Case No._____

Application for a

Certificate of Environmental Compatibility
Three Rivers 230kV Transmission Line Project

Prepared for | **Arizona Power Plant and Transmission Line Siting Committee**

Submitted by | **Arizona Public Service Company**

August 2021

aps

Application

for a

Certificate of Environmental Compatibility

THREE RIVERS
230kV POWER LINE PROJECT

Prepared for:
State of Arizona
Power Plant and Transmission Line Siting Committee

Submitted by:
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INTRODUCTION

Pursuant to Arizona Revised Statutes (A.R.S.) §§ 40-360, *et seq.*, Arizona Public Service Company (APS or Applicant) is seeking a Certificate of Environmental Compatibility (CEC) granting authority to construct the Three Rivers 230-kilovolt (kV) Power Line Project (Project).

PROJECT OVERVIEW

The Project consists of two new single-circuit 230kV transmission lines, connecting the existing APS Rudd-White Tanks 230kV transmission line to the Three Rivers Substation (formerly TS16). While the Project is proposed to include two new single-circuit 230kV lines, APS is proposing construction of double-circuit 230kV lines in some locations including highway crossings to accommodate for future 230kV or 69kV lines, as needed, and the new 230kV lines entering and exiting the Three Rivers Substation. The Project is anticipated to be constructed primarily with steel, monopole structures that will be a mix of single-circuit and double-circuit. The exact size and type of structures to be used will depend on final design Additional structure types may be warranted depending on specific route and site conditions.

The Project is needed to maintain system reliability while providing service to a new datacenter being constructed by Compass Datacenters (Datacenter). The Project will deliver power from the nearby Rudd-White Tanks 230kV transmission line to the data center via the Three Rivers Substation located on the customer's site.

The Project was included in APS's Ten-Year Plans filed with the Arizona Corporation Commission (Commission) on June 12, 2019, January 31, 2020, and January 29, 2021.

The initial development phase of the Datacenter is temporarily being provided electricity from a 69kV line from the Three Rivers Substation. Construction of the 230kV facilities will begin in 2022, with an expected in-service date of 2023.

PURPOSE AND NEED

The greater Phoenix region has emerged as one of the top markets in the western U.S. for attracting high-tech companies, including data centers. Data centers require a significant amount of electrical power and carry heightened reliability requirements. The Datacenter's full buildout is anticipated to require 360 megawatts (MW) of electrical power.

The power demands and reliability requirements of the Datacenter require service from a 230kV system that will be delivered from two independent sources to ensure reliability of the interconnected 230kV system. To this end, the Datacenter will be served by the existing Rudd-White Tanks 230kV line from two separate interconnection points. These two single-circuit 230kV lines will require separate rights-of-way or easements of up to 120 feet wide (approximately 60 feet each side of the structure) and will terminate at the Three Rivers Substation. The Preferred Route and two alternative routes (Figures 1 through 3) meet the customer's requirement that no single event (such as the loss of a single pole) would result in the inability to serve the load. In addition to ensuring continuity of load for any single event, the Preferred Route and two alternative routes (Figures 1 through 3) ensure a high level of reliability to the West Valley and the Bulk Electric System.

ENVIRONMENTAL AND PUBLIC SITING PROCESS

APS and its consultant, Environmental Planning Group, a Terracon Company (EPG), developed a public planning and outreach process to identify environmentally compatible routes for the Project. This planning process began with APS and EPG identifying and examining an approximate 27-square-mile area surrounding the Datacenter's site to identify possible routes for the Project. This process included identifying opportunities to co-locate the transmission lines along existing transmission lines, distribution lines, or roadways and to avoid environmentally sensitive areas and minimize impacts to landowners. These various segments referred to as "links" were connected to form different alternative routes. Preliminary siting resulted in the identification of more than 100 individual links, spanning more than 50 miles (see Figure 4). A more detailed review of these links identified limitations. To the northeast of the Project area, a lack of sufficient right-of-way in residential communities eliminated 24 links from further consideration. To the south of the Project area, conflicts with the Phoenix Goodyear Airport flight restriction zone resulted in the elimination of five links.

EPG then completed environmental secondary data and field inventories for lands within the Study Area and examined in greater detail the overall level of impact the Project's route alternatives would have on the various environmental resources. This research included field visits and reviews of relevant documents and data, as well as the completion of environmental impact analyses.

