV transmission line north of the West Buckeye Road bridge and adjacent Southern Pacific Railroad bridge. Existing land uses within the Study Area primarily include high-density and medium-density residential, industrial, commercial, utilities, water/wash, and agricultural uses. Other existing land uses in the Study Area include airport, educational, golf course, park/active open space, passive open space, public/quasi-public, transportation/railroad, and vacant land. Overall, the Study Area can be categorized as a developing urban/suburban area. MC 85 bisects the Study Area northeast-southwest of the Project Area, with West Buckeye Road continuing east from the northern terminus of MC 85 to cross the northern portion of the Project Area. A Union Pacific Railroad track runs adjacent to MC 85, west of Dysart Road, and West Buckeye Road, east of Dysart Road. The Phoenix Goodyear Airport is within the Study Area, northwest of the Project Area and MC 85.

The segment of the Agua Fria River within the Project or Study Areas does not generally contain water except in response to storm events (i.e., ephemeral). No intermittent or perennial waterbodies are located

within the Project Area. The Study Area encompasses several additional waterbodies, including a perennial pond at Festival Fields Pond (0.2 mile north of the Project Area), a pond associated with past gravel mining (south of the Project Area), and a pond associated with the Coldwater Springs Golf Course (northeast of the Project Area). The Project Area and Study Area contain canals associated with agricultural fields. The Agua Fria River converges with the Gila River less than 1 mile south of the Study Area. The proximity of the Gila River has the potential to increase the number of the species using the Project and Study Areas.

Vegetation

The Project Area is highly disturbed by previous development, including existing agricultural cropland, commercial development, roads, and transmission lines; vegetation in developed areas consists primarily of landscaped plants and cultivated crops. The northern and eastern portions of the Project Area cross the Agua Fria River, which has been previously disturbed in places but contains desert vegetation consisting of both native and nonnative trees and shrubs and weedy species.

Native species observed in the Agua Fria River within the Preferred Route portion of the Project Area include brittlebush (*Encelia farinosa*), Coues' cassia (*Senna covesii*), desertbroom (*Baccharis sarothroides*), desert globemallow (*Sphaeralcea ambigua*), Jerusalem thorn (*Parkinsonia aculeata*), turpentinebush (*Ericameria laricifolia*), and yellow paloverde. Nonnative species within the Agua Fria River corridor within the Preferred Route portion of the Project Area include Asian mustard (=Saharan mustard) (*Brassica tournefortii*), prickly Russian thistle (*Salsola tragus*), saltcedar, and stinknet.

There are active agricultural fields within the Project Area. At the time of the July 19 field survey, these fields contained alfalfa (*Medicago sativa*). Stringers of woody and weedy vegetation were at the margins of the fields, and trees, shrubs, and weeds occurred on the margins of cleared lots, and in drainages. The native plants observed within the Project Area outside of the Agua Fria River corridor included brittlebush, carelessweed (*Amaranthus palmeri*), common sunflower (*Helianthus annuus*), desertbroom, fourwing saltbush (*Atriplex canescens*), Jerusalem thorn, silverleaf nightshade (*Solanum elaeagnifolium*), velvet mesquite, and yellow paloverde. Nonnative species observed outside of the Agua Fria River corridor included Asian mustard, prickly Russian thistle, stinknet, and Washington fan palm. Landscaped plants including paloverde (*Parkinsonia* sp.) were present along the Preferred Route portion of the Project Area, associated with commercial development.

Asian mustard, saltcedar, and stinknet are species listed by the ADA as noxious weeds in Arizona.

No broadleaf deciduous riparian vegetation communities (i.e., communities containing willow [*Salix* sp.], cottonwood [*Populus* sp.], or ash [*Fraxinus* sp.], etc.) were observed during surveys in the Project Area. Suitable bat roost sites including at the West Buckeye Road bridge, Union Pacific Railroad bridge, and various palm trees were observed in the Project Area during the July field surveys. Abandoned buildings, which are suitable habitat for bats, have the potential to occur in the Study Area but were not observed in the Preferred Route portion of the Project Area during the July field surveys.

Wildlife Species

Bird nests observed at the West Buckeye Road bridge on July 6, 2022, included active rock dove (*Columba livia*) nests and inactive cliff swallow (*Petrochelidon pyrrhonota*) nests. Birds observed in the Agua Fria River within the Preferred Route portion of the Project Area on July 19, 2022, included Abert's towhee, black-tailed gnatcatcher (*Polioptila melanura*), Gambel's quail (*Callipepla gambelii*), great-tailed grackle (*Quiscalus mexicanus*), house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), verdin (*Auriparus flaviceps*), and white-winged dove (*Zenaida asiatica*). Other wildlife species observed included round-tailed ground squirrel (*Xerospermophilus tereticaudus*).

Birds observed outside the Agua Fria River corridor within the Preferred Route portion of the Project Area on July 19, 2022, included Abert's towhee, brown-headed cowbird (*Molothrus ater*), great-tailed grackle, killdeer (*Charadrius vociferus*), and mourning dove. In addition, small mammal burrows and burrows suitable for use by western burrowing owl (*Athene cunicularia hypugaea*) were observed.

Species that may occur in the Project and/or Study Areas are listed in the tables in the following sections. Sources used to identify species considered for their potential to occur in the Project and Study Areas include the following:

- Mammal species typical of the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community evaluated for this report include mammals listed in Table 4.1 in *Mammals of Arizona* (Hoffmeister 1986).
- Bird species evaluated in this report include those listed for Sonoran Desertscrub in Appendix II of *Biotic Communities Southwestern United States and Northwestern Mexico* (Brown 1994) and the Sonoran Desert Birds list in iNaturalist (2022).
- Reptiles and amphibians evaluated in this report are listed as commonly occurring species in the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community in *Amphibians and Reptiles in Arizona* (Brennan and Holycross 2006).
- Fish species evaluated in this report were taken from the list of species in the Central Arizona Project and Florence-Casa Grande Canals from the *Central Arizona Project Fish Monitoring Final Report* (Kesner and Marsh 2010).

Some species from these lists of typical species overlap with special-status species evaluated in Exhibit C, and these species have been removed from consideration in this exhibit because they have already been addressed (see Exhibit C). Occurrence records for the species evaluated in this exhibit were obtained from *Mammals of Arizona* (Hoffmeister 1986), eBird (2022), and the *Arizona Breeding Bird Atlas* (Corman and Wise-Gervais 2005).

MAMMALS

A variety of mammals may occur within the Project and/or Study Areas (Table D-1). Large- and medium-sized mammal species would be rare in the Study Area because it is largely disturbed and is within a developed urban area, although some (including those for which there is not habitat in the Study Area) may use the Agua Fria River corridor to move between the Gila River and Lake Pleasant Regional Park. Large- and medium-sized terrestrial mammals may occur in the Study Area but would likely be limited to the Agua Fria River corridor. Small terrestrial mammal species may occur throughout the Study Area. Bat species have the potential to disperse or migrate through or forage within the Study Area. No caves, mines, or adits are present in the Study Area that could serve as bat roosts. Washington fan palms and the West Buckeye Road and Union Pacific Railroad bridge crossings are within the Project Area and potentially may be used as bat roosts. Abandoned buildings and riparian vegetation were not observed in the Project Area but may occur in the Study Area (Google Earth 2022).

Table D-1. Mammal Species that May Occur in the Project Area or Study Area

Common Name (*Scientific Name*)	**Habitat**
Arizona pocket mouse (*Perognathus amplus*)	Desertscrub habitats.
Badger (*Taxidea taxus*)	Grassland and desertscrub.

Common Name (*Scientific Name*)	**Habitat**
Black-tailed jackrabbit (*Lepus californicus*)	Open habitat with scattered patches of shrubs, including plains, fields, and deserts.
Bobcat (Lynx rufus)	Various habitats including woodlands, river bottomlands, deserts, mountains.
Botta's pocket gopher (*Thomomys bottae*)	Extremely xeric locations, below 11,000 feet above mean sea level with variable soils and ground cover ranging from open to grasslands. Occurs in roadsides, valleys, and mountain meadows.
Cactus mouse (*Peromyscus eremicus*)	Deserts and pinyon-juniper (*Pinus* spp.–*Juniperus* spp.), in rocky, sandy, or loamy soils. Found in rock heaps, stone walls, burrows, woodrat houses, and brush fences.
Coyote (*Canis latrans*)	Occurs in all habitat types, including agricultural, urban, and suburban areas.
Deer mouse (*Peromyscus maniculatus*)	Upland and riparian habitats, including open areas, brushlands, and coniferous and deciduous forests.
Desert cottontail (*Sylvilagus audubonii*)	Grasslands, brushlands, edges of foothill woodlands, willow (*Salix* spp.) thickets, and occasionally in cultivated fields or under buildings.
Desert kangaroo rat (*Dipodomys deserti*)	Low deserts, often sandy soil with sparse vegetation including alkali sink, shadscale scrub, and creosote bush.
Desert pocket mouse (*Chaetodipus penicillatus*)	Sparsely vegetated sandy desert floors.
Gray fox (*Urocyon cinereoargenteus*)	Typically occurs in shrubland and avoids open areas. Dens in caves, hollow logs, or debris piles.
Javelina (=collared peccary) (*Dicotyls tajacu*)	Deserts, shrublands, cities, and agricultural areas.
Merriam's kangaroo rat (*Dipodomys merriami*)	Low deserts in sparsely vegetated areas.
Mountain lion (*Puma concolor*)	Generally prefers mountainous, undisturbed areas. Stream courses and ridgetops used for travel corridors.
Mule deer (*Odocoileus hemionus*)	Mountains and lowlands, often associated with successional vegetation.
Round-tailed ground squirrel* (*Xerospermophilus tereticaudus*)	Sonoran Desertscrub, alkali sink and creosote bush communities, low flat areas. Avoids rocky hills.
Striped skunk (*Mephitis mephitis*)	Usually live in areas near water, including rivers, streams, and irrigated places. Live in natural cavities, burrows dug by other species, and human-made structures.
Western harvest mouse (*Reithrodontomys megalotis*)	Occurs in a wide variety of habitats in places with adequate cover. Often live in areas with adequate grass cover, along streams, bottomlands, along fences, or around irrigated areas.
White-throated woodrat (*Neotoma albigula*)	Brushlands, rocky cliffs, creosote bush scrub, mesquite-yucca, and pinyon-juniper woodland.
Bat Species	
Big brown bat (*Eptesicus fuscus*)	Variable habitat, from ponderosa pine (*Pinus ponderosa*) forests, pinyon-juniper woodlands, the lower edge of spruce-fir (*Picea* spp.–*Abies* spp.) forests, and Lower Sonoran zones. Migratory; found throughout the state in summer, and in southern Arizona in the winter. Roosts in buildings, bridge joints, mines, hollow trees, and caves.
California myotis (*Myotis californicus*)	Desert ranges and flatlands; desertscrub-oak (*Quercus* spp.) to ponderosa pine zones. Migratory; winter distribution in southern Arizona, south of the Gila River. Roosts in crevices and cracks in canyon walls, caves, and mine shafts, and under bark in trees or snags.
Canyon bat (*Parastrellus hesperus*)	Occurs in deserts, woodlands, and shrublands. Roosts in boulders, cracks, and crevices.

Common Name (*Scientific Name*)	Habitat
Pallid bat (*Antrozous pallidus*)	Found in many habitat types, including forests, canyons, open farmland, and deserts. Migratory; occurs throughout Arizona and in the southern part of the state in winter. Roosts in rock crevices, buildings, caves, and mines.

Source: Range or habitat information is from AGFD (2022a; 2022b); Hoffmeister (1986); NatureServe Explorer (2022).

* Observed during field reconnaissance.

BIRDS

The Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community generally consists of open, sparsely vegetated habitats that do not support a bird community as diverse as found in other subdivisions of Sonoran Desertscrub (Brown 1994). However, many birds have potential to use the Study Area and Project Area for their life-history needs (i.e., foraging, nesting, or perching) (Table D-2).

Table D-2. Bird Species that May Occur in the Project Area or Study Area

Common Name (*Scientific Name*)	Habitat
American kestrel (*Falco sparverius*)	Occurs in a variety of habitats with open settings with scattered trees or other structures for perching. Year-round resident.
Anna's hummingbird (*Calypte anna*)	Occurs in chaparral, coastal scrub, oak savannas, and open woodland. Also common in urban and suburban settings.
Ash-throated flycatcher (*Myiarchus cinerascens*)	Occurs in dry scrub, open woodlands, and deserts. Cavity nester that breeds in this part of Arizona.
Black vulture (*Coragyps atratus*)	Occurs in a wide variety of habitats. Typically occurs in riparian woodlands and desertscrub where saguaros (*Carnegiea gigantea*) and tall trees occur. Also occurs in rural and agricultural fields, and prefers elevated perches including trees, saguaros, telephone poles, or transmission towers.
Brewer's blackbird (*Euphagus cyanocephalus*)	Often occurs near human habitation. Occurs in shrubby and busy areas near water, riparian woodland, cultivated lands, and marshes. Winters south of Mogollon Rim.
Brown-headed cowbird (*Molothrus ater*)	Often associated with human-modified, fragmented landscapes, and are attracted to feedlots, pastures, and fields. Occur in a variety of habitats including desertscrub, agricultural lands, and residential areas. Migratory, present in Arizona spring through fall.
Cactus wren (*Campylorhynchus brunneicapillus*)	Associated with desertscrub communities. Although they are commonly associated with cholla (*Cylindropuntia* spp.), they occur in areas lacking cholla also. Can occur in dry, sparsely vegetated areas. Year-round resident.
Cliff swallow (*Petrochelidon pyrrhonota*)	Feeds over pastures, fields, towns, and open areas. Nests in colonies that can be located on cliffsides, caves, building eave, bridges, culverts, dams, or large trees. Nests are created with mud and dried grass at the juncture of a vertical wall and a horizontal overhang.
Common raven (*Corvus corax*)	Found in most habitat types, select open areas. Regularly encountered in rural, agricultural, and urbans settings. Year-round resident.
Cooper's hawk (*Accipiter cooperii*)	Occurs in woodlands, parks, neighborhoods, and fields, associated with trees.
European starling† (*Sturnus vulgaris*)	Occurs predominantly near human settlements, in rural, urban, and agricultural fields. Year-round resident.
Gambel's quail* (*Callipepla gambelii*)	Typically associated with brushy Sonoran Desert uplands and desert washes. Can also occur in residential areas and along the margins of cultivated lands. Year-round resident.
Great-tailed grackle* (*Quiscalus mexicanus*)	Occurs in partly open situations with scattered trees, around human habitations. Year-round resident.
Greater roadrunner (*Geococcyx californianus*)	Occurs in open, arid country with scattered shrubs, trees, or cacti. Also common in agricultural areas and urban and suburban settings. Year-round resident.

Common Name (*Scientific Name*)	Habitat
Harris hawk (*Parabuteo unicinctus*)	Occurs in semi-open desert lowlands; territories include tall perches (e.g., trees, power poles, or boulders) and access to water.
House finch* (*Carpodacus mexicanus*)	Occurs in arid scrub and brush, open woodland, oak-juniper, and pine-oak habitats, and towns and cultivated lands. Year-round resident.
House sparrow† (*Passer domesticus*)	Introduced species that occurs abundantly in cities and towns. Occurs in feedlots, agricultural areas, and urban and rural communities. Year-round resident.
Inca dove (*Columbina inca*)	Occurs in open country, urban and agricultural areas. Year-round resident.
Lesser goldfinch (*Spinus psaltria*)	Occurs in patchy open habitats, including thickets, weedy fields, woodland, scrubland, and farmlands.
Lesser nighthawk (*Chordeiles acutipennis*)	Found in arid lowlands, deserts, and agricultural areas. Nests on the ground, usually beneath a shrub but sometimes out in the open. Migratory, present in Arizona spring to fall.
Mourning dove* (*Zenaida macroura*)	Occurs in a wide variety of habitats, most regularly in desertscrub, shrubby grasslands, and open woodlands. Also found in rural and urban habitats.
Northern cardinal (*Cardinalis cardinalis*)	Occurs in dense shrubby areas including overgrown fields, backyards, mesquite, thickets, and ornamental landscaping.
Northern mockingbird (*Mimus polyglottos*)	Prefers open and partly open situations. Occurs in areas of scattered brush or trees to semidesert, and around towns and cultivated areas.
Phainopepla (*Phainopepla nitens*)	Desert washes, where they feed heavily on desert mistletoe berries. Occurs in Arizona during the breeding season.
Red-tailed hawk (*Buteo jamaicensis*)	Occurs in a wide variety of open habitats. Elevated perches are important. Year-round resident.
Red-winged blackbird (*Agelaius phoeniceus*)	Nests near water. During migration and wintering can also occur in cultivated lands, pastures, and prairies. May be year-round or migratory.
Rock pigeon*,† (*Columba livia*)	Introduced. Closely associated with human settlement, such as towns, parks, and agricultural areas. Year-round resident.
Swainson's hawk (*Buteo swainsoni*)	Occurs in open pine-oak woodland and cultivated lands. Migratory, breeds in Arizona.
Turkey vulture (*Cathartes aura*)	Widespread, and uses a variety of habitats. Commonly perches on rocky outcrops, cliffs, canyon walls, transmission towers, telephone poles, and tall trees. Migratory.
Waterfowl and occasional-use birds	Waterfowl and other birds may use the existing ponds within the Study Area as loafing ponds—midday stops where birds rest before feeding or heading back to the roost. Other birds may be attracted to the water in the existing ponds, but not use the area for nesting, roosting, foraging, or reproduction.
Western kingbird (*Tyrannus verticalis*)	Prefers open areas in many habitat types including desert, rural, and agricultural areas. Migratory.
White-crowned sparrow (Zonotrichia leucophrys)	Occurs in woodlands, shrubland, croplands, suburbs, old fields, and conifer woodlands.
White-winged dove* (*Zenaida asiatica*)	Habitat generalist, including desertscrub, riparian, urban, and agricultural areas. Year-round resident.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	Breeds near freshwater marshes. During migration or winter, occurs in open cultivated lands, pastures, and fields. Wintering and migratory only in Project Area.

Source: Range or habitat information is from Corman and Wise-Gervais (2005); eBird (2022); NatureServe Explorer (2022).

* Observed in Project Area during field reconnaissance.

† Nonnative species

REPTILES

The Lower Colorado River Valley subdivision of the Sonoran Desert biotic community is home to many reptile species (Brown 1994) (Table D-3). Many species typical of this biotic community would be unlikely to occur in urban areas or within previously disturbed areas due to a lack of vegetation or other habitat components but could occur in the portions of the Study Area that contain native vegetation.

Table D-3. Reptile Species that May Occur in the Project Area or Study Area

Common Name (*Scientific Name*)	**Habitat**
Coachwhip (*Coluber flagellum*)	Typically occurs in desertscrub and semidesert grasslands. Uses a wide range of habitats including desert, prairie, scrubland, woodland, farmland, and creek valleys, generally in dry, open terrain.
Desert horned lizard (*Phrynosoma* [*Doliosaurus*] *platyrhinos*)	Occurs in desertscrub communities in flat, open areas with sparse vegetation. Can also be found on rocky bajadas and hillsides.
Desert iguana (*Dipsosaurus dorsalis*)	Primarily occurs in Mohave desertscrub and Lower Colorado River Subdivision of Sonoran Desertscrub, and occasionally in Arizona Upland Subdivision of Sonoran Desertscrub. Occurs on flatlands and gently sloping bajadas.
Desert nightsnake (*Hypsiglena chlorophaea*)	Ranges from flat, open sandy deserts to steep, rocky, and wooded slopes.
Desert spiny lizard (*Sceloporus magister*)	Sonoran Desertscrub, Great Basin Desertscrub, Semidesert Grassland, Interior Chaparral, and woodlands.
Gophersnake (*Pituophis catenifer*)	Found in biotic communities up to Alpine Tundra. Occurs in deserts, forests, and coastal grasslands.
Long-nosed snake (*Rhinocheilus lecontei*)	Occurs in deserts, dry prairies, arid river valleys, thornbrush, and shrubland.
Mojave rattlesnake (*Crotalus scutulatus*)	Occurs in desertscrub and semidesert grasslands. Found in upland desert and lower mountains slopes, barren desert, grassland, open woodland, and scrublands. Most often occurs with creosote bush, paloverde, mesquite, or cacti.
Ornate tree lizard *(Urosaurus ornatus*)	Occurs in most biotic communities from desertscrub to subalpine.
Sidewinder (*Crotalus cerastes*)	Typically occurs in flat, open desert with sandy or loamy soils.
Tiger whiptail (*Aspidoscelis tigris*)	Occurs in a wide variety of habitats including creosote bush flats, sandy wash, canyons, and hillsides. Found in desertscrub, semidesert grasslands, and lower reaches of chaparral.
Zebra-tailed lizard (*Callisaurus draconoides*)	Primarily occurs in desertscrub. Occurs in flatlands and broad, sandy washes.
Western banded gecko (*Coleonyx variegatus*)	Ranges from dry creosote flats to rugged, rocky slopes to barren high desert plateaus.

Source: Range or habitat information is from AGFD (2022a; 2022b); Brennan (2012); NatureServe Explorer (2022).

AMPHIBIANS

One amphibian species (Table D-4) has the potential to occur within the Project Area and/or Study Area in any of the perennial water sources or other locations that accumulate water, including roadside puddles or depressions following monsoon rains or within fields during flood irrigation. Amphibians could also occur in mud cracks, mammal burrows, or structures within the Study Area to avoid desiccation.

Table D-4. Amphibian Species that May Occur in the Project Area or Study Area

Common Name (*Scientific Name*)	Habitat
Couch's spadefoot (*Scaphiopus couchii*)	In the United States, found in arid and semi-arid shrublands, shortgrass plains, mesquite savanna, creosote bush desert, thorn forest, and cultivated areas. Individuals are typically buried underground except during and for a short time following monsoon rains.

Source: Range or habitat information is from AGFD (2022a); Brennan (2012); NatureServe Explorer (2022).

FISH SPECIES

There is no perennial aquatic habitat in the Project Area, though some occurs in the Study Area. The nearest perennial water is the pond at Festival Fields Pond, which is within the Study Area 0.2 mile north of the Project Area. This pond contains fish and is stocked with nonnative sportfish species including catfish (Order Siluriformes), sunfish (*Lepomis* spp.), bass (*Micropterus* spp.), and trout (*Oncorhynchus* spp.) (AGFD 2022c). No native fish species would be expected to occur. The ponds associated with past gravel mining operations at the southern edge of the Study Area boundary are not expected to contain fish. If the pond associated with the Coldwater Springs Golf Course (located on the northeastern edge of the Study Area boundary) contained fish, it is expected that the fish would consist of nonnative species either stocked or released into the ponds.

In a study of Central Arizona Project canals, the following non-native fish species were observed as stocked in the human-made canals (Kesner and Marsh 2010): bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), common carp (*Cyprinus carpio*), flathead catfish (*Pylodictis olivaris*), grass carp (*Ctenopharyngodon idella*), green sunfish (*Lepomis cyanellus*), mosquitofish (*Gambusia affinis*), red-ear sunfish (*Lepomis microlophus*), red shiner (*Cyprinella lutrensis*), striped bass (*Morone saxatilis*), smallmouth bass (*Micropterus dolomieu*), and threadfin shad (*Dorosoma petenense*). While this Study Area is distant to the Central Arizona Project canals, large canals—such as the Buckeye Canal that lies just south of the Study Area—would be expected to be stocked with similar nonnative fishes. Thus, these species have the potential to occur in canals within the Project and Study Areas to the extent that the canals within the Project and Study Areas are hydrologically connected to larger canals (e.g., the Buckeye Canal).

Summary of Potential Effects

Plant Species

Some or all of the vegetation within the Project Area may be removed during Project construction activities but the permanent disturbance footprint for the Project would be limited to transmission pole structure locations. Much of the Project Area has been previously disturbed by agricultural and commercial development. Within the Agua Fria River corridor, desertscrub vegetation has experienced varying levels of previous human disturbance regardless of whether one or more of the subroute alternatives are chosen. Therefore, the loss of vegetation caused by the Project would not result in substantial impacts to the Lower Colorado River Valley subdivision of the Sonoran Desert biotic community at the landscape level. The amount vegetation acreage loss would vary among subroute alternatives, but no alternative would result in substantial impacts at the landscape level.

Mammal Species

Project construction activities could cause death or injury to terrestrial mammals that may not be able to flee from heavy equipment or vehicular traffic, with a higher likelihood of these impacts for individuals of species that are small, nocturnal, or fossorial (burrowing). Project construction could cause behavioral

changes, as individuals would be expected to flee from an increase of noise, vibration, and human presence within the Project vicinity. Individuals would be expected to flee or hide, depending on the species' life history, which could increase depredation, decrease foraging success, reduce reproductive success, and result in loss of fitness for that individual from increased metabolic output. Project construction activities would be temporary. The loss and degradation of mammal habitat from short- and long-term Project activities would be minor as the planned disturbance within the Project Area is relatively small, and the western portion of the Project Area contains little vegetation. Loss of vegetation from construction activities in the western portion of the Project Area (e.g., in the agricultural fields and commercial development) would not contribute meaningfully to habitat fragmentation for mammals or decrease connectivity between habitats. Construction is likely to disrupt the use of the Agua Fria River corridor by mammals in the short term, but because the Project involves electrical infrastructure (i.e., new steel poles), the entire Project Area would not be cleared of vegetation. Therefore, in the long term, the Project would not contribute meaningfully to habitat fragmentation for mammals or decrease connectivity between habitats. Because portions of Subroutes A, B, and C that differ from the Preferred Route are located outside the Agua Fria River, there would be no difference in the impacts to mammals if one or more of these subroutes are chosen to modify the Preferred Route. Although Subroute D has a different footprint within the Agua Fria River than the Preferred Route, impacts to the ability of mammals to use the area from Subroute D would be similar to impacts from the Preferred Route.

The Project Area contains roosting habitat for bat species. During the field study on July 6, 2022, the West Buckeye Road bridge was found to have suitable crevices and concrete habitat for roosting bats. The Study Area may additionally contain riparian trees and buildings (abandoned or otherwise) that bats may use for roosting.

The proposed transmission line would cross over West Buckeye Road bridge and the adjacent railroad bridge that could also shelter roosting bats. This transmission line will not require any changes to these bridges, as the line would span over the bridges. However, construction activities may occur on the West Buckeye Road bridge (i.e., placement of equipment for stringing the conductors on the new transmissions structures), which could cause vibrations and noise on the bridge. All construction activities would occur during daylight hours (i.e., when bats are roosting and not active). While bridge roosting habitat would not be destroyed by the Project, impacts to roosting bats arising from noise and vibration may occur, including avoidance, behavior changes, or loss of fitness for individuals. The impacts to bats would be the same regardless of whether one or more of the subroute alternatives are chosen because all alternatives would cross over the West Buckeye Road bridge and adjacent railroad bridge.

Impacts to species roosting in abandoned buildings or riparian trees that may occur within the Study Area (but outside the Project Area) from noise or vibration would likely be minor, as the severity of these impacts decreases with increasing distance from construction.

Insectivorous bat species would lose a small area of habitat as many species have the potential to forage over the Study Area, which contains water and therefore likely abundant insect populations. However, the loss of habitat in the Study Area is unlikely to have population-level impacts to any bat species because the area of disturbance is relatively small compared to the available habitat outside of the Study Area.

Construction of the Project would result in an increase of fugitive dust. The fugitive dust during construction could change mammal behavior (e.g., reducing the amount of foraging). The likelihood and severity of impacts from construction would decrease with increasing distance from the Project Area.

Bird Species

Birds, including raptors, can collide with transmission lines, resulting in injury or death (APLIC 2012). Birds that are large-bodied, are fast flyers, have large wing spans, and/or that have low maneuverability (e.g., many wading birds or waterfowl), or birds that show certain behaviors (e.g., flocking, flying at altitudes at or below transmission line height, or birds that nest or forage in close proximity to

transmission lines) have a higher risk of impacts from transmission line collisions (APLIC 2012). Birds generally avoid collision with transmission lines when they are perceived by the bird, and therefore collision risk is lower in areas where multiple transmission lines are co-located, or transmission lines are placed near other infrastructure (APLIC 2012).

Transmission lines can also cause electrocution when a bird is able to touch both energized and grounded electrical components at the same time, which is generally more common in birds with large wing spans, birds that use power poles (e.g., perching, foraging, roosting, or nesting), or in situations where electrical configuration includes closely spaced energized and grounded components that are easily spanned by birds (APLIC 2006).

Resident, migrating, or dispersing birds would be at risk of collision or electrocution with new transmission lines or poles. Studies have shown that no waterfowl collisions occurred where distances from transmission lines to bird-use areas were more than 1 mile (1.6 km) (APLIC 2012).
New infrastructure associated with the Project may increase the risk of collision. There is potential for impacts to nests including death or injury of eggs or nestlings or nest failure from construction disturbance.

The transmission line construction would cross over West Buckeye Road bridge and the adjacent railroad bridge that contains suitable nesting sites for cliff swallows. Cliff swallows have nested at the West Buckeye Road bridge in the past and have the potential to return to this site to nest. The proposed transmission line construction will not require any changes to these bridges, as the line would span over the bridges. However, construction activities may occur on the West Buckeye Road bridge (i.e., placement of equipment for stringing the conductors on the new transmissions structures), which could cause vibrations and noise on the bridge. All construction activities would occur during daylight hours (i.e., when swallows are active). While bridge nesting habitat would not be destroyed by the Project, impacts to cliff swallows arising from noise and vibration may occur, including avoidance, behavior changes, loss of fitness for individuals, or nest failure resulting in death of eggs or nestlings. However, these impacts would be eliminated by following mitigation measures and avoiding construction when cliff swallow nests are active in the Project Area. The impacts to swallows would be the same regardless of whether one or more of the subroute alternatives are chosen because all alternatives would cross over the West Buckeye Road bridge and adjacent railroad bridge.

Potential impacts to bird species resulting from behavioral changes due to increased noise, vibration, or human presence would be the same as those described for mammals. Potential impacts from the loss, degradation, and fragmentation of bird habitat from Project activities would be the same as those described for terrestrial mammals.

Reptile Species

Potential impacts to reptiles including death, injury, or impacts arising from behavior changes would be similar to those described for terrestrial mammals. Fossorial reptiles, reptiles that are inactive due to heat or cold, and small reptiles would have a higher chance of injury or death compared to those individuals that are more mobile. Potential impacts from the loss, degradation, and fragmentation of reptile habitat from Project activities would be the same as those described for terrestrial mammals.

Amphibian Species

Potential impacts to amphibians including death, injury, or impacts arising from behavior changes would be similar to those described for terrestrial mammals. Potential impacts from the loss, degradation, and fragmentation of amphibian habitat from Project activities would be the same as those described for terrestrial mammals.

Fish Species

Project activities would not increase the risk of injury or death to any individual fish occurring in the ponds within the Study Area during construction because there is a reasonably safe distance between the Project Area and the nearest waterbody. There would be no additional impacts to fish because fugitive dust and noise from construction would be unlikely to reach the nearest ponds in the Study Area.

Mitigation Measures

The following mitigation measures address measures to reduces risk of animal injury or spread of invasive species. For mitigation measures specific to special-status species, please see Exhibit C.

- Transmission lines pose a risk of collisions and electrocution for birds, particularly raptors. To minimize that risk, the Applicant will construct the proposed transmission line following the guidelines outlined in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012).
- If vegetation-disturbing activities are planned during the migratory bird nesting season (March–September generally, or January–June for raptors), measures to avoid any active bird nests within the Project Area, such as preconstruction surveys for migratory bird nests by a qualified biologist, should be taken to maintain compliance with the Migratory Bird Treaty Act (MBTA) since suitable nesting habitat for migratory bird species is present within the Project Area.
    - Prior to construction, APS will have a qualified biologist inspect the West Buckeye Road bridge and the adjacent railroad bridge for current use by nesting swallows. If they are present, APS will avoid construction from February 1 to August 31 (i.e., the swallow nesting period) within 100 feet of the bridges to avoid affecting the nesting swallows and maintain compliance with the MBTA.
- To minimize the introduction and spread of invasive weed species, standard BMPs will be used during construction. These BMPs can include measures such as washing equipment prior to and following mobilization to the Project Area.

Conclusion

Based on the assessment in this exhibit, the Project's Preferred Route and subroute alternatives would have low impacts to biological resources and would be environmentally compatible. The impacts from the Preferred Route would not appreciably differ from the impacts from the subroute alternatives.

Bat roosts have the potential to be impacted by Project activities. Roosting habitat would not be permanently lost, but any individuals that use the West Buckeye Road bridge during construction may be impacted in the short term. Because the roosting habitat will remain after construction, and because many bridges suitable for bat roosting are in the Study Area and vicinity, Project activities are unlikely to cause population-level impacts to any species. Because the subroute alternatives do not differ at the West Buckeye Road Bridge and adjacent railroad bridge, there would be no difference in impacts to bats regardless of whether one or more of the subroute alternatives are chosen.

Much of the western portion of the Project and Study Areas is previously disturbed, developed urban area. The eastern portion of the Project and Study Areas lies within the Agua Fria River corridor. However, even within the Agua Fria River corridor, much of the vegetation has been previously disturbed. Existing roads, a railroad, and transmission lines are adjacent to and within the Project and Study Areas. The plant diversity is lower and structure less complex within the Project Area (including the Agua Fria River corridor) than in typical undisturbed desert areas. Similarly, fewer wildlife species would be expected to

occur in the disturbed, developed areas than would be expected in native desert habitat. However, because the Agua Fria River contains desertscrub habitat and forms a corridor between the Gila River and the Lake Pleasant Regional Park, wildlife may use the Agua Fria River as a migration or dispersal corridor.

Because the Project would permanently disturb only a relatively small area, and similar vegetation and habitat occur outside of the Study Area, impacts to general plants and wildlife would be minimal and restricted to individuals. At a landscape level, the Project would not significantly reduce the amount of vegetation available for wildlife use. While a short-term increase in habitat fragmentation and impact on wildlife dispersal or migration corridor could occur during construction activities, the completed Project would not impede wildlife movement within the Agua Fria River corridor. Therefore, the proposed Project may impact individuals (both wildlife and plant) but would be unlikely to have impacts at the population level for any species. The subroute alternatives are extremely similar in total acreage impacted and location of impacts. Therefore, there may be negligible differences in the number of individuals (wildlife for plant) that are impacted or small differences in the short-term use of the Agua Fria River corridor depending on whether one or more subroute alternative is chosen. No subroute alternative would be expected to have impacts on plants or wildlife at a landscape or population level.

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EXHIBIT E. SCENIC AREAS, HISTORIC SITES AND STRUCTURES, AND ARCHAEOLOGICAL SITES

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

> *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.*

Scenic Areas and Visual Resources

SWCA conducted a review of scenic and visual resources in the Project Area (i.e., the Preferred Route and subroute alternatives) and the Study Area (i.e., the Project Area plus a 1-mile buffer). The following sections include a description of the methodology for assessing visual and scenic resources, results of the inventory of scenic resources and sensitive viewers, and a discussion of the potential effects of the Project. The Project Area is located on privately owned land with the exception of the portions crossing road ROW owned by Maricopa County (at Litchfield Road, Lower Buckeye Road, and MC 85/West Buckeye Road), road ROW owned by City of Goodyear (Lower Buckeye Road [west of Litchfield Road], El Cielo/141st Avenue, La Luna), and parcels within the Agua Fria River corridor owned by the City of Avondale and the Flood Control District of Maricopa County. The Project Area is under the jurisdiction of the Cities of Goodyear and Avondale and Maricopa County, Arizona. The Project does not involve any federal public lands (e.g., Bureau of Land Management, U.S. Forest Service) that would require conformance with visual resource management objectives or guidelines. Furthermore, the Project is not located within any designated national or state scenic areas.

Methodology

The purpose of the visual impact assessment is to identify and characterize the level of visual modification in the landscape that would result from the construction and operation of the Project. Visual impacts are typically described in terms of the visual contrast created by the Project, which can potentially affect both scenic quality and sensitive viewers. Scenic quality refers to the general characteristics and inherent aesthetic value of the landscape as a resource regardless of specific viewers. The term “sensitive viewers” refers to specific individuals and/or groups whose views could be affected by the Project. The methods used to conduct this visual impact assessment are consistent with past visual resource studies conducted for similar projects that have been approved by the Arizona Power Plant and Transmission Line Siting Committee.

Visual resource information and data for the visual assessment of the Study Area was developed based on publicly available geographic information system (GIS) data, aerial photography, and on-site field verification and photographic documentation. These data were collected for all lands, regardless of jurisdiction, and used to develop a comprehensive understanding of the existing landscape and associated visual resources.

To assess how the Project may visually modify the existing landscape, APS and the Project team developed photo-realistic visual simulations of Project components from representative viewing locations, referred to as key observation points (KOPs). In selecting KOPs, the Project team visited the Project Area in March 2022, to evaluate nearby residential areas, recreational areas, and travel routes from which the Project would likely be visible. APS ultimately selected five KOPs; existing conditions were photographed from each KOP for the purpose of creating visual simulations.

- KOP 1 represents views from the residential area and travel route along Litchfield Road, facing northeast toward the Project. The following links in the Preferred Route would be visible from this KOP (from west to east): 430S, 310NE, 310SE, 1310, and 185 (see Exhibit G, Exhibits G-5 and G-6).
- KOP 2 represents views from travel routes at the intersection of MC 85 and West Lower Buckeye Road, facing southwest toward the Project. The following links in the Preferred Route would be visible from this KOP (from west to east): 1240, 1250, 1260, 535W, and 435S (Exhibits G-7 and G-8).
- KOP 3 represents residential views from the Litchfield Mountain View Homeowners Association and travel route near West Lower Buckeye Road, facing southwest toward the Project. The following links in the Preferred Route would be visible from this KOP (from west to east): 430S, 310NE, 310SE, and 1310 (Exhibits G-9 and G-10).
- KOP 4 represents recreational views from the Almar community pool and park along South 125th Avenue, facing northwest toward the Project. The following links in the Preferred Route would be visible from this KOP (from southwest to northeast): 190, 1350, 195, 1320 (Exhibit G-11).
- KOP 5 represents recreational views from the Agua Fria River Trail East and adjacent residential area and travel route along MC 85/West Buckeye Road, facing west toward the Project. The following links in the Preferred Route would be visible from this KOP (from southwest to northeast): 190, 1350, 195, 1320 (Exhibit G-12).

Photo-realistic simulations of the Project components were made using ArcGIS, Google Earth Pro, Autodesk products (AutoCAD and 3DS Max), and Adobe Photoshop software for each KOP (see Exhibit G, Exhibits G-5 through G-12). Developing visual simulations involves creating a three-dimensional model of Project components, positioning the modeled Project components on a digital elevation model of the Project Area, and finally superimposing the resulting model onto the KOP photographs of existing conditions at the correct scale and distance. Date and time-of-day inputs determine shadows and reflected light, and the software accounts for distance and haze to increase accuracy of viewing conditions.

Using the resulting visual simulations, the Project team evaluated the potential for impacts to both scenic quality and sensitive viewers by evaluating the visual contrast the Project would have with the existing landscape. Visual contrast refers to the degree that the Project would either resemble existing features or contrast with features in the existing landscape. The degree of visual contrast considers the existing landforms, vegetation, and built structures present in the landscape and is described in terms of the degree of perceivable change in the basic design elements of form, line, color, texture, and scale that would be evident by the introduction of the Project in the landscape.

The following distance zones were used for evaluating impacts on scenery from each KOP:

- **Immediate Foreground:** up 0.25 mile
- **Foreground:** 0.25 to 1 mile
- **Middle Ground/Background:** 1 mile and outside the Study Area

The impact thresholds for this assessment are categorized as follows:

- **High:** Project features would result in a strong degree of contrast and would appear as dominant features within the existing landscape.
- **Moderate:** Project features would result in a moderate degree of contrast and would appear as co-dominant features within the existing landscape.

- **Low:** Project features would result in a weak degree of contrast and would be subordinate to the features of the existing landscape.

SCENERY

In the context of the Project, scenery is a qualitative measure of the landscape's inherent aesthetic value on the appearance of existing landscape features, including landforms, vegetation, and built features. In general terms, the scenic quality is based on the premise that landscapes with greater diversity and visual variety in landforms and vegetation are more aesthetically pleasing, and therefore hold greater value. For this analysis, impacts to scenic quality were based on comparing the inventoried quality of the scenery to the anticipated quality considering any contrast introduced as a result of the construction and operation of the Project.

SENSITIVE VIEWERS

The concept of sensitive viewers refers to members of the public for whom the Project may be visible and who may be sensitive to potential changes in the scenery because of the Project. With regard to sensitive viewers, the Project contrast is dependent on several factors, including viewing distance, duration of view, viewing condition, and degree of visibility. When combined, these factors indicate the overall visual dominance of the Project within the landscape. The term "viewing distance" refers to the viewer's physical distance from the Project components. The assessment of visual impacts is predicated on the fact that a person's ability to discern details decreases as viewing distance increases. The duration of view refers to the length of time and associated viewing angle; generally, a viewer's attention is attracted to a higher degree as the duration of view increases. Viewing conditions refer to whether the viewer is looking down at the Project from a superior position, looking up at the Project from an inferior position, or viewing the Project from an elevation that is similar to that of the Project (i.e., a neutral view). The term "degree of visibility" refers to whether views of the Project would be either open and unobstructed, or partially to fully obstructed by other features in the existing landscape (i.e., topography, vegetation, or built features). The degree of visibility also refers to whether the Project would be viewed against the sky (i.e., skylined) or viewed against a backdrop of landforms, vegetation, and/or built features.

Anticipated viewer sensitivities to visual changes are also discussed within the analysis, including brief discussions regarding the potential sensitivities of different types of identified viewer groups within the vicinity of the Project. Residential and recreational viewer groups are typically considered to have high sensitivities to visual changes in the landscape, whereas viewers moving along travel routes are considered to have low to moderate sensitivities to visual changes (unless traveling along a designated scenic travel route or more natural-appearing areas).

Inventory Results

SCENERY

The Study Area falls within the Sonoran Basin and Range Level III ecoregion and more specifically within the Arizona Upland/Eastern Sonoran Basins Level IV ecoregion (U.S. Geological Survey [USGS] 2014). The Sonoran Basin and Range Ecoregion consists of generally broad, open landscapes with scattered mountains and vegetation consisting of paloverde trees, saguaro cactus, and other various Sonoran Desert plants. The scenery in the Study Area consists of industrial and commercial use, agricultural fields, recreation, and various types of residential development with interconnecting roads throughout the Study Area. The Gila River and Estrella Mountains are approximately 0.04 to 1.5 miles to the south, respectively; the Salt River Mountains are approximately 10.5 miles to the southeast; the White Tank Mountains are approximately 6 miles to the northwest; and the Agua Fria River runs north-south through the Study area.

In addition to the above land uses, the Study Area includes the Phoenix Goodyear Airport, Union Pacific Railroad, and regional transportation corridors. The Study Area also encompasses all or portions of the existing Runway, Broadway, and Rudd Substations and associated transmission line infrastructure. The heights of these features along with the co-located density of the infrastructure make them highly visible and dominant features in many portions of the landscape as they intersect the Study Area.

The scenic quality within the Study Area is considered relatively low based on the general lack of visually interesting landforms and vegetation, and the prominence of existing built features and development that dominates the appearance of the natural landscape.

SENSITIVE VIEWERS

Residences

A variety of residences are located within the Study Area, consisting primarily of clustered single-family home subdivisions. The nearest residential viewers to the Project are adjacent to the south of the Preferred Route along Litchfield Road at the West Elwood Street alignment. Additional residential viewers within 0.25 mile of the Preferred Route are located northeast of West Lower Buckeye Road and Litchfield Road, west of the Agua Fria River between West Lower Buckeye Road and MC 85/West Buckeye Road, and northeast of MC 85/West Buckeye Road and Agua Fria River Trail East. Views from residences within the Study Area typically include other residential developments, roadway infrastructure, industrial and commercial development, agricultural fields, and existing transmission lines and substations. When not surrounded by other structures, residential views are generally open and panoramic in nature and include views of the Estrella Mountains to the south, Salt River Mountains to the southeast, White Tank Mountains to the northwest, and the Agua Fria River crossing north-south through the Project and Study Areas. Residential viewers are assumed to have a relatively long duration of views and relatively high sensitivities to visual changes within the Study Area.

Recreation Areas

Existing recreational uses within the Study Area include city and residential parks, as well as a golf course and other passive recreational uses (see Exhibit F). The 30-acre Festival Fields Park contains tall, galvanized monopole-style lighting over the fields representing similar form, line, color, and texture to existing infrastructure. Existing transmission line infrastructure within the Study Area is also visible to many recreational users, and the heights of these features make them highly visible and dominant features in many portions of the landscape. Views from recreational users along the edges of neighborhoods are a mixture of panoramic and open in nature and include views of the Estrella Mountains to the south, Salt River Mountains to the southeast, White Tank Mountains to the northwest, and the Agua Fria River crossing north-south through the Project, to more focused or enclosed views from interior portions of neighborhoods where paths intersect neighborhoods. Recreational viewers are assumed to have relatively moderate durations of view and a moderate sensitivity to visual changes as a result of the mixture of existing visible development and infrastructure in the area in conjunction with more open natural views of surrounding mountainous landforms.

Travel Routes

The primary travel routes in the Study Area include East Van Buren Street, Yuma Road/East Western Avenue, MC 85/West Buckeye Road, West Lower Buckeye Road, East Lower Buckeye Road, South Bullard Avenue, Litchfield Road, North Dysart Road, and South El Mirage Road. These travel routes range from neighboring up to approximately 1 mile from the Project Area. Additionally, numerous collector routes support access from the primary travel routes to a variety of residential areas throughout the Study Area. Views from travel routes typically include residential developments, industrial and commercial use, agriculture properties, and existing transmission lines. The existing transmission line

infrastructure within the Study Area is visible to many travel route viewers, particularly along MC 85/West Buckeye Road and West Lower Buckeye Road as the infrastructure bisects or parallels these routes, and the heights of these transmission line features make them highly visible and dominant features when visible. With the exception of travel routes surrounded by existing buildings and/or vegetation, views from travel routes are mostly open and panoramic and include views of the Estrella Mountains to the south, Salt River Mountains to the southeast, White Tank Mountains to the northwest, and the Agua Fria River (which crosses the Project Area). Viewers moving along travel routes are expected to have relatively short durations of view due to travel speeds; views are typically focused on the immediate foreground while in motion and viewers have relatively low sensitivities to visual changes as a result of the visibility of existing development within the Study Area.

Impact Assessment Results

Below are general descriptions of the potential impacts on scenic quality and sensitive viewers based on the construction and operation of the Project. Overall, impacts associated with the Project would be low because the Project would appear similar to the existing transmission lines and the existing Rudd Substation infrastructure that are present adjacent to the Project Area, which are currently visually dominant features in the landscape.

SCENERY

The Project is anticipated to be constructed using steel double-circuit 230kV monopole structures and a cut-in structure consisting of a modification to the monopole at the interconnection near Buckeye Road and the Agua Fria River. The structures would be approximately 150 feet in height on average but could be as high as 195 feet to maintain necessary clearances. The average span length between structures would range between approximately 400 and 1,000 feet, depending on final design. The structures will have a dulled gray or weatherized finish, and conductors will have a non-specular finish in order to reduce visibility. Variations may be required to achieve site-specific mitigation objectives or meet site-specific engineering requirements.

The lines, forms, colors, textures, and scale of the Project facilities would be similar in appearance to other substation and transmission line infrastructure within the existing landscape. Overall, the Project is expected to create low impacts to the existing relatively low scenic quality within the Study Area. Project components could be seen but would not attract attention and would be subordinate to existing transmission lines and the Runway Substation, given that electrical infrastructure already dominates the views within the Study Area. The addition of the Project would result in a weak degree of contrast.

SENSITIVE VIEWERS

The following is a summary of anticipated impacts to sensitive viewers resulting from the construction and operation of the Project.

Residences

Views from residences within the Study Area would vary from unobstructed to partially or fully obstructed, based on viewing location. However, most views of the Project would be partially obstructed by existing features within the landscape, such as existing trees, dense clusters of single-family home subdivisions, commercial and industrial buildings, and other built features. Based on the generally flat landforms within the Study Area, views from residences would generally be from a neutral position and would include skylined views of the transmission line and interconnection within the substation, where visible.

Views from the residences at Litchfield Road at the West Elwood Street alignment would have unobstructed views of the Preferred Route, as represented by KOP 1 (see Exhibit G, Exhibits G-5 and

G-6) and KOP 3 (see Exhibits G-9 and G-10). Due to the close proximity of these residences and the anticipated long duration of view, views to the northeast would be dominated by the Project. The lines, forms, colors, textures, and scale of the Project would be similar in appearance to other transmission line infrastructure and interconnections found within the existing visual setting, but the close viewing distance would result in a high degree of contrast and high impact at this location.

Recreation Areas

Views of the Project from recreation areas within the Study Area would vary from partially obstructed to fully obstructed. Most views would be partially obstructed by existing features within the landscape, such as trees, existing industrial and commercial buildings, fences, dense clusters of single-family homes, and roadway infrastructure such as bridges crossing the Agua Fria River, road signs, light fixtures, and traffic poles. Based on the relatively flat landform on which the Project would be located and the similar topography in which existing recreational viewers would be located, views of the Project from recreation viewers would typically be from a neutral viewing position and would typically include skylined views of the transmission line and interconnection with the substation.

Views from a park located east of the Project along South 125th Avenue would have unobstructed to partially obstructed views of the Preferred Route, as represented by KOP 4 (see Exhibit G-11). The lines, forms, colors, textures, and scale of the Project features would be similar to those of the existing transmission line infrastructure in the area. Because of the relatively distant proximity of the recreation facilities and playground and the anticipated moderate duration of view from this location, the Project contrast could be moderate due to the codominance of the steel monopole structures with the existing transmission infrastructure. Views from this park would have partially obstructed views of Subroute D as well. The lines, forms, colors, textures, and scale of the Project features would be similar to those of existing transmission infrastructure in the area, however, the close distance of Subroute D to the park would create moderate to high contrast due to the codominance of the steel monopole structures with the distanced existing transmission infrastructure.

The Agua Fria River Trail East space located east of the Project would have partially obstructed views of the Preferred Route, as represented by KOP 5 (see Exhibit G-12). The lines, forms, colors, textures, and scale of the Project features would be similar to those of the existing transmission line infrastructure in the area. Due to the relatively close proximity of these recreation users and the anticipated moderate duration of view from this location, the Project contrast could be high due to the dominance and prominence of the tall, steel, monopole structures. However, Project views in the foreground and middle ground/background of the Project could be seen but would not attract attention and would be subordinate to other built features within the landscape, resulting in an overall weak degree of contrast and low impacts.

Travel Routes

Views from travel routes within the Study Area would vary from unobstructed to partially or fully obstructed, based on viewing location. However, most views of the Project would be partially obstructed by existing features within the landscape, such as trees, existing buildings, and other built features. Based on the generally flat landform on which the Project would be located, views of the Project from travel routes would generally be from a neutral position and would include skylined views of the transmission line and interconnect with the substation, where visible.

Views from the primary travel routes in the Study Area are represented by KOP 1 (see Exhibits G-5 and G-6), KOP 2 (see Exhibits G-7 and G-8), and KOP 3 (see Exhibits G-9 and G-10). The intersection of MC-85 and East Lower Buckeye Road located northwest of the Project (represented by KOP 2) would have partially obstructed views of the Preferred Route. Based on the orientation of primary travel routes in the Study Area, the Preferred Route would be viewed peripherally from the travel lanes for a short

duration of time due to travel speeds. Additionally, intervening vegetation, existing transmission line infrastructure, and surrounding roadway infrastructure would further influence the viewers' ability to focus attention on the Preferred Route. Because of the relatively close proximity of these travelers to the Preferred Route and the anticipated short duration of view from these locations, contrast could be high due to the dominance and prominence of the tall, steel, monopole structures. However, foreground and middle ground/background views of the Preferred Route could be seen but would not attract attention and would be subordinate to other built features within the landscape, resulting in an overall weak degree of contrast and low impacts.

Subroute B has two proposed crossings along Lower Buckeye Road, the first at the intersection of MC-85 and East Lower Buckeye Road and the second occurring at the intersection of Litchfield Road and East Lower Buckeye Road. The intersection of MC-85 and East Lower Buckeye Road would have partially obstructed views of Subroute B. Based on the orientation of primary travel routes in the Study Area, Subroute B would be viewed straight-on from the East Lower Buckeye travel lanes at the first subroute crossing location, and peripherally as the subroute continues on the northern side of Lower Buckeye Road. Subroute B would be viewed straight-on from East Lower Buckeye travel lanes at the second crossing location creating a partially obstructed view at the intersection of Litchfield Road and Lower Buckeye Road. Foreground and middle ground/background views of Subroute B could be seen at the crossing locations and along Lower Buckeye road, but would not attract attention and would be subordinate to other built features within the landscape, resulting in an overall mild degree of contract and medium impacts.

Multiple collector routes support access to a variety of residential areas throughout the Study Area. Views of the Preferred Route and subroutes from collector routes within the Study Area would vary from partially obstructed to fully obstructed. Most views would be partially obstructed by existing features within the landscape, such as trees, existing buildings, and fences. The lines, forms, colors, textures, and scale of the Project features would be similar to those of the existing transmission line infrastructure in the area. As a result, the Preferred Route and subroutes could be seen, though would not attract attention and would be subordinate to other built features within the landscape, which results in a weak degree of contrast and low impacts.

Conclusion

Based on the assessment in this exhibit, the Preferred Route and subroute alternatives would have low impacts to scenic areas and visual resources and would be environmentally compatible. The Preferred Route would minimize impacts compared to other subroutes because it maximizes proposed line's the proximity to existing transmission infrastructure, reduces proximity to recreational facilities, and reduces the number of crossings along trafficked roads.

Overall, the Project structures would be similar in form, line, color, texture, and scale as compared to existing transmission line and substation infrastructure associated with the existing Runway, Broadway, and Rudd Substations in the Study Area, which would result in low impacts to scenery. Similarly, impacts to sensitive viewers would range from low to high as a result of perceived contrast due to intervening visual elements, similarities with existing transmission infrastructure, and the duration of view of the Preferred Route and subroute alternatives within the Study Area.

Historic Sites and Structures, and Archaeological Sites

As required by the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, the potential effects of the proposed Project on historic sites and structures and archaeological sites were assessed. The assessment also was prepared to support Arizona Corporation Commission compliance with the State Historic Preservation Act (Arizona Revised Statutes 41-861 through 41-864), which

requires state agencies to consider impacts of their programs on historic properties listed in or eligible for listing in the Arizona Register of Historic Places (ARHP), and to provide the State Historic Preservation Office (SHPO) an opportunity to review and comment on the actions that affect such historic properties.

To be eligible for the ARHP, a property must be at least 50 years old (or sometimes less, if it has special significance) and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. The property should also possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet at least one of the four following criteria:

- Criterion (a): be associated with an event that made a significant contribution to the broad pattern of history
- Criterion (b): be associated with the life of a historically significant person
- Criterion (c): embodies a distinctive characteristic of a type, period, or method of construction, represents the work of a master, possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction
- Criterion (d): has yielded or is likely to yield important prehistorical or historical information.

Methodology

SWCA reviewed archival records to identify historic sites, historic structures, and archaeological sites within the Project Area and the Study Area. Data sources searched include the AZSITE database, the Arizona State Museum (ASM) Archaeological Records Office, the National Register of Historic Places database, the ARHP, and General Land Office (GLO) plat maps and historic-era topographic maps.

Historic-era Sites

The records review identified five historic-era sites within the Study Area, none of which intersect the proposed Preferred Route or subroute alternatives. The first site is the Goodyear Airport and historic Litchfield Park Naval Air Facility (AZ T:11:190[ASM]), which was determined eligible for the ARHP under Criteria A and D (Schilling et al. 2010). The second site is the Litchfield Train Depot for the junction of the Southern Pacific Railroad and the Litchfield Industrial Lead line. This site's ARHP eligibility status is unknown. Site AZ T:11:42(ASM) is remnants of earthen portions of the St. Johns Canal that are no longer in use. The canal has been determined eligible for the ARHP under Criteria A, B, and C (Rogge et al. 2001). The remaining two historic-era sites (AZ T:11:46[ASM] and AZ T:11:54[ASM]) are twentieth-century canal remnants that have been determined not eligible for the ARHP (Rogge et al. 2001).

Historic Structures

The AZSITE database identified a total of 467 historic-era buildings and structures within the Study Area.

- U.S. Route 80 (U.S. 80) intersects the proposed Preferred Route at Links 195 and 535W, Subroute A at Link 530, and Subroute B at Link 535E. U.S. 80 is not designated as an archaeological site but has been given the site number AZ FF:9:17(ASM) and has been determined eligible for the ARHP under Criteria A and D (Stahman 2006).
- The Southern Pacific Railroad: Wellton-Phoenix-Eloy Spur intersects the proposed Preferred Route at Link 1320. The Southern Pacific Railroad has been given the site number AZ T:10:84(ASM) and has been determined eligible for the ARHP under Criterion A (Stahman 2006).
- The Agua Fria Highway Bridge (MC 85/West Buckeye Road) intersects the proposed Preferred Route at Link 195. The bridge's ARHP eligibility status is unknown.

- Three historic-era buildings are adjacent to Subroute D at Link 1340. These are single-family residences that were constructed in 1971, and their ARHP eligibility statuses are unknown.
- Bullard Avenue has been given the site number of AZ T:11:140(ASM) (Stahman 2006). The road is in the Study Area and has been determined not eligible for the ARHP.
- 460 buildings in the Study Area, constructed between 1911 and 1971, all have unknown ARHP eligibility statuses.

The GLO plat of Township 1 North, Range 1 West, filed in 1870, depicts a single unnamed road crossing the proposed Preferred Route at Link 1250 and Subroute A at Link 1230NE. The GLO plat of Township 1 North, Range 1 West, filed in 1918, depicts the Arizona & Eastern Railway in the same alignment as the Southern Pacific Railroad: Wellton-Phoenix-Eloy Spur, discussed above. The 1918 GLO maps also depicts four unnamed roads that intersect the Preferred Route at Links 430S, 450, 1240, 1260, 310SE, 1310; Subroute A at Link 1230NE; Subroute B at Link 430N; and Subroute C at Link 1370. A canal intersects Subroute D at Link 1330. Sites mapped within the Study Area that do not intersect the Project Area include a SCHOOL, the W. MOORE HOUSE & STORE, the JOS. R. CARILLA HOUSE, the FRAME HOUSE, the TOWN OF AVONDALE, a road to Phoenix, three unnamed roads, five fence lines, a wall, a telephone line, two adobe houses, and a field.

The 1957 USGS Tolleson and Perryville, Arizona, 7.5-minute topographic quadrangles depict the following along or intersecting with the Preferred Route: Litchfield Road at Link 430S, Lower Buckeye Road at Link 195, the Southern Pacific Railroad at Link 1320, two unimproved roads at Links 185 and 450, and four buildings/structures at Link 310NE. The USGS quadrangles also depict a well along Subroute A at Link 1230NE, a well along Subroute C at Link 1280NW, Litchfield Road along Subroute C at Link 1370, Lower Buckeye Road along Subroute D at Link 1340, and an unimproved road along Subroute D at Link 1330. In the Study Area (but not intersecting with the Preferred Route or subroute alternatives), the USGS quadrangles additionally depict Litchfield Park Naval Air Facility, multiple roads and buildings/structures related to the cities of Avondale and Goodyear, Agua Fria Union High School, Bullard Avenue, Broadway Road, Dysart Road, El Mirage Road, Van Buren Street, a transmission line, a pipeline, nine improved roads, 12 unimproved roads, a levee, three gravel pits, seven wells, two reservoirs, a drive-in theater, and 92 building/structures.

Archaeological Sites

Three archaeological sites have been documented within the Study Area, one of which intersects the Preferred Route. The Coldwater Ruin site (NA15798) is a prehistoric Hohokam village that intersects the Preferred Route at the southern edge of Link 1240 (Antieau 1981). In 2018, SWCA excavated archaeological test trenches within Coldwater Ruin in this area; the trenches located near the Preferred Route did not find any cultural material (Fjerstad 2018).

The Larkin Site (AZ T:11:174[ASM]) and La Cienega (AZ T:11:23[ASM]) are also prehistoric Hohokam villages. The Larkin Site has been recommended eligible for the ARHP under Criterion D (Garcia 2006). La Cienega has not been evaluated for ARHP eligibility (Ayers 1965).

Assessment of Effects

A project can have direct and/or indirect effects on a historic-era site, structure, or archaeological site when it alters the characteristics that qualify it for listing in the ARHP. Effects are adverse when they diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

- Physical destruction of or damage to all or part of the property
- Removal of the property from its historic location

- Change of the character of the property's use of physical features within the property's setting that contribute to its historic significance
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic characteristics
- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe
- Transfer, lease, or sale of a property out of government ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance

The records review identified the proposed Project Area crossing one archaeological site, Coldwater Ruin, which was recommended eligible for the ARHP. Subsequent archaeological testing and industrial development have likely removed any cultural resources related to this site from the Preferred Route. In addition, many historic-era structures were identified in the Project Area, including the Southern Pacific Railroad and U.S. 80, which were both determined eligible for the ARHP. The proposed development of an overhead 230kV transmission line would not negatively impact these historic properties. Other resources that were found to be intersecting the proposed Preferred Route or subroute alternatives that have not yet been evaluated for listing in the ARHP were mainly linear resources, such as roads. The development of the Project would not directly impact these resources. The majority of the proposed Project Area has been covered by prior cultural resources surveys, but given the development of the area, it is unlikely that there would be previously unrecorded ARHP-eligible resources that would be directly affected by the Project.

The records review identified three historic properties in the Study Area, consisting of the Larkin Site, the Litchfield Park Naval Air Facility, and St. Johns Canal. Construction of the transmission line would introduce a visual element to these areas, but it would not diminish the integrity of the characteristics of these properties for which they are eligible for listing in the ARHP.

Conclusion

Based on the assessment in this exhibit, Project's Preferred Route and subroute alternatives are not expected to have any adverse impacts on cultural resources, and therefore the Project is environmentally compatible.

Literature Cited

Antieau, J. M. 1981. *The Palo Verde Archaeological Investigations. Hohokam Settlement at the Confluence: Excavations Along the Palo Verde Pipeline*. MNA Research Paper 20. Flagstaff: Museum of Northern Arizona.

Ayers, James E. 1965. *A Summary of Archaeological Sites in Maricopa County.* Tucson: Arizona State Museum,.

Fjerstad, Branden R. 2018. *Results of Phase I Archaeological Site Extent Identification Testing within a Portion of Coldwater Ruin (NA15798), Goodyear, Maricopa County, Arizona*. Technical Report No. 18-619. Phoenix, Arizona: SWCA Environmental Consultants.

Garcia, Daniel. 2006. *An Archaeological Assessment of Proposed Expansion Areas at the City of Avondale Water Reclamation Facility, Maricopa County, Arizona*. Technical Report No. 06-866. Mesa, Arizona: EcoPlan Associates.

Rogge, A.E. (Gene), Kimberley E. Ryan, and David E. Doyel. 2001. *Cultural Resource Survey for the Las Ligas and Rio Vista Neighborhoods Sidewalk and Street Improvements Project, Avondale, Maricopa County, Arizona*. Cultural Resource Report No. 2001-71(AZ). Phoenix, Arizona: URS Corp.

Schilling, Linda M., Victoria D. Vargas, and Thomas E. Jones. 2010. *Cultural Resource Survey of 797 Acres for the Goodyear Airport Improvements Project, Goodyear, Maricopa County, Arizona*. Project No. 09-099-02. Tempe, Arizona: Archaeological Consulting Services.

Stahman, Andrea. 2006. *Cultural Resource Survey of 26 Linear Miles along County Road 85/Buckeye Road between 75th Avenue and Turner Road, Maricopa County, Arizona*. Technical Report No. 06-12. Tempe, Arizona: Northland Research, Inc.

U.S. Geological Survey. 2014. Ecoregions of Arizona. Available at: https://pubs.usgs.gov/of/2014/1141/pdf/ofr2014-1141_front.pdf. Accessed August 5, 2022.

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EXHIBIT F. RECREATION

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

> *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.*

SWCA analyzed existing recreation resources within the Study Area including parks, open space, and other recreational opportunities. Existing and future recreational sites are under the jurisdictions and management of the City of Goodyear, City of Avondale, and Maricopa County, Arizona.

Recreation Resources

Existing recreational uses within the Study Area include city and residential parks, as well as a golf course and other passive recreational uses (Table F-1) (City of Avondale 2017, 2022; City of Goodyear 2022; Google Earth 2022). The two largest recreation facilities in the Study Area include Festival Fields Park and the Goodyear Ballpark complex. The City of Avondale's Festival Fields Park is centrally located within the Study Area, adjacent to the Agua Fria River. This park is approximately 57 acres and contains multiple sports fields (baseball/softball, soccer, pickleball), a pond, several multi-use paths, a skateboard and bicycle motocross course, several playground structures, picnic tables, and other recreational facilities. Additionally, the Goodyear Ballpark complex is a Major League Baseball Spring Training facility located within the Study Area, adjacent to the west of the Phoenix Goodyear Airport. The ballpark complex is approximately 100 acres and contains multiple full baseball fields as well as several training fields for the Cleveland Guardians and the Cincinnati Reds; the facility is open for the public to attend games and workouts during the spring months.

Table F-1. Recreation Areas in the Study Area

Recreation Area	Location	Approximate Distance from Preferred Route
Agua Fria River Trail East	1 mile long, oriented north-south, northeast of MC 85/West Buckeye Avenue and the Agua Fria River	500 feet east
Coldwater Springs public golf course	North of MC 85/ West Buckeye Road and east of Agua Fria River	0.3 mile northeast
Las Ligas Park	12421 West Lower Buckeye Road (southeast of West Lower Buckeye Road and South 125th Avenue)	0.8 mile east
Festival Fields Park	South of West Lower Buckeye Road and west of Agua Fria River	0.2 mile north
Various pocket parks located in the residential communities (e.g., Cantada Ranch pocket park)	Throughout the Study Area	Varies
Dennis Deconcini Park	351 East Western Avenue (southwest of East Western Avenue and South 4th Street)	0.8 mile west
Fred Campbell Park	101 E. Lawrence Boulevard (east of North Central Avenue)	1.0 mile northwest
Mountain View Park	201 East Mountain View Drive (east of South 2nd Street)	0.3 mile west
Dessie Lorenze Plaza	202 East Main Street (MC 85 and South Central Avenue)	0.6 mile west

Recreation Area	Location	Approximate Distance from Preferred Route
Doc Rhodes Plaza	104 W. Western Avenue (northwest of West Western Avenue and North Central Avenue)	1.0 mile west
Sernas Plaza	521 E. Western Avenue (southeast of East Western Avenue and South 5th Street)	0.7 mile west
Goodyear Ballpark complex (Major League Baseball Spring Training facility)	Northeast of Estrella Parkway and South Bullard Avenue	1.0 mile west

Sources: Google Earth (2022), City of Avondale (2017, 2022), and City of Goodyear (2022)

Other "pocket-parks," or smaller parks associated with residential communities, are scattered throughout the Study Area (see Table F-1). The Coldwater Springs golf course is a public golf course that meanders through the Coldwater residential community located in the northeastern portion of the Study Area. The facility also provides social opportunities at its club house.

The Agua Fria River runs approximately 2.5 miles north-south through the center of the Study Area. The river provides active and passive recreation opportunities such as non-motorized, unpaved trails along the river corridor and along its banks. According to the City of Avondale's *Parks, Recreation, Libraries and Trails Master Plan Update*, the planned Maricopa County Sun Circle Trail will run along the Agua Fria River within the Study Area (City of Avondale 2017). Once constructed, the Sun Circle Trail would provide a paved trail for running, biking, equestrian use, and other non-motorized activities.

Conclusion

Based on the assessment in Exhibit F, the Project's Preferred Route and subroute alternatives would be environmentally compatible, however Subroute D would have higher impacts to recreation than other routes. The Preferred Route would be co-located with the existing Broadway–White Tanks 69kV transmission line so long-term recreational impacts to the Agua Fria River corridor are expected to be negligible. Subroute D would add additional poles and transmission infrastructure to the Agua Fria River corridor resulting in impacts to recreational users within the corridor. Recreation could temporarily be limited during construction activities for the Preferred Route and subroute alternatives, due to safety. Subroutes A, B, and C are not expected to have recreational impacts, as none of the routes would interfere with known recreational activities.

APS will coordinate and cooperate with the appropriate planning authorities and communities, as needed, in regard to recreational uses within the Project Area, with due consideration for the operation, maintenance, and safety requirements of the Project and the local recreation facilities. No impacts to existing or future recreational resources are anticipated from the Project.

Literature Cited

City of Avondale. 2017. *Parks, Recreation, Libraries and Trails Master Plan Update.* Available at: https://www.avondaleaz.gov/home/showpublisheddocument/9024/636619177807100000. Accessed August 2022.

———. 2022. Parks & Recreation. Available at: https://www.avondaleaz.gov/government/departments/parks-recreation. Accessed August 2022.

City of Goodyear. 2022. Parks & Recreation. Available at: https://www.goodyearaz.gov/government/departments/parks-recreation. Accessed August 2022.

Google Earth. 2022. Project area imagery. Available at: http://earth.google.com/web. Accessed August 9, 2022.

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EXHIBIT G. CONCEPTUAL DRAWINGS OF TRANSMISSION FACILITIES

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

> *Exhibit G: Attach any artist's or architect's conception of the proposed plan or transmission line structures and switchyards, which applicant believes may be informative to the committee.*

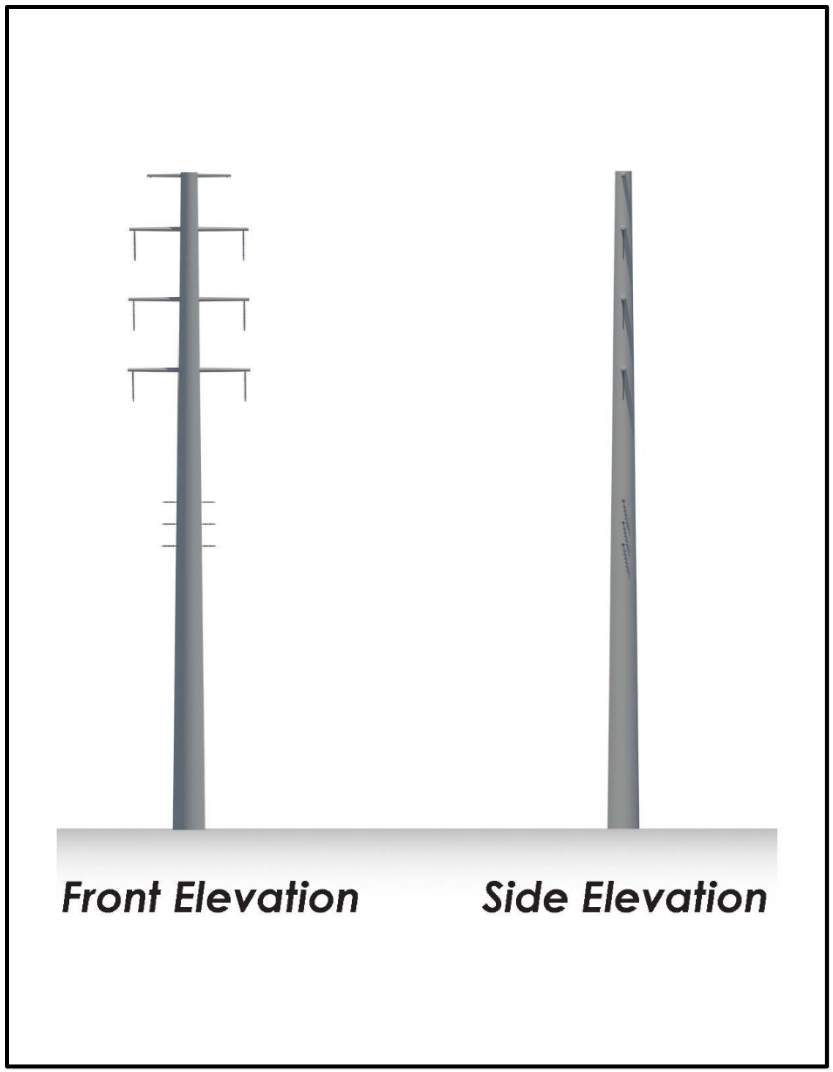


Exhibit G-1. Typical double-circuit 230kV tangent monopole transmission structure capable of double-circuit 69kV underbuild.

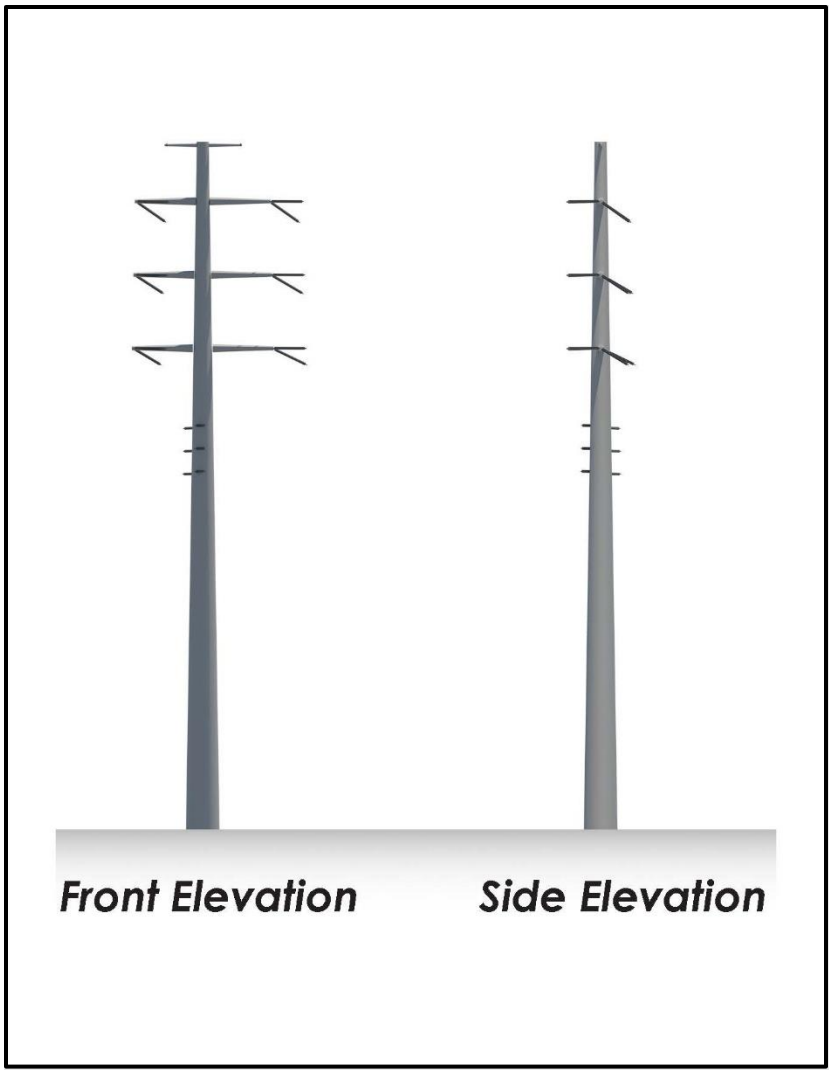
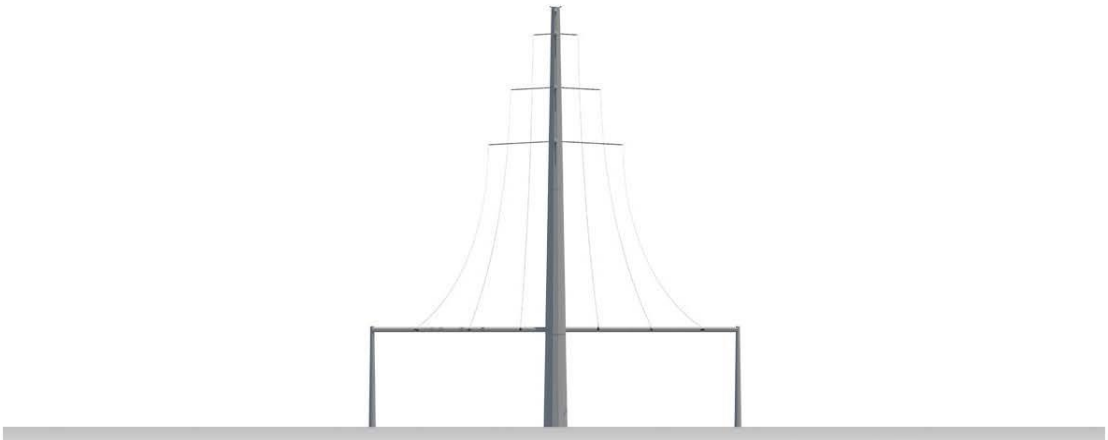
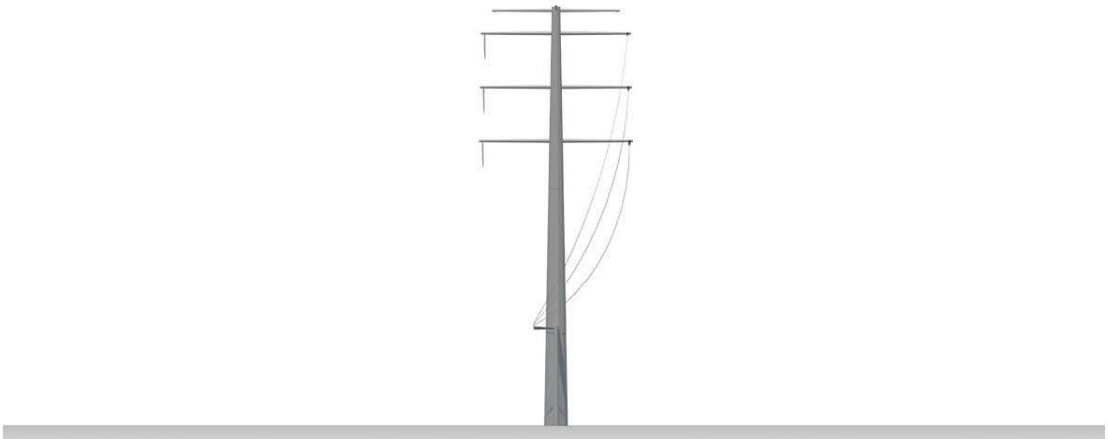


Exhibit G-2. Typical double-circuit 230kV turning monopole transmission structure capable of double-circuit 69kV underbuild.



Front Elevation



Side Elevation

Exhibit G-3. Typical double-circuit 230kV cut-in structure.

Exhibit G-4. Photograph of the existing Runway Substation; view from the southwest corner of the Microsoft data center parcel, facing northeast.

Exhibit G-5. Photograph of the existing Runway Substation; view from the northwest corner of the Microsoft data center parcel, facing southeast.

Existing Condition KOP 1: View from residence at Litchfield Road looking northeast

Simulated Condition KOP 1: View from residence at Litchfield Road looking northeast showing Preferred Route

Viewing Location

Typical Structures

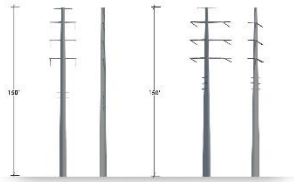


Photo Date and Time: March 15, 2022, 11:20 am

View Location: Approximate distance to nearest new structure from photo location is 0.01 mile.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | September 2022
Simulation from KOP 1: View from residence at Litchfield Road

aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit G-6. Photosimulation of the Project along the Preferred Route from KOP 1.

Existing Condition KOP 1: View from residence at Litchfield Road looking northeast

Simulated Condition KOP 1: View from residence at Litchfield Road looking northeast showing Preferred Route with propsosed data center

Viewing Location

Typical Structures

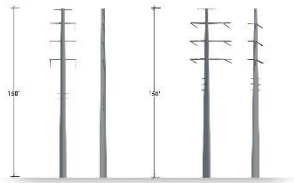


Photo Date and Time: March 15, 2022, 11:20 am

View Location: Approximate distance to nearest new structure from photo location is 0.01 mile.

Proposed data centers simulated to 36 foot height.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | September 2022
Simulation from KOP 1: View from residence at Litchfield Road

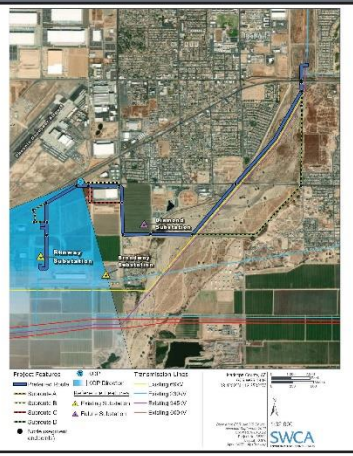
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit G-7. Photosimulation of the Project along the Preferred Route from KOP 1, with the proposed Stream data center expansion modeled.

Existing Condition KOP 2: View from MC 85 and East Lower Buckeye Road looking southwest

Simulated Condition KOP 2: View from MC 85 and East Lower Buckeye Road looking southwest showing Preferred Route

Viewing Location



Typical Structures

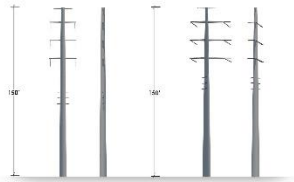


Photo Date and Time: March 15, 2022, 11:05 am

View Location: Approximate distance to nearest new structure from photo location is 0.06 miles.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | September 2022
Simulation from KOP 2: View from MC 85 and East Lower Buckeye Road

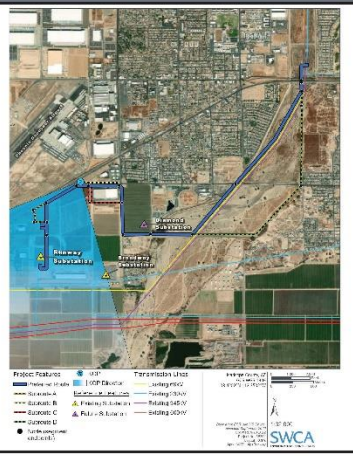
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit G-8. Photosimulation of the Project along the Preferred Route from KOP 2.

Existing Condition KOP 2: View from MC 85 and East Lower Buckeye Road looking southwest

Simulated Condition KOP 2: View from MC 85 and East Lower Buckeye Road looking southwest showing Preferred Route with proposed data center

Viewing Location



Typical Structures

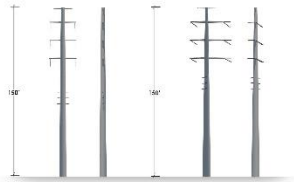


Photo Date and Time: March 15, 2022, 11:05 am

View Location: Approximate distance to nearest new structure from photo location is 0.06 miles.

Proposed data centers simulated to 36 foot height.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | September 2022
Simulation from KOP 2: View from MC 85 and East Lower Buckeye Road

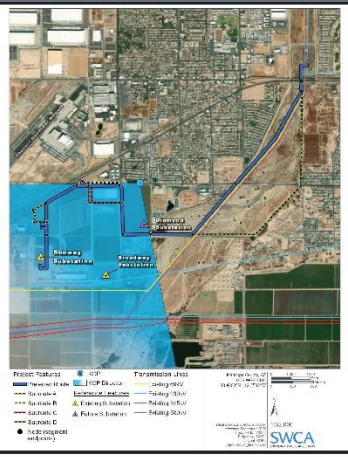
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit G-9. Photosimulation of the Project along the Preferred Route from KOP 2, with the proposed Microsoft data center modeled.

Existing Condition KOP 3: View from East Lower Buckeye Road looking southwest

Simulated Condition KOP 3: View from East Lower Buckeye Road looking southwest showing Preferred Route

Viewing Location



Typical Structures

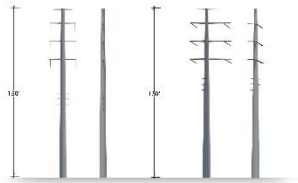


Photo Date and Time: March 15, 2022, 11:50 am

View Location: Approximate distance to nearest new structure from photo location is 0.15 miles.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | September 2022
Simulation from KOP 3: View from East Lower Buckeye Road

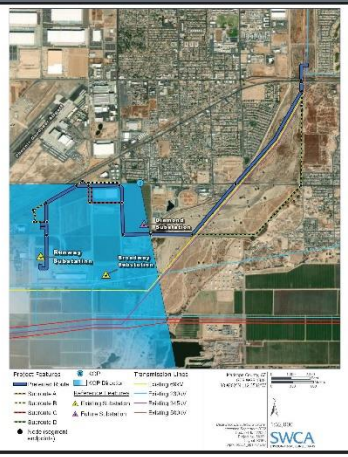
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit G-10. Photosimulation of the Project along the Preferred Route from KOP 3.

Existing Condition KOP 3: View from East Lower Buckeye Road looking southwest

Simulated Condition KOP 3: View from East Lower Buckeye Road looking southwest showing Preferred Route with propsosed data center

Viewing Location



Typical Structures

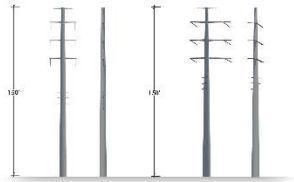


Photo Date and Time: March 15, 2022, 11:50 am

View Location: Approximate distance to nearest new structure from photo location is 0.15 miles.

Proposed data centers simulated to 36 foot height.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | September 2022
Simulation from KOP 3: View from East Lower Buckeye Road

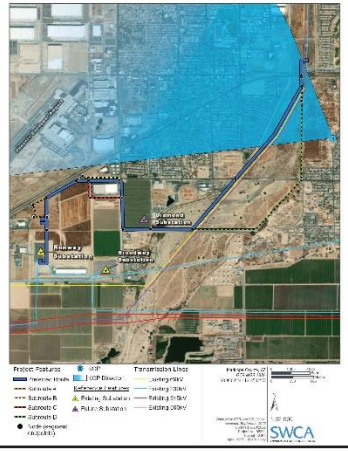
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit G-11. Photosimulation of the Project along the Preferred Route from KOP 3, with the potential STACK Infrastructure data center modeled.

Existing Condition KOP 4: View from park along South 125th Avenue looking northwest

Simulated Condition KOP 4: View from park along South 125th Avenue looking northwest showing Preferred Route

Viewing Location



Typical Structures

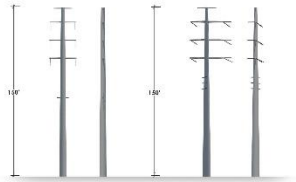


Photo Date and Time: March 15, 2022, 11:40 am

View Location: Approximate distance to nearest new structure from photo location is 0.45 miles.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | September 2022
Simulation from KOP 4: View from park along South 125th Avenue

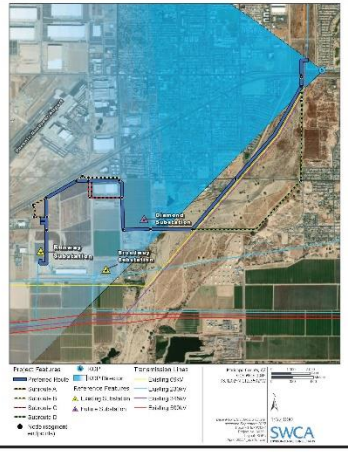
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit G-12. Photosimulation of the Project along the Preferred Route from KOP 4.

Existing Condition KOP 5: View from Agua Fria River Trail East looking west

Simulated Condition KOP 5: View from Agua Fria River Trail East looking west showing Preferred Route

Viewing Location



Typical Structures

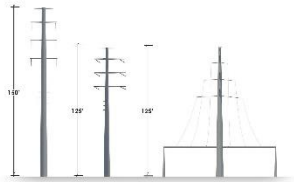


Photo Date and Time: April 13, 2022, 11:20 am

View Location: Approximate distance to nearest new structure from photo location is 0.11 miles.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | September 2022
Simulation from KOP 5: View from Agua Fria River Trail East

aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit G-13. Photosimulation of the Project along the Preferred Route from KOP 5.

EXHIBIT H. EXISTING PLANS

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

> *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.*

Land uses are mapped in Exhibits A-2 and A-3 and discussed in Exhibit B. As part of the land use study, both general and comprehensive plans were gathered for the Study Area from Maricopa County, the Cities of Goodyear and Avondale, and the Phoenix Goodyear Airport. Representatives from these entities were also invited to participate in the Project open house meetings. The purpose of this representation was to ensure consistency with plans and to identify potential issues throughout the environmental and public planning and outreach process.

In July 2022, letters were sent to the entities listed in Table H-1 to provide Project information, announce the Preferred Route and subroute alternatives, and request new or additional information on plans or planned developments. Exhibits H-1a and H-1b provide a copy of this letter, and subsequent Exhibits H-2 through H-7 include written responses and other correspondence from relevant jurisdictions and agencies.

Table H-1. Entities that Received Letters with Project Information

Jurisdiction/Agency	Name	Title
Arizona Department of Transportation	Troy Sieglitz	State Route 30 Project Manager
Arizona Department of Transportation	Randy Everett	Senior Division Administrator
Arizona Game and Fish Department	Ginger Ritter	Project Evaluation Supervisor
Arizona State Historic Preservation Office	Kathryn Leonard	State Historic Preservation Officer
Buckeye Water Conservation & Drainage District	Noel Carter	Superintendent
City of Avondale	Cherlene Penilla	Assistant City Manager
City of Goodyear	Julie Karins	City Manager
Flood Control District of Maricopa County	Michael Smith	Inspection & Enforcement Branch Manager
Flood Control District of Maricopa County	Andrea Roren	Right of Way Specialist
Maricopa County Planning and Development	Matt Holm	Planning and Development Manager
Maricopa County Department of Transportation	Jennifer Toth, P.E.	Transportation Director/County Engineer
Maricopa County Parks and Recreation Department	Ken Vonderscher	Planning and Development Manager
Maricopa Water District	Glen Vortherms	General Manager
Phoenix Goodyear Airport	Bradley Hagen	Airport Manager
Phoenix Sky Harbor International Airport	Jordan Feld	Deputy Aviation Director
Salt River Project	Josh Robertson	Director of Regulatory Policy
St. John's Irrigation District	–	–
Tucson Electric Power Company	Shannon Breslin	Land Resources Manager
Union Pacific Railroad	Jim Hild	Director – Real Estate – Contracts and Utilities
Western Area Power Administration, Desert Southwest Region	Eduardo Uribe	Electrical Engineer
Western Area Power Administration, Desert Southwest Region	Sean Berry	Environmental Manager

SWCA
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

20 East Thomas Road, Suite 1700
Phoenix, Arizona 85012
Tel 602.274.3831 Fax 602.274.3958
www.swca.com

August 4, 2022

Andrea Roren
Right of Way Specialist
Flood Control District of Maricopa County
2802 W Durango Street
Phoenix, AZ 85010

Re: APS Runway 230kV Power Line Project

Dear Andrea Roren:

Arizona Public Service Company (APS) plans to file an application for a Certificate of Environmental Compatibility (CEC) with the Arizona Power Plant and Transmission Line Siting Committee (Siting Committee) for a new transmission line referred to as the Runway 230kV Power Line Project (Project). The Project involves a new, approximately 3.5 mile long, double circuit, 230kV power line. This area is experiencing and anticipating growth, which currently includes up to three data centers that are located in proximity of the project. This line is intended to serve a Microsoft data center, located northeast of Bullard Avenue and Broadway Road in Goodyear, AZ, and the anticipated future growth in the west valley. If approved, the Project will connect the existing APS Runway Substation, located near the Microsoft data center, to existing power lines near Buckeye Road and the Agua Fria River in Avondale, AZ.

APS and its consultant, SWCA Environmental Consultants (SWCA), conducted a comprehensive planning process, including environmental studies, to evaluate possible routes for the Project. Our planning studies support that the preferred route provides a route that minimizes the potential for environmental and community impacts. The preferred route and alternatives are shown on the attached map. APS plans to submit its CEC application in September 2022 requesting that the Siting Committee approve a CEC for the Project.

Arizona Administrative Code Rule R14-3-219 requires that CEC applications include an exhibit that identifies "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."

Your organization is invited to provide information or written comments regarding development plans in the vicinity of the proposed Project (as depicted in the attached map). APS requests that comments be submitted in writing and specifically state your organization's existing or future development plans that are known to you at this time.

For your comments to be included in our CEC application, and presented to the Siting Committee for consideration, please forward your written comments to me by August 19, 2022, via email at [redacted] or by physical mail: Attn: Devin Petry, SWCA, 20 East Thomas Road, Suite 1700, Phoenix, AZ 85012.

Thank you for your cooperation.

Sincerely,

Devin Petry, Environmental Project Manager
SWCA Environmental Consultants
cc: Stephen Eich, APS Senior Siting Consultant

Exhibit H-1a. Example July 2022 Exhibit H letter, Page 1 of 2.

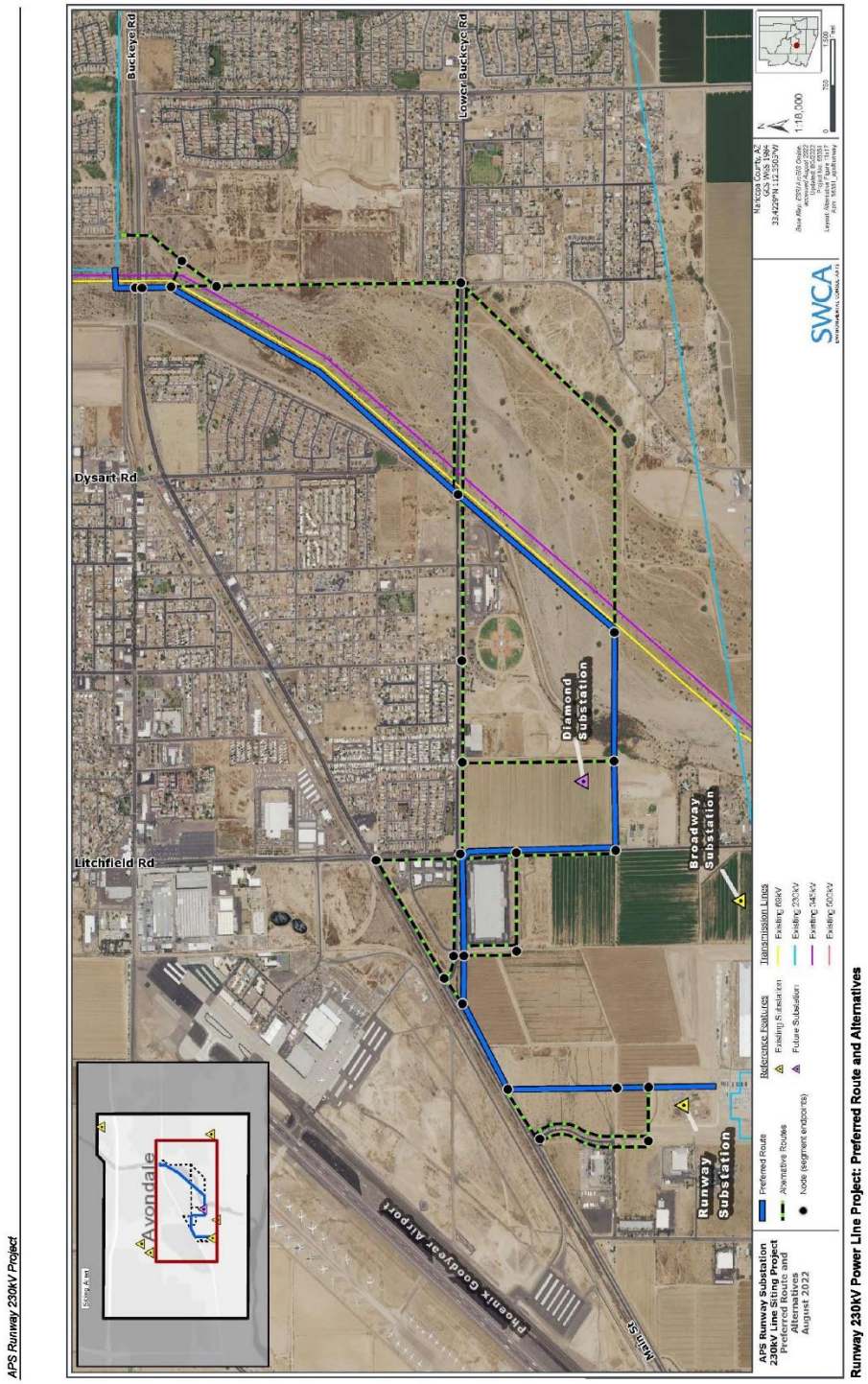


Exhibit H-1b. Example July 2022 Exhibit H letter, Page 2 of 2.

September 1, 2022

Mr. Devin Petry
Environmental Project Manager
SWCA Environmental Consultants
20 East Thomas Road, Suite 1700
Phoenix, AZ 85012

Electronically submitted to: [redacted]

RE: APS Runway 230kV Power Line Project

Dear Mr. Petry:

The Arizona Game and Fish Department (Department) appreciates the opportunity to review the APS Runway 230kV Power Line Project (Project) located just east of the Phoenix-Goodyear Airport located within Goodyear and Buckeye, Arizona. The Project involves the construction of a 3.5-mile long, double circuit, 230kV above ground power line that would be connected to the existing Arizona Public Service Runway Substation. The proposed powerline would be situated in developed lands, as well as previously disturbed portions of the Agua Fria River. The Department understands the Project would involve soil disturbance and the use of heavy equipment.

Under Title 17 of the Arizona Revised Statutes, the Department, by and through the Arizona Game and Fish Commission (Commission), has jurisdictional authority and public trust responsibilities to conserve and protect the state fish and wildlife resources. In addition, the Department manages threatened and endangered species through authorities of Section 6 of the Endangered Species Act and the Department's Section 10(a)(1)(A) permit. It is the mission of the Department to conserve and protect Arizona's diverse fish and wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations. For your consideration, the Department provides the following comments based on the agency's statutory authorities, public trust responsibilities, and special expertise related to wildlife resources and recreation.

Please review the attached project report (HGIS-17086), generated by Department's Online Environmental Review Tool (ERT)[1], for a list of Species of Greatest Conservation Need (SGCN) and Species of Economic and Recreational Importance (SERI) as identified in the State Wildlife Action Plan which have been documented or predicted within the buffered Plan footprint. Multiple special status species have been recorded within 3-miles of the Project area. Two

[1] https://ert.azgfd.gov/

Exhibit H-2a. Arizona Game and Fish Department response, Page 1 of 3.

species, the Bald Eagle and Western Burrowing Owl, have been documented within the vicinity of the project area.

- The Western Burrowing Owl, a special status species regulated under the Migratory Bird Treaty Act (MBTA), has been recorded in the vicinity of the project. Burrowing owls often inhabit agricultural croplands and outer portions of xeric-riparian channels, especially along the edges where irrigation infrastructure is present. The Department recommends conducting an occupancy survey for western burrowing owl's to determine if this species occurs within the project footprint. Guidelines for conducting this survey are found in *Burrowing Owl Project Clearance Guidance for Landowners*[2] which can be accessed on-line through the Department's website. Please note the survey should be conducted by a surveyor that is certified by the Department. If an active burrowing owl burrow is detected, please contact the Department and the U.S. Fish and Wildlife Service for direction, in accordance with the above guidance, Burrowing Owl Project Clearance Guidance for Landowners.
- Bald eagles, which are regulated under the Bald and Golden Eagle Protection Act (BGEPA), have been documented within a 1-mile radius of the project area. If uncertain about the effects of the project to eagles, or if it is anticipated the project will not be in compliance with the BGEPA, the Department recommends contacting the USFWS for their Technical Assistance, as well as Tuk Jacobson, the Department's raptor expert, at [redacted] The USFWS and the Department will provide options to comply with the BGEPA, such as conservation measures to avoid or minimize adverse effects to the eagles.
- Birds of prey such as raptors, owls, vultures, and eagles are vulnerable to electrocution and powerline strikes during construction and operation. There are a number of design features that can minimize these impacts to these important species. Tuk Jacobson is the Department's raptor expert and will be willing to share information on best management practices; he can be contacted at [redacted]
- The vegetation within the project area may provide nesting opportunities for avian species that are regulated under the MBTA and protected under state law. Breeding season for birds in this area is generally mid-January through late June. If construction activities will occur during the breeding season the Department recommends surveying the dense pocket of vegetation that the preferred route passes through for nesting bird species. If any SGCN species are found within this patch of vegetation, the Department recommends the alternative route which follows west along Lower Buckeye Rd be used for access.

Thank you for the opportunity to provide input on the APS Runway 230kV Power Line Project. For further coordination, please contact [redacted].

Sincerely,
Joshua W. Hurst

[2] https://www.azgfd.com/wildlife/speciesofgreatestconservneed/raptor-management/burrowing-owl-mangement/

Exhibit H-2b. Arizona Game and Fish Department response, Page 2 of 3.

Joshua Hurst
Regional Supervisor, Mesa

AZGFD #M22-08040738

Exhibit H-2c. Arizona Game and Fish Department response, Page 3 of 3.

From: Devin Petry
To: Caroline Klebacha
Cc: [redacted]
Subject: RE: APS Runway 230kV Powerline Project CEC Application
Date: Friday, August 26, 2022 9:22:00 AM
Attachments: image001.png

Good afternoon, Caroline,

Thank you for your reply regarding the APS Runway 230kV Powerline Project CEC Application. We have passed along your recommendation to APS. Following a decision on the project from the Arizona Power Plant and Transmission Line Siting Committee and Arizona Corporation Commission, APS plans to complete preconstruction cultural resources surveys for portions of a selected transmission line route that are not previously surveyed and where past surveys do not meet the current standards.

In addition, we are anticipating filing the CEC Application for this project with the Arizona Power Plant and Transmission Line Siting Committee and Arizona Corporation Commission in September 2022, and will provide a copy of the Application to your office for review at that time.