APS and EPG initiated multiple public participation activities, including a series of public open house meetings (in-person and virtual), jurisdictional meetings, agency briefings, landowner contacts, three newsletters, emails, newspaper advertisements, social media posts, a telephone information line, and a website. Through these activities, APS requested and received public and agency feedback on the proposed preliminary links and how those links may impact certain locations. APS also gathered information regarding constraints associated with engineering feasibility, right-of-way availability, and associated costs. The alternative links carried forward from earlier in the process went through further evaluation to form reasonable routes. Using this information, APS and EPG examined the overall compatibility of the routes, incorporated feedback from agencies and the public, and developed the Preferred Route and two alternative routes (Figures 1 through 3) to be presented to the Arizona Power Plant and Transmission Line Siting Committee (Siting Committee) and the Commission to consider in this application.

This approach allows for consideration of a broad range of reasonable alternative transmission line locations at the beginning of the process but focuses on specific details and construction feasibility prior to APS identifying final alternative transmission line routes.

CONCLUSION

This application includes the environmental evaluation and documentation relevant to the Project as specified by Arizona Administrative Code R14-3-219. The CEC requested in this application balances, in the broad public interest, the need for an adequate, economical, and reliable supply of electric power with the desire to minimize impacts on the environment and ecology. The Project is environmentally compatible, as it complies with land use plans, and results in minimal adverse impacts to wildlife and vegetation, scenic areas, historic sites and structures, archaeological sites, and other factors to be considered by the Siting Committee. All the alternatives presented in this CEC application are considered environmentally compatible. As such, APS respectfully requests the Siting Committee grant the requested CEC for the Project and the Commission approve the CEC.