Please let us know if you have any further comments or questions at this time.

Thank you.

Devin Petry
SWCA Environmental Consultants

From: Caroline Klebacha [redacted]
Sent: Monday, August 22, 2022 1:55 PM
To: Devin Petry [redacted]
Subject: Re: APS Runway 230kV Powerline Project CEC Application

EXTERNAL: This email originated from outside SWCA. Please use caution when replying.

Good afternoon, Devin,

We recommend a Class III cultural resources survey for areas that are not previously surveyed or areas where the surveys do not meet the current standards.

Thank you,

Caroline

Caroline Klebacha, M.A.
Archaeological Compliance Specialist

Exhibit H-3a. Arizona State Historic Preservation Office response, Page 1 of 3.

State Historic Preservation Office
A Division of Arizona State Parks & Trails
Please use azshpo@azstateparks.gov for all consultation!

1110 West Washington Street, Suite 100
Phoenix, AZ 85007-2957
Phone: [redacted]
Email: [redacted]
Web: http://AZStateParks.com/SHPO

On Tue, Aug 9, 2022 at 10:19 AM AZSHPO - AZPARKS <azshpo@azstateparks.gov> wrote:

SHPO-2022-0938 (165183)

---------- Forwarded message ---------
From: **Kathryn Leonard** [redacted]
Date: Mon, Aug 8, 2022 at 10:02 AM
Subject: Fwd: APS Runway 230kV Powerline Project CEC Application
To: AZSHPO - AZPARKS <azshpo@azstateparks.gov>

please log
Kathryn Leonard
State Historic Preservation Officer
Arizona State Historic Preservation Office
Arizona State Parks & Trails
1110 W Washington St Suite 100
Phoenix, AZ 85007
[redacted]
www.AZStateParks.com

---------- Forwarded message ---------
From: **Devin Petry** [redacted]
Date: Thu, Aug 4, 2022 at 3:41 PM
Subject: APS Runway 230kV Powerline Project CEC Application

Exhibit H-3b. Arizona State Historic Preservation Office response, Page 2 of 3.

To: [redacted]
Cc: RunwaySiting@aps.com <RunwaySiting@aps.com>

Hello,

Please find attached a letter that was physically mailed to you today regarding the Arizona Public Service Company (APS) Application for a Certificate of Environmental Compatibility for the proposed APS Runway 230kV Powerline Project.

Thank you.

Devin Petry
Senior Environmental Project Manager

SWCA Environmental Consultants
20 E Thomas Rd, Ste 1700
Phoenix, AZ 85012
[redacted]

Exhibit H-3c. Arizona State Historic Preservation Office response, Page 3 of 3.

Flood Control District

of Maricopa County

Date: 9/1/2022

To: Stephen Eich – Arizona Public Service

From: Andrea Roren (FCD), Right-of-Way Permit Specialist

Subject: FCD ROW Use Permit Request: 2021P305; APS - Runway Substation 230kV Lines

The Flood Control District staff has completed their review of the plan submittal for the above referenced project. Please address each of the below comments, add your response in the resolution table and resubmit through the portal. Failure to respond to the comments below and provide the Comment Resolution Form with the re-submittal may constitute an incomplete submittal package and may delay the District's next review.

General Comments

ID	Sheet Name	Comment	Resolution	Status
ADMIN -1	2021P305 - Explanation of Preliminary Route	The conceptual/alternative analysis documents have been reviewed. At this time, the District has no comments or concerns regarding the alternative alignments. Please continue to provide regular submittals as the final design develops and coordinate with the District permitting team.	APS will continue to coordinate with FCD permitting team as the design develops.	Open

Project Comments

ID	Comment	Resolution	Status
EADRM-1	(EADRM 8/23/2022): FCDMC owns and maintains two levees near the project site (Agua Fria Reach 5 on the west bank and Agua Reach 6 on the east bank). Please make sure that the power poles will not cause any adverse impact to the existing levees. The power poles need to be outside the pier local scour influence zone. Please see the 2018 Drainage Design Manual for Maricopa County, AZ – Hydraulics (Hydraulics Manual) for the computation of the pier influence zone.	APS will follow Best Management Practices for the construction of the line, including adherence to FCD requirements.	Open
EADRM-2	(EADRM 8/23/2022): Total scour depth needs to be computed based on section 11.8 of the Hydraulics Manual, which will be used for power pole foundation design. The measurement of the total scour depth should be from the channel thalweg. Please note that the local scour component for the total scour depth is the pier scour for power poles.	Noted	Open

Sheet Comments

ID	Sheet Name	Comment	Resolution	Status
HH-1	APS - Runway_Prelim_Route_Alts	If this project will impact a floodplain that is managed by the District and the applicant has not applied for a floodplain use permit as well, please inform them to apply for one via the online portal. If this project will impact a floodplain in a community not dependent on the district (see Appendix B of the Floodplain Regulations for Maricopa County for the list of District-dependent communities), inform the applicant that they will	APS will reach out to the proper agencies/communities as necessary regarding floodplain permits, dependent on final design.	Open

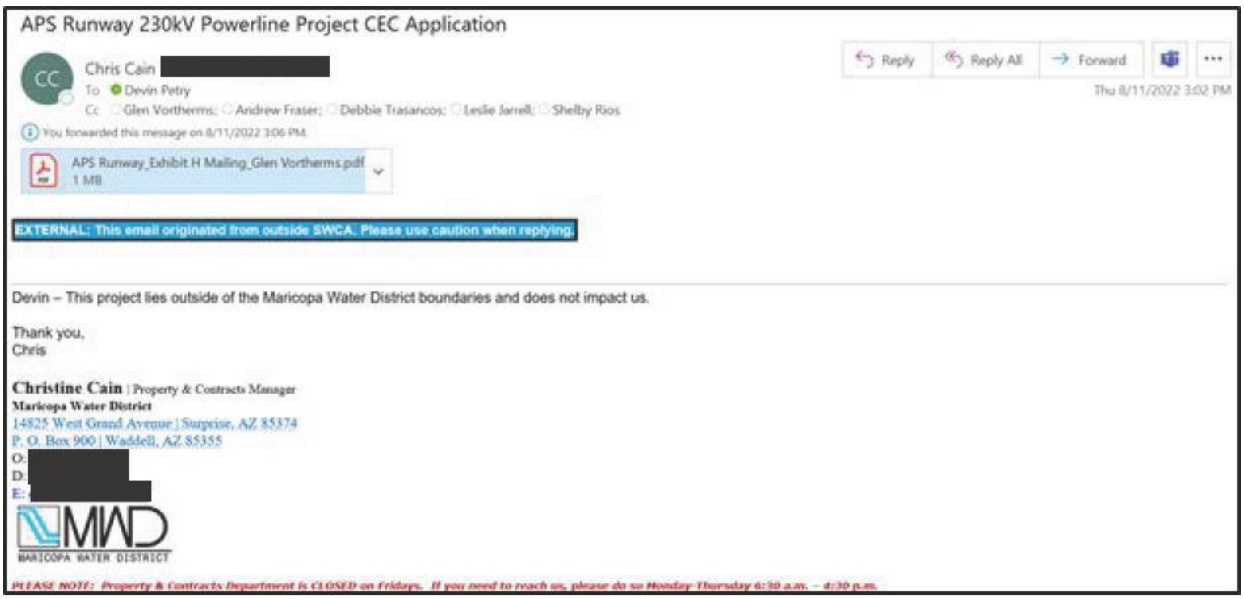
2801 West Durango Street Phoenix, Arizona 85009 Phone: 602-506-1501 Fax: 602-506-4601

Exhibit H-4a. Flood Control District of Maricopa County response, Page 1 of 2.

		need to reach out to the managing community for a floodplain use permit. If there is no floodplain impacted by the project or the applicant has already applied for a floodplain use permit to the proper managing authority, we have no further comments.		
TR-2	APS - Runway_Prelim_Route_Alts	The 2004 permit provided a recorded document referencing several alignments, please show alignment limits per recorded documents establishing easement rights within MCR# 2004-0749183 within District fee parcels for verification. Please feel reach out for clarification.	Included within FCD Permit No. 2004P087 are several pages of the "White Tanks to Sarival 69kV" design plans showing the locations of the 69kV structures (now existing). This 230kV project would rebuild a portion of the 69kV alignment with 230kV monopoles and then collocate the existing 69kV onto the new structures. The estimated location of this rebuild would begin near structure 4/1 (Station 163+00), shown on sheet 3 of the "White Tanks to Sarival 69kV" design plans, and end near structure 6/1 (Station 265+20), shown on sheet 4.	Open

2801 West Durango Street Phoenix, Arizona 85009 Phone: 602-506-1501 Fax: 602-506-4601

Exhibit H-4b. Flood Control District of Maricopa County response, Page 2 of 2.



APS Runway 230kV Powerline Project CEC Application

Chris Cain [redacted]

To: Devin Petry

Cc: Glen Vortherms; Andrew Fraser; Debbie Trasancos; Leslie Jarrell; Shelby Rios

Reply | Reply All | Forward

Thu 8/11/2022 3:02 PM

You forwarded this message on 8/11/2022 3:06 PM.

APS Runway_Exhibit H Mailing_Glen Vortherms.pdf
1 MB

EXTERNAL: This email originated from outside SWCA. Please use caution when replying.

Devin – This project lies outside of the Maricopa Water District boundaries and does not impact us.

Thank you,
Chris

Christine Cain | Property & Contracts Manager
Maricopa Water District
14825 West Grand Avenue | Surprise, AZ 85374
P. O. Box 900 | Waddell, AZ 85355
O:
D: [redacted]
E:

MWD
MARICOPA WATER DISTRICT

PLEASE NOTE: Property & Contracts Department is CLOSED on Fridays. If you need to reach us, please do so Monday-Thursday 6:30 a.m. – 4:30 p.m.

Exhibit H-5. Maricopa Water District response.

From: [redacted]
To: Eich, Stephen K
Cc: [redacted]
Subject: RE: APS - Runway 230kV Line Siting - Alternative Routes Map
Date: Monday, May 2, 2022 7:35:40 AM

CAUTION ***CAUTION*** ***CAUTION***

This e-mail is from an **EXTERNAL** address [redacted] DO NOT click on links or open attachments unless you trust the sender and know the content is safe. If you suspect this message to be phishing, please report it to the APS Cyber Defense Center at *ACDC@aps.com*.

Thanks for the update Stephen

Jordan D. Feld, CM, AICP
Deputy Aviation Director
Planning & Environmental Division
Phoenix Sky Harbor International Airport
Phone: [redacted]

America's Friendliest Airport ®
https://skyharbor.com

From: Stephen.Eich@aps.com [redacted]
Sent: Thursday, April 28, 2022 12:51 PM
To: Jordan D Feld [redacted]
Cc: [redacted]
Subject: APS - Runway 230kV Line Siting - Alternative Routes Map

Mr. Feld,

Good morning. I hope you are doing well.

Last month we met with your team to discuss the siting status of the Runway 230kV power line project located in Goodyear, and gather any input from your team. At that time we didn't have a finalized map showing the various route alternatives that we are requesting input on, and I promised to share a map as soon as I had it ready. It took longer than anticipated, but the attached map shows the alternative route alignments we're currently analyzing.

The map shows "Route Alternative 1" in orange, "Route Alternative 2" in blue, and additional "Alternative Route Options" in the green and black-dashed lines. Each alternative route consists of small numbered segments which are connected together to form a route. The numbers can be referred to when making any comments for that specific segment.

Of note, there are some segments which show different route alternatives at the same location, and are depicted running alongside each other. In these situations only one number is used. For example, segment #190 would apply to either the orange or blue segment at that location. This also indicates that either of those alternative route segments would be built in the same spot. So, in this situation, segment #190 would rebuild the existing APS line (shown as the thin yellow line) whether the blue route or orange route were to be selected.

Our next open house is planned to be held in mid-June to get further input from the public, after which we hope to identify a preferred route alignment for this project.

Please feel free to call or email me with any questions or comments you have.

Thank you,

STEPHEN EICH
Siting Consultant Senior
P.O. Box 53933, M.S. 3293
Phoenix, AZ 85702
Tel [redacted]
[redacted]

Exhibit H-6. Phoenix Sky Harbor International Airport

Victoria Casteel

From: RunwaySiting@aps.com
Sent: Saturday, September 3, 2022 12:49 PM
To: Devin Petry; Victoria Casteel
Subject: FW: APS Runway 230kV Powerline Project CEC Application
Attachments: image006.emz; image008.emz; image014.emz; APS Runway_Exhibit H Mailing_Renee Darling.pdf

EXTERNAL: This email originated from outside SWCA. Please use caution when replying.

Hi Devin and Vicki. Along with your outreach to Shannon Breslin at TEP, I sent the following email to Renee Marruffo, TEP's ROW Supervisor. See her response below.

Thanks,

aps
STEPHEN EICH
Siting Consultant Senior

From: Marruffo, Renee [redacted]
Sent: Wednesday, August 24, 2022 11:25 AM
To: Runway Siting <RunwaySiting@aps.com>
Cc: Breslin, Shannon [redacted]; Pugh, Brian [redacted]; Bryner, Clark [redacted]; Devin Petry [redacted]
Subject: RE: APS Runway 230kV Powerline Project CEC Application

CAUTION ***CAUTION*** ***CAUTION***
This e-mail is from an **EXTERNAL** address ([redacted]). **DO NOT** click on links or open attachments unless you trust the sender and know the content is safe. If you suspect this message to be phishing, please report it to the APS Cyber Defense Center at [redacted].

Hi Stephen,

We appreciate the notice and I've included TEP's Line Siting Manager, Clark Bryner and Land Resources Environmental Land Use Planner, Brian Pugh to further assist.

Many thanks,
Renee Marruffo
Right of Way Supervisor
Land Resources
Tucson Electric Power Co.
Unisource Energy Services
PO Box 711, OH 131
Tucson, AZ 85702
[redacted]

TEP Tucson Electric Power | UniSourceEnergy SERVICES

From: RunwaySiting@aps.com <RunwaySiting@aps.com>
Sent: Wednesday, August 24, 2022 9:04 AM
To: Marruffo, Renee <[redacted]
Subject: [EXTERNAL E-Mail]FW: APS Runway 230kV Powerline Project CEC Application

***** 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.

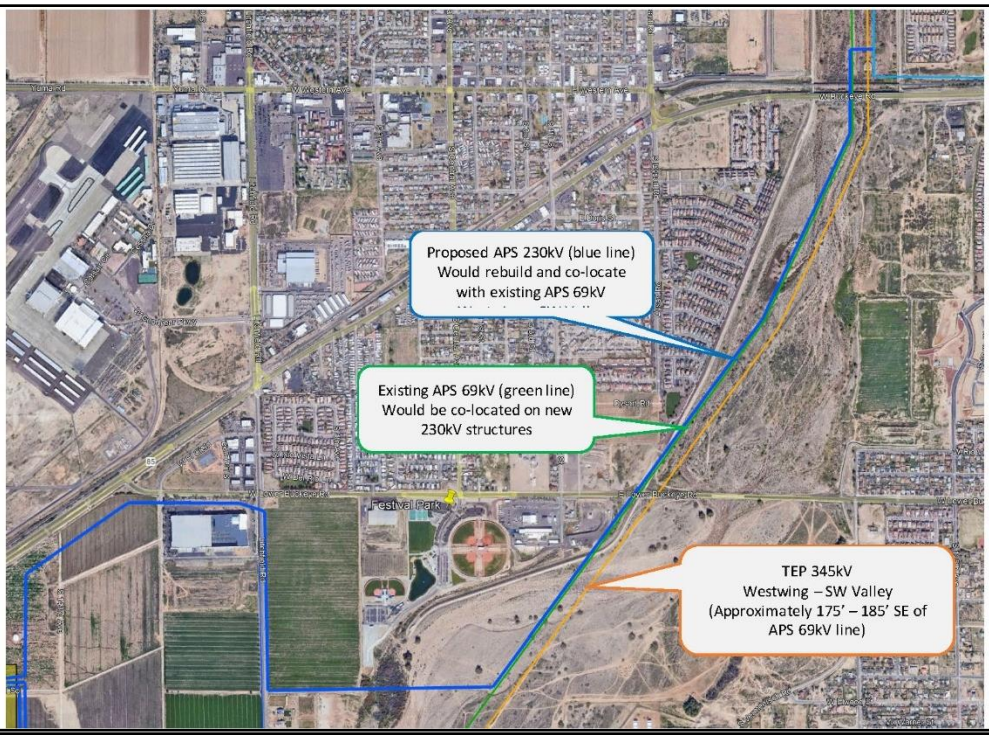
***** REPORT ANYTHING SUSPICIOUS *****

Hello Renee,

I am a Siting Consultant with APS, and we recently sent an email to Shannon Breslin with this information, but I thought it would be good to include you as well.

APS is in the process of siting a new double circuit 230kV transmission line, and we have spent the past year studying the project area, including conducting internal evaluations, environmental studies, and public outreach, to determine the proper routing of this new line. The preferred route for this line (shown as the blue line below) involves rebuilding an existing APS 69kV line that parallels a TEP 345kV line (Westwing – SW Valley) within the Agua Fria River, as shown on the attached PDF, as well as the screen capture below. I wanted to be sure TEP was aware of this, as the current 69kV easement is 30' wide, and is contiguous with the TEP easement. As the 230kV rebuild would require an initial crossing under the TEP line near Lower Buckeye Road and the Agua Fria River, as well as a wider easement as it runs south within the river, we would need to work closely with TEP on the crossing and increasing the access/easement widths along this corridor.

Exhibit H-7a. Tucson Electric Power response and email exchange, Page 1 of 3.



We ask for any input you have regarding this project, as we will be presenting this corridor proposal in a hearing before the AZ Siting Committee in November, as well as the ACC - likely in January, 2023.

I'd be happy to call and discuss any time.

Thank you,

aps
STEPHEN EICH
Siting Consultant Senior
P.O. Box 53933, M.S. 3293
Phoenix, AZ 85702
Tel [redacted]

From: Devin Petry [redacted]
Sent: Thursday, August 4, 2022 3:47 PM
To: [redacted]
Cc: Runway Siting <RunwaySiting@aps.com>
Subject: FW: APS Runway 230kV Powerline Project CEC Application

CAUTION ***CAUTION*** ***CAUTION***
This e-mail is from an **EXTERNAL** address [redacted]. **DO NOT** click on links or open attachments unless you trust the sender and know the content is safe. If you suspect this message to be phishing, please report it to the APS Cyber Defense Center at [redacted]

Hello,

As our email below was returned and you were identified as the proper contact, please see the attached letter that was physically mailed today regarding the Arizona Public Service Company (APS) Application for a Certificate of Environmental Compatibility for the proposed APS Runway 230kV Powerline Project.

Thank you.

Devin Petry
SWCA Environmental Consultants

Exhibit H-7b. Tucson Electric Power response and email exchange, Page 2 of 3.

From: Devin Petry
Sent: Thursday, August 4, 2022 3:42 PM
To: [redacted]
Cc: RunwaySiting@aps.com
Subject: APS Runway 230kV Powerline Project CEC Application

Hello,

Please find attached a letter that was physically mailed to you today regarding the Arizona Public Service Company (APS) Application for a Certificate of Environmental Compatibility for the proposed APS Runway 230kV Powerline Project.

Thank you.

Devin Petry
Senior Environmental Project Manager

SWCA Environmental Consultants
20 E Thomas Rd, Ste 1700
Phoenix, AZ 85012
[redacted]

Exhibit H-7c. Tucson Electric Power response and email exchange, Page 3 of 3.

Mr Petry,

Thank you for sending this information. Once you have some design plans, I would encourage you to send a review application to Union Pacific Railroad through the link that I have attached. Please include Folder 2300-10 in the application. Let me know if you have questions.

Thank you,
Jim

UP: Utilities Installations

Jim Hild
Director Real Estate
Union Pacific Railroad
1400 Douglas Street, Stop 1690
Omaha, NE 68179
[redacted]

From: Devin Petry [redacted]
Sent: Friday, August 12, 2022 10:48 AM
To: Jim Hild [redacted]
Cc: RunwaySiting@aps.com
Subject: APS Runway 230kV Powerline Project CEC Application

Hello,

Please find attached a letter that was physically mailed to you earlier this week regarding the Arizona Public Service Company (APS) Application for a Certificate of Environmental Compatibility for the proposed APS Runway 230kV Powerline Project.

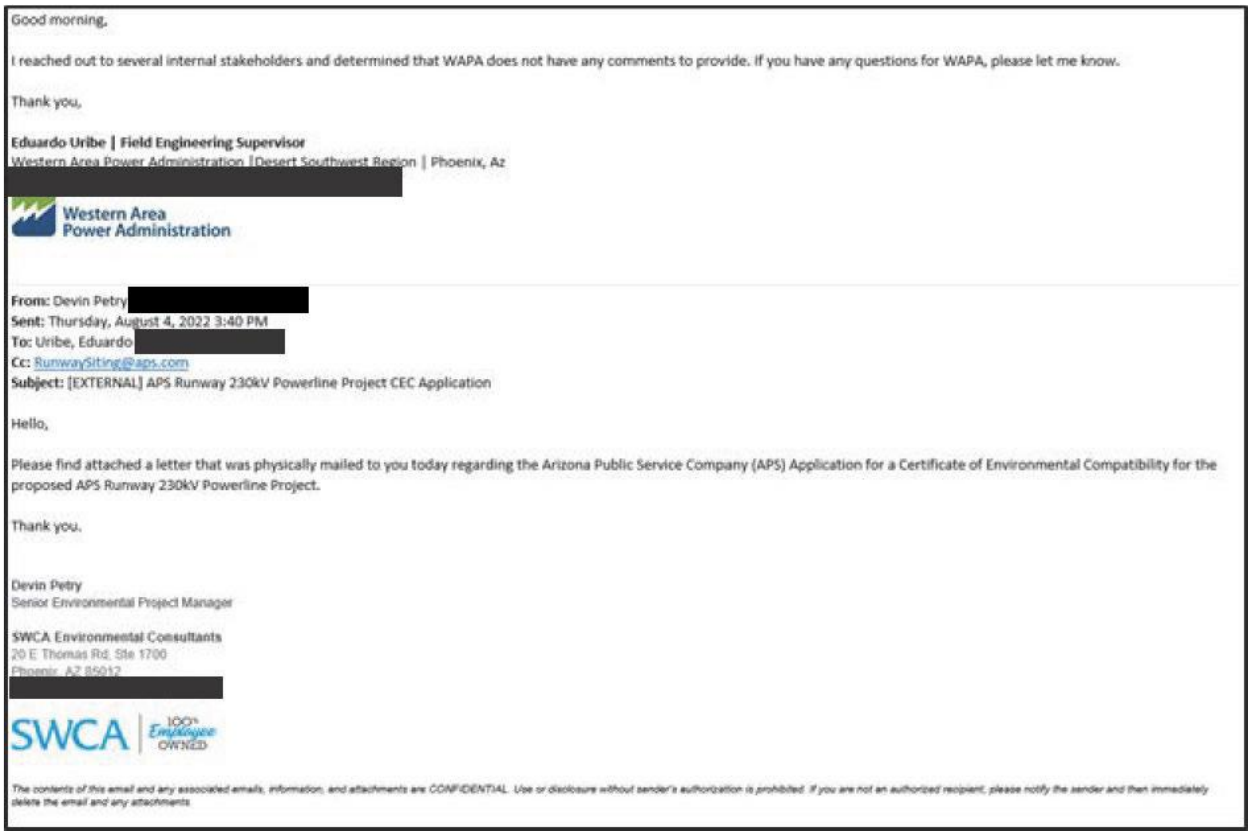
Please note: the "Preferred Route", as indicated on the enclosed map, would rebuild an existing transmission line which currently crosses the Union Pacific Railroad north of Buckeye Road, authorized under Railroad Folder No. 02300-10.

Thank you.

Devin Petry
Southwest Client Services Director /
Senior Environmental Project Manager

SWCA Environmental Consultants
20 E Thomas Rd, Ste 1700
Phoenix, AZ 85012
[redacted]

Exhibit H-8. Union Pacific Railroad response.



Good morning,

I reached out to several internal stakeholders and determined that WAPA does not have any comments to provide. If you have any questions for WAPA, please let me know.

Thank you,

Eduardo Uribe | Field Engineering Supervisor
Western Area Power Administration | Desert Southwest Region | Phoenix, Az
[redacted]
Western Area Power Administration

From: Devin Petry [redacted]
Sent: Thursday, August 4, 2022 3:40 PM
To: Uribe, Eduardo [redacted]
Cc: RunwaySiting@aps.com
Subject: [EXTERNAL] APS Runway 230kV Powerline Project CEC Application

Hello,

Please find attached a letter that was physically mailed to you today regarding the Arizona Public Service Company (APS) Application for a Certificate of Environmental Compatibility for the proposed APS Runway 230kV Powerline Project.

Thank you.

Devin Petry
Senior Environmental Project Manager

SWCA Environmental Consultants
20 E Thomas Rd, Ste 1700
Phoenix, AZ 85012
[redacted]
SWCA 100% Employee Owned

The contents of this email and any associated emails, information, and attachments are CONFIDENTIAL. Use or disclosure without sender's authorization is prohibited. If you are not an authorized recipient, please notify the sender and then immediately delete the email and any attachments.

Exhibit H-9. Western Area Power Administration response.

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EXHIBIT I. NOISE

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

> *Exhibit I: Describe the anticipated noise emission levels and any interference with communication signals which will emanate from the proposed facilities.*

Certain electromagnetic effects are inherently associated with overhead transmission of electrical power at extra high voltage (EHV). These effects are produced by the electric and magnetic fields of the transmission line with one of the effects being corona discharge. Corona effects are manifest as audible noise, radio interference, and television interference (TVI). These effects are minimized by line location, line design, and construction practices. The project lines were modeled using the Electric Power Research Institute (EPRI) ACDCLine software to calculate these various electromagnetic effects which are presented here. The project involves transmission lines that are modeled in four different segments. The highest modeled result from each segment will be summarized. Exhibit I-1 gives a diagram of the following evaluated segments of the Preferred Route:

- Segment 1: Runway South–Runway North double circuit 230kV line
- Segment 2: Runway North–Diamond and Runway North–White Tanks double circuit 230kV line
- Segment 3: Diamond–West Phoenix and Runway North–White Tanks double circuit 230kV line
- Segment 4: Diamond–West Phoenix and Runway North–White Tanks double circuit 230kV line, with Sarival–White Tanks 69kV underbuild

Corona

Corona is a luminous discharge due to ionization of the air surrounding a conductor and is caused by a voltage gradient which exceeds the breakdown strength of air. Corona is a function of the voltage gradient at the conductor surface. This voltage gradient is controlled by engineering design and is a function of voltage, phase spacing, height of conductors above ground, phase geometry, and meteorological conditions. Irregularities on the surface of the conductor such as nicks, scratches, contamination, insects, and water droplets, increase the amount of corona discharge. Consequently, during periods of rain and foul weather, corona discharges increase. For the transmission design configurations considered for this project, the calculated peak voltage gradient at the conductor surface was consistently in the range of 9.97 to 11.17 kilovolt root-mean-square per centimeter (kVrms/cm). For comparison purposes, the breakdown strength of air is 21.1 kVrms/cm at 25 degrees Celsius and 76 millimeters of mercury barometric pressure.

Corona represents power loss on the transmission line and creates transmission line noise. Successful operation of 230kV lines with similar gradients indicates that these transmission lines will not create adverse corona effects.

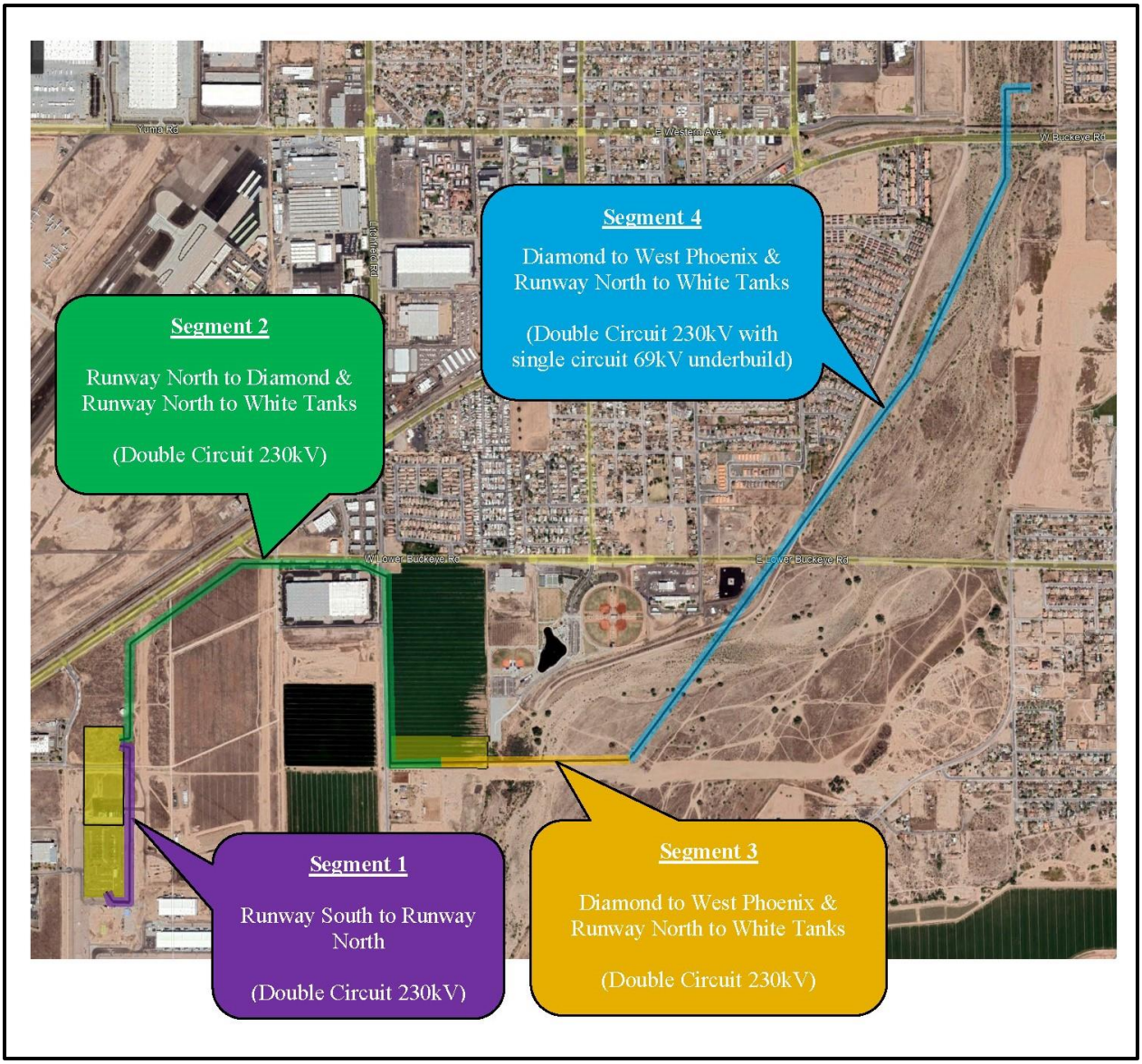

Exhibit I-1. Map of Preferred Route segments modeled.

Transmission Line Audible Noise

Audible noise is created by corona discharge along the transmission line. As a result, the amount of audible noise is directly related to the amount of corona, which is in turn affected by meteorological conditions (most notably rain). Transmission line audible noise is categorized into broadband high frequency sounds, which can be described as hissing or sputtering, and low frequency tones, which are best described as humming sounds.

The highest calculated audible noise levels generated by these transmission line designs during foul weather (rain) may occasionally reach 42.7 dB for both Segments 1 and 2, 40.5 dB for Segment 3, and 40.7 dB for Segment 4 measured on an "A" weighted scale at the edge of the ROW. These noise levels

will occur during very heavy rain conditions,[1] which will serve to mask the noise. During light rain,[2] or wet conductor conditions, the expected audible noise is in the range of 27.6 to 29 dB(A) along Segments 1 and 2, and 25.1 to 26.5 dB(A) for the other segments at the edge of the ROW. During fair weather the audible noise generated by these lines as heard at the edge of the ROW is significantly reduced with a maximum calculated value of 16.1 dB(A) for Segment 1 and Segment 2, 13.5 dB(A) along Segment 3, and 13.7 dB(A) for Segment 4.

Study work of transmission line noise has categorized noise levels by the probability of complaints being generated. A level of 52.5 dB(A) or lower at 100 feet from the centerline of a line has been found to generate no complaint. The noise generated by this transmission line is well below this value and no noise problems due to this line are expected. Exhibits I-2 and I-3 show the calculated L50 fair weather and L50 rain audible noise levels for the worst-case model of the different line segments modeled.

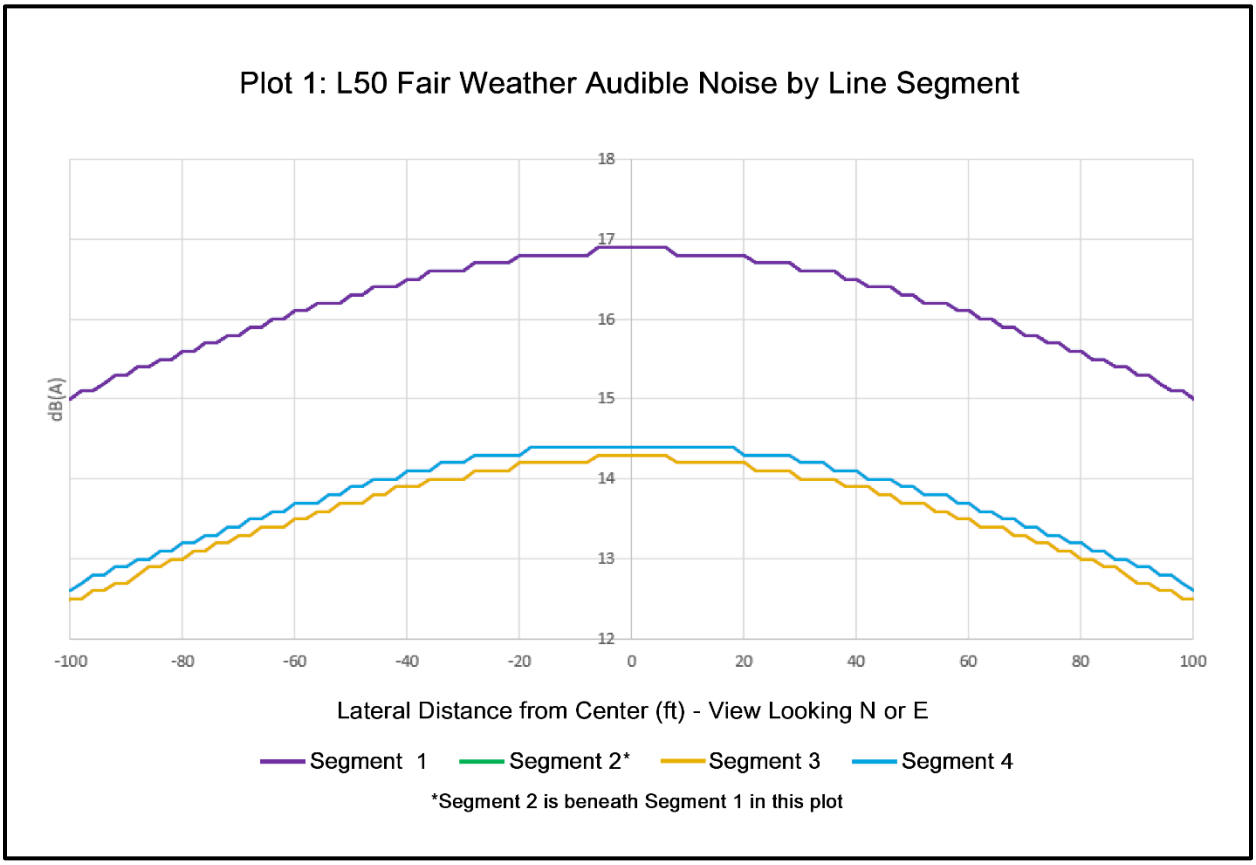

Exhibit I-2. Calculated L50 fair weather audible noise levels.

[1] Heavy rain conditions are designated statistically as L5 conditions (95% of the time noise levels are at or below the specified values).

[2] Light to moderate rain levels are designated statistically as L50 conditions (50% of the time noise levels are at or below the specified values).

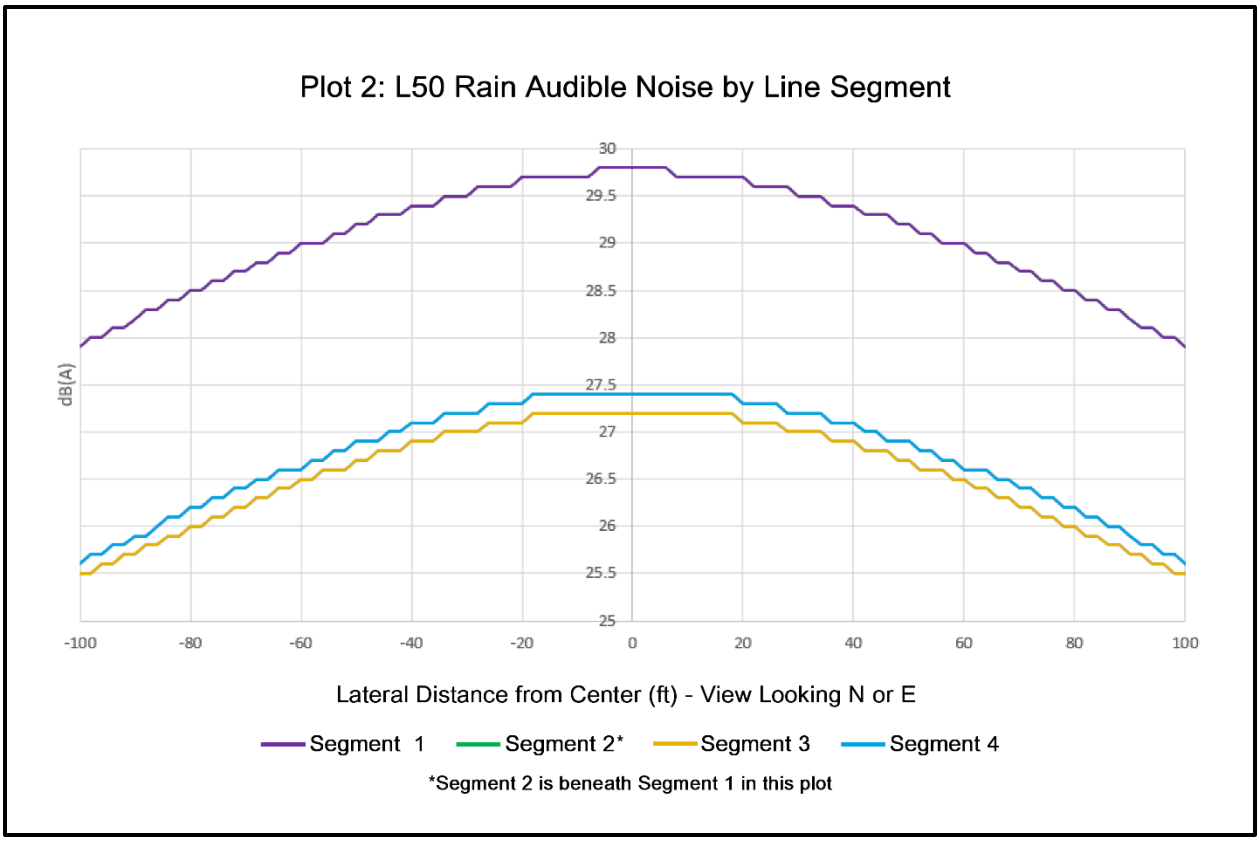

Exhibit I-3. Calculated L50 rain audible noise levels.

Radio Interference

Radio interference is the reception of spurious energy not generated by the transmitting station. This energy affects the amplitude modulated (AM) radio band, but not the frequency modulated (FM) radio band. Transmission line radio interference is caused by corona and by gap discharges. Gap discharges are electrical discharges across a small gap, with the most common cause being loose hardware. Gap discharges comprise a large percentage of all interference problems and are easily remedied. Experience shows that gap discharges are not a problem with steel structures but are more prevalent with wood structures due to the expansion and contraction of the wood causing hardware to loosen.

Corona caused radio interference impact is dependent on various factors including distance from the line to the receiver, radio signal strength, ambient radio noise level, receiving antenna orientation, and weather conditions. A common practice of determining the expected level of radio interference is to calculate the transmission line radio interference at a frequency of 1 MHz. As the frequency of interest increases, corona produced radio noise reduces with typical reductions in the range of 20 to 40 dB for a frequency increase from 1 to 100 MHz (EPRI 1982) depending on the distance to the conductor.

Comparison of the calculated radio noise levels for the transmission line designs shows average stable fair weather radio noise levels generated by these transmission lines in the range of 28.6 to 31.5 dB for Segments 1 and 2, and 26.5 to 30.4 dB for the other segments at 100 feet from the outside phase. This compares favorably with the maximum suggested noise level of 40 dB (Institute of Electrical and Electronics Engineers [IEEE] 1980). During inclement weather, transmission line noise levels increase to levels in the range of 50.2 to 53.1 dB for Segments 1 and 2, and 48.1 to 52 dB for the other segments 100 feet from the outside phase (average stable foul weather values). In addition to these comparisons of

calculated and recommended interference values, transmission line experience for lines of similar design traversing similar terrain has shown radio interference to be acceptable. It is noted that other 230kV lines traverse the area near the proposed location. Should radio interference caused by the transmission line become unacceptable in each situation, the utility is willing to work with the complainant to resolve the interference problem. Calculated radio interference plots for average stable fair weather and foul weather are given in Exhibits I-4 and I-5.

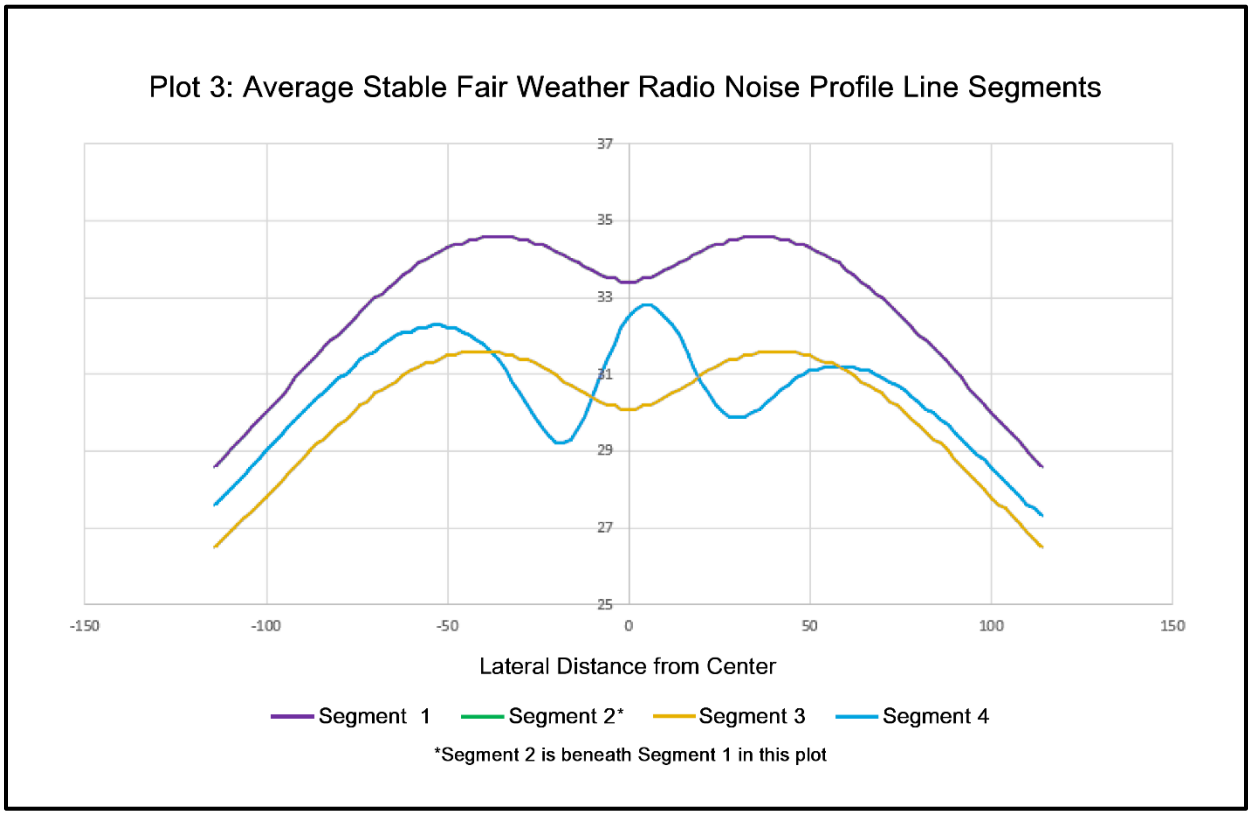

Exhibit I-4. Calculated radio interference, fair weather.

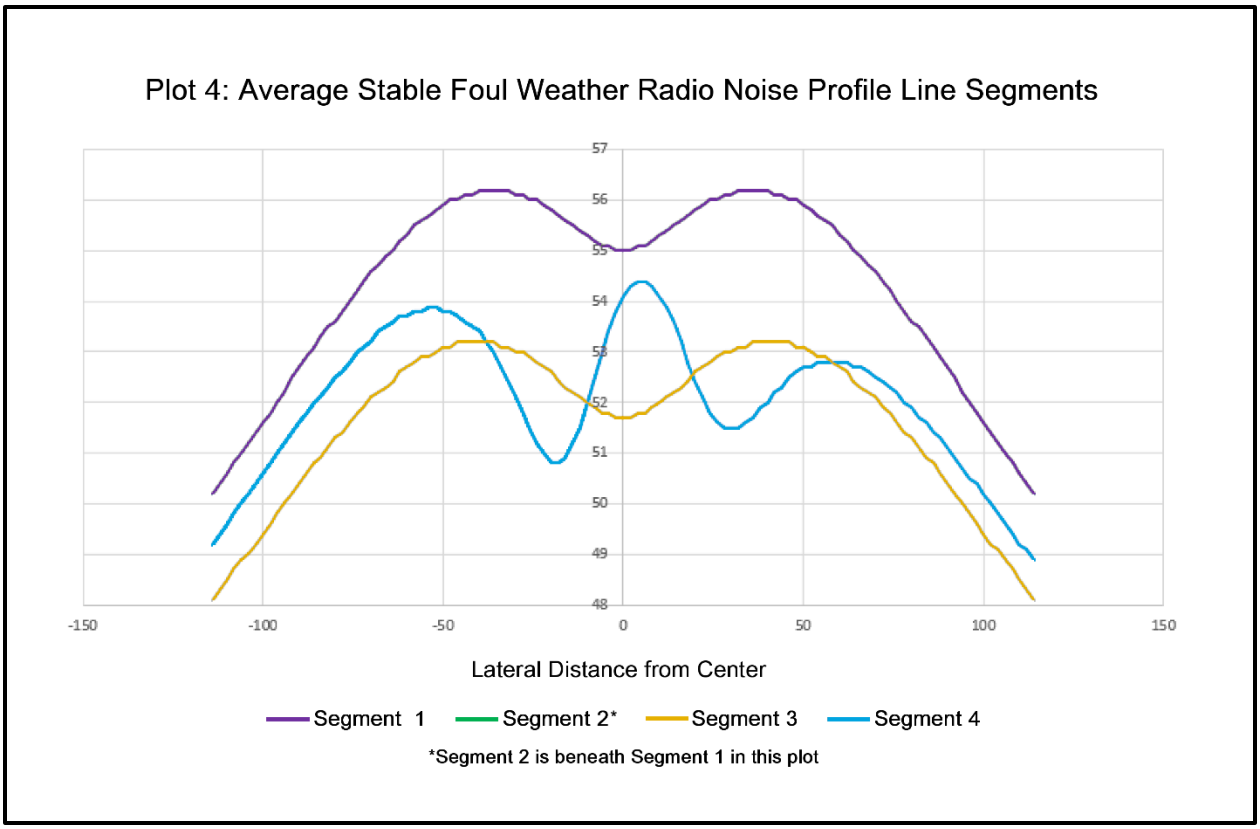

Exhibit I-5. Calculated radio interference, foul weather.

Television Interference

Television interference effects are similar to radio interference. Traditional analog television broadcasts occur in three ranges:

- 54–88 MHz (Channels 2–6)
- 174–216 MHz (Channels 7–13)
- 470–890 MHz (Channels 14–83)

Transmission line interference reduces with increasing frequency above 100 MHz. Consequently, TVI only affects the lower very high frequency (VHF) band (Channels 2–6) and no interference will be experienced in the upper VHF (Channels 7–13) and ultra high frequency(UHF) bands (Channels 14–83) even during foul weather.

No transmission line generated television interference is expected along the lines, even during periods of inclement weather since expected TVI levels at the edge of the ROW are expected to be similar to other operating 230kV lines which traverse similar terrain.

In cases where transmission line generated TVI has been found to be a problem, it is generally the result of induced voltage on fences, conductors, and hardware, which are adjacent to the ROW. In these situations, the interference can be easily corrected by grounding the objects, or by realigning, relocating, or providing higher gain television antennas. APS is prepared to assist affected parties in resolving TVI problems resulting from the operation of our facilities. However, with the increasing popularity of newer technologies such as cable, satellite, and internet-based television, transmission line TVI problems warranting any sort of corrective action are even more unlikely.

Electric and Magnetic Field Effects

Electric and magnetic field (EMF) effects are primarily electric and magnetic induction effects whereby voltages and currents are induced in nearby conductive objects by the voltage and current associated with the line.

Electrostatic induction is the capacitive coupling of a voltage onto insulated objects near the transmission line. The induced voltage is a function of the electric field associated with the line, which in turn is a function of the line voltage. Other factors, which affect the level of induced voltage include insulation, object orientation and dimensions, and line height. When a person reaches to touch a conducting object that has been charged by electrostatic induction, a spark discharge will occur similar to that experienced by a person reaching for a doorknob after walking on a nylon carpet with the difference that sparking will continue to occur if the person's hand remains close enough to the object for the sparks to occur. Based on computer modeling the electric fields associated with the proposed transmission lines will be consistent with the electric field values of similar existing 230kV transmission lines. No electrostatic induction problems are anticipated. Should any electrostatic induction problems occur, they can be easily corrected by grounding the conductive objects. The transmission lines will be designed to limit the value of short-circuit current from a conductive object to 5 mA or below, which is the maximum design limit permitted by the National Electrical Safety Code. Exhibit I-6 shows the expected electric field (calculated 1 m above ground) for the various expected configurations of the different line segments. Note that the expected electric fields are well below the 5 kilovolts per meter (kV/m) limit outside the ROW and 10 kV/m inside the ROW as specified by IEEE Standards (IEEE 2002).

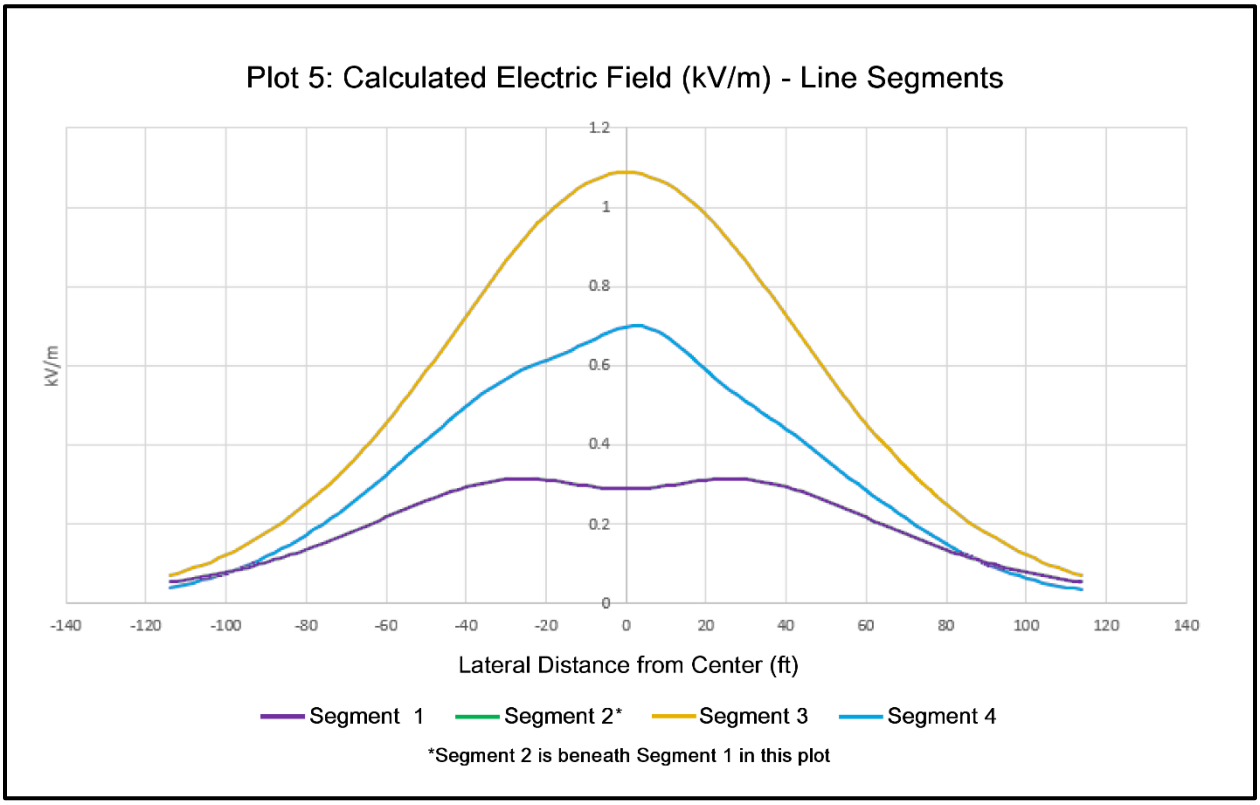

Exhibit I-6. Expected electric field (1 m above ground).

The magnetic fields associated with transmission lines can also induce voltages and currents in conductive objects (e.g., fences, communication lines, railroads, pipelines, etc.) that are close to and run parallel to the transmission line. The magnetic field level is a function of the current level in the transmission line, which in turn is a function of the line loading.

In addition to the electric and magnetic field induction issues described above, scientific and public interest regarding potential health effects of human exposure to 60 hertz electromagnetic fields (EMF) has led to extensive study for more than 30 years. One example of such research was a study completed in 2007 by the World Health Organization (WHO). *Extremely Low Frequency Fields Environmental Health Criteria Monograph No. 238* details the results of a health risk assessment of extremely low frequency (ELF) EMF up to 100 kHz. The WHO study found that scientific evidence that demonstrates a consistent pattern of increased risk for childhood leukemia due to chronic low-intensity power-frequency magnetic field exposure is based on epidemiological studies. The report goes on to state that, "Virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status" (WHO 2007). The report concludes that, "Thus, on balance, the evidence is not strong enough to be considered causal, but sufficiently strong to remain a concern" (WHO 2007). The results of the WHO report support previous findings by the National Institute of Environmental Health Science (1999) and International Agency for Research on Cancer (IARC 2002) that the use of electricity does not pose a major unrecognized health danger.

As noted above, the WHO Report did concur with the overall conclusions of the 2002 IARC report on Electric and Magnetic Fields. The 2002 IARC report did not conclude that power frequency fields present a specific health risk, however, IARC did state that, with respect to childhood leukemia, power frequency magnetic fields are "possibly carcinogenic to humans." This finding was based on limited human evidence and inadequate evidence in experimental animals (IARC 2002).

The actual electric and magnetic fields associated with these power lines will depend on the final construction, the amount of current in the lines, height of the conductors, and other nearby sources of fields. Based on computer modeling of expected construction configuration and operating conditions, the electric and magnetic fields associated with these lines is comparable to other already existing lines of this voltage in the state. Exhibit I-7 shows the calculated magnetic field for the expected line configurations (calculated 1 m above ground).

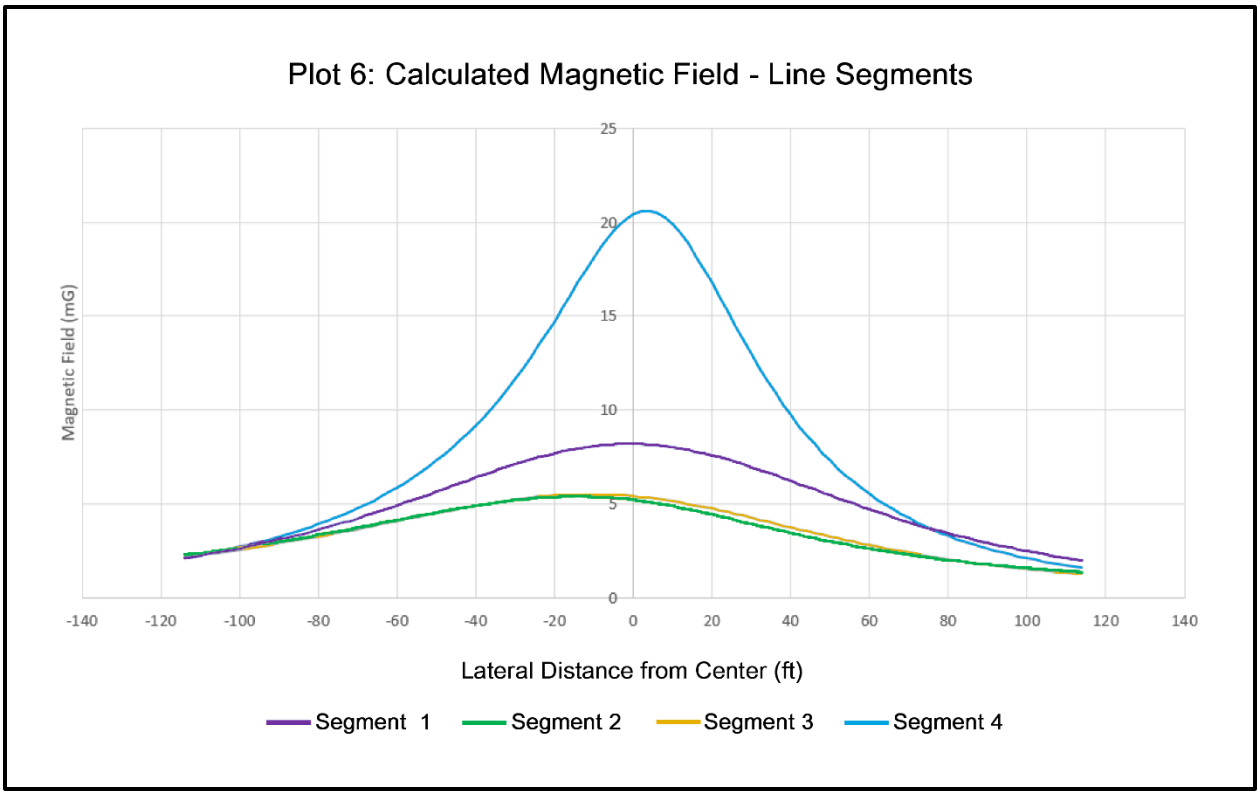

Exhibit I-7. Expected magnetic field (1 m above ground).

Calculation Notes

The EPRI "ACDCLine" program was used to calculate the various corona, noise, and electric/magnetic field quantities reported herein based on the expected transmission line designs for the lines of interest. Different cases based on the different expected conductor configurations of the lines were modeled to represent the conditions expected along the entire line lengths.

Literature Cited

Electric Power Research Institute (EPRI). 1982. *EPRI Transmission Line Reference Book*. 2nd Edition. Electric Power Research Institute.

Institute of Electrical and Electronics Engineers (IEEE). 1980. Review of Technical Considerations on Limits to Interference from Power Lines and Stations. IEEE Radio Noise and Corona Subcommittee Report, RI Limits Task Force, Working Group #3. *IEEE Transactions on Power Apparatus and Systems* PAS-99(1):365–388.

_____. 2002. IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0–3 kHz. IEEE Standard C95.6-2002.

International Agency for Research on Cancer (IARC). 2002. *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 80, Non-Ionizing Radiation, Part 1: Static and Extremely Low Frequency (ELF) Electric and Magnetic Fields*. 2002: Lyon, France: International Agency for Research on Cancer.

National Institute of Environmental Health Science. 1999. *Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields*. NIH Publication No. 99-4493. National Institutes of Health, National Institute of Environmental Health Sciences. May.

World Health Organization (WHO). 2007. *Extremely Low Frequency Fields Environmental Health Criteria*. Monograph No. 238. Geneva, Switzerland: World Health Organization.

EXHIBIT J. SPECIAL FACTORS

As stated in the Arizona Administrative Code R14-3-219, Exhibit 1:

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

Introduction

In addition to the environmental studies completed for the Project—including impact assessments for existing and future land use, and biological, visual, cultural, and recreational resources within the Study Area—APS and SWCA are conducting an ongoing, multi-faceted public and agency involvement program for the Project. The various outreach efforts are detailed below.

Public and Agency Involvement Program Summary

The purpose of the public and agency involvement program is to ensure that local jurisdictions, relevant agencies, community residents, and other stakeholders are informed of the Project and provided with opportunities to relay information or potential concerns related to the Project. The outreach efforts provided information to stakeholders, solicited feedback on the proposed Project, and helped to identify potential issues relative to the Project. To reach public and agency stakeholders, APS and SWCA distributed newsletters via the mail and email; published newspaper and social media advertisements; hosted multiple open house meetings (virtual and in-person); maintained a Project website and telephone hotline; and conducted one-on-one coordination via email, phone, and virtual meetings with local jurisdictions and select landowners.

PROJECT NEWSLETTERS

APS mailed Project newsletters prior to each of the two open house meetings to inform members of the public residing within the Preliminary Siting Area about the proposed Project and methods for providing comments. The Preliminary Siting Area for the Project (discussed in detail in Exhibit B-1) is bounded by McDowell Road and Palm Lane to the north, Avondale Boulevard to the east, Southern Avenue to the south, and Sarival Avenue to the west.

Newsletter One

The first Project newsletter (Exhibits J-1 and J-2) was prepared and distributed in January 2022, to more than 18,000 residents, businesses, landowners, agencies, and key stakeholders within the Preliminary Siting Area. This newsletter served to announce the Project to the public and provide notice of the first virtual public open house, which launched January 10, 2022. The content of the newsletter included an overview of the Project's purpose and need, an overview of the siting process, a description of the infrastructure being proposed, and information about when, where, and how the public could be involved in the siting process.

Newsletter Two

The second Project newsletter (Exhibits J-3 and J-4) was prepared and distributed in May 2022, to the same mailing list of over 18,000 recipients used in previous mailings. This newsletter served to announce the second open house meeting, which was held virtually and in-person at the Avondale Elementary School District Boardroom in Avondale, Arizona. The virtual open house was updated on June 14, 2022,

to coincide with the in-person open house was held the evenings of June 14 and 15, 2022. The content of the newsletter included an update on the Project's status, a map of preliminary links, and information about when, where, and how the public could be involved in the siting process.

Newsletter Three (Pending)

A third newsletter will be prepared with an anticipated distribution in October 2022. The third newsletter will announce the filing of this CEC Application, as well as the dates of the Project's Arizona Power Plant and Transmission Line Siting Committee Siting Committee hearings. The third newsletter will be sent to the same mailing list of over 18,000 recipients used in previous mailings.

Newsletter Four (Pending)

A fourth newsletter will be mailed following any Project decision made relative to this CEC Application by the Arizona Corporation Commission (Commission). The newsletter will announce the Commission's decision to provide further information on the anticipated timing of the construction and operation of the Project facilities. The fourth newsletter will be sent to the same mailing list of over 18,000 recipients used in previous mailings.

WEBSITE

A Project website (aps.com/runway) was created and maintained by APS to provide access to Project information and electronic copies of distributed materials. Through the website, viewers can read about Project updates, watch a Project overview video, and access maps, Project newsletters, and the virtual open house. Viewers can also provide questions or comments through the email or virtual open house hyperlinks posted on the website. The website address was advertised in the newsletters, newspaper advertisements, on the telephone information line, through customer email, and at each public open house meeting. Screenshots from the website are included in Exhibits J-5 through J-8.

PUBLIC OPEN HOUSES

Multiple public open house meetings (two virtual and one in-person) were held as part of the public involvement program. These meetings provided a central location where members of the public could view Project information and provide input to APS.

Virtual Open Houses

The virtual open house (runwayopenhouse.com) was announced in the newsletters, newspaper and social media ads, and via email to stakeholders. The first virtual open house was launched January 10, 2022, and remained available for public viewing and commenting until the site was updated for the second virtual open house that launched June 14, 2022. The content on the site will remain accessible until the Commission decision is made. The virtual open house provides a central, 24/7 accessible location where members of the public can view and download Project information and maps, as well as provide input and ask questions (through an online comment form). Exhibits J-9 through J-14 show the virtual open house layout. Exhibits J-15 through J-40 are the Project information boards for the first open house posted online; Exhibits J-41 through J-84 are for the second open house. Each open house had the same layout, but Project information was updated as the Project progressed.

The virtual open house format consisted of an interactive website, with Project information boards, a video, and comment forms provided in clickable modules, which allowed interested parties to visit and review the material at their convenience and to ask questions, request information, or provide comment through embedded forms. Both open houses highlighted details such as the Project's purpose and need, location, proposed facilities, maps, information about the siting process, schedule, and opportunity for comment.

Analytical data was recorded since the initial launch of the virtual open house, including for each virtual open house public comment period. This data shows 617 visits to the site during the first comment period and 955 visits during the second comment period. Some of the most frequently visited pages include "Project Information," "Project Description," and "Questions and Comments." Overall, approximately 3,609 users visited the website from January 10 to July 27, 2022. The virtual open house website will continue to remain active throughout the CEC process.

The virtual open house website received higher visitations following dates coinciding with newsletter mailings, email blasts, and social media outreach. Exhibit J-85 highlights public open house visitations by browser type, device type, and hotspot activity. Exhibit J-86 highlights peaks in visitation. Most notably, visitations peaked on June 9, 10, 29, and 30, 2022, likely corresponding with the second and third email blasts.

In-person Open House Meetings

An in-person open house meeting was held for the Project on the evenings of June 14 and 15, 2022, from 5 p.m. to 7 p.m. at the Avondale Elementary School District Board Room, located at 295 West Western Avenue, Avondale, Arizona 85323. The format of the meeting was an informal open house arrangement, which allowed community members to attend at their convenience, review informational displays, and have personal communication with members of the Project team. Space was provided for attendees to sit and fill out comment forms. Comments were received verbally and via the comment forms (Table J-1). The sign-in sheets for both dates are provided in Exhibit J-87 and Exhibit J-88.

The in-person open house meetings relayed the same information found in the second virtual open house. The boards displayed at the meeting mimicked the virtual open house boards (see Exhibits J-41 through J-84).

MEDIA RELATIONS

Several newspaper advertisements were placed in the *Arizona Republic* and the *West Valley View*. The *Arizona Republic* is published throughout the state of Arizona, whereas the *West Valley View* is published specifically in the western portion of the Phoenix Metropolitan Area. The advertisements introduced the Project, provided a brief Project description, announced the virtual open house meetings, and provided options for submitting public comments (Exhibits J-89 to J-97).

SOCIAL MEDIA

Facebook and Instagram advertisements were purchased to inform the public of the Project and public open house meetings (Exhibits J-98 to J-102). The first round of advertisements introduced the Project, provided links to the first virtual open house and Project website, and solicited public input. The first round of advertisements ran for 2 weeks starting January 20, 2022, reaching 43,558 people with 56,588 impressions and 37 clicks. The second round of advertisements announced the second virtual open house meeting and in-person open house meeting, provided links to the virtual open house meeting and Project website, and solicited public input. The second round of advertisements ran for 2 weeks starting June 2, 2022, reaching 22,552 people with 36,307 impressions and 7 clicks. The City of Avondale also posted this advertisement on their Facebook page on June 13, 2022. A third round of advertisements was placed on June 22, 2022, for 2 weeks, and contained similar information as the second round, with the exception of the in-person open house invitation since it had already taken place. The third round of advertisements reached 43,911 people and had 62,319 impressions with 30 clicks. A fourth round of social media advertisement will be purchased later this year (October or November 2022) to notify the public of the upcoming CEC Hearing anticipated the week of November 14, 2022. The City of Avondale plans to post the future advertisement on their Facebook as well.

In addition to the Facebook and Instagram ads, APS provided Project information and solicited public feedback on Twitter via their official APS account @APS_Jess (Exhibit J-103).

EMAIL

APS sent email notifications to customers with available email addresses within the Preliminary Siting Area on January 25 and June 9, 2022 (prior to each of the two open house meetings), and on June 29, 2022 (Exhibits J-104 through J-106). The emails introduced the Project, provided links to the virtual open house meeting and Project website, and solicited public input. Based on data collected by APS, the January 25, 2022, email was sent to 23,461 email addresses, was opened by 12,719 unique recipients, and received 579 clicks. The June 9, 2022, email was sent to 42,507 email addresses, was opened by 22,185 unique recipients, and received 678 clicks. The June 29, 2022, email was sent to 26,095 unique email addresses, was opened by 14,286 unique recipients, and received 632 clicks.

TELEPHONE LINE

A Project information hotline was created to provide additional opportunity for members of the public to learn about the Project and to leave comments or questions. The telephone number was provided in each newsletter mailing, in newspaper advertisements, on the Project website, and at each open house meeting. Initially, the telephone line provided information about the Project and announced the first virtual open house. The telephone line was later updated to inform callers of the second virtual open house, and to inform about the Project process of reviewing comments, refining Project alternatives, and developing a CEC Application. The telephone line continues to provide callers with the opportunity to leave a voicemail comment or a request for more information. All voicemail messages requesting further information were returned by a Project team member.

AGENCY AND LOCAL OFFICIALS BRIEFINGS

Throughout the Project process, APS coordinated with the City of Goodyear, City of Avondale, and Maricopa County representatives to included elected officials, planning staff, and others to relay information on the Project, answer questions, and request feedback. These meetings enabled the Project team to identify stakeholder issues, consider suggestions during the planning process, and relay information on developments of the Project. Goodyear Mayor Joe Pizzillo and Avondale Mayor Kenneth Weiss each wrote a letter to APS, in which they expressed support of the Project on behalf of their respective city councils (Exhibit J-107 and Exhibit J-108).

PUBLIC COMMENTS

Throughout the public involvement program, public comments were solicited and considered in the planning process. Comments received during the public involvement process, including responses when applicable, are included in Table J-1. Public comments were received via the virtual open house, in-person open house, and telephone line. In summary, the comments either expressed general support of the Project or requested additional information from Project team members. SWCA and APS provided additional information to the public as requested.

Table J-1. Public Comments

Comment	Date	Response (if necessary)	Date
Project looks good. Just one question, why not put lines underground? I realize above ground is preferable, I know people will say it takes away from the view of Arizona days.	1/14/2022	The APS Siting Consultant contacted the commenter and provided some additional information regarding the project. Specifically, he noted that there are multiple factors that play into whether or not a power line is placed underground. The high voltage nature of this line (230,000 volts) plays largely into why building it overhead is the proper method. A variety of factors including environmental, engineering, land-use, and more, all play into the feasibility of where and how a powerline is located. Additionally, the increased costs required to build a 230,000-volt line underground would need to be borne by the customer, community, or any other organization requesting the underground option. Although actual cost differences from overhead to underground can be difficult to determine at this stage, estimates are approximately 3-6 times the cost of overhead, and would likely be the difference of millions of dollars. He noted that the siting webpage (https://www.aps.com/en/About/Construction-and-Power-Line-Siting/Power-Line-Siting/Power-Line-Siting-FAQ) addresses this question, and other frequently asked questions that might be helpful. APS noted the answer could be found in the drop-down to "Why doesn't APS place all electric power lines underground?". APS also noted that the "Power line siting projects" link at the top of the page leads to more information about this and similar projects.	1/27/2022
Through the voicemail line, asked for an APS member to call her back and discuss the project.	1/27/2022	The APS Siting Consultant called back and discussed the commenter's inquiry about developing a solar farm on their property; APS Siting Consultant referred the commenter to the appropriate APS point of contact for that inquiry. The APS Siting Consultant encouraged the commenter to provide any feedback or input on the Runway 230kV Power Line project regarding which links (alignments) they would support or not support, and why. He solicited questions and comments regarding the project overall and what kind of input APS is looking for.	2/1/2022
Great presentation! We are new to the Phoenix valley and sure appreciate the contact our power company has with us and all the ability for feedback and input you allow. It is very impressive and we very much support your project and your continued efforts to secure our infrastructure to insure safe coverage for the valley. Keep up the great work!!!	1/29/2022	The APS Siting Consultant contacted the commenter and noted that APS's plan is to use the input they receive to help narrow down and identify various route alternatives for the power line. APS will then present those alternatives to the public at a future open house and ask for further input. The APS Siting Consultant solicited comments to help better identify the proper route for this power line.	1/31/2022
It appears to me the best routing would be APS Runway Substation in Goodyear to existing 230kV power lines along the Agua Fria River to the APS White Tanks-Rudd Substation.	1/29/2022	The APS Siting Consultant contacted the commenter and noted receipt of their input on the Comment Form and informed the commenter that it will be included in the Project analysis. The APS Siting Consultant stated that the plan is to use the input APS receives to help narrow down and identify various route alternatives for the power line. APS will then present those alternatives to the public at a future open house and ask for further input. The APS Siting Consultant solicited comments to help better identify the proper route for this power line.	1/31/2022
Is there any reason why a significant portion of the power to Microsoft isn't coming solar panels? Between the buildings rooftops and the parking area, that should be sufficient space for a decent sized solar field. Thanks for answering my question.	6/9/2022	The APS Siting Consultant contacted the commenter and noted that, while APS is supportive of any customer that chooses to install solar panels, the decision to do so is up to Microsoft. Data centers require a significant amount of continuous, reliable power, both day and night, and standard rooftop solar generates a very small amount of power in comparison (mainly for general use during sunny weather). During cloudy weather, solar generation is even less, and non-existent when the sun goes down. The total power needed to serve their data center is much greater than the amount of energy that solar panels on their site could generate - even in constant sun. Therefore, this transmission line would still be needed. The APS Siting Consultant referred the commenter to a 2019 article from Microsoft's website that discusses their plans to make this facility "among the most sustainably designed and operated in the world". https://blogs.microsoft.com/on-the-issues/2019/07/30/building-world-class-sustainable-datacenters-and-investing-in-solar-power-in-arizona/ APS reminded the commenter that the Project virtual open house will be updated with the latest maps and information, and that they can review and leave feedback on www.runwayopenhouse.com. APS will also be holding in-person open houses on June 14th or 15th where you can come and go at any time between 5-7 PM on either night at the Avondale Elementary School District, 295 West Western Ave, Avondale, AZ 85323. APS will have staff that can further explain the project, with display boards, and the public can ask questions and provide written feedback on preferences for the final route of the transmission line.	6/10/2022
Dear Mr. Eich, 1. What industry best practices and standards are generally being followed for the Runway project in terms of specialized to this type of project — that is, the primary combination of airport proximity, rail right of way, major data center user, and other existing rights of way and power infrastructure? 2. What, if any, are the material variances to such best practices and standards? 3. As Goodyear has begun to attract such major data center operations, is the line and substation siting maximum delivery capability in line with the maximum potential build-out capacity requirements of Microsoft and the likely future data center market and/or technology ecosystem that will follow on in the medium to long term? 4. Have long-term problems for surrounding areas that unexpectedly emerged with similar sitings been carefully considered; e.g. Scottsdale Air Park, Mesa Gateway Airport, Buckeye Airport? 5. Has APS considered partnering with Bill Gates' TerraPower to build a Natrium plant in the Goodyear-Buckeye area to supplement Palo Verde for all the emerging growth in the West Valley and perhaps create a transition path and talent pool for Palo Verde's long-term transition to a next generation nuclear plant? 6. Are there typically net negative economic development impacts to creating a new transmission line right of way along major roadways such as the Runway project's Alternative route; i.e. limitations on the types of businesses and community amenities, e.g. large hotels, ballparks, luxury residential or retail? If so, I hope such indirect economic impacts are highlighted to those opposing the Preferred route.	6/11/2022	The APS Siting Consultant provided the following in response to the commenter's questions, numbered to correspond with the same numbered questions in the commenter's email. 1. The siting process for this transmission line is an extensive and thorough study that includes outreach and coordination with affected agencies, jurisdictions and stakeholders. APS utilizes industry best practices and standards, adheres to NESC standards at a minimum, and must also be compliant with all conditions outlined in the Certificate of Environmental Compatibility (CEC). 2. Any material variances would depend on the particular standard and situation, and I am not aware of any variances at this time. 3. APS' transmission planning constantly evaluates the need for additional transmission facilities, based on current growth expectations. In our siting efforts we have undertaken extensive customer and jurisdiction (Economic and Community Development Departments, etc.) coordination in order to have best available information in terms of growth expectations and/or specific customer requests. Based on this information the Runway 230kV project would meet those needs. 4. While siting the route, we do our best to maximize opportunities to interconnect potential future developments (as far as we have knowledge from city, agency and/or jurisdictional planners) and actively minimize potential future conflicts by meeting with stakeholders (cities, jurisdictions, agencies, airports, etc.) to discuss the project and determine best ways to safely meet the customer's need and the needs of the stakeholders. 5. While outside the scope of Transmission Siting, this might be appropriate to discuss with APS as part of its Integrated Resource Planning Stakeholder Process - https://www.aps.com/en/About/Our-Company/Doing-Business-with-Us/Resource-Planning. 6. Every new transmission line will have varying impacts in multiple areas, including an economic impact. As we are obligated to serve the public and all customers, it is our goal to study multiple factors to find the most appropriate route for this line. Factors include environmental, visual, land use (existing and planned), Public input (including cities, jurisdictions, agencies, property owners and residents), engineering, right-of-way, construction and maintenance costs, and more. Our goal is to balance all these considerations and identify the route alignment that would best minimize negative impacts overall. The commenter was invited to attend the open house tonight (June 14th) or Wednesday night (June 15th) to learn more about the project, ask questions, and provide additional input. Feel free to come and go any time between 5-7 PM at the Avondale Elementary School District, 295 W. Western Avenue, Avondale, AZ 85323. The commenter was also invited to visit the Project virtual open house at www.runwayopenhouse.com at any time to learn more and provide additional input, and to visit the Project webpage at www.aps.com/runway. Or, to correspond through email with any further questions, comments, or additional input that they have to help identify the proper route for this power line.	6/14/2022

Comment	Date	Response (if necessary)	Date
Looks great and will serve the community well, but why would APS install it on land? The best solution is to dig a trench and lay pipes to run the cables. This is best solution for the community in terms of safety and aesthetics. Considering the wind storms that we get every summer, underground should be the only choice. Thank you for the opportunity to voice my opinion.	6/12/2022	The APS Siting Consultant provided the following in response to the comments: There are multiple factors that play into whether or not a power line is placed underground. The high voltage nature of this line (230,000 volts) plays largely into why building it overhead is the proper method. A variety of factors including environmental, engineering, land-use, and more, all play into the feasibility of where and how a powerline is located. Additionally, the increased costs required to build a 230,000 volt line underground would need to be borne by the customer, community, or any other organization requesting the underground option. Although actual cost differences from overhead to underground can be difficult to determine at this stage, estimates are approximately 5-10 times the cost of overhead, and would likely be the difference of millions of dollars. Our Siting webpage addresses this question, and other frequently asked questions that you might find helpful, at https://www.aps.com/en/About/Construction-and-Power-Line-Siting/Power-Line-Siting/Power-Line-Siting-FAQ. Specific to your question, please select the drop-down to “Why doesn’t APS place all electric power lines underground?”. The commenter was invited to attend the open house tomorrow night (June 14th) or Wednesday night (June 15th) to learn more about the project, ask questions, and provide your input. Feel free to come and go any time between 5-7 PM at the Avondale Elementary School District, 295 W. Western Avenue, Avondale, AZ 85323. The commenter was also invited to visit the Project virtual open house at www.runwayopenhouse.com at any time to learn more and provide additional input, and to visit the Project webpage at www.aps.com/runway. Or, to correspond through email with any further questions, comments, or additional input that they have to help identify the proper route for this power line.	6/13/2022
Verbal comment at public open house (no written comment)	6/14/2022	The APS Siting Consultant contacted the commenter regarding their expressed interest in the various APS rooftop solar programs. The APS Siting Consultant referred the commenter to the solar link at the APS company website at www.aps.com. He also mentioned the APS Solar Line phone number at 602-216-0318 (800-659-8148), and the APS Main Line at 602-371-7171 (800-253-9405).	6/16/2022
I believe the route along the Aqua Fria would be the least impactful to neighbors. Less construction along already used streets with housing. ([links]170, 180, 185, 190). The route along MC85-Buckeye to Litchfield road would be a route that is heavily disturbed already with limited visual impacts. I would avoid links 1080, 1090, 1100, 1070, and 2010 as these will cross newly/new to be developed housing developments. I’d suggest adding notification of future projects in the Avondale RAVE magazine and possibly in the Tolleson H.S. District PeachJar notification and the Little Elementary School notifications.	6/14/2022	No response needed.	June 14, 2022
I came to this [open house] because I was weary of the project, but it turns out it is not in my neighborhood. I’ve spent some time with the project manager and learned about the project and process. It was very clearly presented and well communicated.	6/15/2022	No response needed.	June 15, 2022
I am in favor of improvements to the existing system as long as they do not cause a rate hike for me. I am a widow in my late 70's living on one social security check. Currently I turn off my air conditioning from 3pm until 8pm because I cannot afford my bill otherwise. It gets quite hot in my house during those hours. So I am 100 percent against any project that will raise my rates. If you can complete this new project without raising my rates, then it seems like a good idea. Perhaps there can be discounts for seniors? I'm sure there are many others that are in the same situation I am. Otherwise, perhaps the existing budget could be re-arranged to accommodate funds for the new project without raising customer rates.	6/28/2022	The APS Siting Consultant contacted the commenter and referred the commenter to the appropriate APS point of contact for rate inquiries.	7/6/2022 & 6/30/2022
Yes, hi! This is [redacted] for Industrial Electrical Services. We’re an electrical subcontractor and I just have a question about the Runway Substation transmission line project. How long is the length of the line? This 230kV line? I read all the articles, but there's nothing that like tells me how long this line is. If you can please give me a call back [redacted]. Again its [redacted]. I would also like to send out some information regarding our services to the project manager who’s heading up this project. Thank you very much. Goodbye.	9/12/2022	The APS Siting Consultant called back and gave her some additional information regarding the project. She works for an electrical subcontractor and was interested in offering their services for the construction of the line. APS explained that this is still going through the siting and CEC process, and she said she would reach back out next year.	9/14/2022

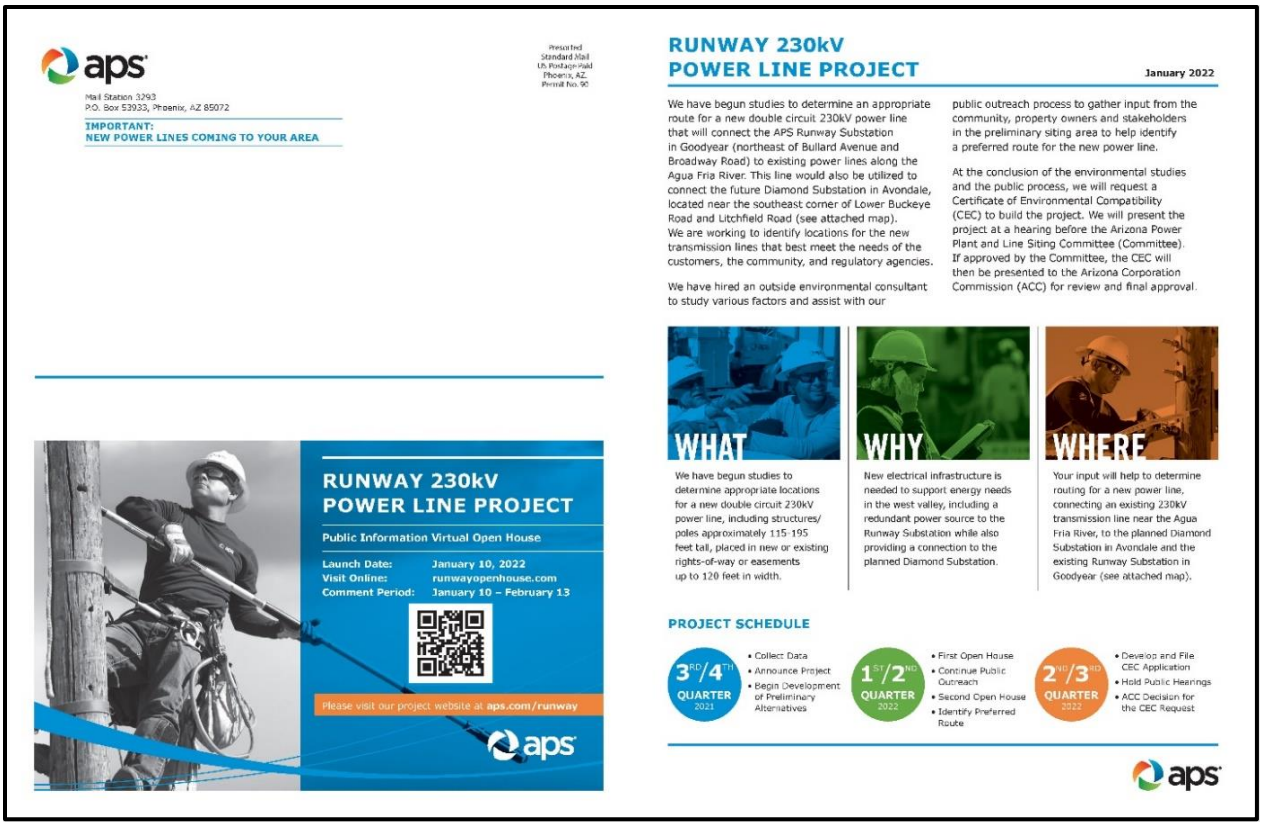

Exhibit J-1. January 2022 newsletter, front.

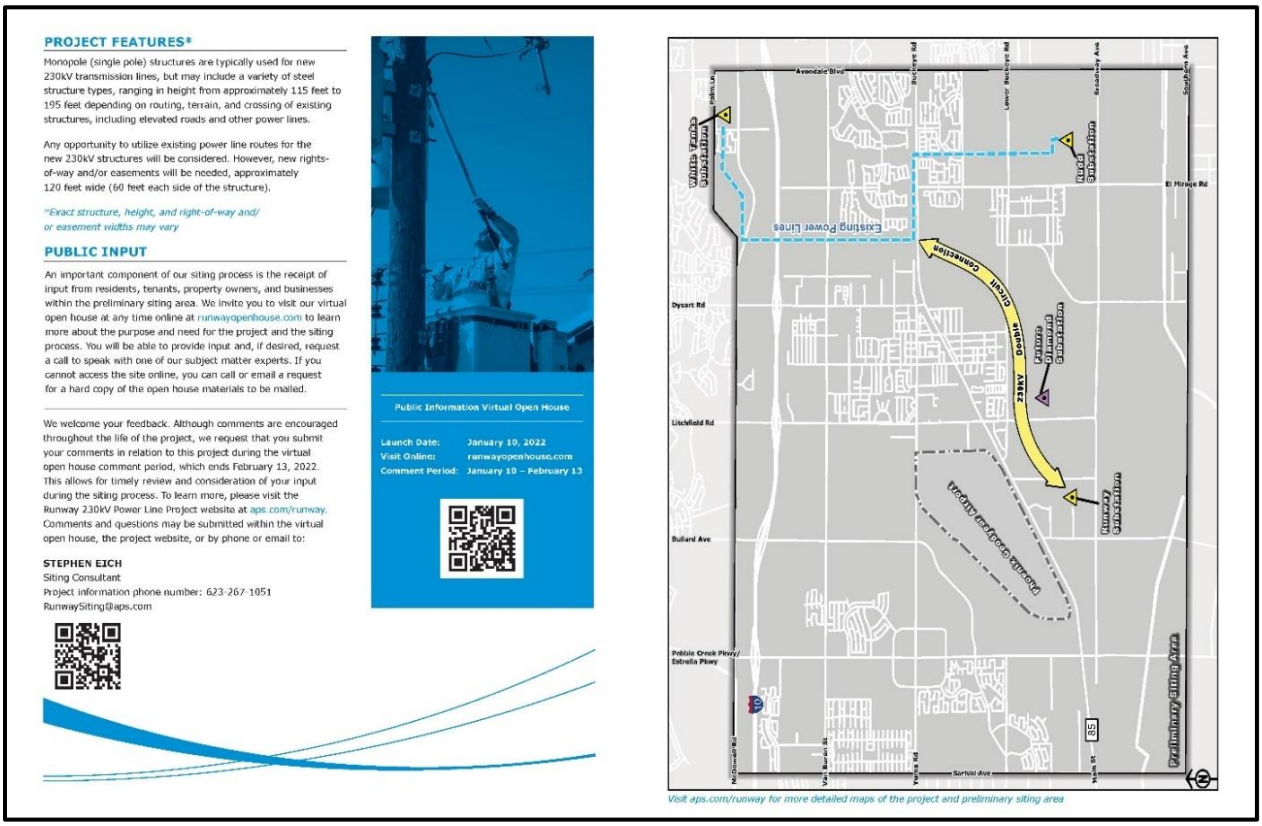

Exhibit J-2. January 2022 newsletter, back.

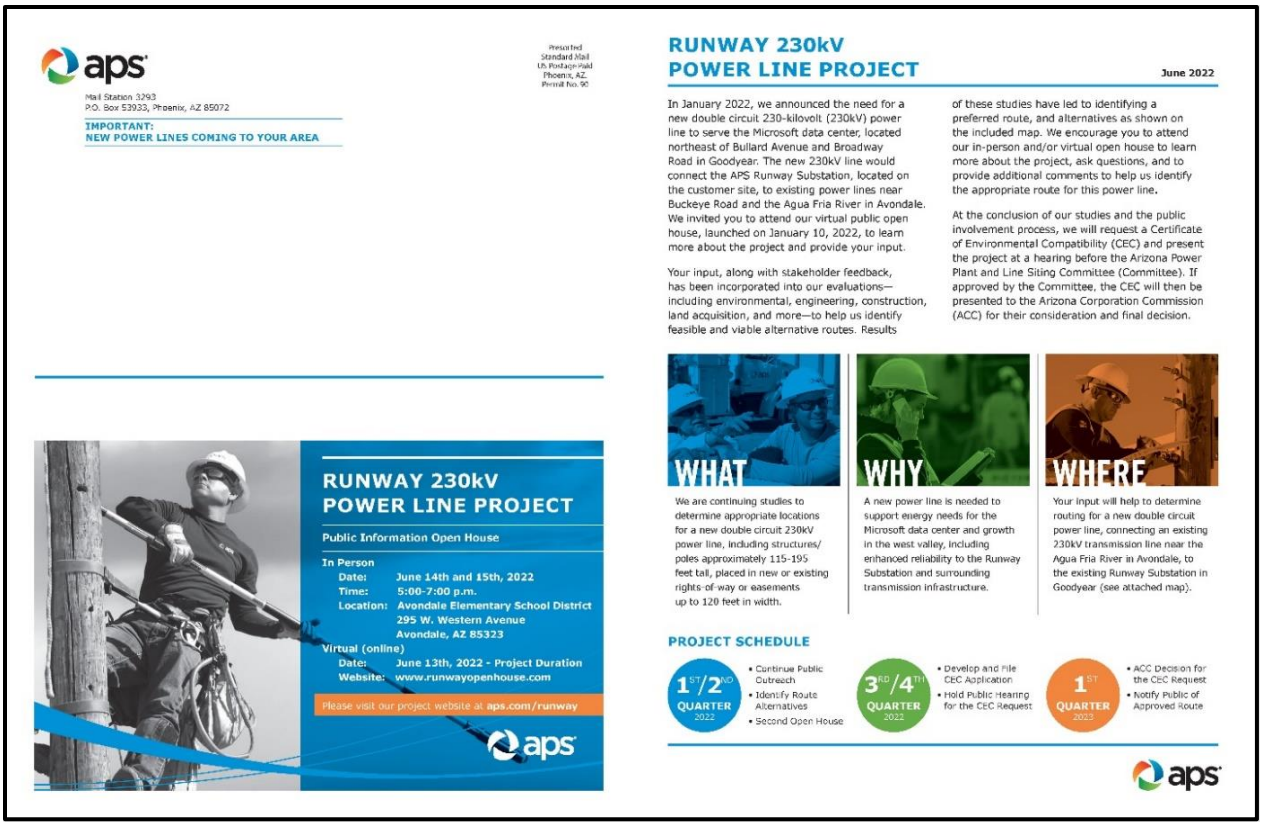

Exhibit J-3. June 2022 newsletter, front.

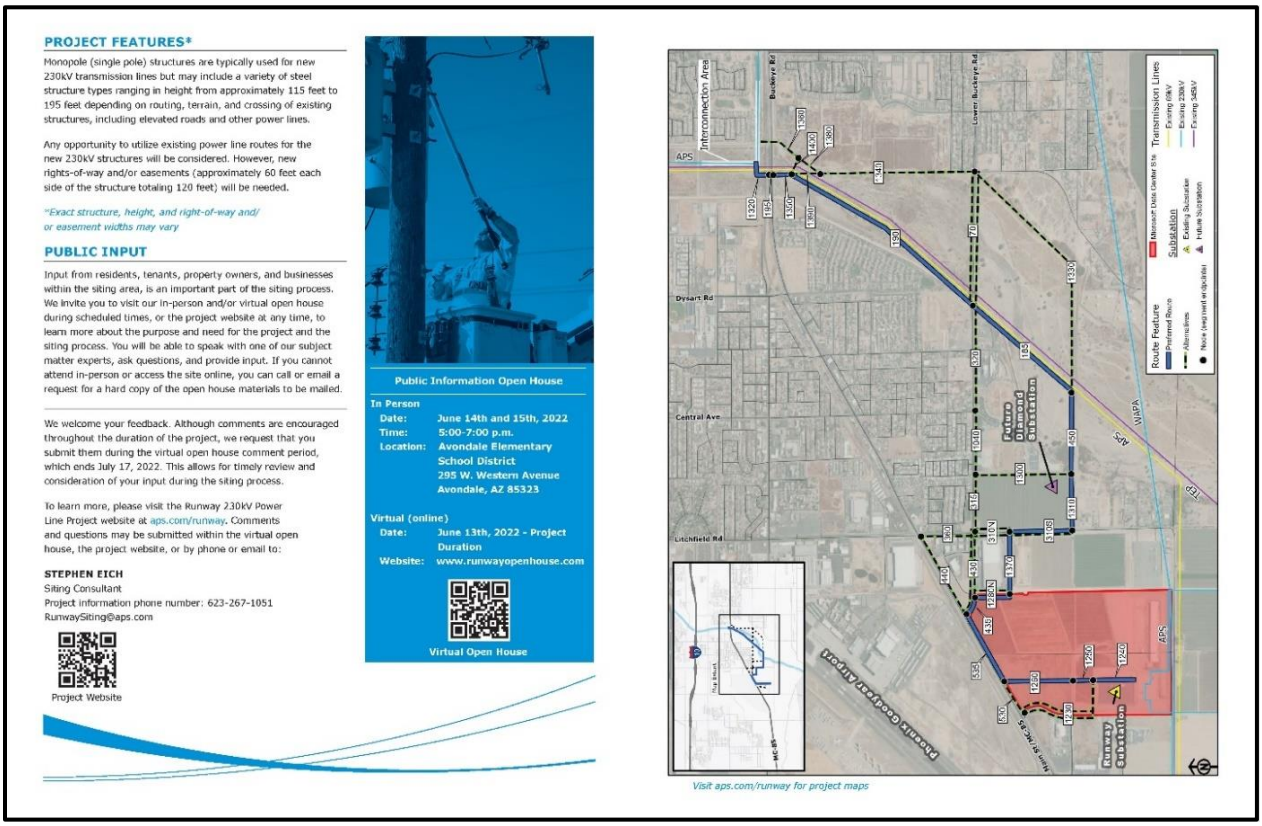

Exhibit J-4. June 2022 newsletter, back.

Runway 230kV

Voltage - 230kV
Estimated completion date - 1st quarter 2023
Location - East Goodyear and west Avondale, AZ

Project need
A new double circuit 230 kilovolt (230kV) power line is required to support the energy needs of the Microsoft data center in Goodyear and growth in the west valley, including enhanced reliability to the Runway Substation and surrounding transmission infrastructure.

Project description
We continually monitor our electrical system and, when necessary, add or upgrade facilities. These improvements enhance reliability and help ensure that an adequate supply of electric power is available to our customers.

The project involves building a new double circuit 230kV power line from the Runway Substation, located northeast of Bullard Avenue and Broadway Road on the customer's site in Goodyear, to existing power lines near Buckeye Road and the Agua Fria River in Avondale, as shown in the project map.

Project planning
We are continuing studies to determine an appropriate route for this new power line. In mid-2021, we hired

https://www.aps.com/en/About/Construction-and-Power-Line-Siting/Power-Line-Siting/Power-Line-Siting-Projects/Runway-230kV

Exhibit J-5. Project website screenshot, Page 1 of 4.

SWCA, an environmental consulting firm, to study various factors such as cultural, biological and visual impacts, and to assist with the public outreach process. These environmental studies and outreach efforts with project area stakeholders, including jurisdictional representatives, landowners, and the community, will be ongoing in order to share project information and to collect public input.

On January 10, 2022, we launched a virtual public open house, where you could learn more about the project online and provide input. Your input, along with stakeholder feedback, has been incorporated into our evaluations— including environmental, engineering, construction, land acquisition, and more—to help us identify feasible and viable alternative routes. Results of these studies have led to identifying a preferred route, and alternatives, as shown on the Route Alternatives Map. We will be updating the virtual open house with the latest information on June 13th, 2022, and hold in-person open houses on June 14th and 15th from 5-7 p.m. We encourage you to attend our in-person and/or virtual open house to learn more about the project, ask questions, and to provide additional comments to help us identify the appropriate route for this power line.

At the conclusion of our studies and the public involvement process, we will request a Certificate of Environmental Compatibility (CEC) and present the project at a hearing before the Arizona Power Plant and Line Siting Committee (Committee). If approved by the Committee, the CEC will then be presented to the Arizona Corporation Commission (ACC) for their consideration and final decision.

Project features
Monopole (single pole) structures are typically used for new 230kV transmission lines but may include a variety of steel structure types ranging in height from approximately 115 feet to 195 feet depending on routing, terrain, and crossing of existing structures, including elevated roads and other power lines.

Any opportunity to utilize existing power line routes for the new 230kV structures will be considered. However, new rights-of-way and/or easements (approximately 60 feet each side of the structure totaling 120 feet) will be needed.

Public input
Input from residents, tenants, property owners, and businesses within the siting area, is an important part of the siting process. We invite you to visit our in-person and/or virtual open house during scheduled times to learn more about the purpose and need for the project and the siting process. You will be able to speak with one of our subject matter experts, ask questions, and provide input. If you cannot attend in-person or access the site online, you can call or email a request for a hard copy of the open house materials to be mailed.

We welcome your feedback. Although comments are encouraged throughout the duration of the project, we request that you submit them during the virtual open house comment period, which ends July 17, 2022. This allows for timely review and consideration of your input during the siting process.

https://www.aps.com/en/About/Construction-and-Power-Line-Siting/Power-Line-Siting/Power-Line-Siting-Projects/Runway-230kV

Exhibit J-6. Project website screenshot, Page 2 of 4.

Comments and questions may be submitted within the virtual open house, or by phone or email to:

STEPHEN EICH
Siting Consultant
Project information phone number: 623-267-1051
RunwaySiting@aps.com

Public information open house

In Person
Date: June 14th and 15th, 2022
Time: 5:00-7:00 p.m.
Location: Avondale Elementary School District
295 W. Western Avenue
Avondale, AZ 85323

Virtual (online)
Date: June 13th, 2022 - Project Duration
Website: www.runwayopenhouse.com

Related documents

Newsletter #1
Newsletter #2
Open House #1 Materials & Maps
Refined Preliminary Links Map
Route Alternatives Map

https://www.aps.com/en/About/Construction-and-Power-Line-Siting/Power-Line-Siting/Power-Line-Siting-Projects/Runway-230kV

Exhibit J-7. Project website screenshot, Page 3 of 4.

https://www.aps.com/en/About/Construction-and-Power-Line-Siting/Power-Line-Siting/Power-Line-Siting-Projects/Runway-230kV

Exhibit J-8. Project website screenshot, Page 4 of 4.

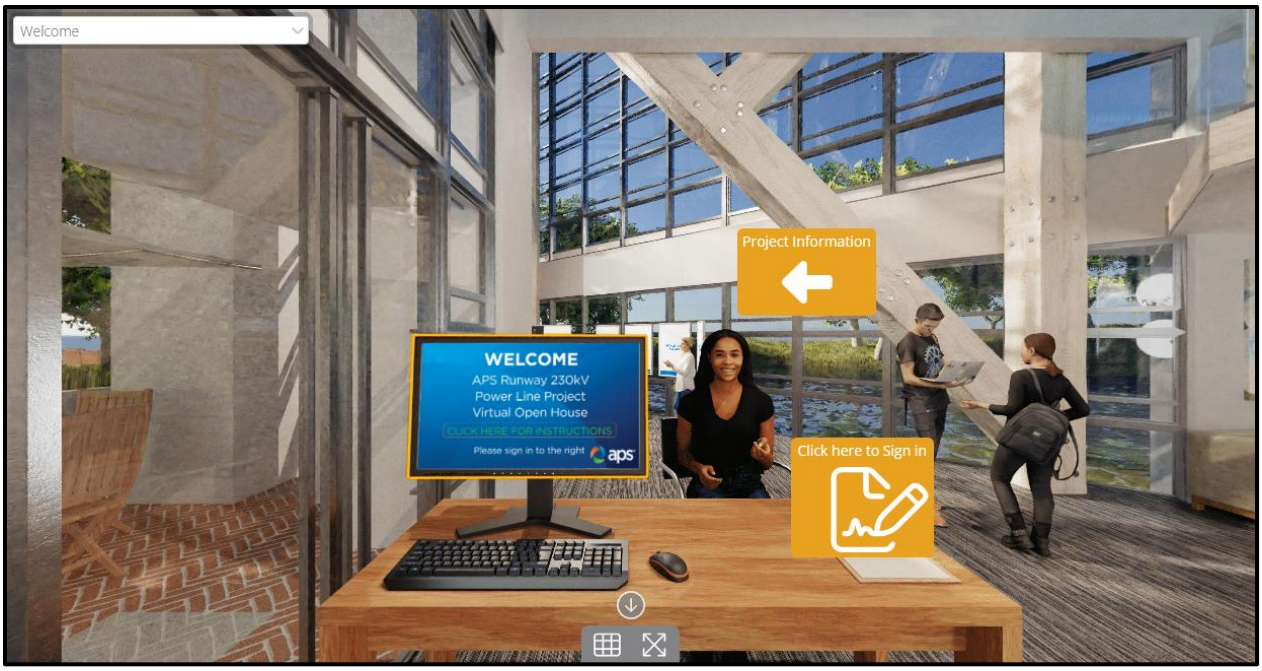

Exhibit J-9. Project virtual open house, Welcome area.

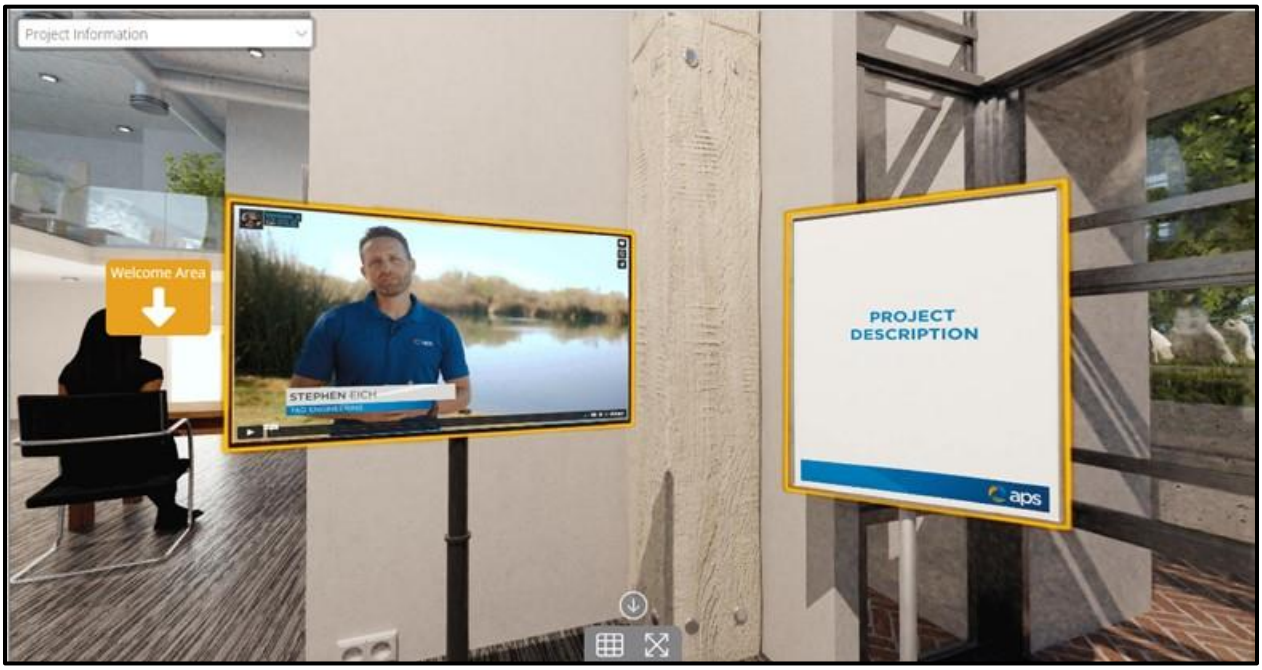

Exhibit J-10. Project virtual open house, Project Information area, left.

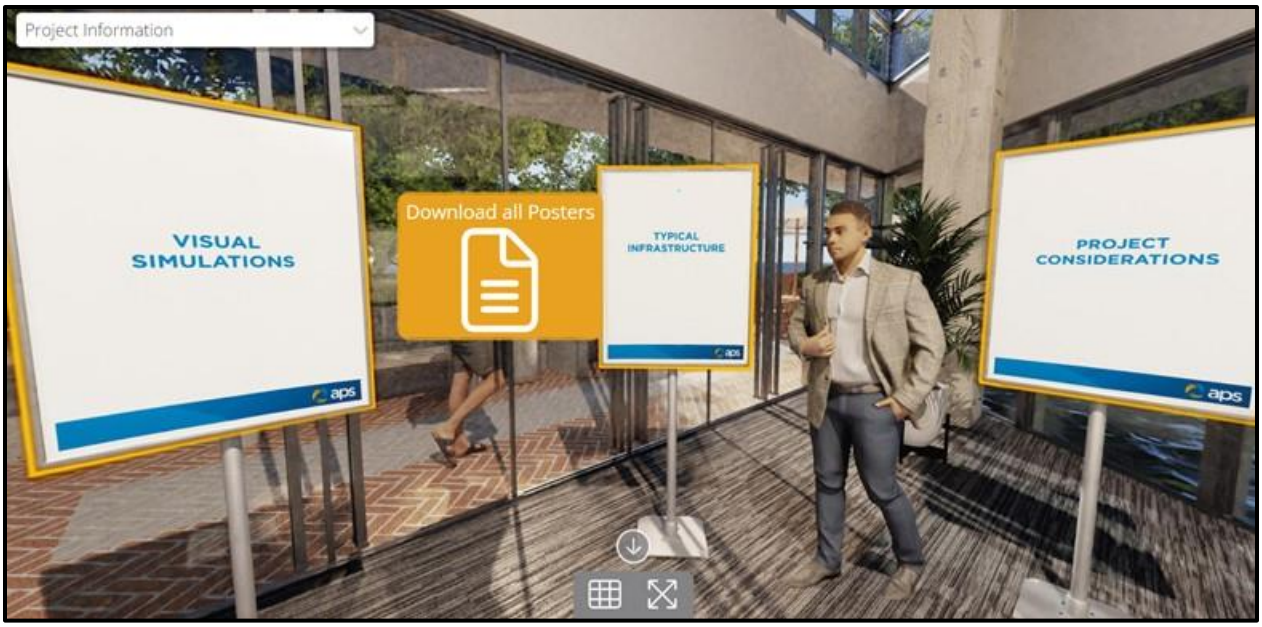

Exhibit J-11. Project virtual open house, Project Information area, center.

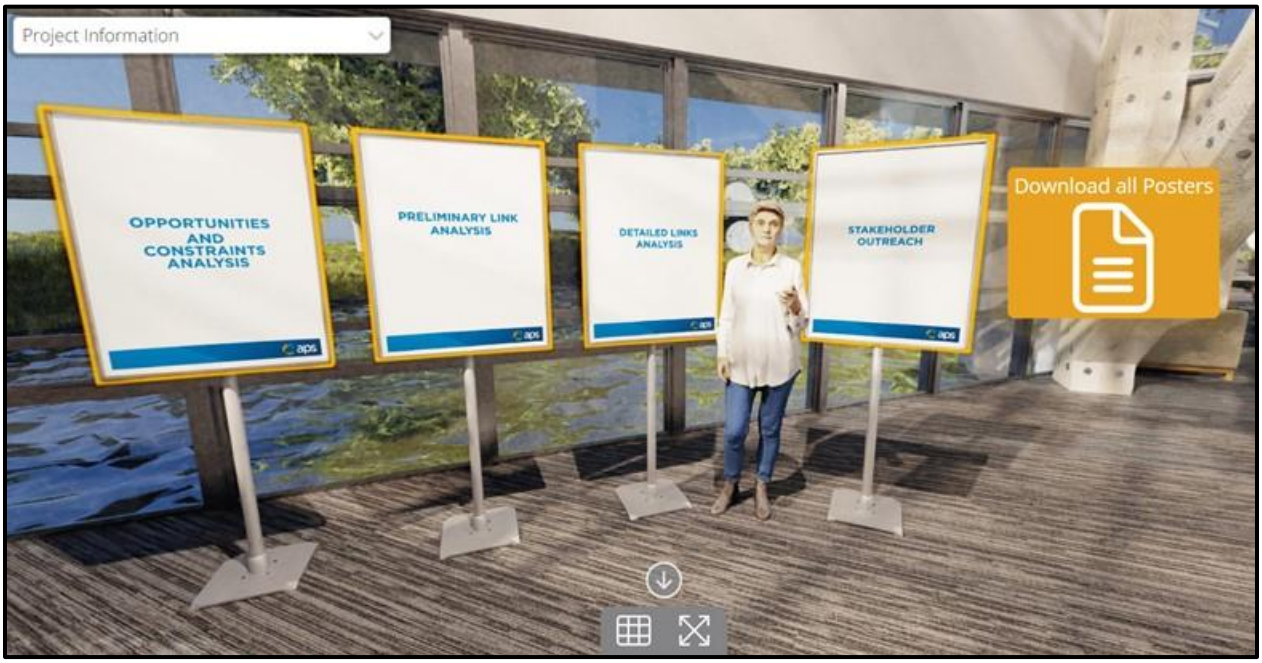

Exhibit J-12. Project virtual open house, Project Information area, right.

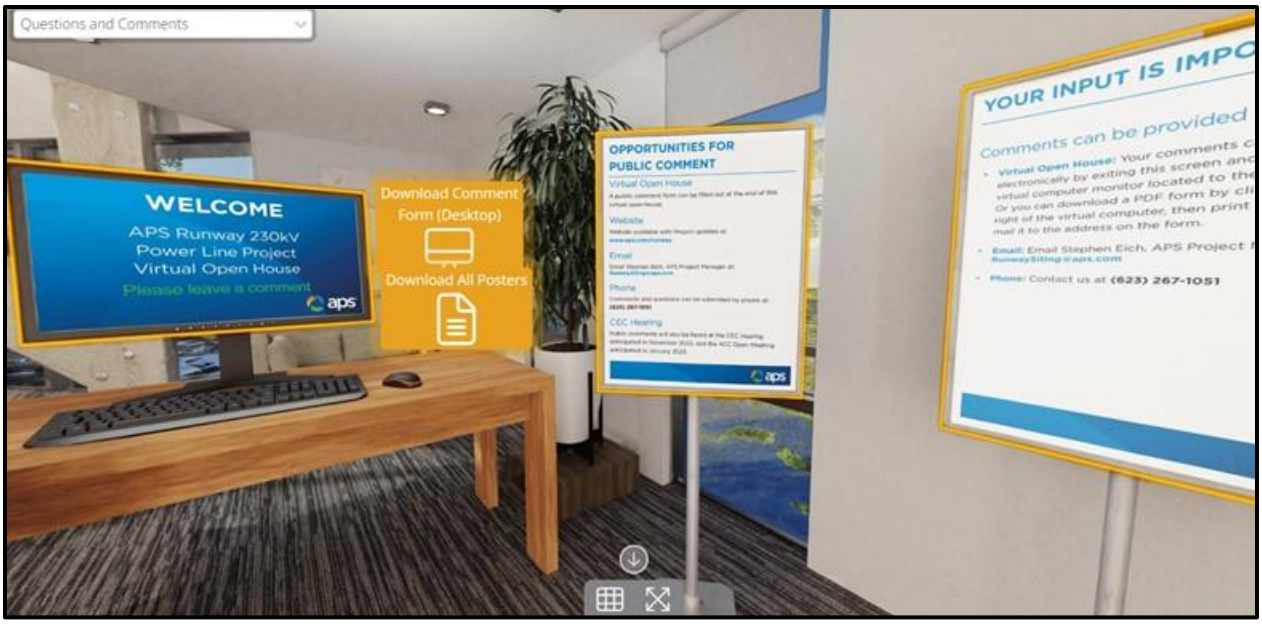

Exhibit J-13. Project virtual open house, Questions and Comments area, left.

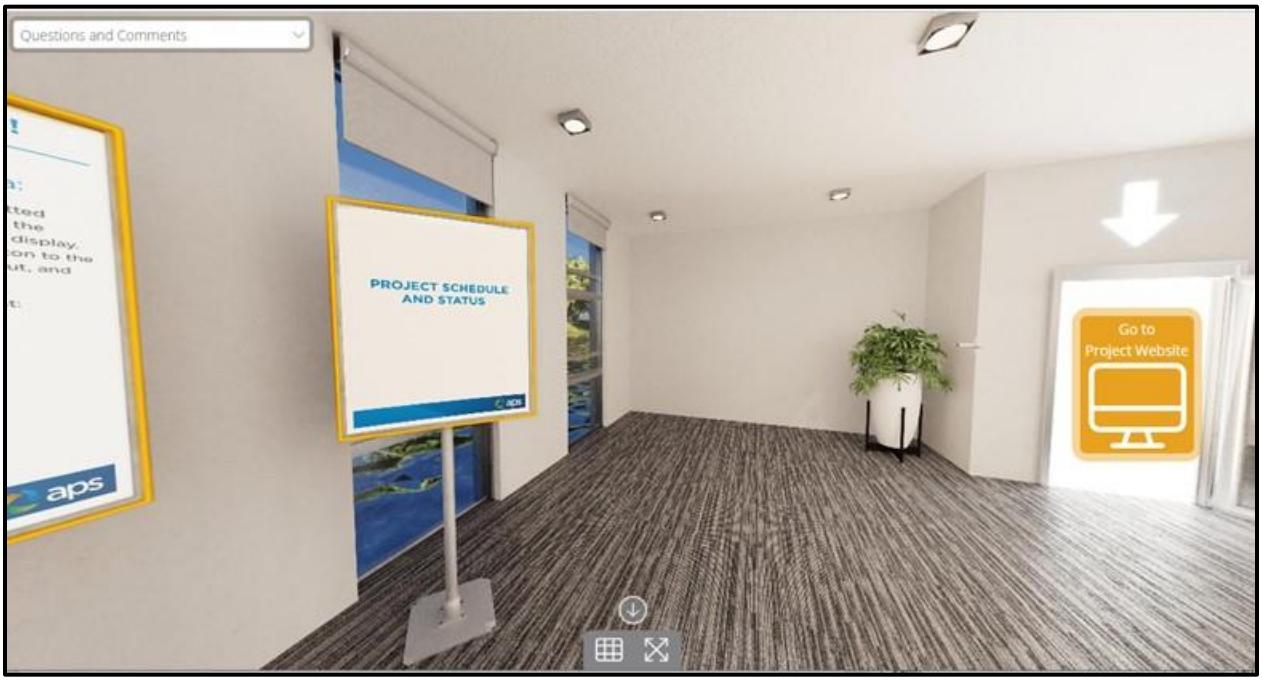

Exhibit J-14. Project virtual open house, Questions and Comments area, right.

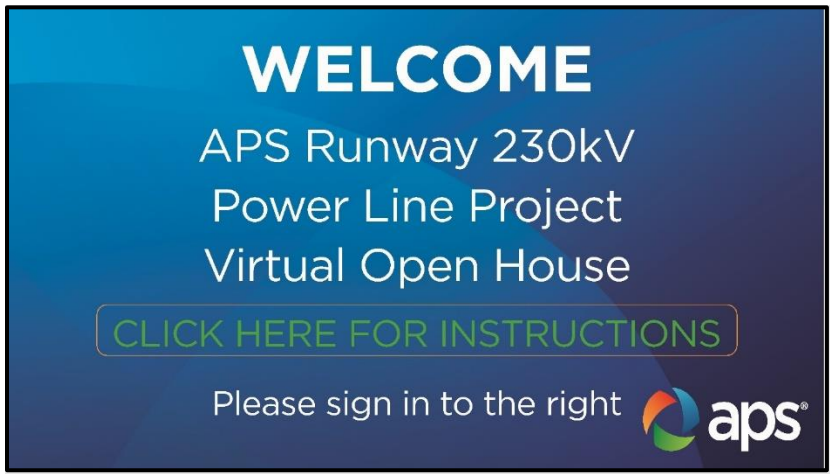

Exhibit J-15. January 2022 virtual open house, Slide 1.

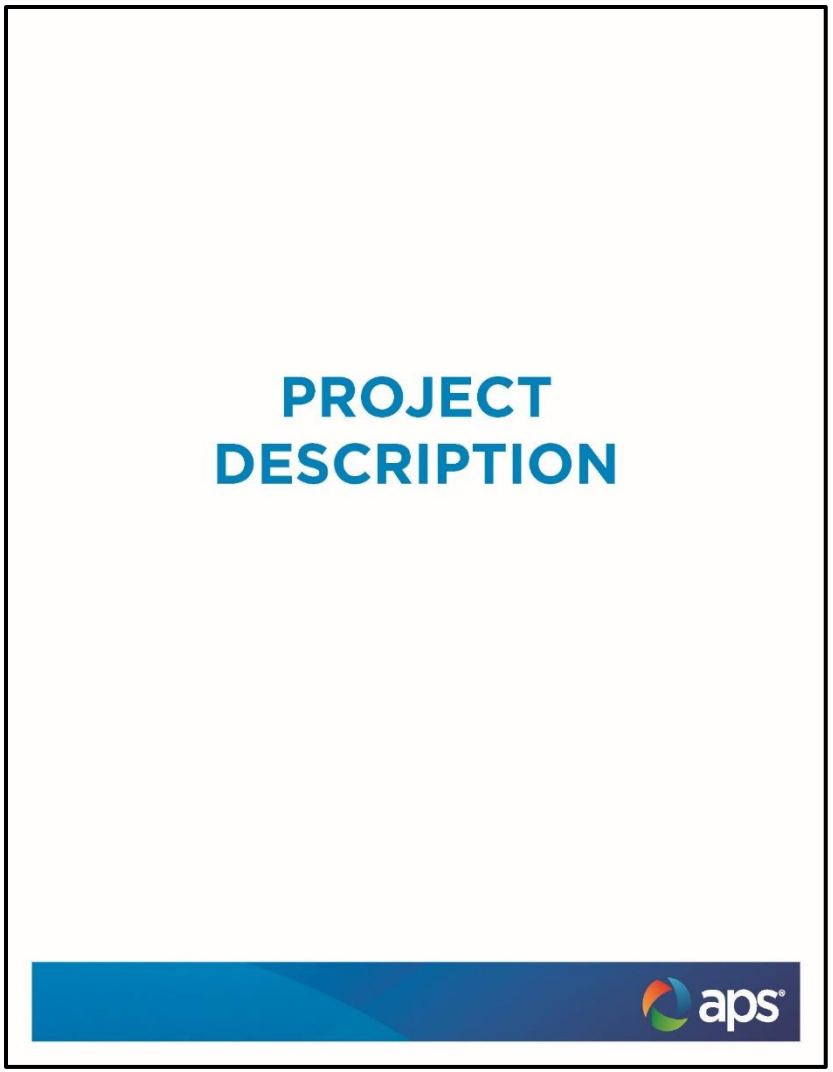

Exhibit J-16. January 2022 virtual open house, Slide 2.

PROJECT OVERVIEW

The **APS Runway Substation 230kV Line Siting Project** is proposed to interconnect a new power line between the existing APS Runway Substation in Goodyear, the future Diamond Substation in Avondale, and the existing power lines between the Rudd and White Tanks Substations.

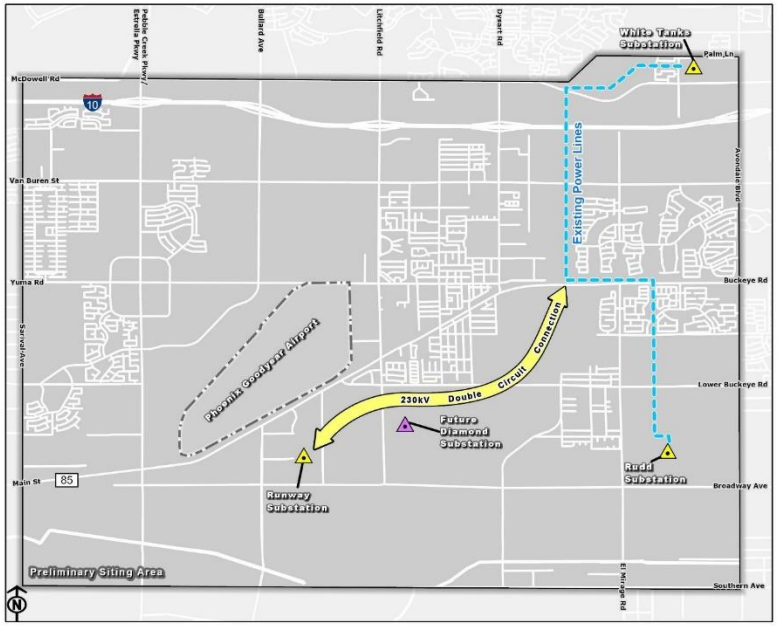

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Exhibit J-17. January 2022 virtual open house, Slide 3.

PROJECT NEED & DETAILS

- The **APS Runway Substation 230kV Line Siting Project** is needed to provide a redundant power source to the APS Runway Substation and to connect the future Diamond Substation to the existing electrical transmission and distribution system in order to meet the energy needs of local data center customers.
- The Project includes a proposed new double-circuit 230kV power line that will connect the APS Runway Substation in Goodyear (northeast of Bullard Avenue and Broadway Road) to existing 230kV power lines along the Agua Fria River, including the APS White Tanks-Rudd or APS White Tanks–West Phoenix 230kV transmission lines.
- The proposed line would also be used to connect the future Diamond Substation in Avondale (southeast corner of Lower Buckeye Road and Litchfield Road) to the existing power lines along the Agua Fria River.
- The Project will require new electrical infrastructure, including new steel pole structures. Refer to the "Typical Infrastructure" board for examples of typical structures.

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Exhibit J-18. January 2022 virtual open house, Slide 4.

PROJECT LOCATION

The preliminary siting area that is being evaluated for potential routes for the **APS Runway Substation 230kV Line Siting Project** is bounded by McDowell Road and Palm Lane to the north, Avondale Boulevard to the east, Southern Avenue to the south, and Estrella Parkway to the west.

This area encompasses the substations and infrastructure needed to meet the project need and allows for multiple routes around the Phoenix Goodyear Airport. The preliminary siting area is located within Goodyear, Avondale, and unincorporated Maricopa County, Arizona.

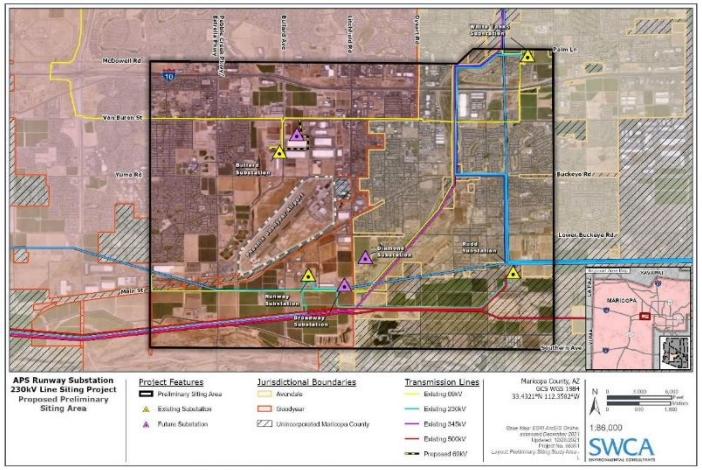

Exhibit J-19. January 2022 virtual open house, Slide 5.

PROJECT SCHEDULE AND STATUS

Exhibit J-20. January 2022 virtual open house, Slide 6.

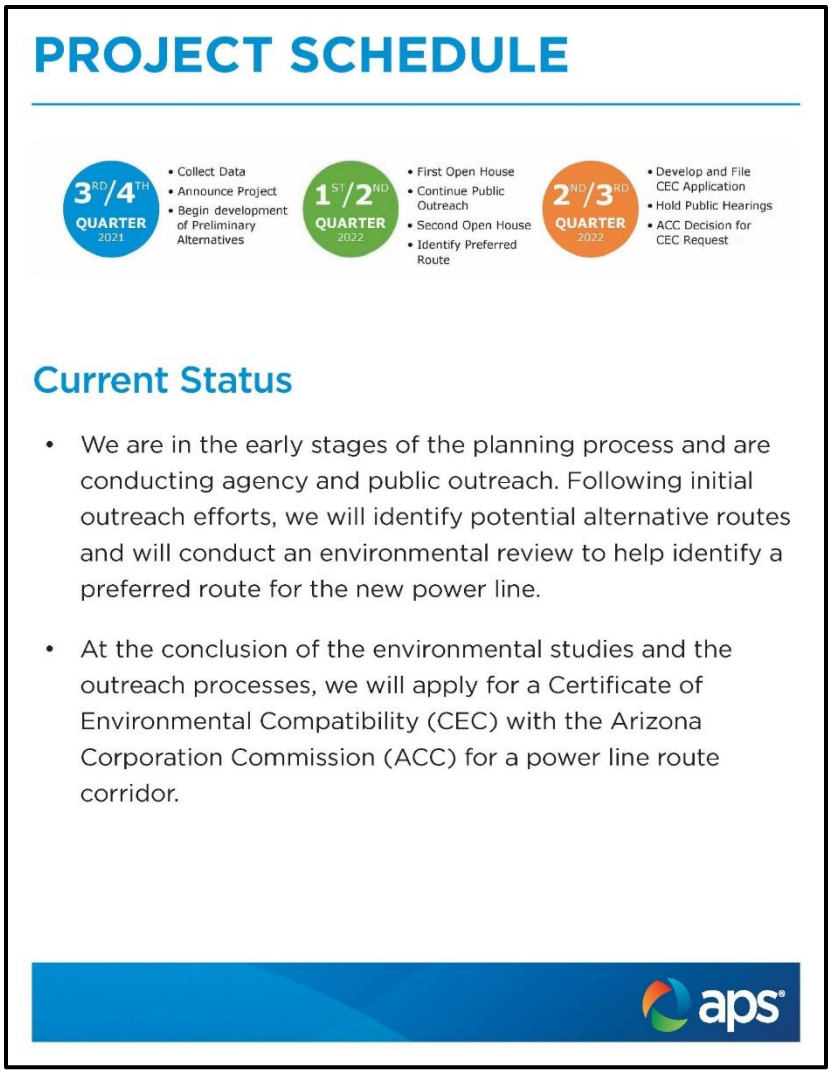

Exhibit J-21. January 2022 virtual open house, Slide 7.

Exhibit J-22. January 2022 virtual open house, Slide 8.

TYPICAL INFRASTRUCTURE

Exhibit J-23. January 2022 virtual open house, Slide 9.

ELECTRICITY OVERVIEW

The **APS Runway Substation 230kV Line Siting Project** includes the addition of 230kV components. The diagram below provides an overview of how 230kV components fit within the larger electrical transmission and distribution system.

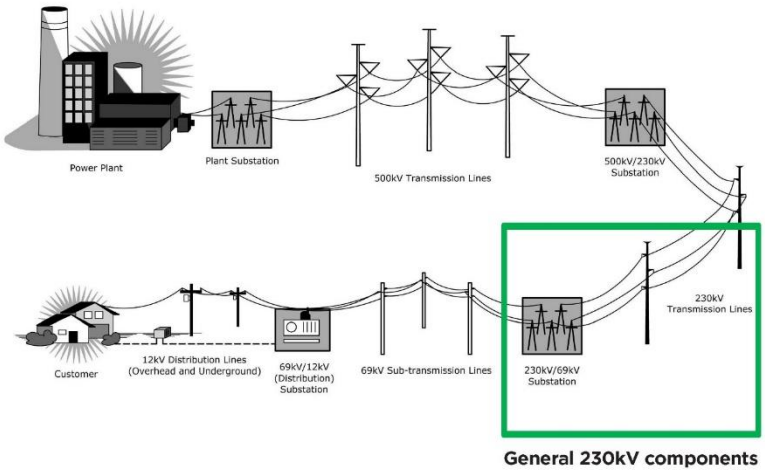

Exhibit J-24. January 2022 virtual open house, Slide 10.

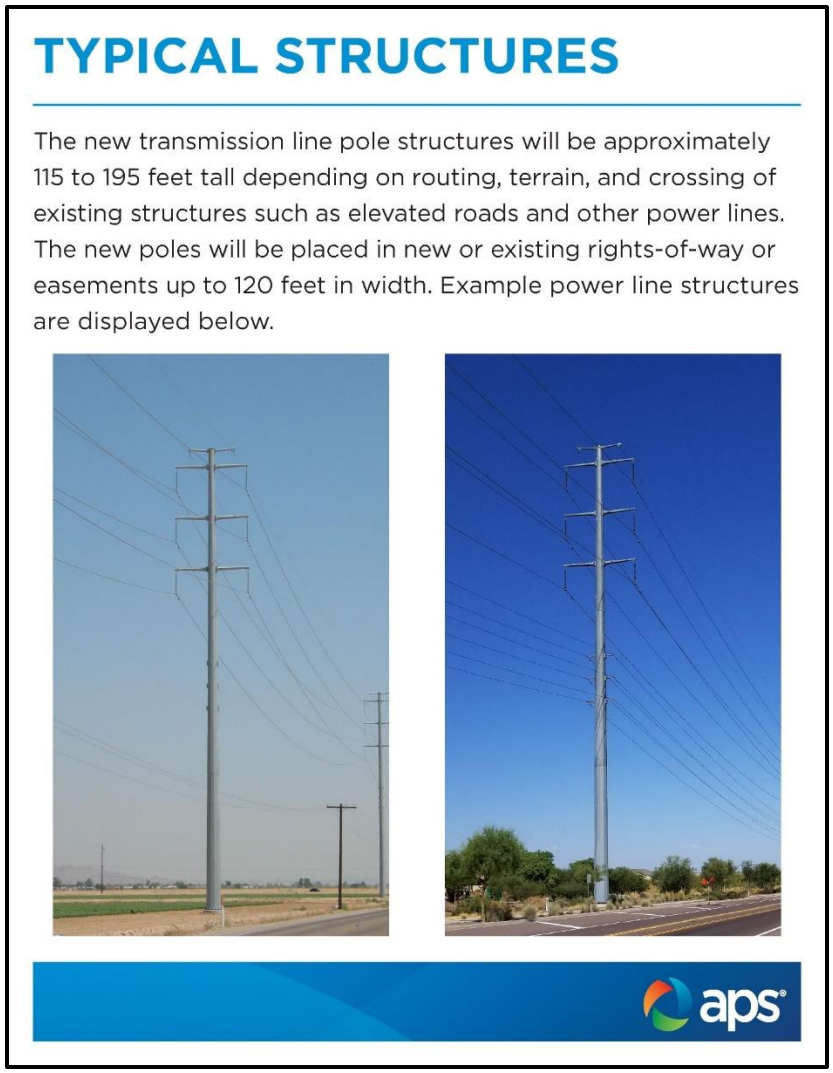

Exhibit J-25. January 2022 virtual open house, Slide 11.

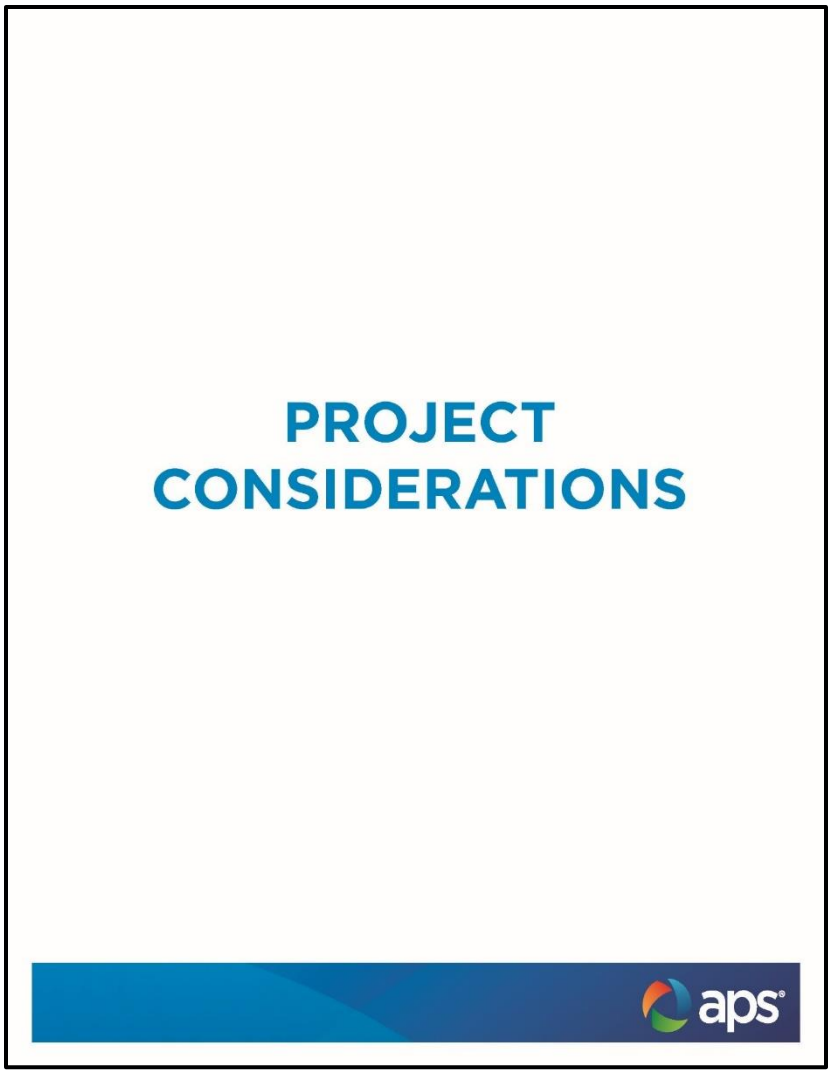

Exhibit J-26. January 2022 virtual open house, Slide 12.

TECHNICAL CONSIDERATIONS

Electric and Magnetic Field (EMF) Data

Electric Field	Magnetic Field
Fields created by voltage on the transmission line that can cause an electric charge to build up on insulated objects near the line. This can create nuisance shocks (much like walking across carpet and touching a door handle) to individuals touching grounded objects near the line. The standard for maximum electrical field value outside of the powerline right-of-way is 5.0kV/m. the value calculated for this project is less than 0.5kV/m.	Fields that are created by ALL devices that use, carry, or generate electricity. Magnetic fields drop off dramatically as distance from the source increases. To date, no federal or Arizona state standards have been established for magnetic field levels. We recognize the public concern for magnetic fields and will include those considerations in the design of this project. The magnetic fields at the edge of 230kV rights-of-way vary depending on final routing and design, but typically range from 5 - 20mG.

We continue to monitor U.S. and international studies regarding EMF, and offer free in-home measurements of EMF levels to all APS customers.

Typical magnetic fields measured at various distances from common electrical appliances

All measurements are in milligauss (mG)

Appliances	6 inches	12 inches	24 inches	48 inches
Microwave Oven	100 - 300	1 - 200	1 - 30	* - 20
Hair Dryer	1 - 700	* - 70	* - 10	* - 1
Electric Range	20 - 200	* - 30	* - 9	* - 6
Video Display Terminal (PC with color Monitors)	7 - 20	2 - 6	1 - 3	*

Source: EMF In Your environment, epa.com

Note: The asterisk (*) indicates measurement same as background fields.

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Exhibit J-27. January 2022 virtual open house, Slide 13.

SITING CONSIDERATIONS

Factors Considered in Route Identification

When siting new electrical facilities, we strive to **minimize impacts** to sensitive resource areas (i.e., residential developments, airports, etc.) and **maximize use of siting opportunities**, including locating near existing linear features and/or compatible land uses (i.e., transmission lines, power lines, roads, canals, substations, etc.). Examples of factors are depicted in the graphic below.

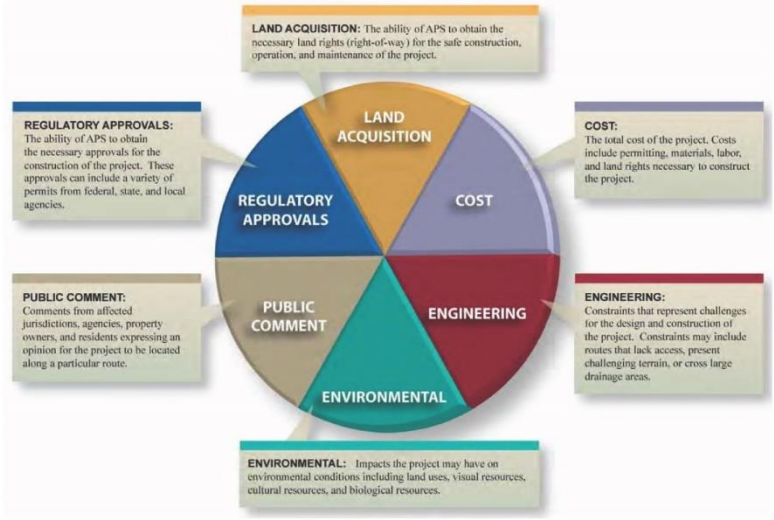

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Exhibit J-28. January 2022 virtual open house, Slide 14.

ENVIRONMENTAL CONSIDERATIONS

- **Land Use** - compatibility with existing and future land uses, transportation facilities (roadway and aviation), and jurisdictional planning guidelines. Existing and future land uses are mapped on the following page.
- **Visual** - minimization of impacts to sensitive viewers (residences, parks, and travel routes)
- **Cultural** - avoidance of culturally or archaeologically sensitivite areas, which are minimial based on existing agricultural, commercial, residential, and industrial development
- **Biological** - avoidance of sensitive habitat, which is minimal based on existing agricultural, commercial, residential, and industrial development

Exhibit J-29. January 2022 virtual open house, Slide 15.

Existing Land Uses

Future Land Uses

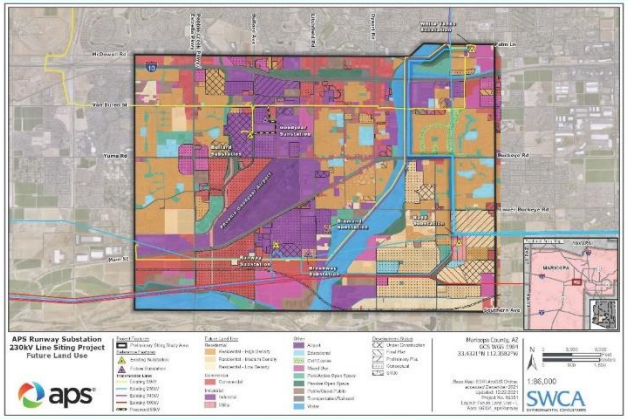

Exhibit J-30. January 2022 virtual open house, Slide 16.

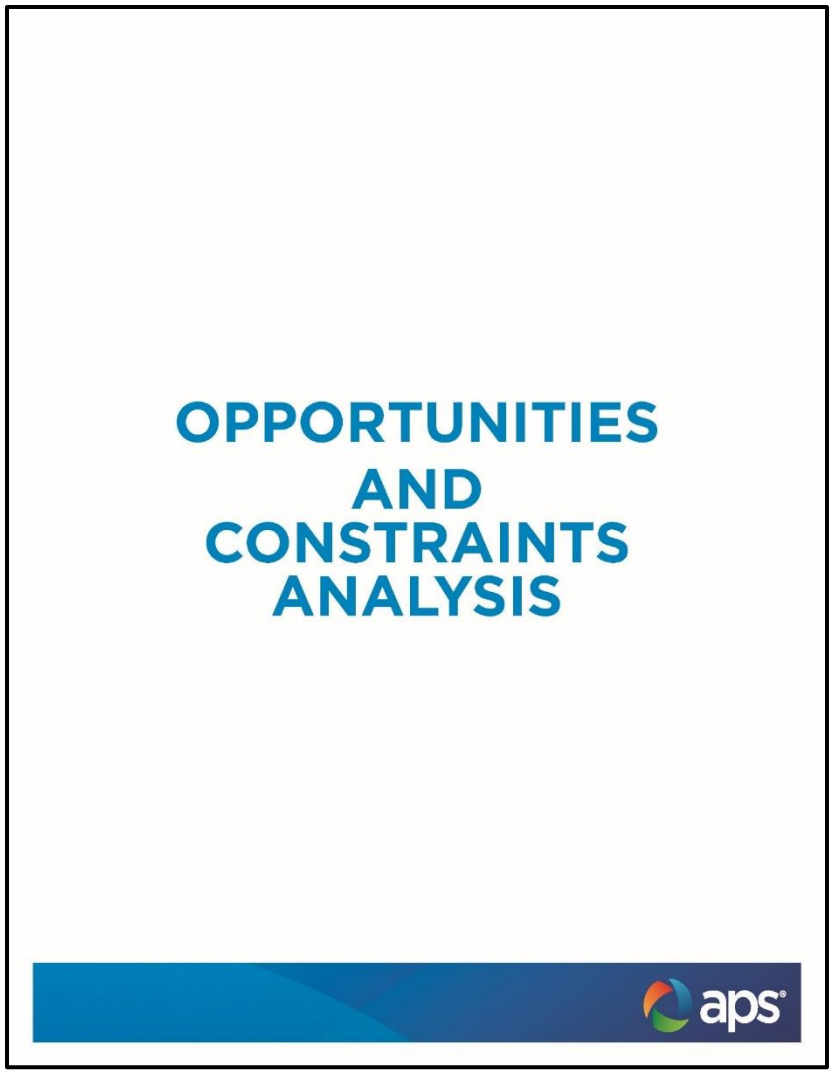

Exhibit J-31. January 2022 virtual open house, Slide 17.

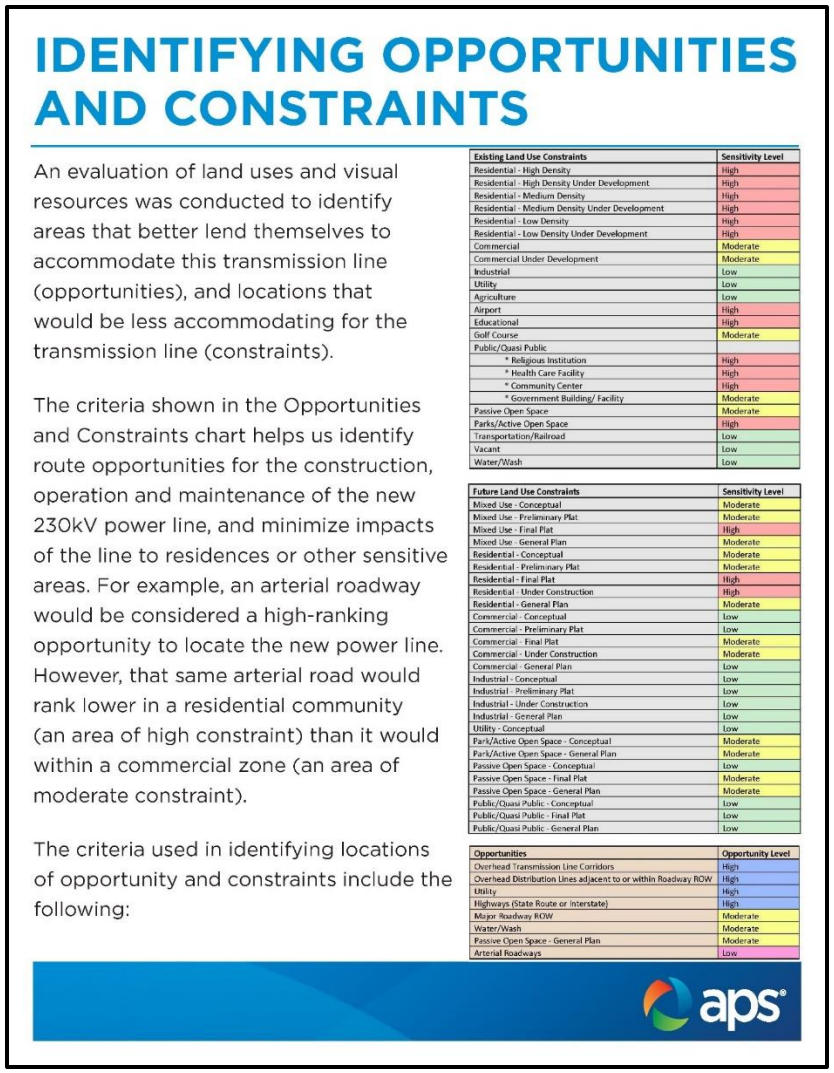

Exhibit J-32. January 2022 virtual open house, Slide 18.

OPPORTUNITIES AND CONSTRAINTS MAP

The environmental resource sensitivities are then mapped in an Opportunities and Constraints map, which is used to assist in preliminary link development.

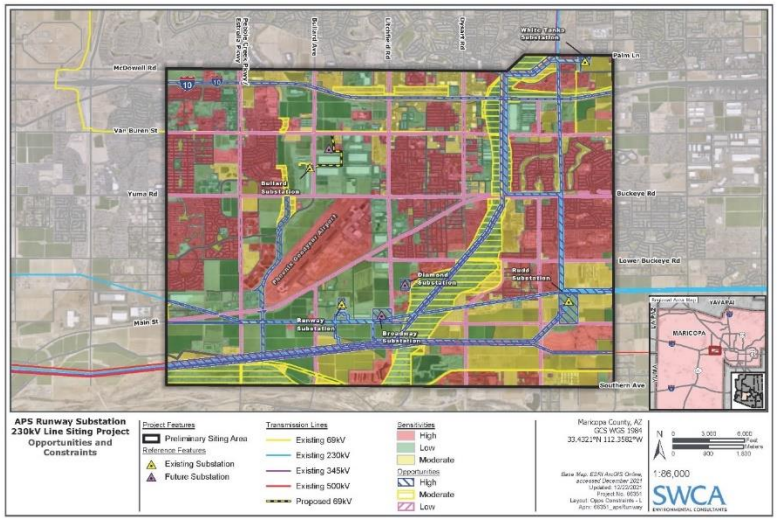

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Exhibit J-33. January 2022 virtual open house, Slide 19.

PRELIMINARY LINK ANALYSIS

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Exhibit J-34. January 2022 virtual open house, Slide 20.

DEVELOPMENT OF PRELIMINARY LINKS

- The development of preliminary links begins after the opportunity and constraints analysis. Preliminary links are typically identified in areas of high opportunity and/or low constraint. However, other factors can also influence this process.
- Once these links are developed, they are individually analyzed and either eliminated or retained for route identification. Route identification is the process of combining retained preliminary links into proposed alternative routes that would satisfy the Project need.
- All potential route alternatives are then compared to identify the preferred route.

Exhibit J-35. January 2022 virtual open house, Slide 21.

PRELIMINARY LINKS MAP

Public and stakeholder input on potential link opportunities and constraints is an integral part of the planning process. The links are numbered for easy identification.

If you have a comment or concern regarding a specific link, please submit a comment and note the link number(s). Details on opportunities for comment are provided on the "Stakeholder Outreach" board.

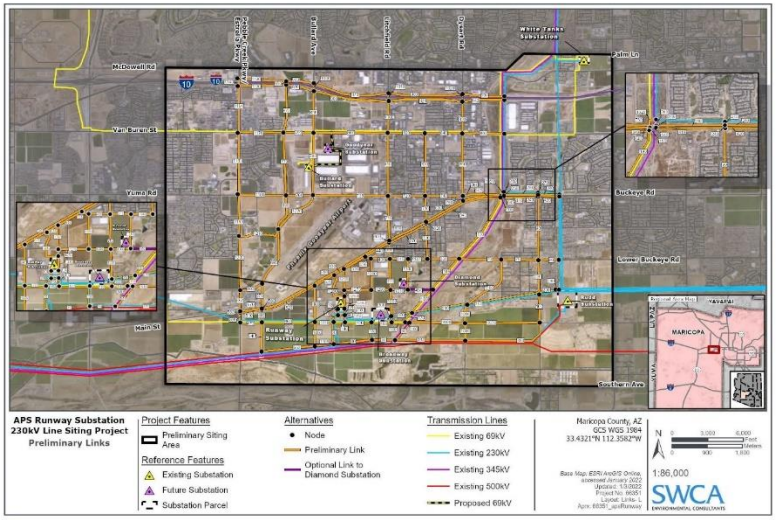

Exhibit J-36. January 2022 virtual open house, Slide 22.

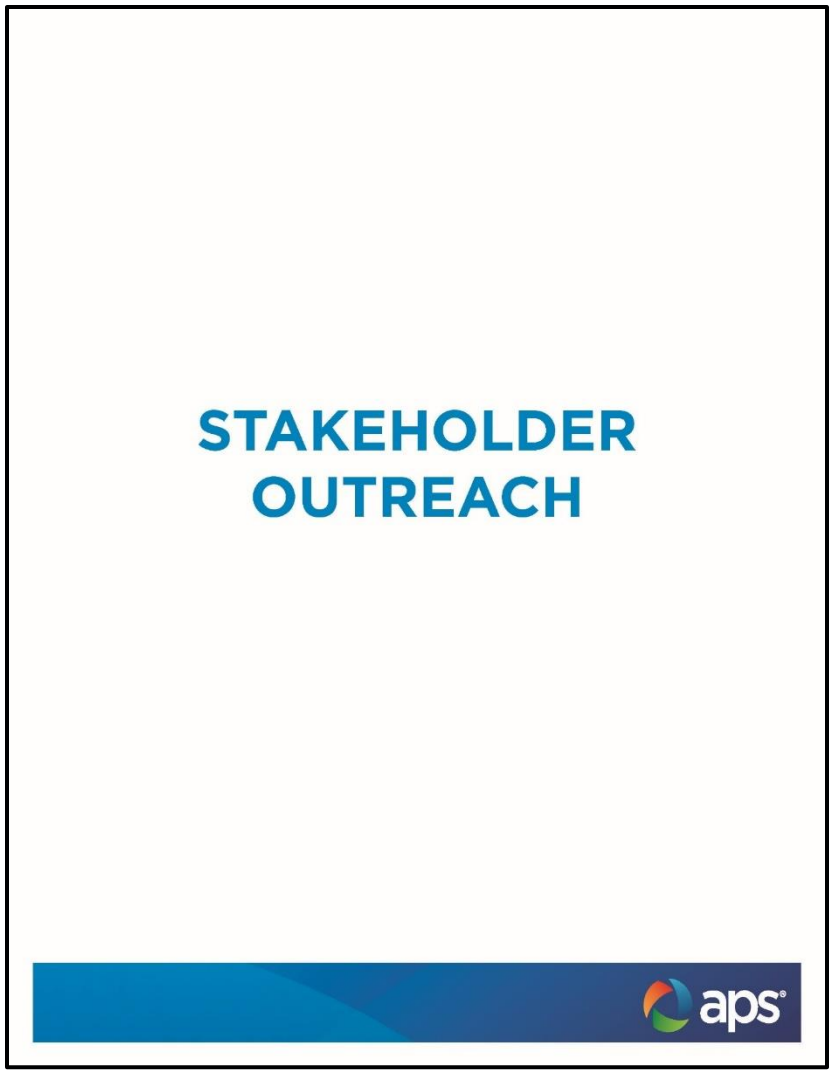

Exhibit J-37. January 2022 virtual open house, Slide 23.

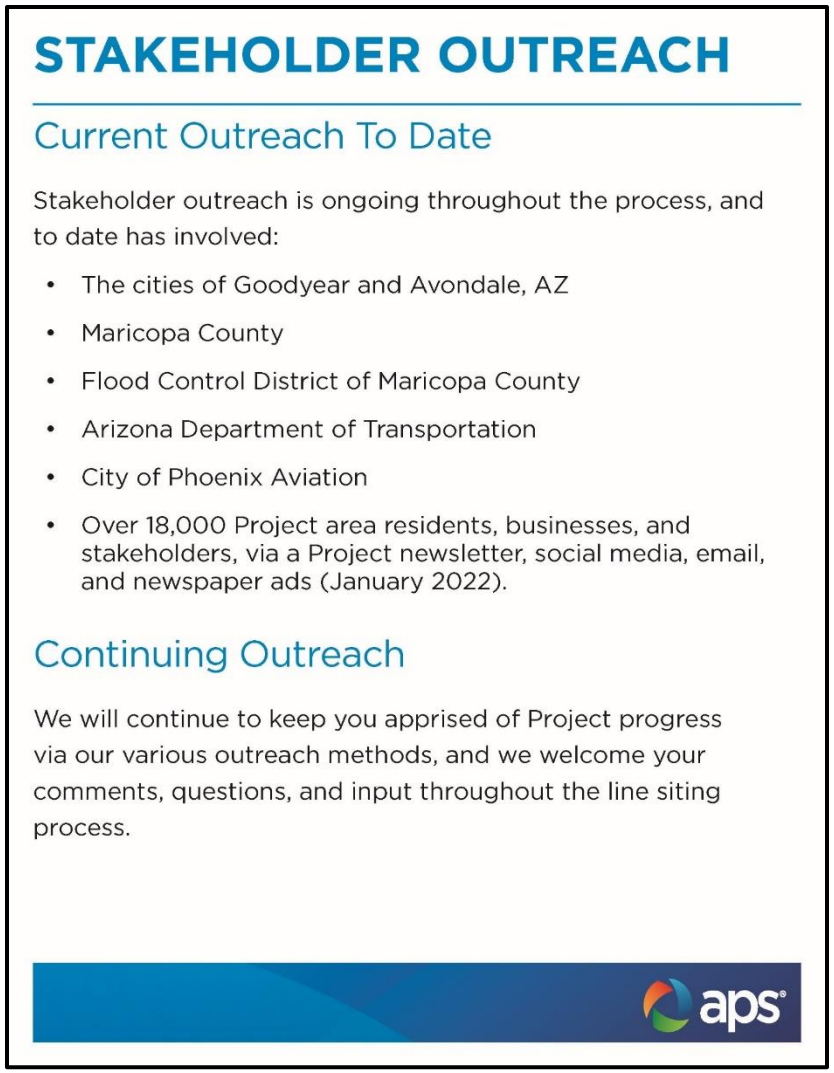

Exhibit J-38. January 2022 virtual open house, Slide 24.

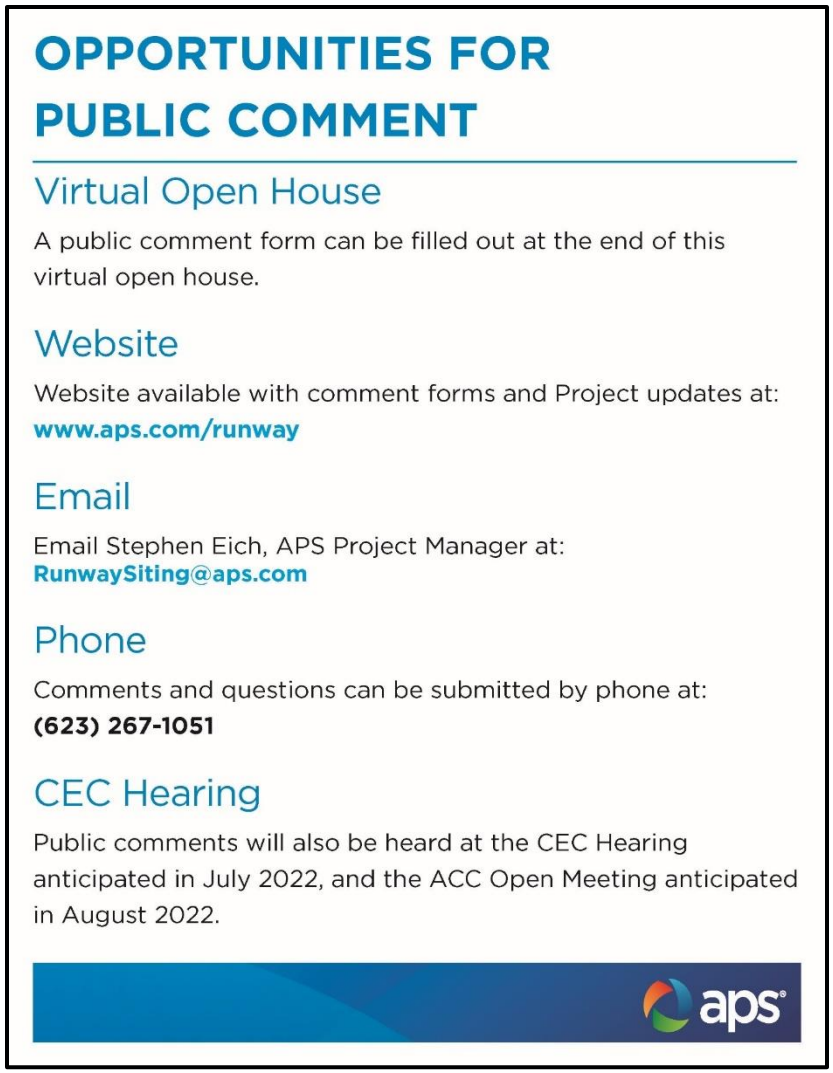

Exhibit J-39. January 2022 virtual open house, Slide 25.

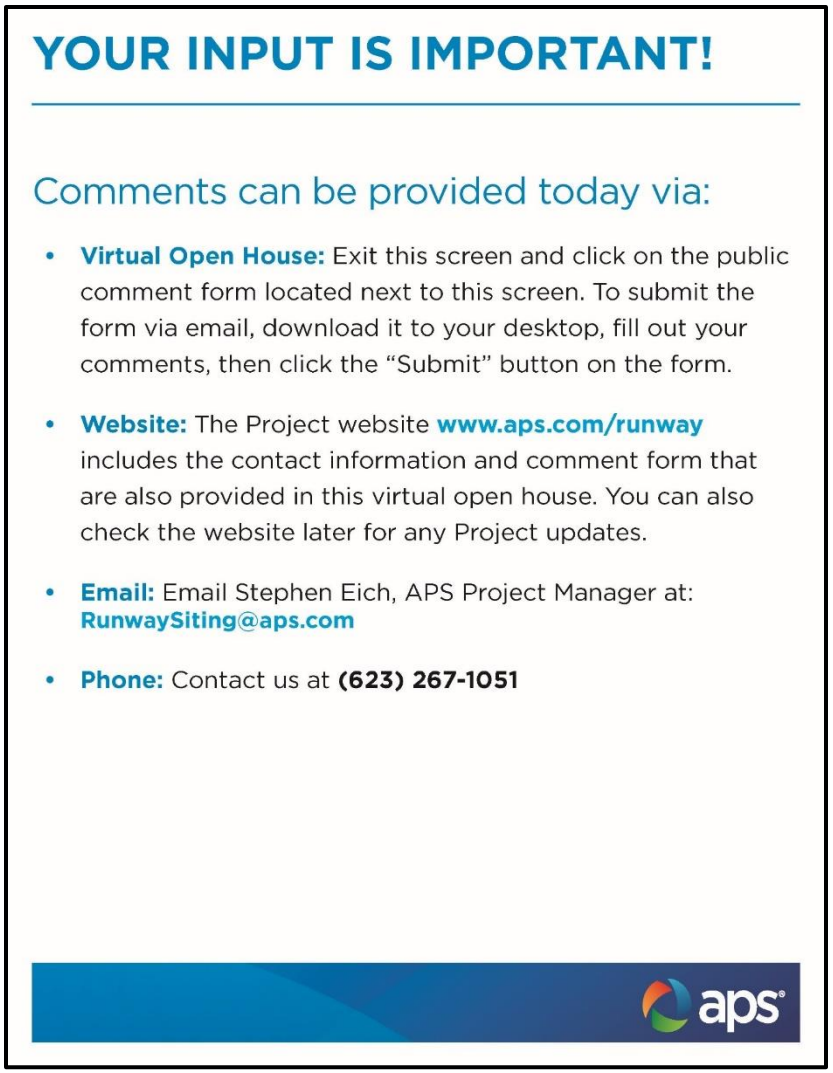

Exhibit J-40. January 2022 virtual open house, Slide 26.

Exhibit J-41. June 2022 virtual open house, Slide 1.

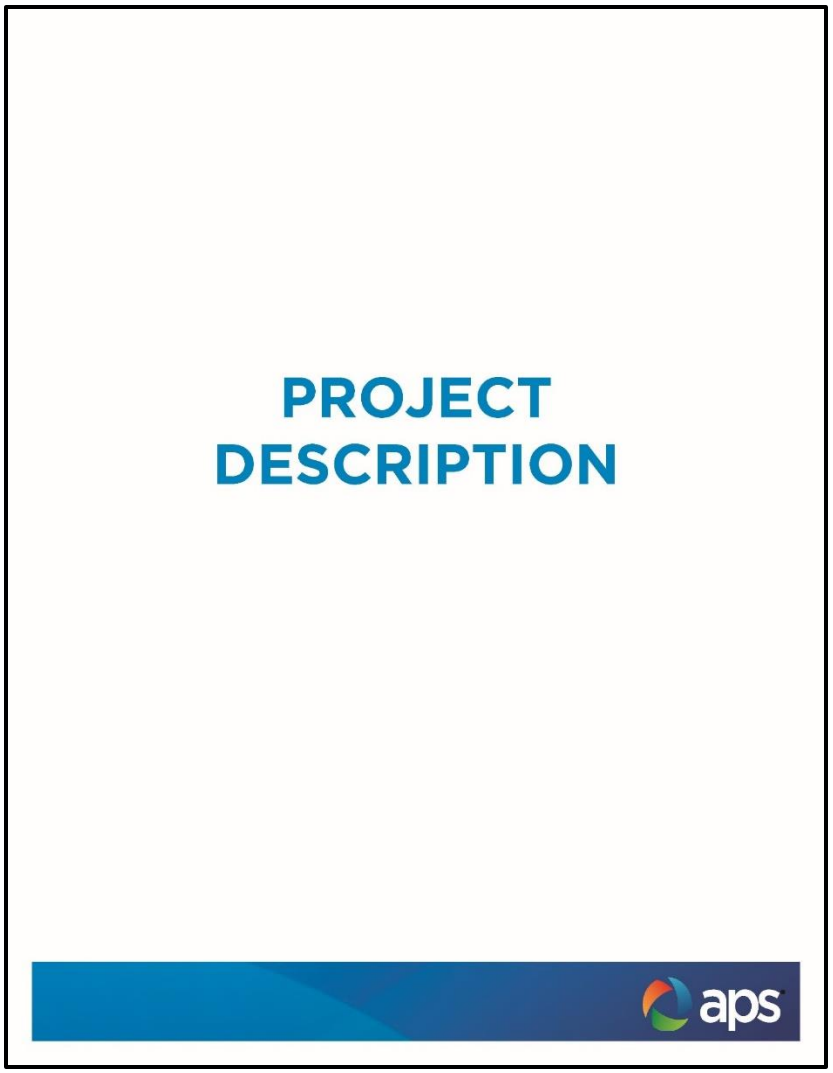

Exhibit J-42. June 2022 virtual open house, Slide 2.

PROJECT OVERVIEW

The **Runway 230kV Power Line Project** is proposed to interconnect a new power line between the existing APS Runway Substation located on the customer's site in Goodyear, to existing power lines between the Rudd and White Tanks Substations in Avondale.

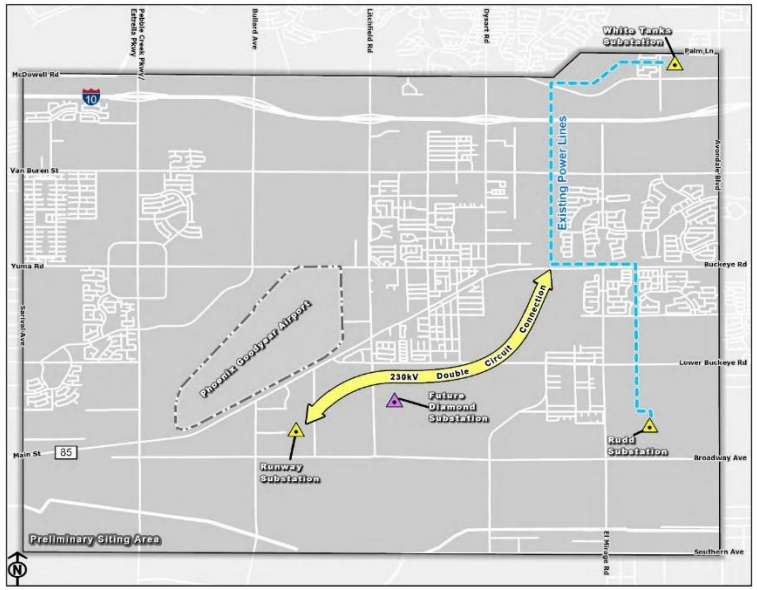

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Exhibit J-43. June 2022 virtual open house, Slide 3.

PROJECT NEED & DETAILS

- The **Runway 230kV Power Line Project** is needed to support energy needs for the Microsoft data center and growth in the west valley, including enhanced reliability to the Runway Substation and surrounding transmission infrastructure.
- The Project includes a proposed new double-circuit 230kV power line that will connect the APS Runway Substation in Goodyear (northeast of Bullard Avenue and Broadway Road) to existing 230kV power lines along the Agua Fria River, including the APS White Tanks-Rudd or APS White Tanks–West Phoenix 230kV transmission lines.
- The Project will require new electrical infrastructure, including new steel pole structures. Refer to the "Typical Infrastructure" board for examples of typical structures.

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Exhibit J-44. June 2022 virtual open house, Slide 4.

PROJECT LOCATION

The preliminary siting area being evaluated for potential routes for the **Runway 230kV Power Line Project** is bounded by McDowell Road and Palm Lane to the north, Avondale Boulevard to the east, Southern Avenue to the south, and Sarival Avenue to the west.

This siting area encompasses the substations and infrastructure needed to meet the Project need and allows for multiple potential power line routes to avoid existing or planned infrastructure (e.g., Phoenix Goodyear Airport). The preliminary siting area includes portions of within Goodyear, Avondale, and unincorporated Maricopa County, Arizona.

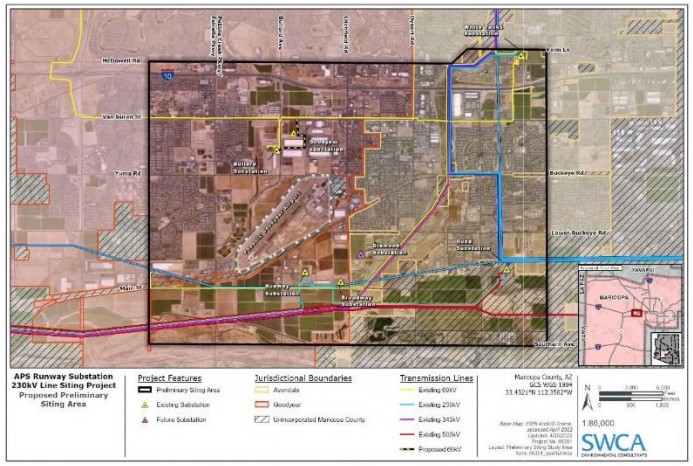

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Exhibit J-45. June 2022 virtual open house, Slide 5.

PROJECT SCHEDULE AND STATUS

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Exhibit J-46. June 2022 virtual open house, Slide 6.

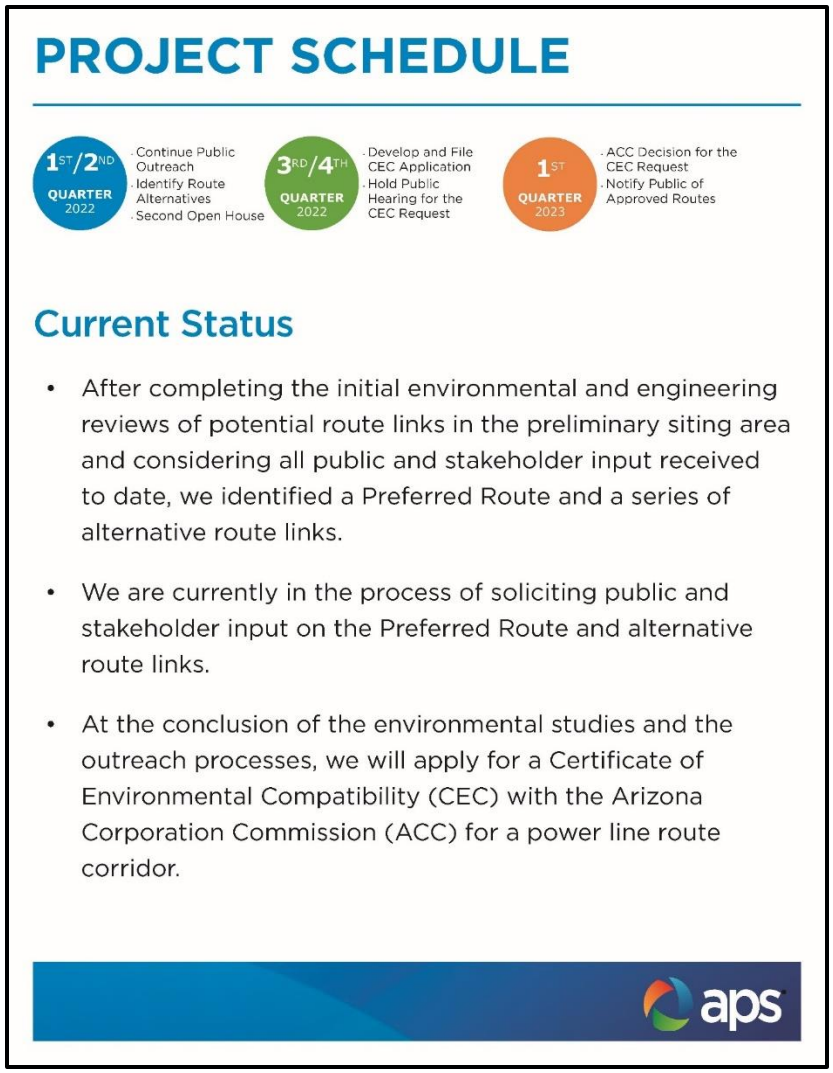


Exhibit J-47. June 2022 virtual open house, Slide 7.

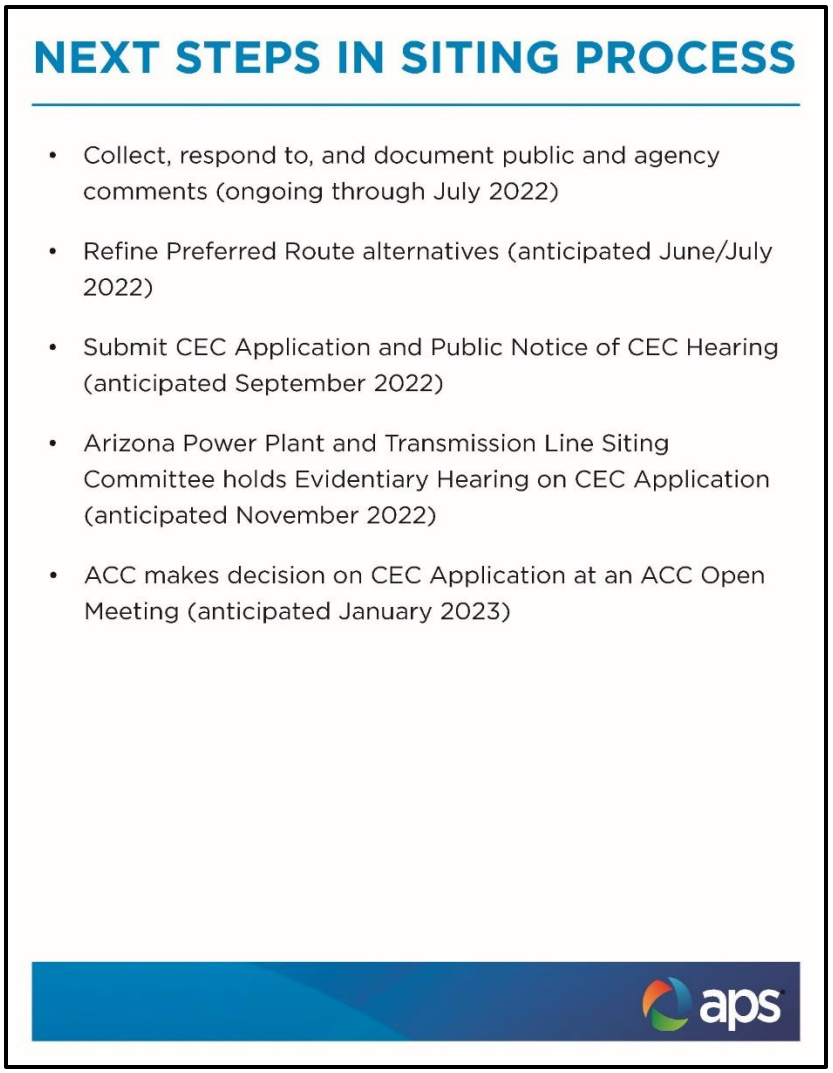


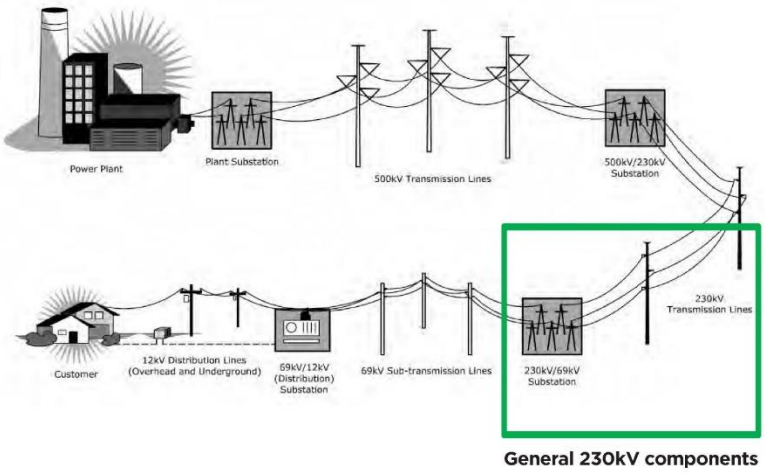
Exhibit J-48. June 2022 virtual open house, Slide 8.

TYPICAL INFRASTRUCTURE

Exhibit J-49. June 2022 virtual open house, Slide 9.

ELECTRICITY OVERVIEW

The **Runway 230kV Power Line Project** includes the addition of 230kV components. The diagram below provides an overview of how 230kV components fit within the larger electrical transmission and distribution system.



General 230kV components

Exhibit J-50. June 2022 virtual open house, Slide 10.

TYPICAL STRUCTURES

The new transmission line pole structures will be approximately 115 to 195 feet tall depending on routing, terrain, and crossing of existing structures such as elevated roads and other power lines. The new poles will be placed in new or existing rights-of-way or easements up to 120 feet in width. Example power line structures are displayed below.

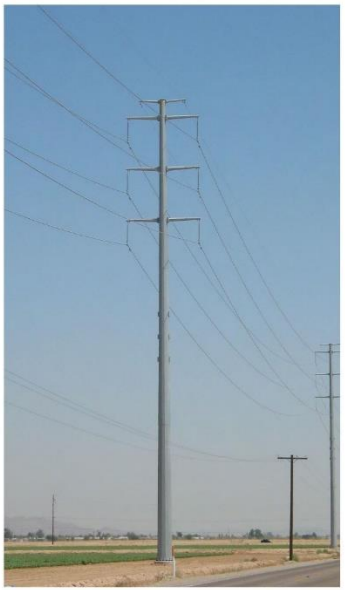


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Exhibit J-51. June 2022 virtual open house, Slide 11.

PROJECT CONSIDERATIONS

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Exhibit J-52. June 2022 virtual open house, Slide 12.

TECHNICAL CONSIDERATIONS

Electric and Magnetic Field (EMF) Data

Electric Field	Magnetic Field
Fields created by voltage on the transmission line that can cause an electric charge to build up on insulated objects near the line. This can create nuisance shocks (much like walking across carpet and touching a door handle) to individuals touching grounded objects near the line. The standard for maximum electrical field value outside of the powerline right-of-way is 5.0kV/m. the value calculated for this project is less than 0.5kV/m.	Fields that are created by ALL devices that use, carry, or generate electricity. Magnetic fields drop off dramatically as distance from the source increases. To date, no federal or Arizona state standards have been established for magnetic field levels. We recognize the public concern for magnetic fields and will include those considerations in the design of this project. The magnetic fields at the edge of 230kV rights-of-way vary depending on final routing and design, but typically range from 5 - 20mG.

Typical magnetic fields measured at various distances from common electrical appliances

All measurements are in milligauss (mG)

Appliances	6 inches	12 inches	24 inches	48 inches
Microwave Oven	100 - 300	1 - 200	1 - 30	* - 20
Hair Dryer	1 - 700	* - 70	* - 10	* - 1
Electric Range	20 - 200	* - 30	* - 9	* - 6
Video Display Terminal (PC with color Monitors)	7 - 20	2 - 6	1 - 3	*

Source: EMF In Your environment, epa.com

Note: The asterisk (*) indicates measurement same as background fields.

aps

Exhibit J-53. June 2022 virtual open house, Slide 13.

SITING CONSIDERATIONS

Factors Considered in Route Identification

When siting new electrical facilities, we strive to **minimize impacts** to sensitive resource areas (i.e., residential developments, airports, etc.) and **maximize use of siting opportunities**, including locating near existing linear features and/or compatible land uses (i.e., transmission lines, power lines, roads, canals, substations, etc.). Examples of factors are depicted in the graphic below.

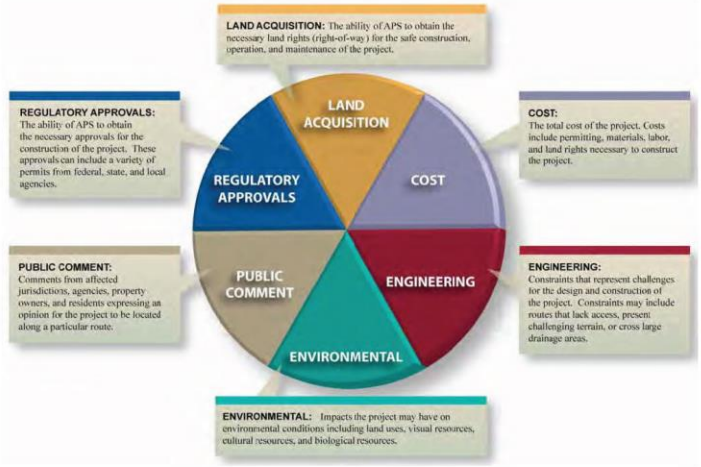

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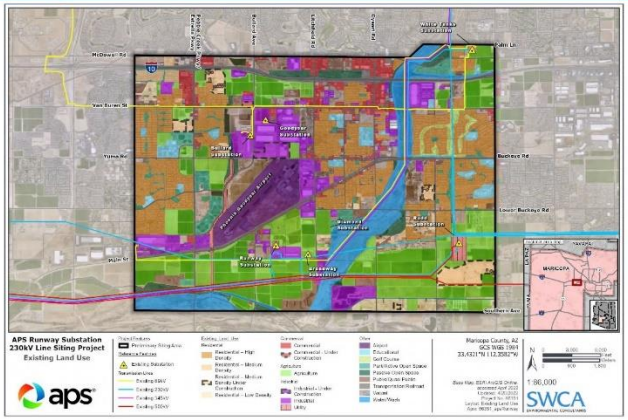
Exhibit J-54. June 2022 virtual open house, Slide 14.

ENVIRONMENTAL CONSIDERATIONS

- **Land Use** - compatibility with existing and future land uses, transportation facilities (roadway and aviation), and jurisdictional planning guidelines. Existing and future land uses are mapped on the following page.
- **Visual** - minimization of impacts to sensitive viewers (residences, parks, and travel routes)
- **Cultural** - avoidance of culturally or archaeologically sensitivite areas, which are minimal based on existing agricultural, commercial, residential, and industrial development
- **Biological** - avoidance of sensitive habitat, which is minimal based on existing agricultural, commercial, residential, and industrial development

Exhibit J-55. June 2022 virtual open house, Slide 15.

Existing Land Uses



Future Land Uses

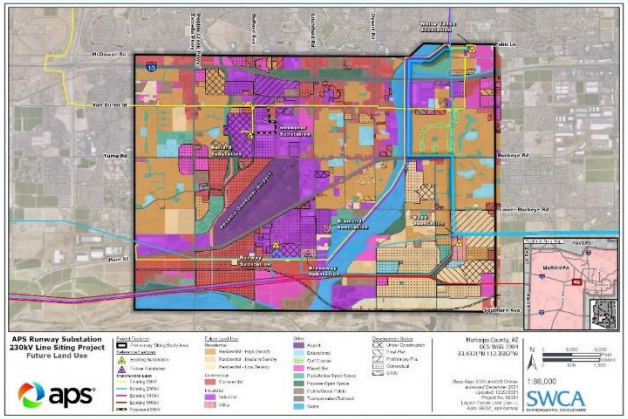


Exhibit J-56. June 2022 virtual open house, Slide 16.

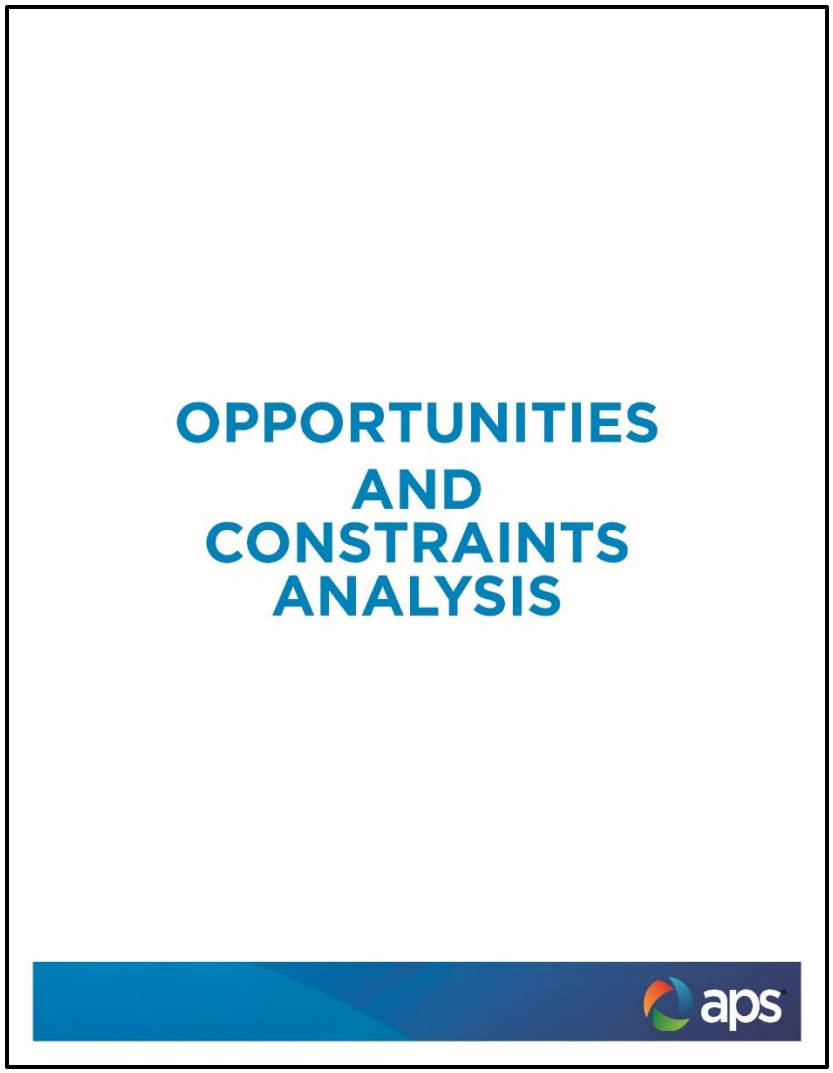


Exhibit J-57. June 2022 virtual open house, Slide 17.

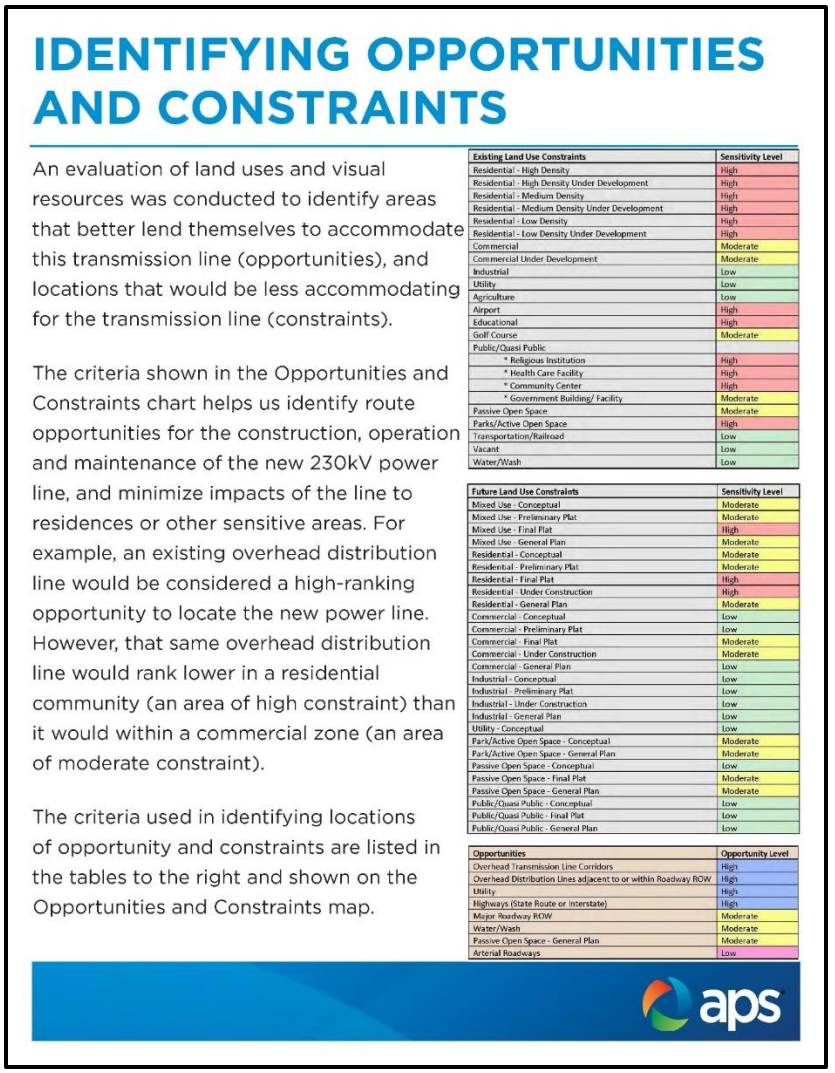


Exhibit J-58. June 2022 virtual open house, Slide 18.

OPPORTUNITIES AND CONSTRAINTS MAP

The environmental resource sensitivities are then mapped in an Opportunities and Constraints map, which is used to assist in preliminary link development.

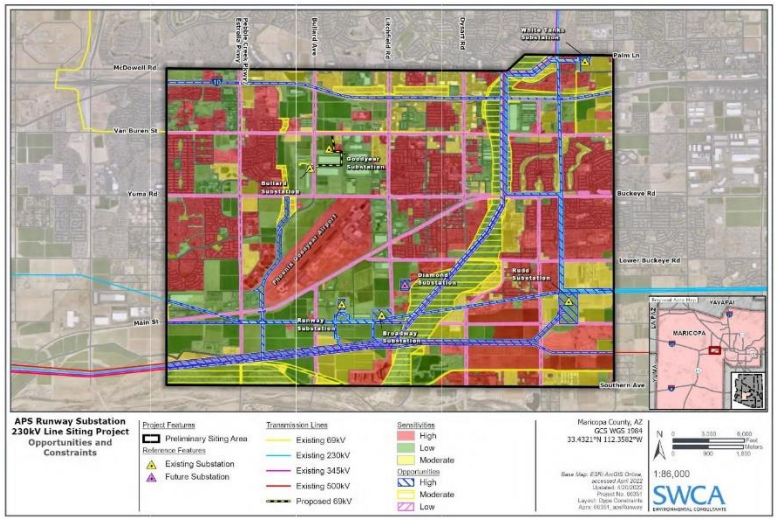


Exhibit J-59. June 2022 virtual open house, Slide 19.

PRELIMINARY LINK ANALYSIS

Exhibit J-60. June 2022 virtual open house, Slide 20.

DEVELOPMENT OF PRELIMINARY LINKS

- The development of preliminary links began after the opportunity and constraints analysis. Preliminary links are typically identified in areas of high opportunity and/or low constraint. However, other factors can also influence this process.
- A link is defined as a discrete connection, that when added togther with other links, can create a transmission line route. Each link has a unique identifier, or link number, so they can be tracked throughout the impact analysis.
- A node represents the starting and end point for each link.
- Once these links were developed, they were individually analyzed and either eliminated or retained for route identification. Route identification is the process of combining retained preliminary links into proposed alternative routes that would satisfy the Project need and minimize impacts.

Exhibit J-61. June 2022 virtual open house, Slide 21.

PRELIMINARY LINKS MAP

Public and stakeholder input on potential link opportunities and constraints is an integral part of the planning process. The links are numbered for easy identification.

Public stakeholder input on potential link opportunities and constraints is an integral part of the planning process. Comments received regarding specific link numbers and general areas within the preliminary siting area were considered during development of the Preferred Route and alternative route links.

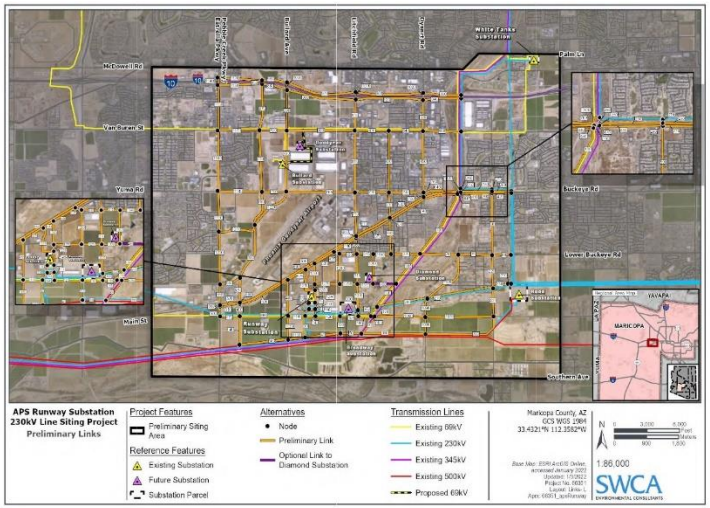


Exhibit J-62. June 2022 virtual open house, Slide 22.

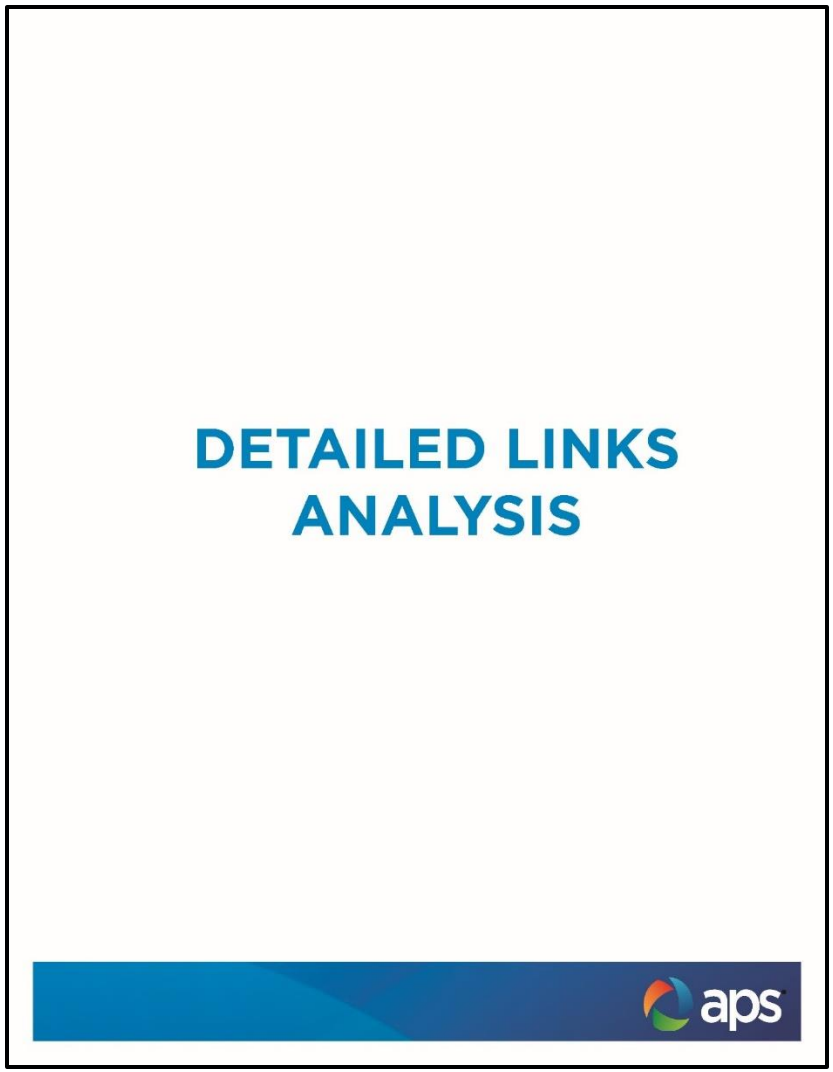


Exhibit J-63. June 2022 virtual open house, Slide 23.

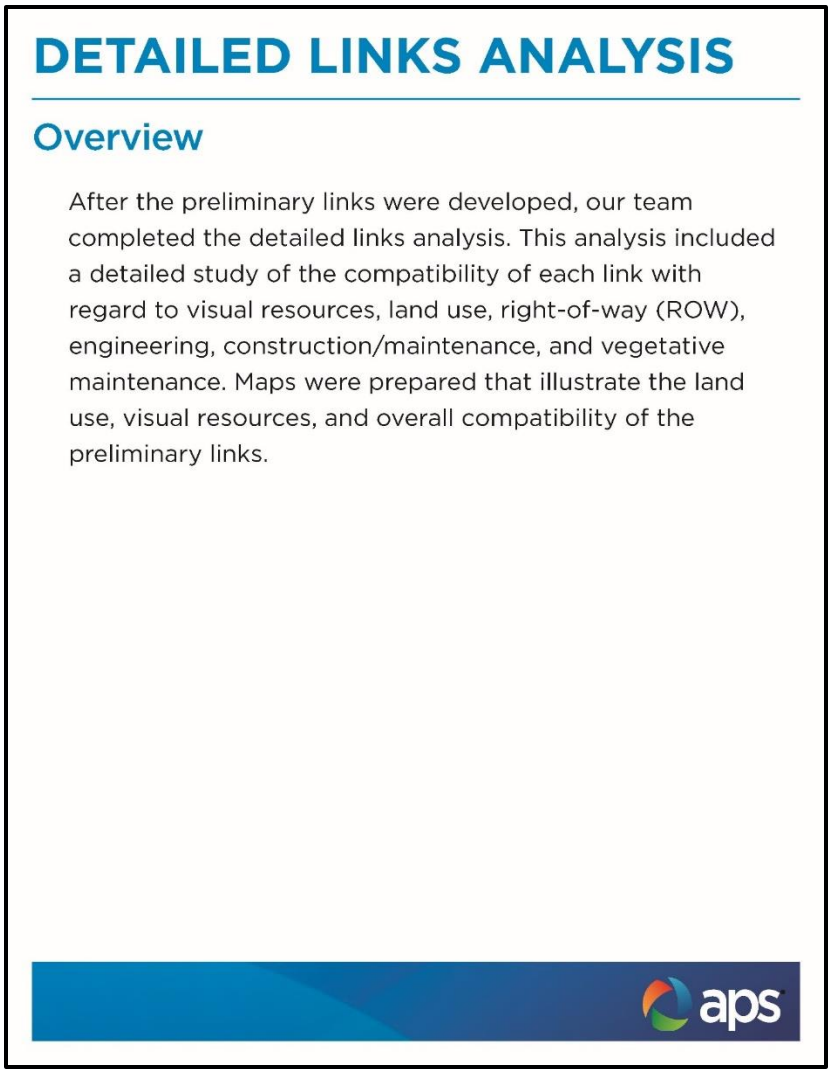


Exhibit J-64. June 2022 virtual open house, Slide 24.

VISUAL ANALYSIS

- Visual compatibility was rated based on factors such as the visual contrast of the proposed line with existing structures, viewer sensitivity, and viewing distance.
- After visual analysis, calculations were completed, the overall visual compatibility was mapped in the figure below.

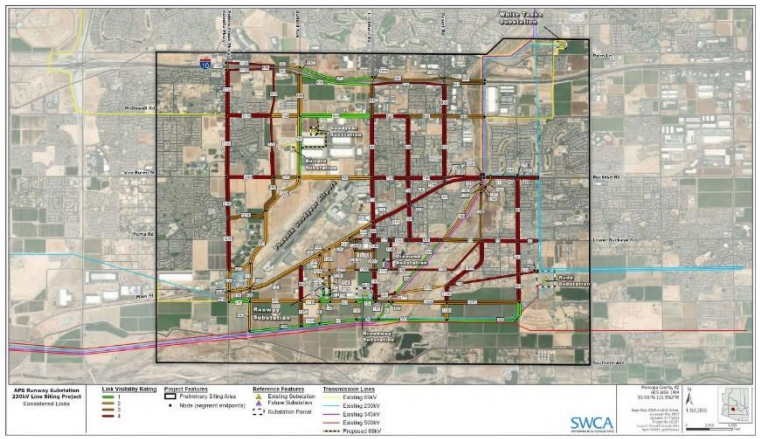


Exhibit J-65. June 2022 virtual open house, Slide 25.

LAND USE ANALYSIS

- Land use compatibility was rated based on the ability for the Project to share use of the land with existing and planned land uses.
- After the land use analysis and calculations were completed, the overall land use compatibility was mapped in the figure below.

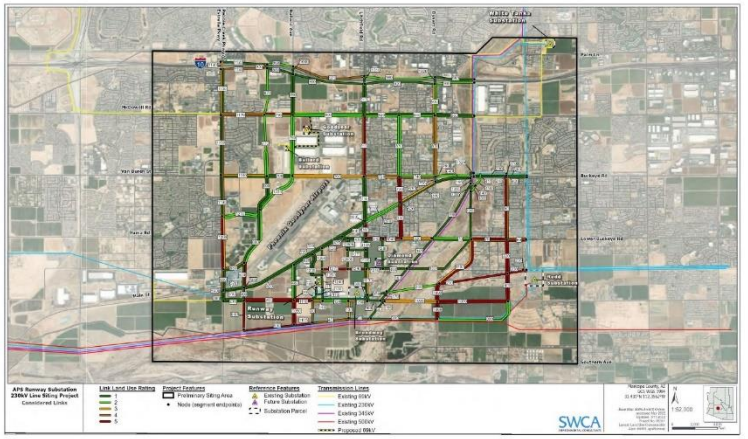


Exhibit J-66. June 2022 virtual open house, Slide 26.

OVERALL COMPATIBILITY

Following the land use and visual compatibility reviews for each of the preliminary links, we completed an analysis of their compatibility with engineering, right-of-way (ROW), construction/maintenance, and vegetation maintenance requirements. The identified compatibility rating for each preliminary link for each component is shown in the Compatibility Rating Table and Overall Compatibility Map.

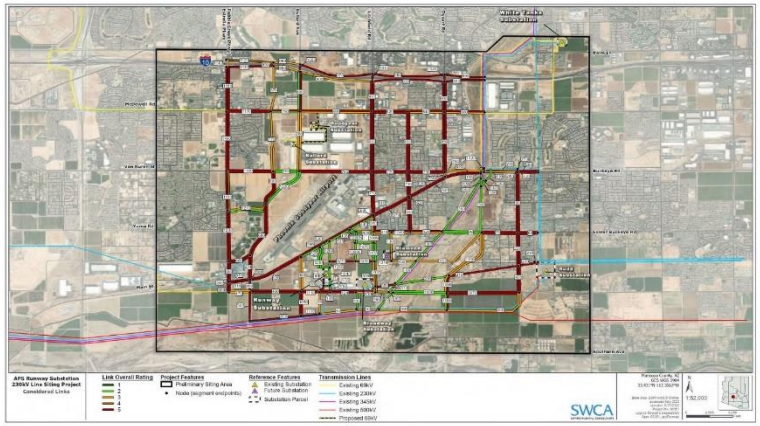


Exhibit J-67. June 2022 virtual open house, Slide 27.

OVERALL COMPATIBILITY TABLE

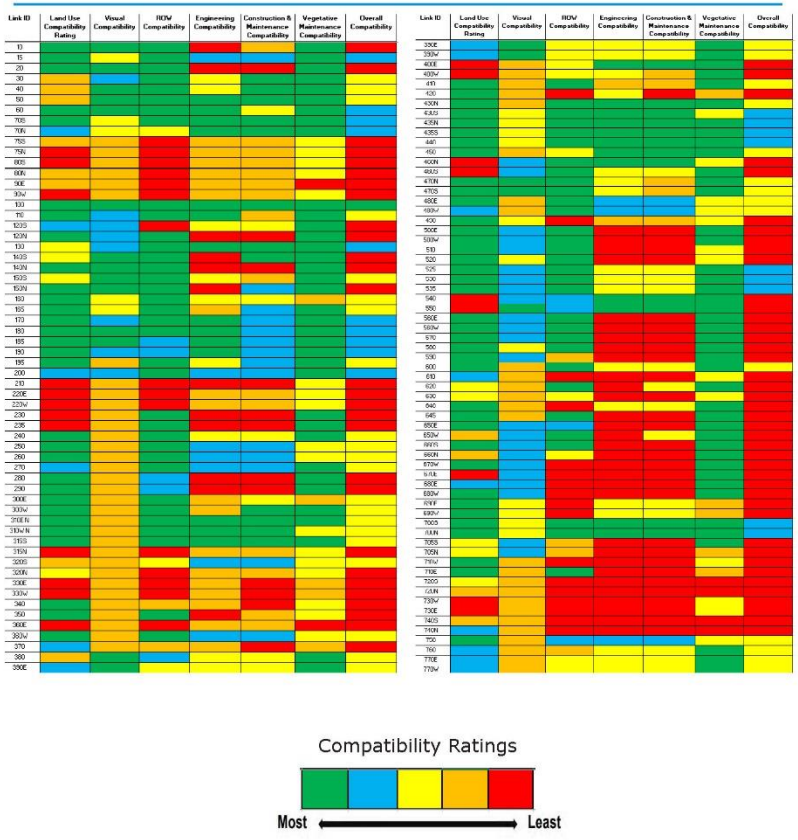


Exhibit J-68. June 2022 virtual open house, Slide 28.

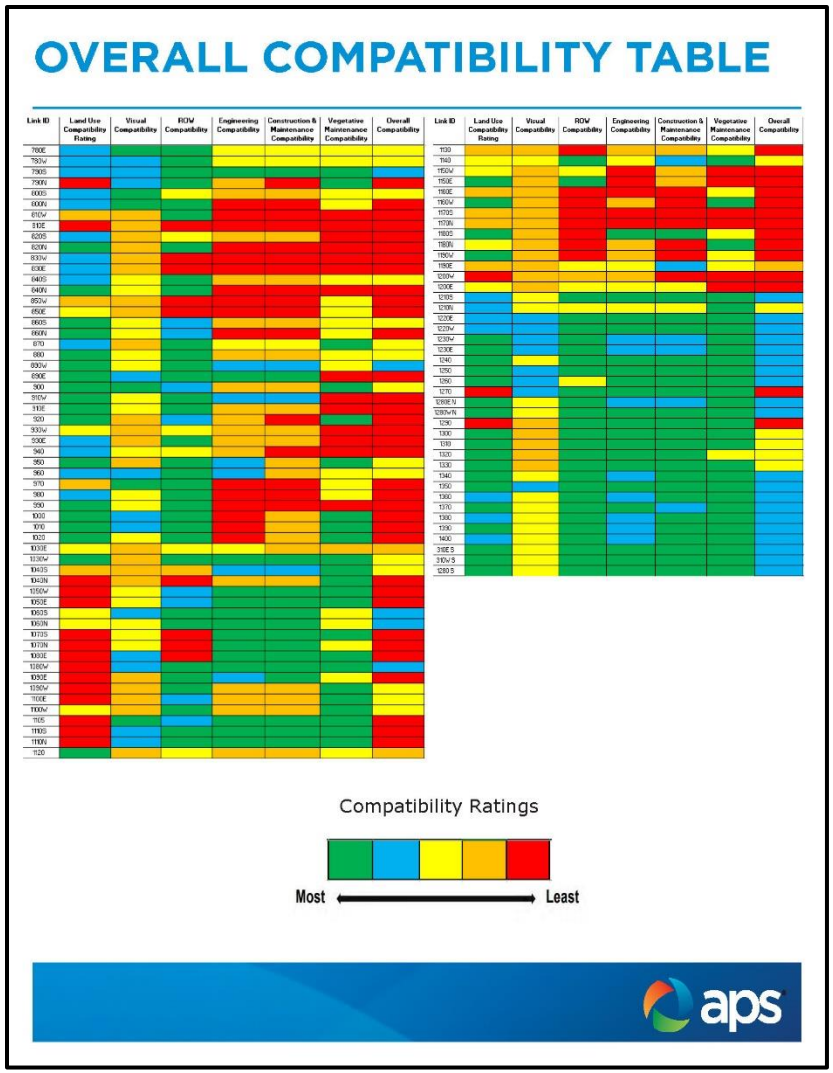


Exhibit J-69. June 2022 virtual open house, Slide 29.

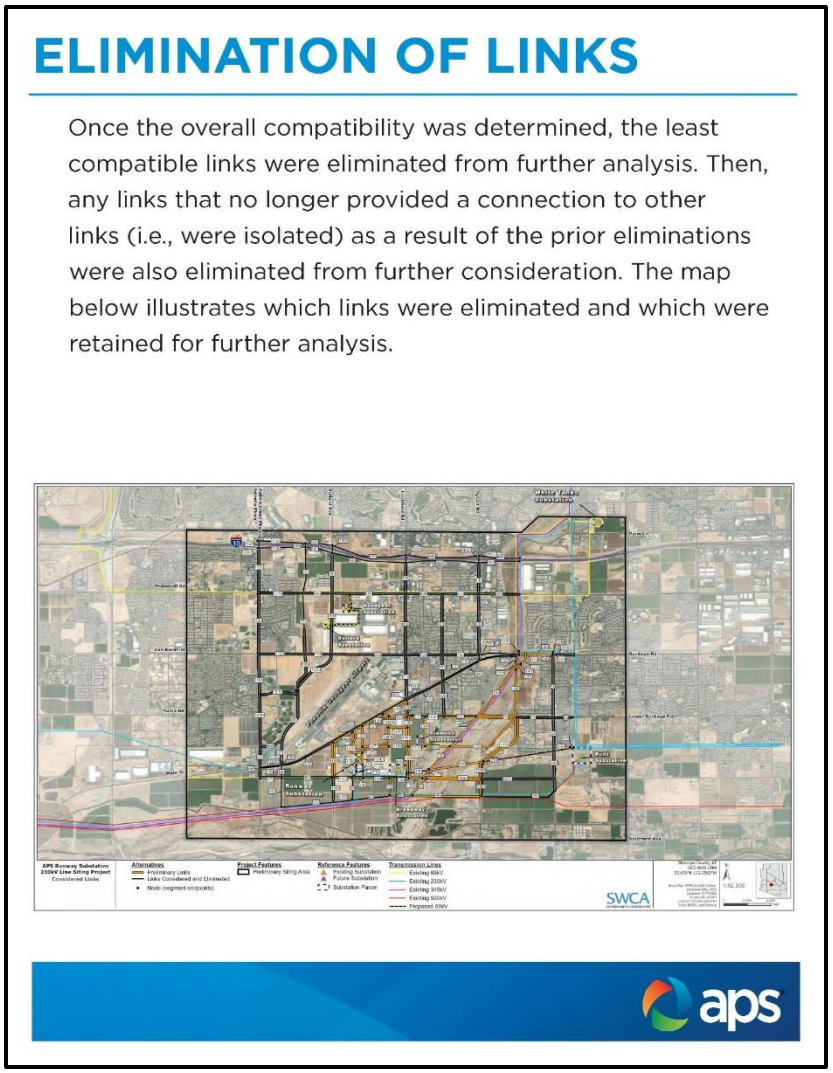


Exhibit J-70. June 2022 virtual open house, Slide 30.

ESTABLISHING ALTERNATIVE ROUTES

Following the preliminary links review and eliminations, we began reviewing and analyzing the remaining links to develop potential power line routes - or full power line connections to meet the Project need.

That review and analyses led to the identification of a Preferred Route and alternative route links. The Preferred Route and alternative route links are illustrated in the map below. The compatibility ratings of the individual links that make up the Preferred Route and alternative route links are shown on the Routes Compatibility Table.

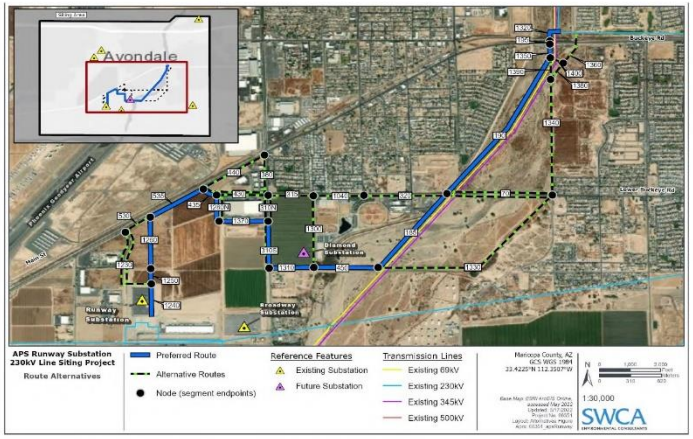


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Exhibit J-71. June 2022 virtual open house, Slide 31.

ROUTES COMPATIBILITY TABLE

Preferred Route Compatibility

Link #	Land Use	Visual	ROW	Engineering	Construction & Maintenance	Overall
1250	1	2	1	1	1	2
1260	1	2	3	1	1	2
535	1	2	1	3	3	2
435S	1	3	1	1	1	2
1280W N	1	3	1	1	1	2
1370	1	3	1	1	2	2
310S	1	3	1	1	1	2
1310	1	4	1	1	1	3
450	1	4	3	1	1	3
185	1	1	2	1	2	2
190	1	2	2	1	2	2
1350	1	2	1	1	1	2
195	1	4	1	3	2	3
1320	1	4	1	1	1	3

Alternative Routes Compatibility

Link #	Land Use	Visual	ROW	Engineering	Construction & Maintenance	Overall
530	1	2	1	3	3	2
430	1	3	1	1	1	2
440	1	3	1	1	1	2
360W	1	4	1	2	2	3
1280E N	1	3	1	2	2	2
310E N	1	4	1	1	1	3
310 W N	1	4	1	1	1	3
315S	1	4	1	1	1	3
320S	4	4	3	2	2	3
1040S	4	4	4	2	2	3
1300	1	4	1	1	1	3
1330	1	4	1	1	1	3
70N	2	3	3	1	1	2
70S	1	3	1	1	1	2
1340	1	3	1	2	1	2
1380	2	3	1	2	1	2
1390	1	3	1	2	1	2
1400	2	3	1	2	1	2
1360	2	3	1	2	1	2

aps

Exhibit J-72. June 2022 virtual open house, Slide 32.

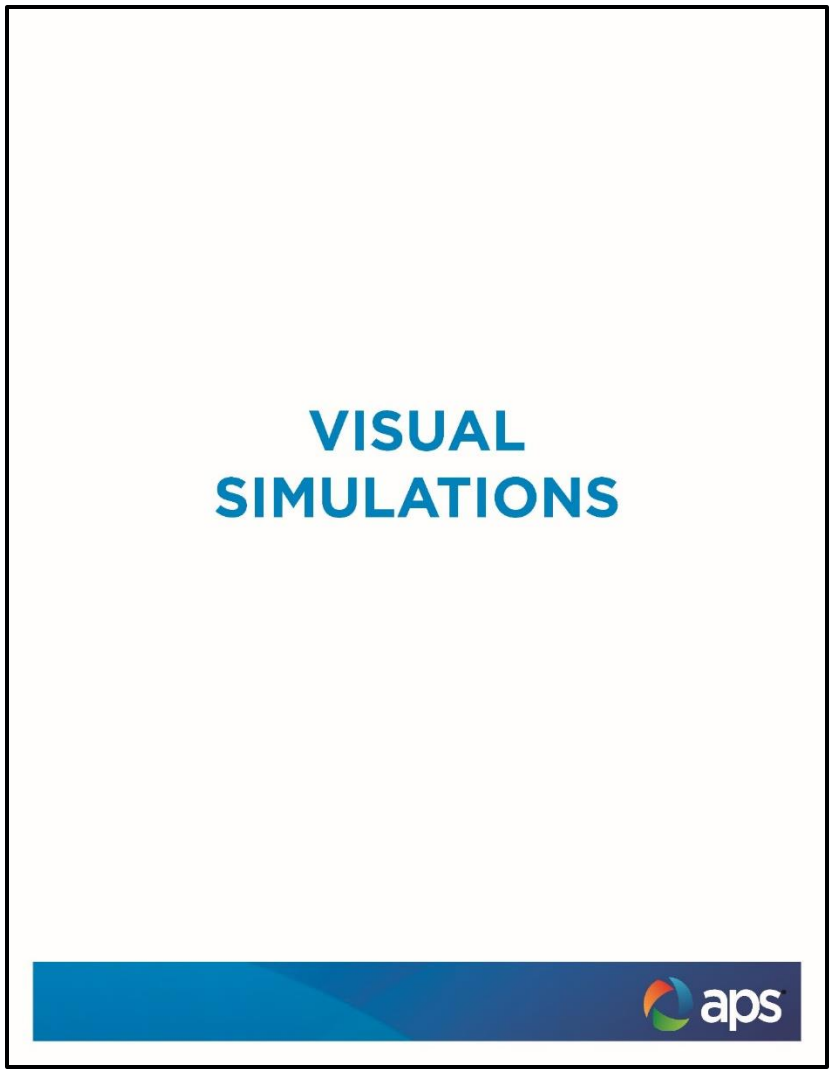
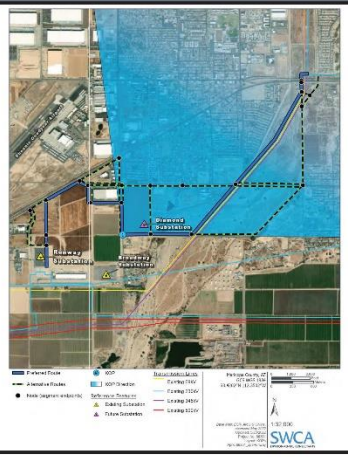


Exhibit J-73. June 2022 virtual open house, Slide 33.

Existing Condition KOP 1: View from residence at Litchfield Road looking northeast

Simulated Condition KOP 1: View from residence at Litchfield Road looking northeast showing Preferred Route with propsosed data center

Viewing Location



Typical Structures

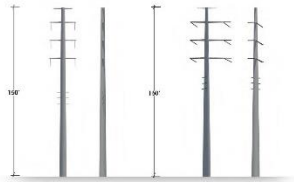


Photo Date and Time: March 15, 2022, 11:20 am

View Location: Approximate distance to nearest new structure from photo location is 0.01 mile.

Proposed data centers simulated to 36 foot height.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | June 2022
Simulation from KOP 1: View from residence at Litchfield Road

aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit J-74. June 2022 virtual open house, Slide 34.

Existing Condition KOP 1: View from residence at Litchfield Road looking northeast

Simulated Condition KOP 1: View from residence at Litchfield Road looking northeast showing Alternative Route (Link Numbers 430, 315, 1040, and 320) with proposed data center

Viewing Location

Typical Structures

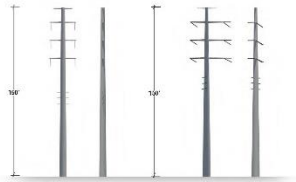


Photo Date and Time: March 15, 2022, 11:20 am

View Location: Approximate distance to nearest new structure from photo location is 0.5 miles.

Proposed data centers simulated to 36 foot height.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | June 2022
Simulation from KOP 1: View from residence at Litchfield Road

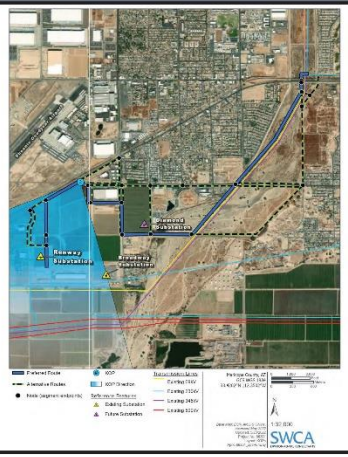
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit J-75. June 2022 virtual open house, Slide 35.

Existing Condition KOP 2: View from MC-85 and East Lower Buckeye Road looking southwest

Simulated Condition KOP 2: View from MC-85 and East Lower Buckeye Road looking southwest showing Preferred Route with proposed data center

Viewing Location



Typical Structures

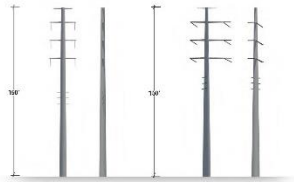


Photo Date and Time: March 15, 2022, 11:05 am

View Location: Approximate distance to nearest new structure from photo location is 0.06 miles.

Proposed data centers simulated to 36 foot height.

Simulations were prepared using information provided by APS. **Structure locations, colors, and heights may be different based on final engineering and design.**

APS Runway 230kV Power Line Project | June 2022
Simulation from KOP 2: View from MC-85 and East Lower Buckeye Road

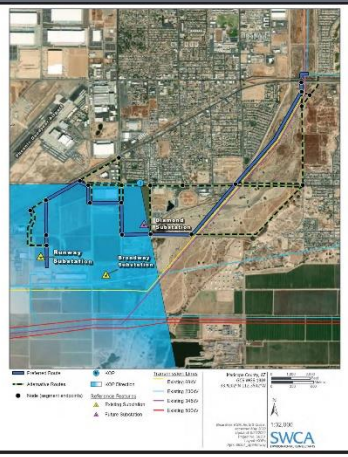
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit J-76. June 2022 virtual open house, Slide 36.

Existing Condition KOP 3: View from East Lower Buckeye Road looking southwest

Simulated Condition KOP 3: View from East Lower Buckeye Road looking southwest showing Preferred Route with propsosed data center

Viewing Location



Typical Structures

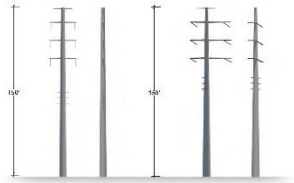


Photo Date and Time: March 15, 2022, 11:50 am

View Location: Approximate distance to nearest new structure from photo location is 0.23 miles.

Proposed data centers simulated to 36 foot height.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | June 2022
Simulation from KOP 3: View from East Lower Buckeye Road

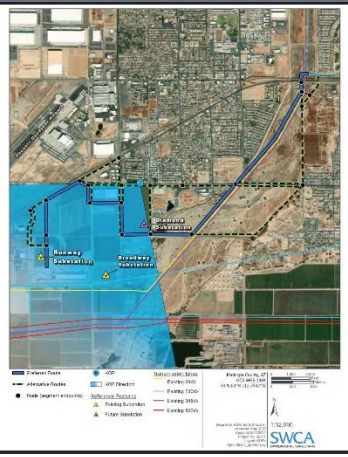
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit J-77. June 2022 virtual open house, Slide 37.

Existing Condition KOP 3: View from East Lower Buckeye Road looking southwest

Simulated Condition KOP 3: View from East Lower Buckeye Road looking southwest showing Alternative Route (Link Numbers 430 and 315) with proposed data center

Viewing Location



Typical Structures

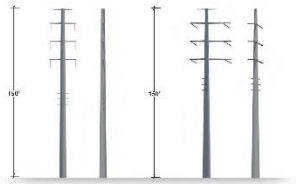


Photo Date and Time: March 15, 2022, 11:50 am

View Location: Approximate distance to nearest new structure from photo location is 0.23 miles.

Proposed data centers simulated to 36 foot height.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | June 2022
Simulation from KOP 3: View from East Lower Buckeye Road

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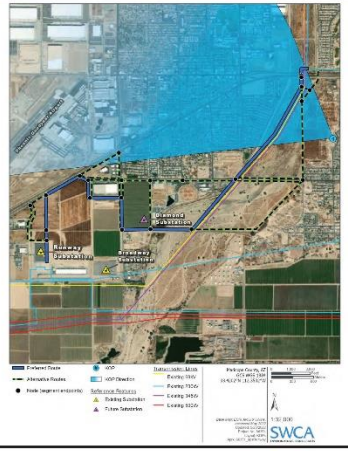
Exhibit J-78. June 2022 virtual open house, Slide 38.

Existing Condition KOP 4: View from park along South 125th Avenue looking northwest

Simulated Condition KOP 4: View from park along South 125th Avenue looking northwest showing Preferred Route

Viewing Location



Typical Structures

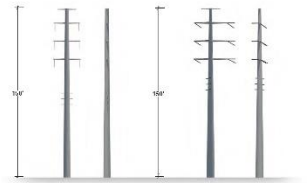


Photo Date and Time: March 15, 2022, 11:40 am

View Location: Approximate distance to nearest new structure from photo location is 0.45 miles.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | June 2022
Simulation from KOP 4: View from park along South 125th Avenue

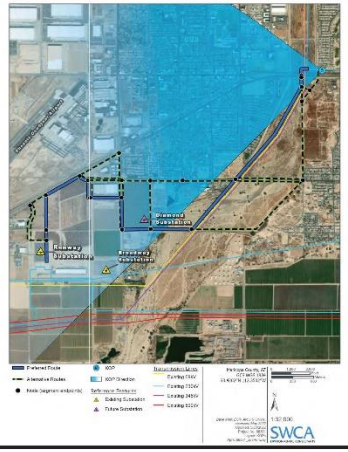
aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit J-79. June 2022 virtual open house, Slide 39.

Existing Condition KOP 5: View from Agua Fria River Trail East looking west

Simulated Condition KOP 5: View from Agua Fria River Trail East looking west showing Preferred Route

Viewing Location



Typical Structures

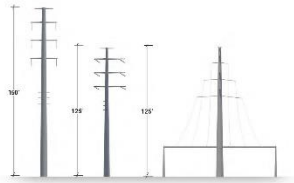


Photo Date and Time: April 13, 2022, 11:20 am

View Location: Approximate distance to nearest new structure from photo location is 0.11 miles.

Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.

APS Runway 230kV Power Line Project | June 2022
Simulation from KOP 5: View from Agua Fria River Trail East

aps SWCA ENVIRONMENTAL CONSULTANTS

Exhibit J-80. June 2022 virtual open house, Slide 40.

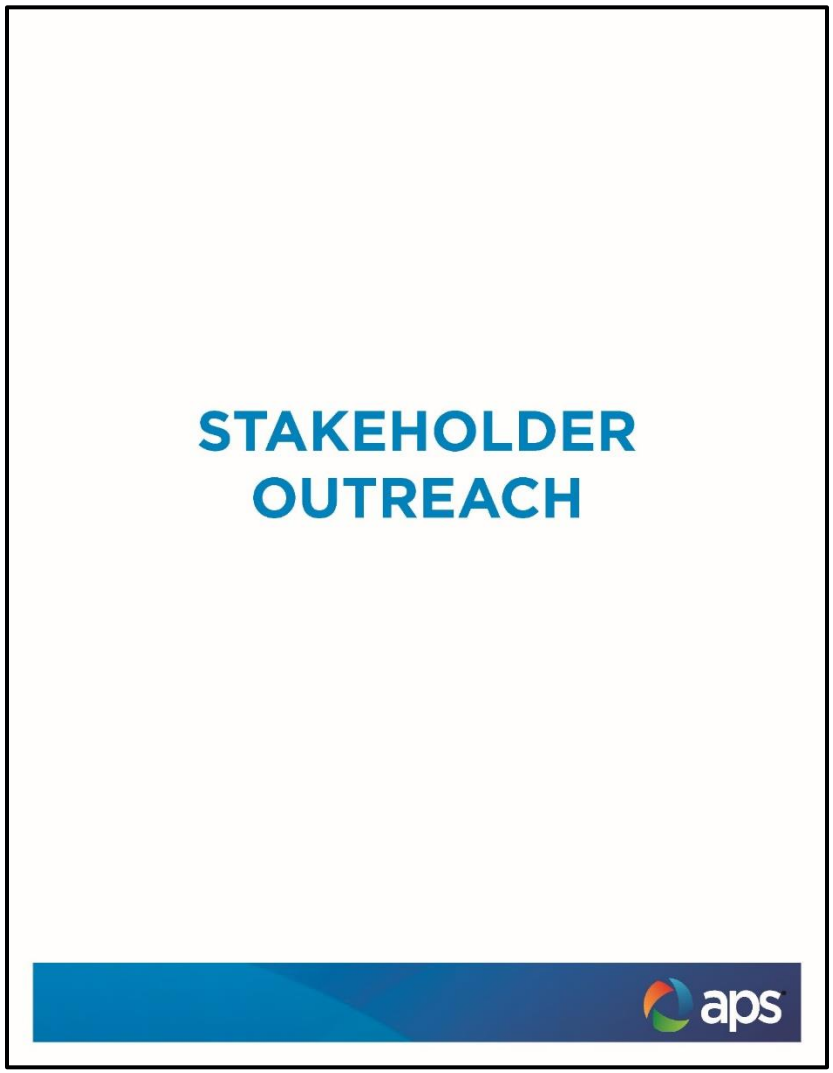


Exhibit J-81. June 2022 virtual open house, Slide 41.

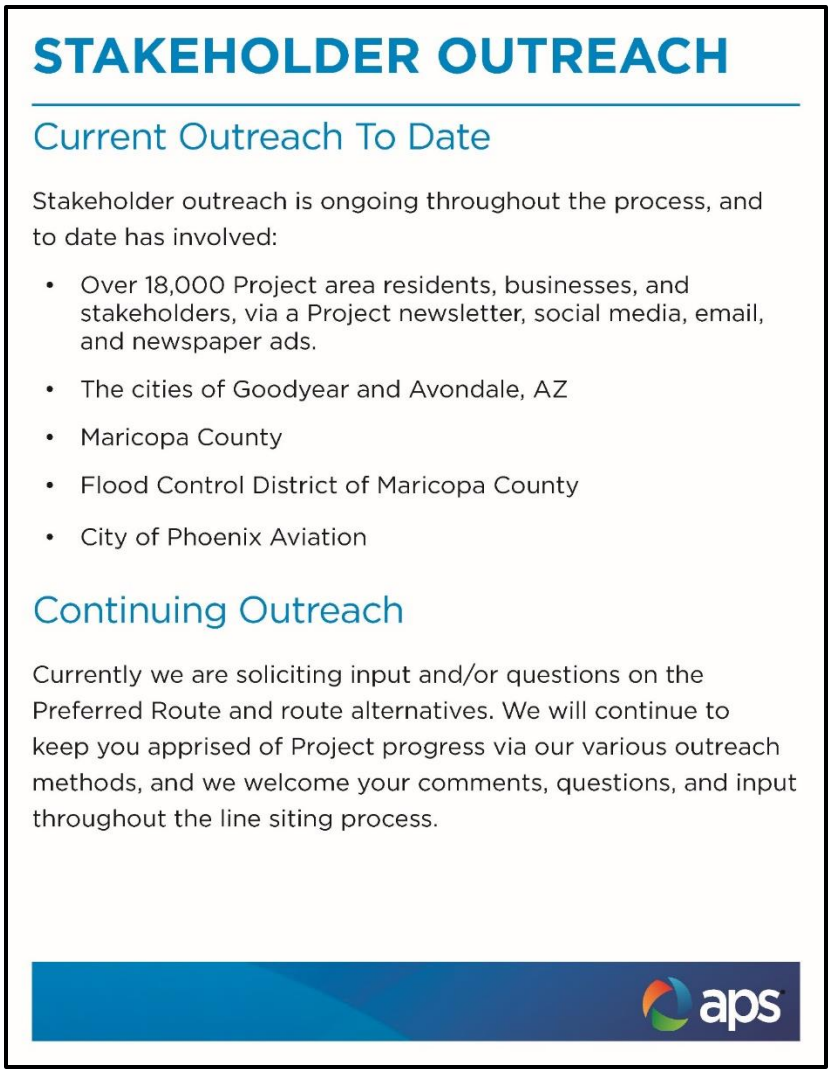


Exhibit J-82. June 2022 virtual open house, Slide 42.

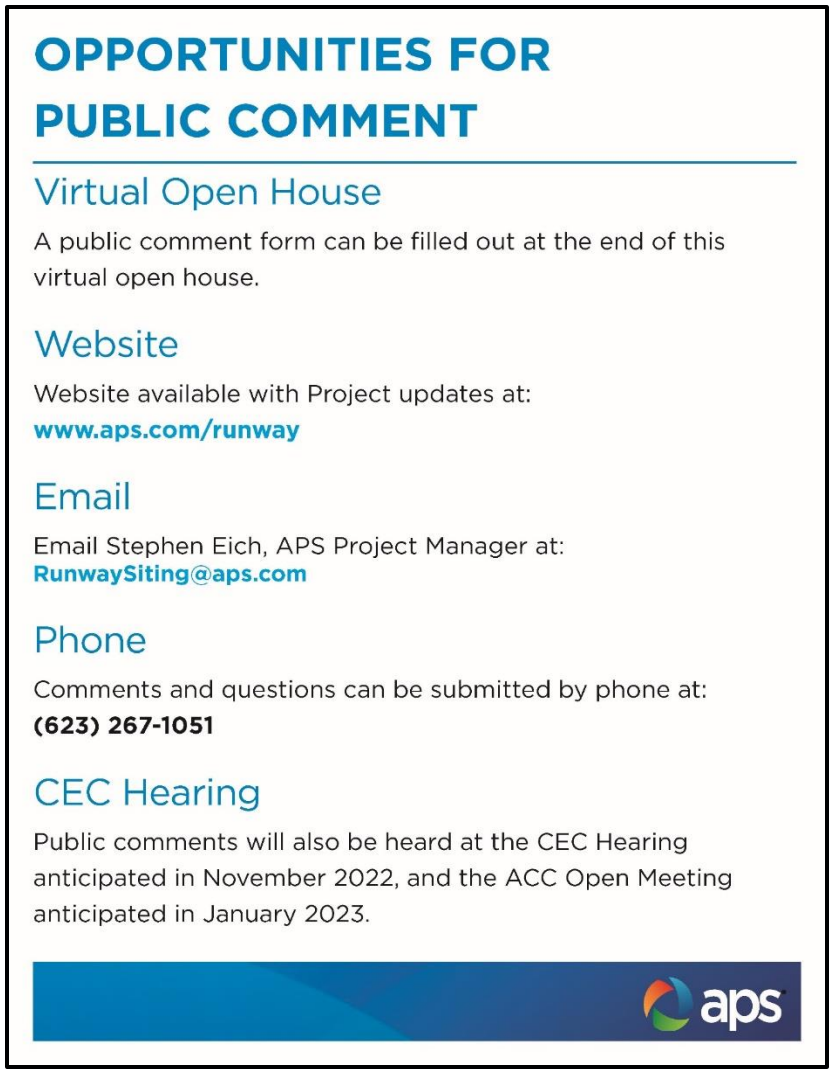


Exhibit J-83. June 2022 virtual open house, Slide 43.

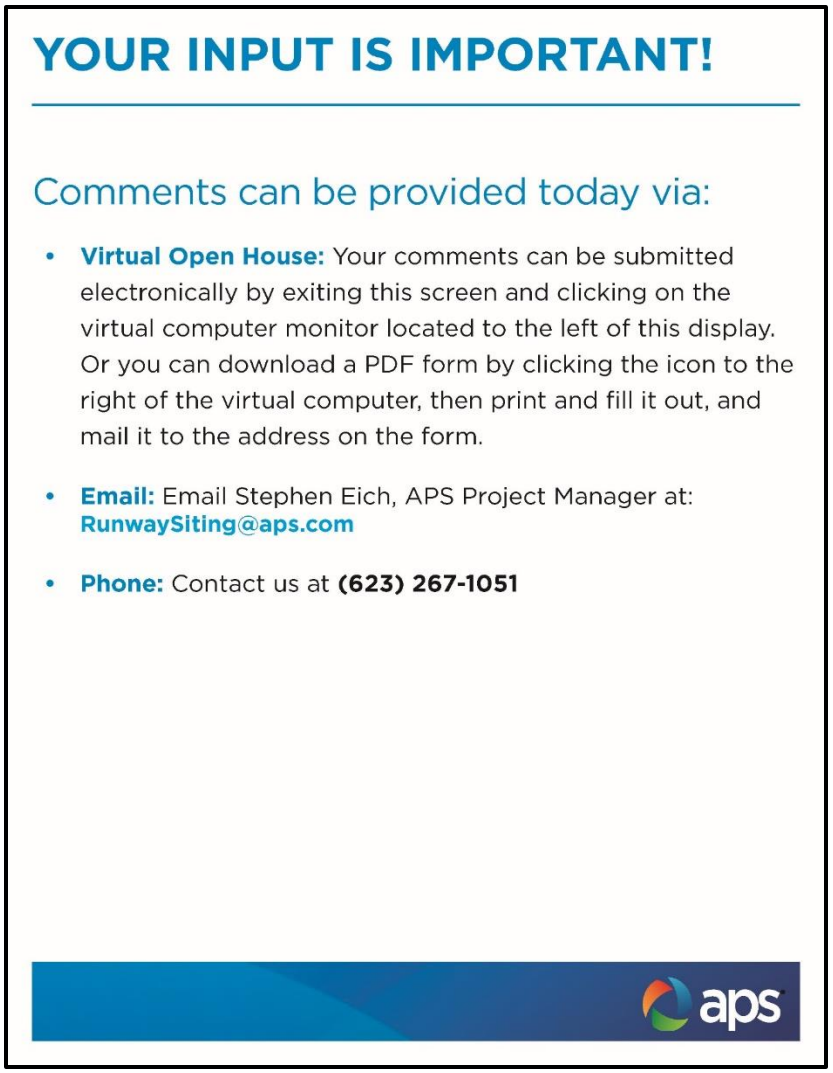
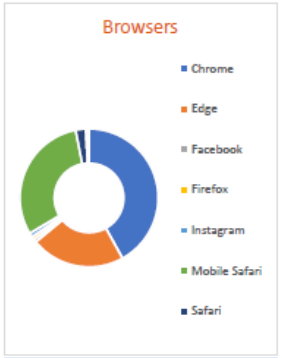
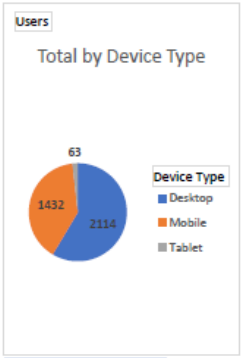


Exhibit J-84. June 2022 virtual open house, Slide 44.

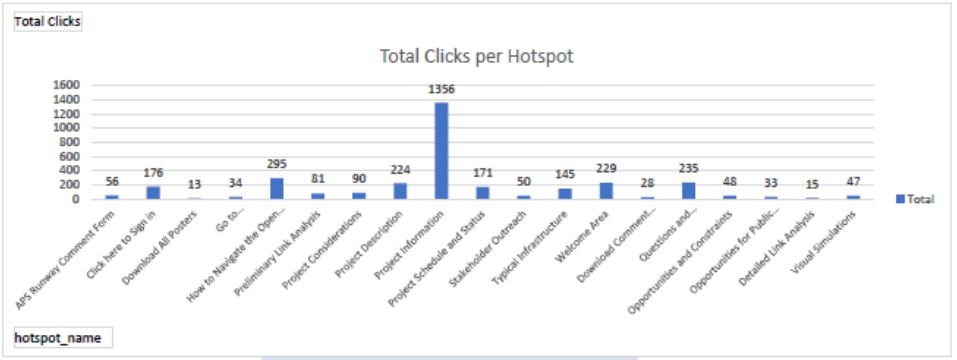
Virtual Open House Metrics
APS Runway 230kV Power Line Project



Browser	Users
Chrome	1633
Edge	405
Facebook	21
Firefox	153
Instagram	2
Mobile Safari	818
Safari	415
Samsung Browser	49
WebKit	31
Chrome WebView	39
Android Browser	8
GSA	12
Waterfox	4
Chrome Headless	1
Electron	10
Opera	2
Silk	6
Grand Total	**3609**



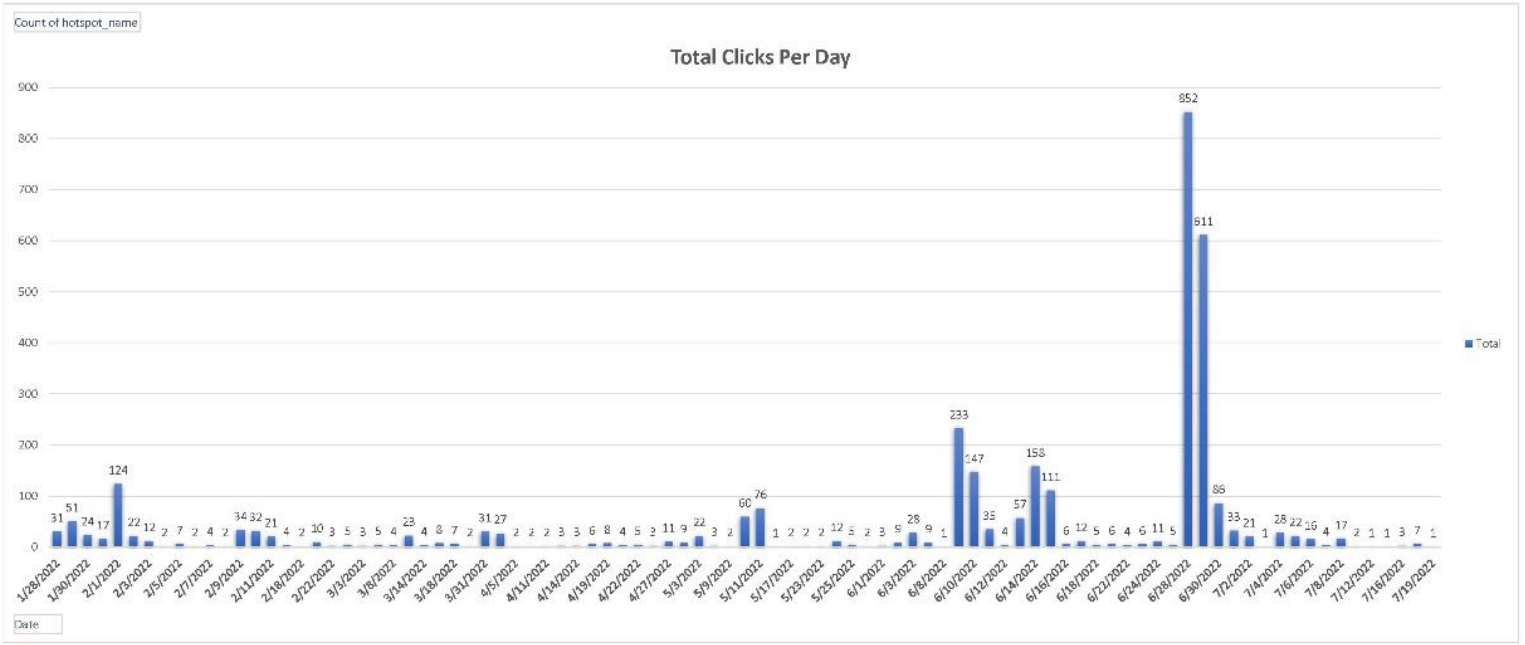
Device Type	Users
Desktop	2114
Mobile	1432
Tablet	63
Grand Total	**3609**



Hotspot	Total Clicks
APS Runway Comment Form	56
Click here to Sign in	176
Download All Posters	13
Go to Project Website	34
How to Navigate the Open House	295
Preliminary Link Analysis	81
Project Considerations	90
Project Description	224
Project Information	1356
Project Schedule and Status	171
Stakeholder Outreach	50
Typical Infrastructure	145
Welcome Area	229
Download Comment Form (Desktop)	28
Questions and Comments	235
Opportunities and Constraints	48
Opportunities for Public Comment	33
Detailed Link Analysis	15
Visual Simulations	47
Grand Total	**3326**

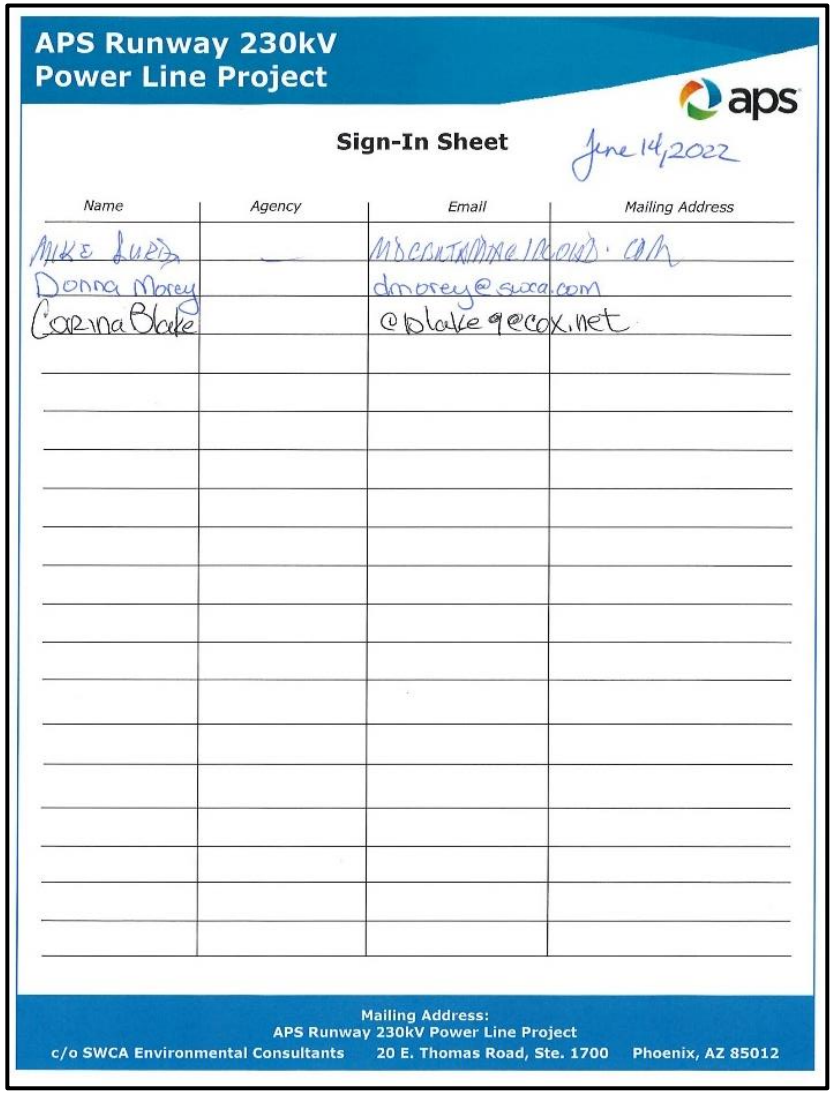
Exhibit J-85. Virtual open house metrics January 6, 2022 through July 20, 2022 – browser, device, and hotspot activity.

Virtual Open House Metrics
APS Runway 230kV Power Line Project



Page 2 of 2

Exhibit J-86. Virtual open house metrics January 6, 2022 through July 20, 2022 – total clicks per day.



APS Runway 230kV Power Line Project

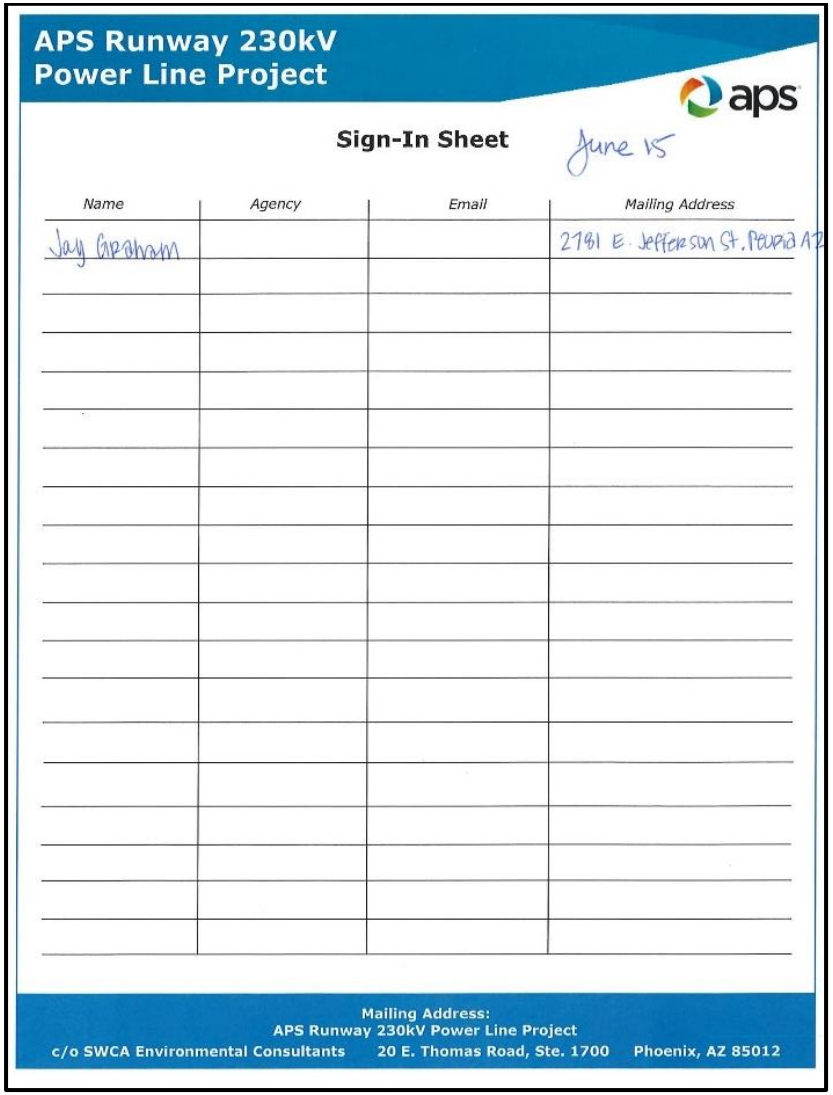
aps

Sign-In Sheet June 14, 2022

Name	Agency	Email	Mailing Address
Mike Lucas		MSCOUTINMIKE1@GMAIL.COM	
Donna Morey		dmorey@swca.com	
Carina Blake		cblake9@cox.net	

Mailing Address:
APS Runway 230kV Power Line Project
c/o SWCA Environmental Consultants 20 E. Thomas Road, Ste. 1700 Phoenix, AZ 85012

Exhibit J-87. Sign-in sheet for the in-person open house on June 14, 2022.



APS Runway 230kV Power Line Project

aps

Sign-In Sheet June 15

Name	Agency	Email	Mailing Address
Jay Graham			2781 E. Jefferson St. Phoenix AZ

Mailing Address:
APS Runway 230kV Power Line Project
c/o SWCA Environmental Consultants 20 E. Thomas Road, Ste. 1700 Phoenix, AZ 85012

Exhibit J-88. Sign-in sheet for the in-person open house on June 15, 2022.

4 Z5 | MIDWEEK, 01.12.22 | AZCENTRAL.COM

RUNWAY 230KV POWER LINE PROJECT

APS Virtual Open House

We are in the early stages of identifying a proper route for new 230 kilovolt (230kV) power lines in Avondale and Goodyear, known as the Runway 230kV Power Line Project. These lines are needed to serve the existing Runway Substation located near Bullard Avenue and Broadway Road in Goodyear, and a future substation located near Lower Buckeye Road and Litchfield Road in Avondale.

Your input is very important to us. Please attend our virtual open house online to learn more about the project and provide input to help us identify the proper location for the new 230kV lines. You will be able to comment, submit questions, and, if desired, request to speak with one of our subject matter experts. Mailed copies of open house materials are available upon request. Although comments are encouraged throughout the life of the project, please submit your comments in relation to this virtual open house by February 13, 2022, to ensure its review and consideration during this phase of the project.

Information about the Runway 230kV Power Line Project can also be found on our project webpage by going to aps.com/runway. QR codes to the virtual open house and the project webpage can be scanned below to access the sites. or by scanning the QR code below. Comments and questions may be submitted within the virtual open house, the project webpage, by email, or by phone to:

Stephen Eich—Siting Consultant
Project information phone number: (623) 267-1051
RunwaySiting@aps.com

Virtual Open House
www.runwayopenhouse.com

Project Website
www.aps.com/runway

aps.com

aps

COVID-19

Continued from Page 3

this much demand," he said. "The one way to make sure you are wrong is to make a prediction, but it seems like it's going to be a really quick burn. ... I expect testing to drop to a fraction of what it is now by probably early February."

Valley Shield is doing predominantly PCR — polymerase chain reaction — tests. The turnaround time has typically been about 18 hours but is now getting closer to 28 or 30 hours because of the increased demand, Greer said.

"We watch that daily and we decrease the amount of appointments that we take," Greer said. "These tests are useless if you don't get them quick."

The company temporarily paused free rapid tests because of the high demand and supply chain issues, he said.

Mondays are busiest test days

Finding a testing appointment when you need it in Arizona may require some flexibility given the high demand, Greer said. Valley Shield still has daily appointments available at its Mesa and Avondale sites, but its Glendale site gets booked up more quickly, he said. Valley Shield does take people who don't have appointments, but Greer says that's not something they advertise.

Both Embry and Saguaro Bloom say they have employees out after testing positive for COVID-19.

Embry said Mondays are usually the busiest days for testing, and that afternoons and evenings tend to be busy, too. Also, don't be surprised if you show up to a site and get redirected to another one. That's not happening often but it happens from time to time because of staffing shortages, Embry said.

"Everyone who gets a positive result from an at-home test should report it to their primary care doctor."

Don Herrington
State health department director

As a result, there have been waits to get tested. Embry can't stick close to appointment times. Having a 3 p.m. appointment time doesn't mean that's the time you will get tested.

"We're working as fast as possible to get employees from anywhere we can," he said. "It shows how much people really need the testing because if they didn't need it there's no reason someone would be waiting two hours for a test they didn't need."

The Embry system is not flexible on dates, so if you make an appointment for Thursday, don't show up on Wednesday, he said.

Greer said he's encouraged that so many people are making testing a priority during this latest wave of infections.

Without rigorous testing, it's going to be difficult to keep COVID-19 at bay, given that some people who are infected have no symptoms, health experts say. If infected people don't know they are positive and continue circulating at work and in the community, the spread will continue.

"I think it's so great to see because as we've gone along in this pandemic,

See COVID-19, Page 6

SOUTHWEST VALLEY REPUBLIC
An edition of *The Arizona Republic*
A Gannett newspaper

Greg Burton
Executive Editor, 602-444-6397

Carrie Watters
Community Editor, 602-444-8123,
carrie.watters@arizonarepublic.com

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Or email accuracy@arizonarepublic.com

Exhibit J-89. Newspaper advertisement, the *Arizona Republic*, January 12, 2022.

4 Z5 | FRIDAY, 01.14.22 | AZCENTRAL.COM

RUNWAY 230KV POWER LINE PROJECT

APS Virtual Open House

We are in the early stages of identifying a proper route for new 230 kilovolt (230kV) power lines in Avondale and Goodyear, known as the Runway 230kV Power Line Project. These lines are needed to serve the existing Runway Substation located near Bullard Avenue and Broadway Road in Goodyear, and a future substation located near Lower Buckeye Road and Litchfield Road in Avondale.

Your input is very important to us. Please attend our virtual open house online to learn more about the project and provide input to help us identify the proper location for the new 230kV lines. You will be able to comment, submit questions, and, if desired, request to speak with one of our subject matter experts. Mailed copies of open house materials are available upon request. Although comments are encouraged throughout the life of the project, please submit your comments in relation to this virtual open house by February 13, 2022, to ensure its review and consideration during this phase of the project.

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Project information phone number: (623) 267-1051
RunwaySiting@aps.com

Virtual Open House
www.runwayopenhouse.com

Project Website
www.aps.com/runway

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Restaurants

Continued from Page 3

soft launch. Find dishes such as tom yum, pad thai and khao jee, grilled sticky rice skewers popular in Isan and Laos.

Details: 1649 S. Stapley Drive, No. 103, Mesa. 480-702-0367, 'Mae-Khong Thai tapas & bar' on Facebook.

Mountain Mike

A California-based pizza chain made its first foray into Arizona, bringing massive pizza, bone-in wings, garlic bread, salads, mozzarella sticks and a selection of beer and wine.

Details: 849 N. Dobson Road, Mesa. mountainmikespizza.com.

Myungrang Hot Dogs

Near Westgate Entertainment District, this shop offers a variety of sausage and mozzarella Korean corn dog combinations with an array of optional sauces, seasonings and toppings.

Details: 9140 W. Glendale Ave., No. 102, Glendale. 623-213-7475, myungrangwestgate.com.

NoRa Asian Fresh

This Pan-Asian restaurant has multiple locations throughout the Valley and offers eclectic dishes like spam musubi, Malaysian char kway teow and ramen.

Details: 4015 E. Bell Road, No. 132, Phoenix. 480-564-1076, noraasianfresh.com.

Salad and Go

This locally started drive-thru chain is known for inexpensive salads offered with baked chicken, tofu or steak tossed in ginger-chili marinade. The newest location is now open in Glendale

Details: 18573 N. 59th Ave., Glendale. saladandgo.com.

Sanctuary Cafe

Located in a Peoria park, this cafe offers a short menu of coffee drinks and wood-fired pizzas. Guests can also enjoy hanging out with Gus, the shop's colorful and friendly macaw.

Details: Rio Vista Recreation Center, 8866 W. Thunderbird Road, Peoria. 623-878-6489, instagram.com/sanctuarycafeaz.

Shinko Sushi House

Located on the south side of South Mountain, this restaurant is in a soft opening while waiting on a liquor license. In the meantime, you can order sushi, nigiri, sashimi and more extravagant rolls.

Details: 1241 E. Chandler Blvd., Phoenix. 480-243-7834, facebook.com/Shinkophoenix.

Sottise

The team behind Restaurant Progress has opened a French wine bar and brasserie in downtown Phoenix, serving escargot, beef tartare, warmed Camembert and duck confit.

Details: 1025 N. Second St., Phoenix. 602-254-6378, sottisephx.com.

See RESTAURANTS, Page 5

SOUTHWEST VALLEY REPUBLIC
An edition of *The Arizona Republic*
A Gannett newspaper

Greg Burton
Executive Editor, 602-444-6397

Carrie Watters
Community Editor, 602-444-8123, carrie.watters@arizonarepublic.com

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Exhibit J-90. Newspaper advertisement, the *Arizona Republic*, January 14, 2022.

6 Z5 | MIDWEEK, 01.19.22 | AZCENTRAL.COM

RUNWAY 230KV POWER LINE PROJECT

APS Virtual Open House

We are in the early stages of identifying a proper route for new 230 kilovolt (230kV) power lines in Avondale and Goodyear, known as the Runway 230kV Power Line Project. These lines are needed to serve the existing Runway Substation located near Bullard Avenue and Broadway Road in Goodyear, and a future substation located near Lower Buckeye Road and Litchfield Road in Avondale.

Your input is very important to us. Please attend our virtual open house online to learn more about the project and provide input to help us identify the proper location for the new 230kV lines. You will be able to comment, submit questions, and, if desired, request to speak with one of our subject matter experts. Mailed copies of open house materials are available upon request. Although comments are encouraged throughout the life of the project, please submit your comments in relation to this virtual open house by February 13, 2022, to ensure its review and consideration during this phase of the project.

Information about the Runway 230kV Power Line Project can also be found on our project webpage by going to aps.com/runway. QR codes to the virtual open house and the project webpage can be scanned below to access the sites. or by scanning the QR code below. Comments and questions may be submitted within the virtual open house, the project webpage, by email, or by phone to:

Stephen Eich—Siting Consultant
Project information phone number: (623) 267-1051
RunwaySiting@aps.com

Virtual Open House
www.runwayopenhouse.com

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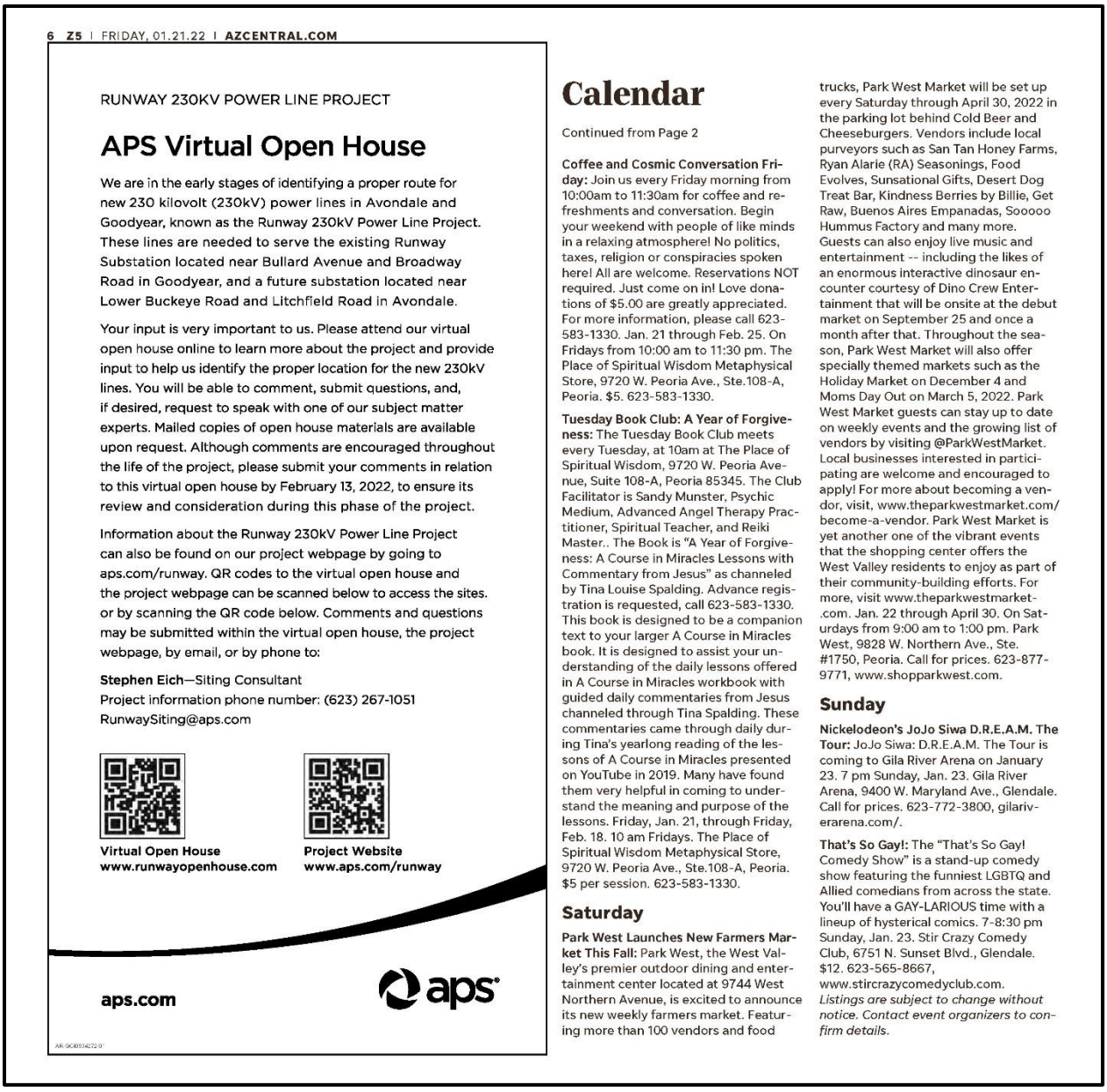
Exhibit J-91. Newspaper advertisement, the *Arizona Republic*, January 19, 2022.



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RUNWAY 230KV POWER LINE PROJECT

APS Virtual Open House

We are in the early stages of identifying a proper route for new 230 kilovolt (230kV) power lines in Avondale and Goodyear, known as the Runway 230kV Power Line Project. These lines are needed to serve the existing Runway Substation located near Bullard Avenue and Broadway Road in Goodyear, and a future substation located near Lower Buckeye Road and Litchfield Road in Avondale.

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RunwaySiting@aps.com

Virtual Open House
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Project Website
www.aps.com/runway

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Calendar

Continued from Page 2

Coffee and Cosmic Conversation Friday: Join us every Friday morning from 10:00am to 11:30am for coffee and refreshments and conversation. Begin your weekend with people of like minds in a relaxing atmosphere! No politics, taxes, religion or conspiracies spoken here! All are welcome. Reservations NOT required. Just come on in! Love donations of $5.00 are greatly appreciated. For more information, please call 623-583-1330. Jan. 21 through Feb. 25. On Fridays from 10:00 am to 11:30 pm. The Place of Spiritual Wisdom Metaphysical Store, 9720 W. Peoria Ave., Ste.108-A, Peoria. $5. 623-583-1330.

Tuesday Book Club: A Year of Forgiveness: The Tuesday Book Club meets every Tuesday, at 10am at The Place of Spiritual Wisdom, 9720 W. Peoria Avenue, Suite 108-A, Peoria 85345. The Club Facilitator is Sandy Munster, Psychic Medium, Advanced Angel Therapy Practitioner, Spiritual Teacher, and Reiki Master.. The Book is "A Year of Forgiveness: A Course in Miracles Lessons with Commentary from Jesus" as channeled by Tina Louise Spalding. Advance registration is requested, call 623-583-1330. This book is designed to be a companion text to your larger A Course in Miracles book. It is designed to assist your understanding of the daily lessons offered in A Course in Miracles workbook with guided daily commentaries from Jesus channeled through Tina Spalding. These commentaries came through daily during Tina's yearlong reading of the lessons of A Course in Miracles presented on YouTube in 2019. Many have found them very helpful in coming to understand the meaning and purpose of the lessons. Friday, Jan. 21, through Friday, Feb. 18. 10 am Fridays. The Place of Spiritual Wisdom Metaphysical Store, 9720 W. Peoria Ave., Ste.108-A, Peoria. $5 per session. 623-583-1330.

Saturday

Park West Launches New Farmers Market This Fall: Park West, the West Valley's premier outdoor dining and entertainment center located at 9744 West Northern Avenue, is excited to announce its new weekly farmers market. Featuring more than 100 vendors and food trucks, Park West Market will be set up every Saturday through April 30, 2022 in the parking lot behind Cold Beer and Cheeseburgers. Vendors include local purveyors such as San Tan Honey Farms, Ryan Alarie (RA) Seasonings, Food Evolves, Sunsational Gifts, Desert Dog Treat Bar, Kindness Berries by Billie, Get Raw, Buenos Aires Empanadas, Sooooo Hummus Factory and many more. Guests can also enjoy live music and entertainment -- including the likes of an enormous interactive dinosaur encounter courtesy of Dino Crew Entertainment that will be onsite at the debut market on September 25 and once a month after that. Throughout the season, Park West Market will also offer specially themed markets such as the Holiday Market on December 4 and Moms Day Out on March 5, 2022. Park West Market guests can stay up to date on weekly events and the growing list of vendors by visiting @ParkWestMarket. Local businesses interested in participating are welcome and encouraged to apply! For more about becoming a vendor, visit, www.theparkwestmarket.com/become-a-vendor. Park West Market is yet another one of the vibrant events that the shopping center offers the West Valley residents to enjoy as part of their community-building efforts. For more, visit www.theparkwestmarket.com. Jan. 22 through April 30. On Saturdays from 9:00 am to 1:00 pm. Park West, 9828 W. Northern Ave., Ste. #1750, Peoria. Call for prices. 623-877-9771, www.shopparkwest.com.

Sunday

Nickelodeon's JoJo Siwa D.R.E.A.M. The Tour: JoJo Siwa: D.R.E.A.M. The Tour is coming to Gila River Arena on January 23. 7 pm Sunday, Jan. 23. Gila River Arena, 9400 W. Maryland Ave., Glendale. Call for prices. 623-772-3800, gilariverarena.com/.

That's So Gay!: The "That's So Gay! Comedy Show" is a stand-up comedy show featuring the funniest LGBTQ and Allied comedians from across the state. You'll have a GAY-LARIOUS time with a lineup of hysterical comics. 7-8:30 pm Sunday, Jan. 23. Stir Crazy Comedy Club, 6751 N. Sunset Blvd., Glendale. $12. 623-565-8667, www.stircrazycomedyclub.com.

Listings are subject to change without notice. Contact event organizers to confirm details.

Exhibit J-92. Newspaper advertisement, the *Arizona Republic*, January 21, 2022.

Rosemarie Chandler, who lived at Luke Air Force Base as a child, plays Grace Banker in The Phoenix Theatre Company's production of "The Hello Girls." *(Photo by Reg Madison Photography)*

tion, 'How do you want to make an impact?'"

The music, she said, spans many genres.

"There's your classic Broadway number titled 'The Hello Girls' when they first arrive in Paris and the doughboys are thrilled to have American operators," she said.

"It's a Broadway dance number. You even have a rock number called 'The Front' where the girls get together and agree that they need to get to the front whatever it takes and they make a pact to make it happen."

She said recurring musical phrases define the characters.

"If I could describe the music in two words, it is smart and moving," Chandler said. "It's really just an honor and a joy to be able to sing it."

"The Hello Girls" premiered in New York in 2018 and received three Drama Desk Award nominations for outstanding musical, music and lyrics.

"It still feels relevant," Reichel said. "We are fighting the war against COVID. This requires us to come together as a society and solve problems. I hope that the show will have an even deeper resonance given what we are going through. We were just really grateful that the Phoenix Theatre reached out to us and wanted to tell the story here in this community.

"It's not only a celebration and testament to the Hello Girls, but the arc of the story really turns to the audience and makes us ask a question of them. I hope the audiences walk away from it asking how they want to answer the call in their life and how do want to make an impact on people. That's all that really matters at the end of the day. Without each other, we would be nothing."

If You Go...
WHAT: "The Hello Girls"
WHEN: Various times through Jan. 30
WHERE: The Phoenix Theatre Company's Hormel Theatre, 1825 N. Central Avenue, Phoenix
COST: Tickets start at $44
INFO: 602-254-2151, phoenixtheatre.com

Exhibit J-93. Newspaper advertisement, *West Valley View*, January 12, 2022.

we've been able to put out."

Meeting Chris Farley

Finn is one of six kids who grew up in a three-bedroom house. He enjoyed dinners with his family as they shared stories. He gravitated toward comedy. After all, "nobody dislikes comedy."

"My mom and I watched 'The Carol Burnett Show' and 'The Odd Couple,'" he said. "I really liked the idea of sitcoms. Growing up in Chicago, nobody said they wanted to be an actor. They wanted to be firefighters or in sales."

Things changed when he attended Marquette University.

"I met my wife, Donna, my freshman year when I was 18," he said. "I also met one of my best friends, Chris Farley. The two of us were inseparable. We listened to comedy albums by Steve Martin and National Lampoon."

Farley's goal was to star on "Saturday Night Live," and Finn knew he would thrive there. The two prepared for their comedy career at the Chicago improv troupe The Second City.

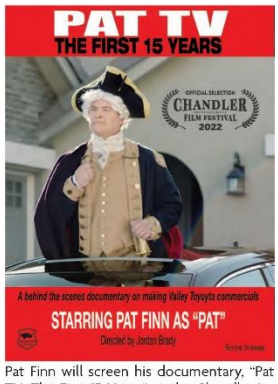
"I used to go there and almost study it," he said. "Why did that laugh work? Why did that song work? Why did they do this scene? I was like a baseball player rewatching a game. A career in comedy didn't become a reality until I was picked up by The Second City and then the main stage."

Finn said Farley's personality mirrored his performance on "Saturday Night Live's" "Chris Farley Show." In one episode, he legendarily interviews Paul McCartney and calls himself an idiot after awkwardly starting the interview.

"We were at The Second City, taking classes, and Dan Ackroyd walks in through the back doors," he recalled. "I said, 'There's Dan Ackroyd. That's so cool.' I told Chris we should go talk to him. Chris said he wasn't sure what to say.

"Literally, Chris walks over to him, mentions 'The Blues Brothers' and said, 'That's awesome.' There was literally no conversation. He just babbled about 'The Blues Brothers.' Chris is like a golden retriever who can talk. And actually, Dan Ackroyd was very smitten by him."

Soon came Finn's big break. As fate would have it, the show's director was actor George Wendt's wife, Bernadette Birkett. Wendt needed someone to play his brother in "The George Wendt Show."



Pat Finn will screen his documentary, "Pat TV: The First 15 Years," at the Chandler International Film Festival. *(Submitted photo)*

"She called her husband in LA and said, 'I have a guy out here. He has curly hair, he's stocky and used to work on a pop truck like you did. He grew up in Chicago and is a big Bears fan,'" he recalled.

"I was flown out for a big interview, and I ended up getting the job on 'The George Wendt Show.' It lasted about a year but George, Bernadette and I are still friends and he's the godfather to my youngest son."

Finn also appeared in a couple episodes of "Friends" as Dr. Roger and "Seinfeld" as Joe Mayo. From there, he "lily padded" into work. He and Donna moved to the LA area to pursue his career further.

"I always say, if you were to tell me as a college kid or high school kid I'd be living in LA, driving to the beach, surfing with my son, I'd think you were crazy. I don't know how I fell into it. I feel so fortunate, and it fits. It feels right."

If You Go...

WHAT: Screening of short film "Pat TV: The First 15 Years" starring Pat Finn
WHEN: 6:10 to 6:45 p.m. Saturday, Jan. 22
WHERE: LOOK Dine-In Cinemas Chandler, 1 W. Chandler Boulevard, Chandler
COST: $10
INFO: eventbrite.com or chandlerfilmfestival.com

Exhibit J-94. Newspaper advertisement, *West Valley View*, January 19, 2022.

A PUBLIC INVITATION FROM APS

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APS 230kV Power Line Project Public Information Open House

The Runway 230kV Power Line Project will identify a route for a new double circuit 230 kilovolt (230kV) power line in Avondale and Goodyear. These lines are needed to connect the existing Runway Substation, located on the Microsoft Data Center Site, northeast of Bullard Avenue and Broadway Road in Goodyear, to existing power lines near the Agua Fria River and Buckeye Road in Avondale.

Your input is very important to us. We invite you to attend one of our in-person open houses at a time listed below. No formal presentation will be given, allowing everyone to attend on either day at any time within the two-hour window. You will be able to speak one-on-one with team members, ask questions, and provide your input. If you are unable to attend in-person we invite you to visit our virtual open house on-line, available throughout the duration of the project, to learn more about the project and provide input. Please provide your input by July 17th, 2022, to allow for timely review and consideration during the siting process.

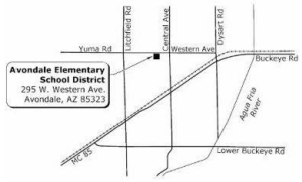
Information about the Runway 230kV Power Line Project can also be found on our project website by going to aps.com/runway. QR codes to the virtual open house and the project webpage can be scanned below to access the sites. Comments and questions may be submitted within the virtual open house, by email, or by phone to:

Stephen Elch—Siting Consultant
Project information phone number: (623) 267-1051
RunwaySiting@aps.com

Project Website
www.aps.com/runway

Virtual Open House
www.runwayopenhouse.com

June 14th and 15th, 2022
5:00–7:00 p.m.
Avondale Elementary School District
295 W. Western Avenue
Avondale, AZ 85323



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You can help keep military traditions alive by volunteering

Veteran's Voice
Paula Pedene
Guest columnist

Memorial Day is a special time in our country. The first national observance of Memorial Day occurred on May 30, 1868. Then known as Decoration Day, the day was proclaimed by Commander in Chief John A. Logan of the Grand Army of the Republic to honor Union soldiers who died in the Civil War. They selected May as many of the flowers were in bloom and could be used to help decorate the gravesites.

This year's event at VA's National Memorial Cemetery of Arizona was no exception. Music by the Army National Guard Band resounded throughout the stage and seating area where 1,400 people gathered. There were dozens of color guards, more than 50 wreath presentations, a rifle volley-where seven servicemembers in a uniform fire three shots to equal a 21 gun salute and much more.

Two of the most poignant pieces were the keynote speech by Susan Kee, a Korean American who is grateful for the servicemembers who fought in the Korean War. She spoke about how her family's life changed when the Russians instilled Communism in North Korea. Fortunately, her family safely escaped to South Korea, but they lost everything during their exit. Her father fought alongside American servicemembers to defend South Korea, and she says that although some say the Korean War is the "Forgotten War" for many in Korea, war is not forgotten. It gave them their freedom, which continues to this day. Her speech was followed by the Prisoner of War and Missing In Action Remembrance table. Through this ceremony, special music, words, place settings, and other traditions are brought to life as a remembrance for those who are no longer with us or whose remains have not yet been found.

This event was one of many in our state, and it is presented by a group of dedicated volunteers, many of whom have been with the Support Committee for nearly two decades. As such, these volunteers are in their 60s and 70s. To continue the event's tradition and help it grow, it needs younger volunteers to make it thrive. If you are 50 or under and would like to assist, you can volunteer for the support committee by contacting Sue Wudy via email at lilsarge@mindspring.com. The event also needs donors to help continue its efforts.

The event was taped and streamed online in partnership with AZTV7. You can watch the replay at aztv.com/memorialday.

Paula Pedene is the author of "A Sacred Duty, How a Whistleblower Took on the VA and Won." You can reach her via email at paula@pedene.com.

Exhibit J-95. Newspaper advertisement, the *Arizona Republic*, June 3, 2022.

ARIZONA HISTORY: JUNE 5-11

ASSOCIATED PRESS

June 5, 1871: Armijo, one of the principal chiefs of the Navajo Nation died.

On this date in 1928, bids were opened for the construction of the North Rim Road of the Grand Canyon.

On this date in 1928, Northern Arizona State Teachers College at Flagstaff graduated the largest class in its history as President Grady Gammage presented 81 certificates.

On this date in 1996, Winslow's temperature hit 100 degrees, breaking the record of 96 for the day set back in 1957.

June 6, 1851: Camp Independence was established on the east bank of the Colorado River near its junction with the Gila River under the command of Lt. Thomas W. Sweeny. Camp Independence was replaced by Fort Yuma in December, 1851.

On this date in 1903, Gov. Alexander Brodie ordered the Arizona Rangers to Morenci and Clifton where miners were striking.

June 7, 1890: The mine fuel tanks at Pearce exploded, destroying the stamp mill and setting part of the town on fire.

On this date in 1896, a Congressional Act provided that the portion of the White Mountain Reservation south of the Salt River was to compose the San Carlos Reservation, while the portion north of the Salt was to be know as Fort Apache.

On this date in 1928, three men drowned at Lee's Ferry when the ferry boat turned over in mid-stream.

June 8, 1874: The Apache chief Cochise died in his stronghold in the Dragoon Mountains.

On this date in 1927, State Teacher's College at Tempe, now Arizona State University, gave its first Bachelor of Education degrees to 13 graduates.

On this date in 1928, the Navajo County sheriff raided the Holbrook City Hall and confiscated 65 gallons (246 litre) of bootleg whiskey in 13 kegs that were hidden under the floor boards.

June 9, 1894: The town of Globe was destroyed by fire.

On this date in 1901, the first spike was driven on the Narrow Gauge Railroad of the Greene Consolidated Copper Co. from Naco to the mines in Cananea.

On this date in 1904, a fire of incendiary origin in Nogales destroyed the Southern Pacific Station, U.S. Customs building, Wells Fargo Depot and several freight cars.

June 10, 1881: James Finely brought a sample of ore to the assay office of the Hermosa Mining Co. at Harshaw which assayed at 823.77 ounces of silver to the ton.

On this date in 1903, 11 persons were confirmed drowned and many others were missing after two hours of torrential rain in Clifton.

On this date in 1922, Arizona's first woman governor, Rose Mofford, was born in Globe.

June 11, 1822: Abraham Harlow Peeples, who came to Arizona in 1863 and with Pauline Weaver organized the prospecting expedition which discovered the Rich Hill gold placers, was born.

On this date in 1868, philanthropist and civic leader Maie Bartlett Heard was born. She later endowed the Heard Museum in Phoenix, donated land for the Phoenix Civic Center, founded the Welfare League and gave a gymnasium to the Phoenix YMCA.

On this date in 1876, the Chiricahua Apaches were moved from their reservation in Cochise County to San Carlos.

SOUTHWEST VALLEY REPUBLIC

An edition of *The Arizona Republic*
A Gannett newspaper

Greg Burton
Executive Editor, 602-444-6397

Carrie Watters
Community Editor, 602-444-8123,
carrie.watters@arizonarepublic.com

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Call 602-444-NEWS (6397)
Or email accuracy@arizonarepublic.com

Exhibit J-96. Newspaper advertisement, the *Arizona Republic*, June 4, 2022.

Agua Fria committed to health, safety

The following is a letter Agua Fria Unified School District Superintendent Mark Yslas sent to parents on May 26.

Dear Agua Fria High School District community:

Our hearts are heavy with the news of the devastating event that occurred at Robb Elementary in Texas. Our thoughts and prayers are with all those affected by this unspeakable tragedy. We can't help but feel overwhelmed and know that this situation may be very unsettling for the Agua Fria High School District Community.

Our district is committed to the health and safety of our students, our teachers and our administrative staff. As such, let me share with you our district's school safety practices:

Partnership with law enforcement

Next school year, each of our campuses will have a dedicated school resource officer (SRO) who will be on campus every day. As a sworn law enforcement officer, this SRO works in partnership with campus administration and district office personnel to maintain a safe and peaceful learning environment. SROs are a partnership between Avondale, Buckeye and Goodyear police departments.

We regularly work with law enforcement and safety experts to review, modify and enhance our school safety strategies. This effort included the recent hiring of a director of security, whose sole focus is maintaining safe campuses throughout the district.

Approximately 9,300 students are on our campuses each day, across multiple buildings on nearly 300 acres of property. At present, we employ five security guards at each of our schools to work with SROs and administration. Next school year we will have one additional security guard for each campus to help manage the anticipated increase in student population.

Maintain safety protocols

We provide ongoing training to site administration, faculty and staff so they are prepared to respond quickly and appropriately to all situations.

We regularly examine our safety protocols to ensure our communication and logistics are effective during any type of emergency and modify them as needed.

Invest in safety

We invest our allotted state funding and voter-approved bonds and override funds to maintain and upgrade our campus security including gates, doors, cameras and alarms.

We regularly examine our arrival and dismissal points in order to account for any areas of concern.

Our safety team stays apprised of new and innovative security procedures and protocols and implements these best practices in order to improve safety on all our campuses.

Families and school personnel play a critical role in helping to reestablish a sense of normalcy and security for children after an act of violence occurs. Throughout the school year counselors are available at our schools. Resources are also available on our web page: parenthub.aguafria.org.

Working with our law enforcement agencies, we will be hosting a Town Hall in late July. At that time, we will provide additional information on our districtwide safety plan and answer questions and address your concerns. Additional details will be shared soon about the specific date, time and location.

Our thoughts and prayers will continue to be with the entire Robb Elementary community.

Mark Yslas
Superintendent
Agua Fria Unified School District

Exhibit J-97. Newspaper advertisement, *West Valley View*, June 1, 2022.

Exhibit J-98. Facebook and Instagram social media advertisement, January 21, 2022.

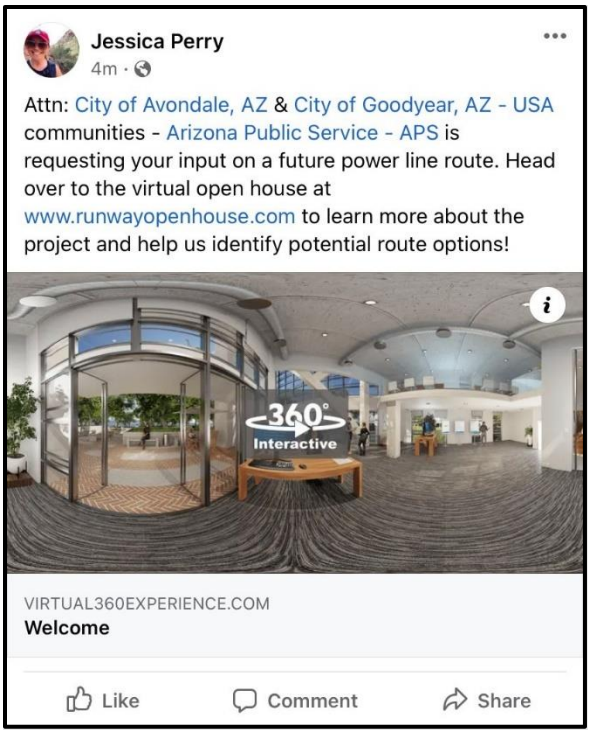

Exhibit J-99. Facebook and Instagram social media post, June 2, 2022.

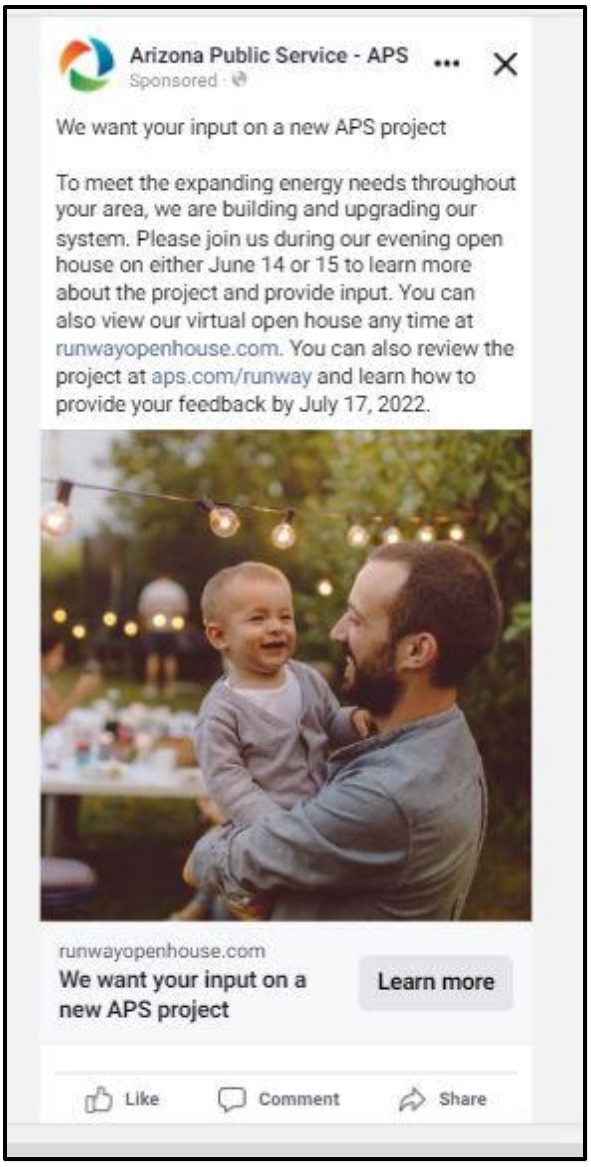

Exhibit J-100. Facebook and Instagram social media advertisement, June 2, 2022.

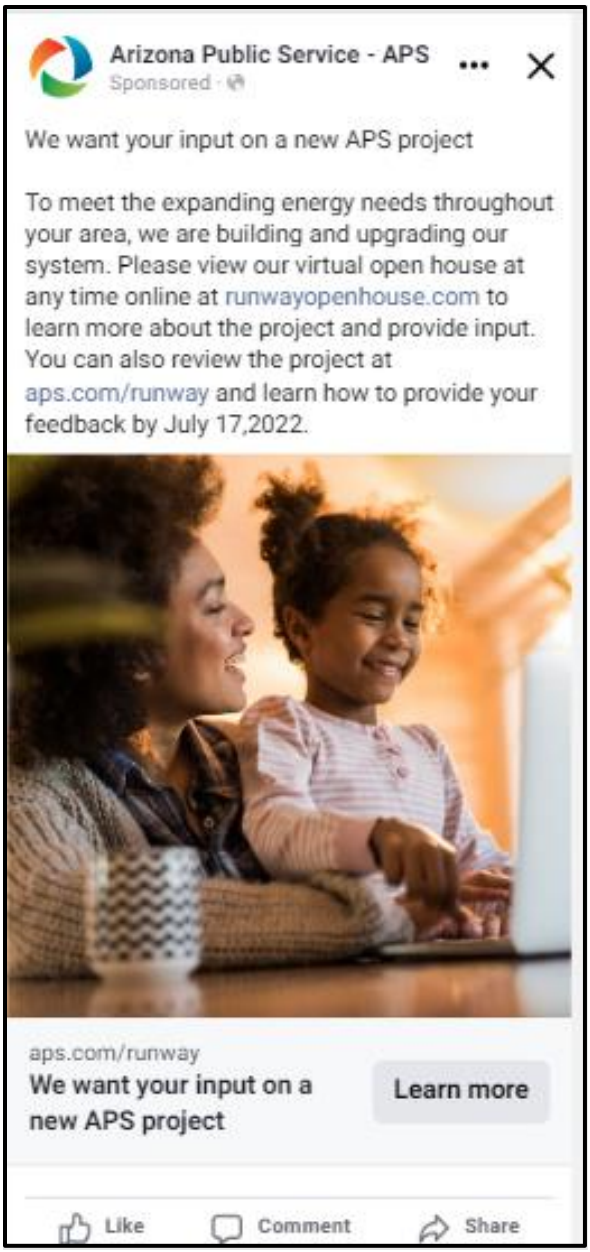

Exhibit J-101. Facebook and Instagram social media advertisement, July 7, 2022.

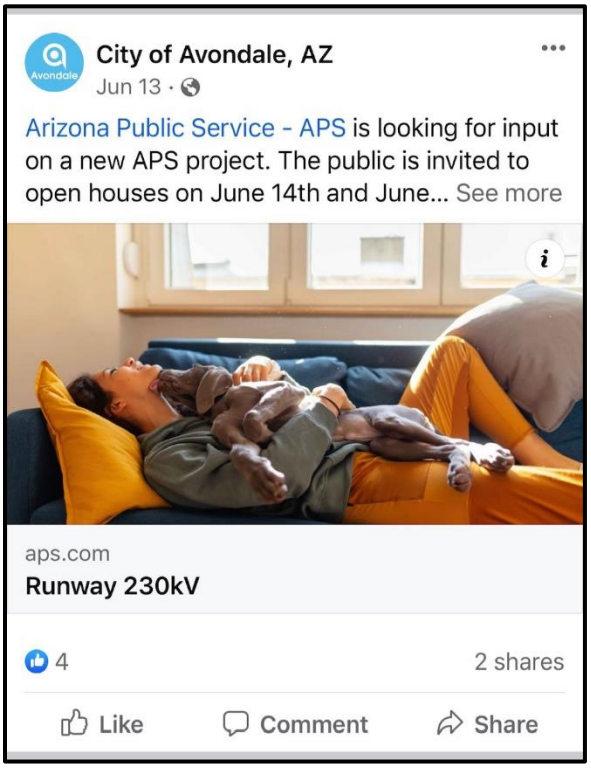

Exhibit J-102. City of Avondale Facebook repost, June 13, 2022.

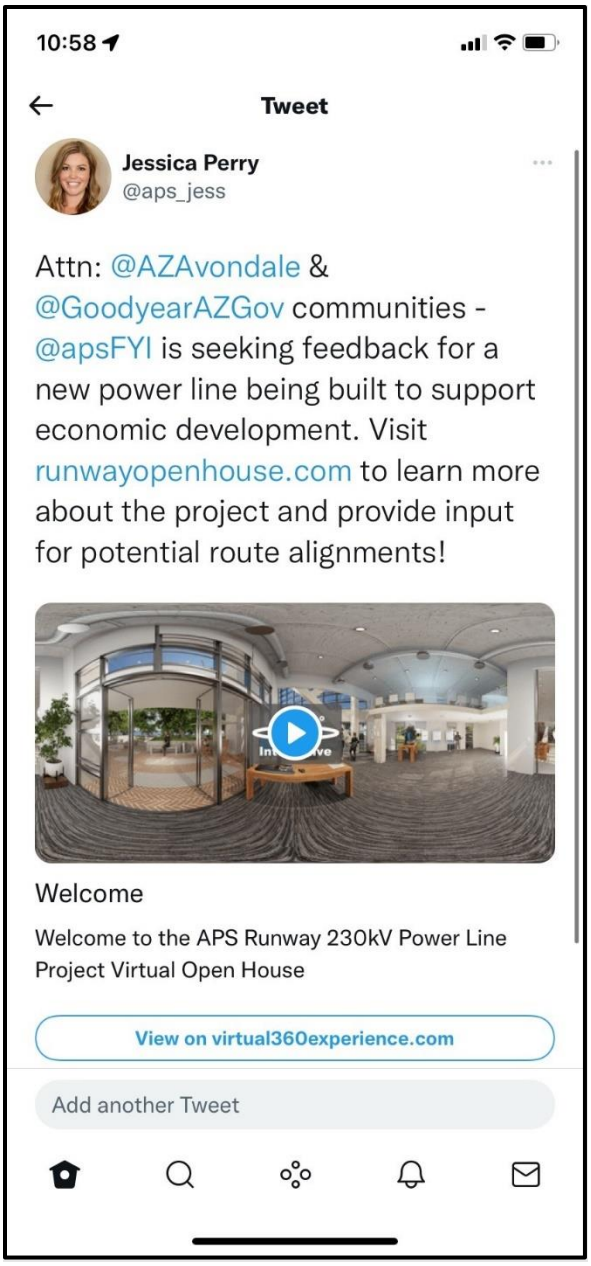

Exhibit J-103. Twitter social media post, January 21, 2022.

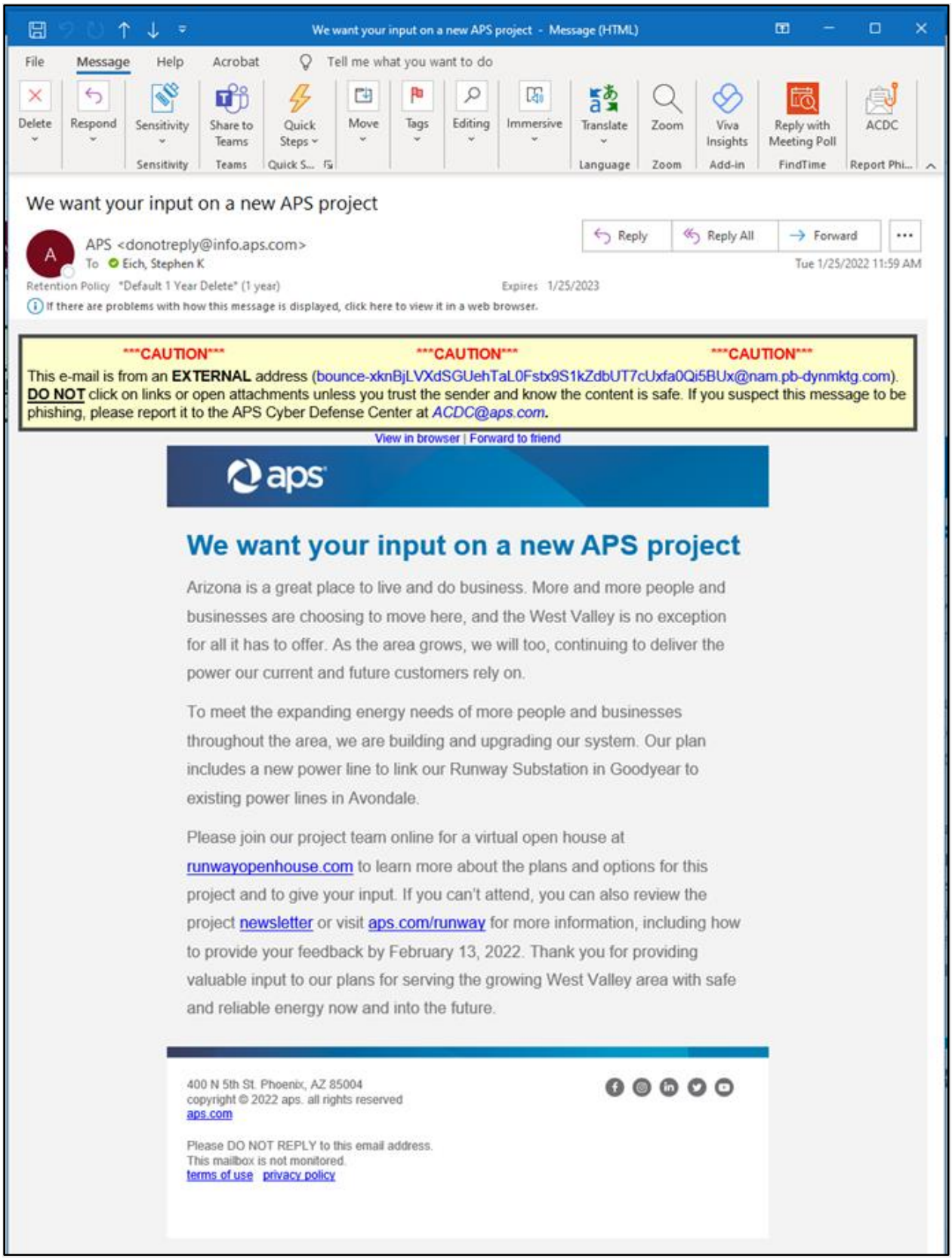

Exhibit J-104. Email to stakeholders, January 25, 2022.

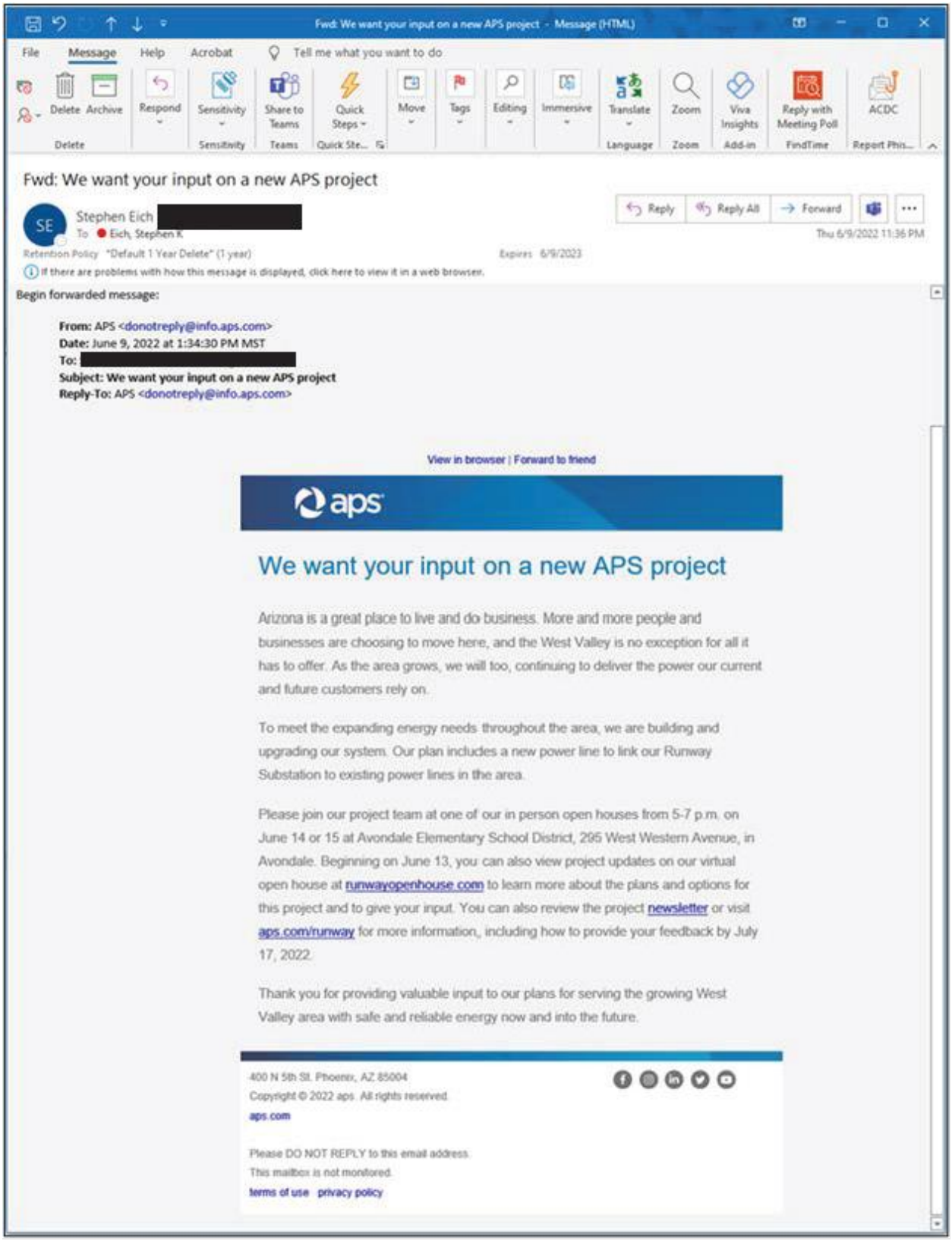

Exhibit J-105. Email to stakeholders, June 6, 2022.

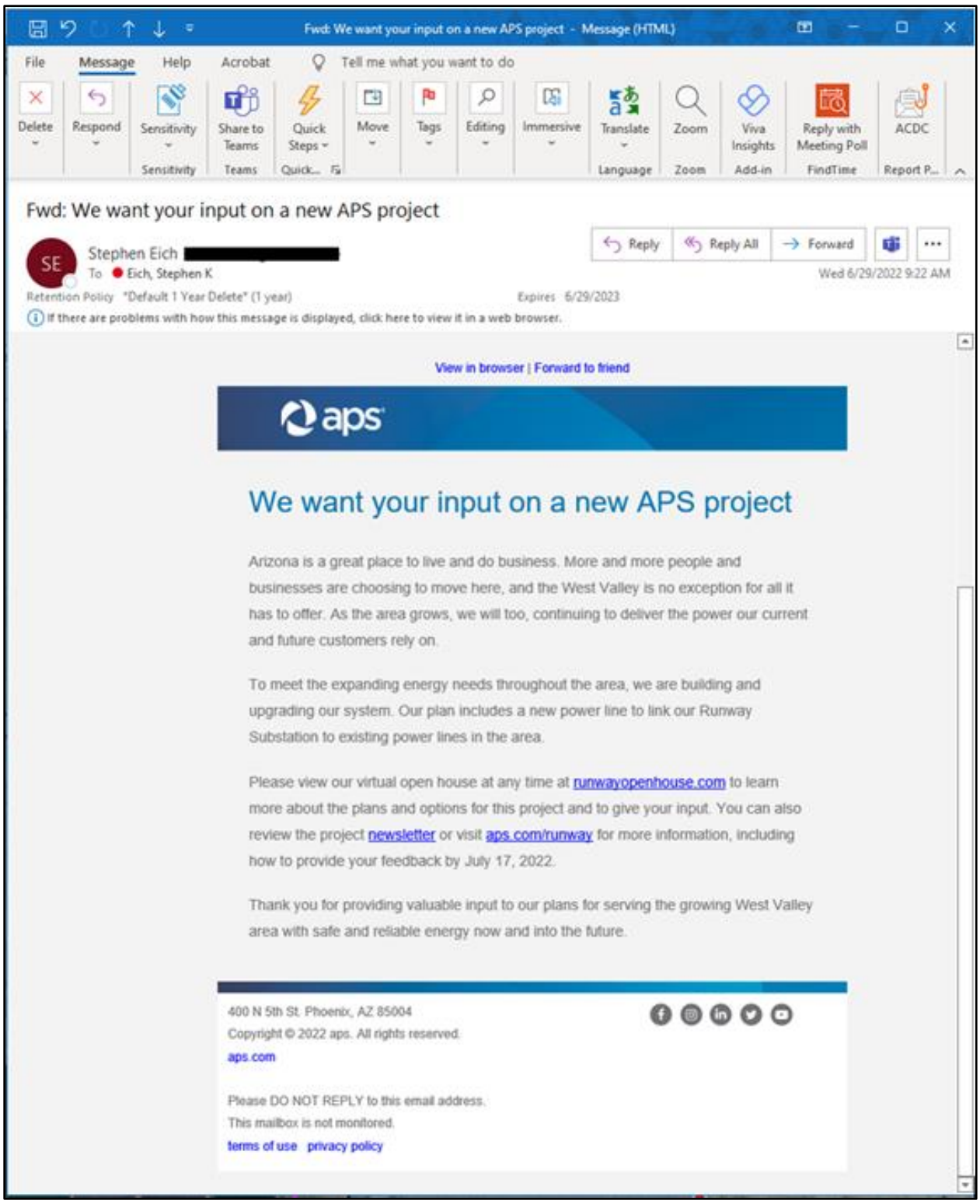

Exhibit J-106. Email to stakeholders, June 29, 2022.

City of Goodyear
Office of the Mayor and Council

July 27, 2022

Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

RE: Letter of Support
APS 230kV Power Transmission Lines Siting

Chairwoman Lea Marquez Peterson and Commissioners,

The City of Goodyear Council supports APS' application for a certificate of environmental compatibility for the new double circuit 230kV power line to serve the Microsoft data center, located northeast of Bullard Avenue and Broadway Road. This new line will improve connectivity by allowing the current APS Runway Substation to be tied to existing power lines near Buckeye Road and the Agua Fria River in Avondale.

This project will provide power to important business locates that will benefit our community significantly through increased revenue and quality jobs, as well as serve as a catalyst for additional economic opportunities for our growing city.

The City of Goodyear appreciates APS' dedication to this project, as well as their continued support as a valued community partner. Thank you for your time and consideration of this matter.

Sincerely,

Joe Pizzillo

Mayor
City of Goodyear, AZ

1900 N Civic Square, Goodyear, AZ 85395
P. 623-932-3910 F. 623-882-7091
goodyearaz.gov

Exhibit J-107. City of Goodyear letter to APS, July 7, 2022.

Aspiring. Achieving. Accelerating.
www.avondale.org

August 24, 2022

Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

RE: Letter of Support
APS Runway 230kV Line Project

Chairwoman Lea Marquez Peterson & Commissioners,

The City of Avondale Council supports APS' application for a certificate of environmental compatibility (CEC) and APS' selection of their preferred route.

The project will connect the Runway Substation to existing power lines along the Agua Fria River. This will be key to supplying energy to businesses important to the growth of the overall West Valley and enhance the reliability of the Runway Substation and surrounding transmission infrastructure.

APS is a dedicated community partner to the City of Avondale, and we appreciate their willingness to listen to the City Council's concerns and feedback. Thank you for your consideration of this matter.

Sincerely,

Kenneth A Weise

Mayor
City of Avondale, Arizona

Office of the Mayor & Council
11465 W Civic Center Drive | Avondale, AZ 85323
Phone (623) 333-1900 | Fax (623) 333-0100 | TDD (623) 333-0010
www.avondaleaz.gov

Exhibit J-108. City of Avondale letter to APS, August 24, 2022.