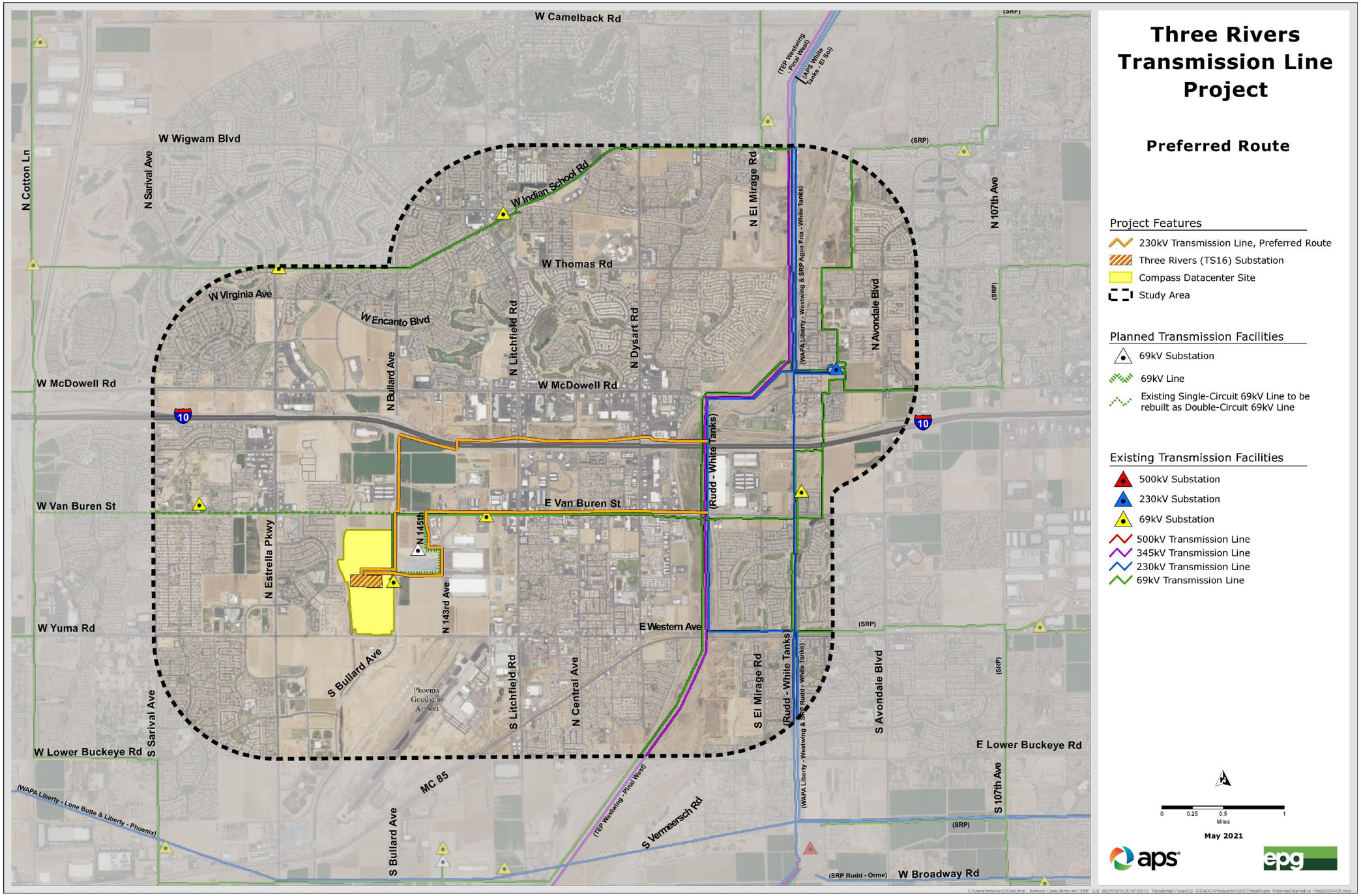

Figure 1. Preferred Route

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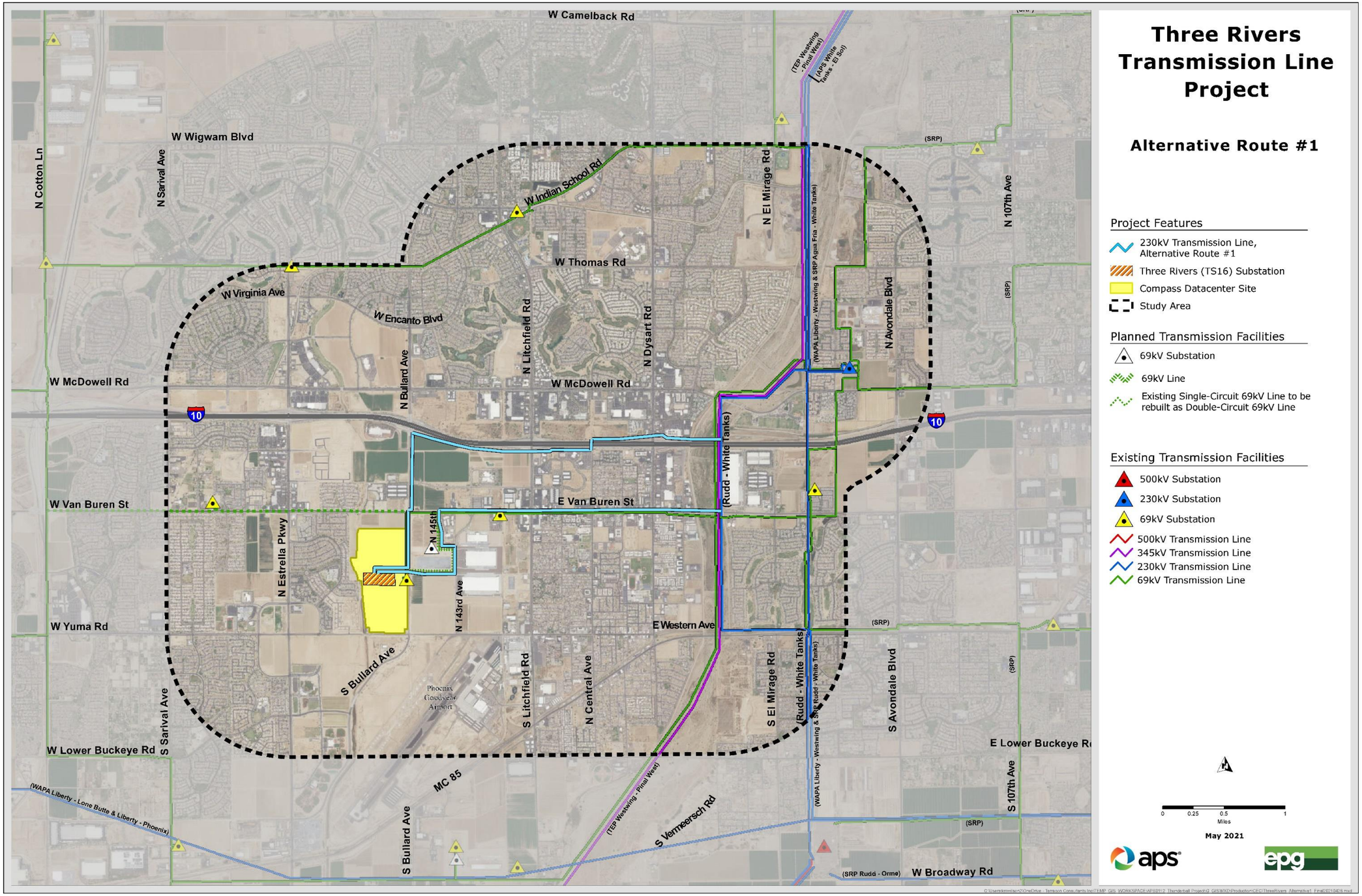

Figure 2. Alternative Route #1

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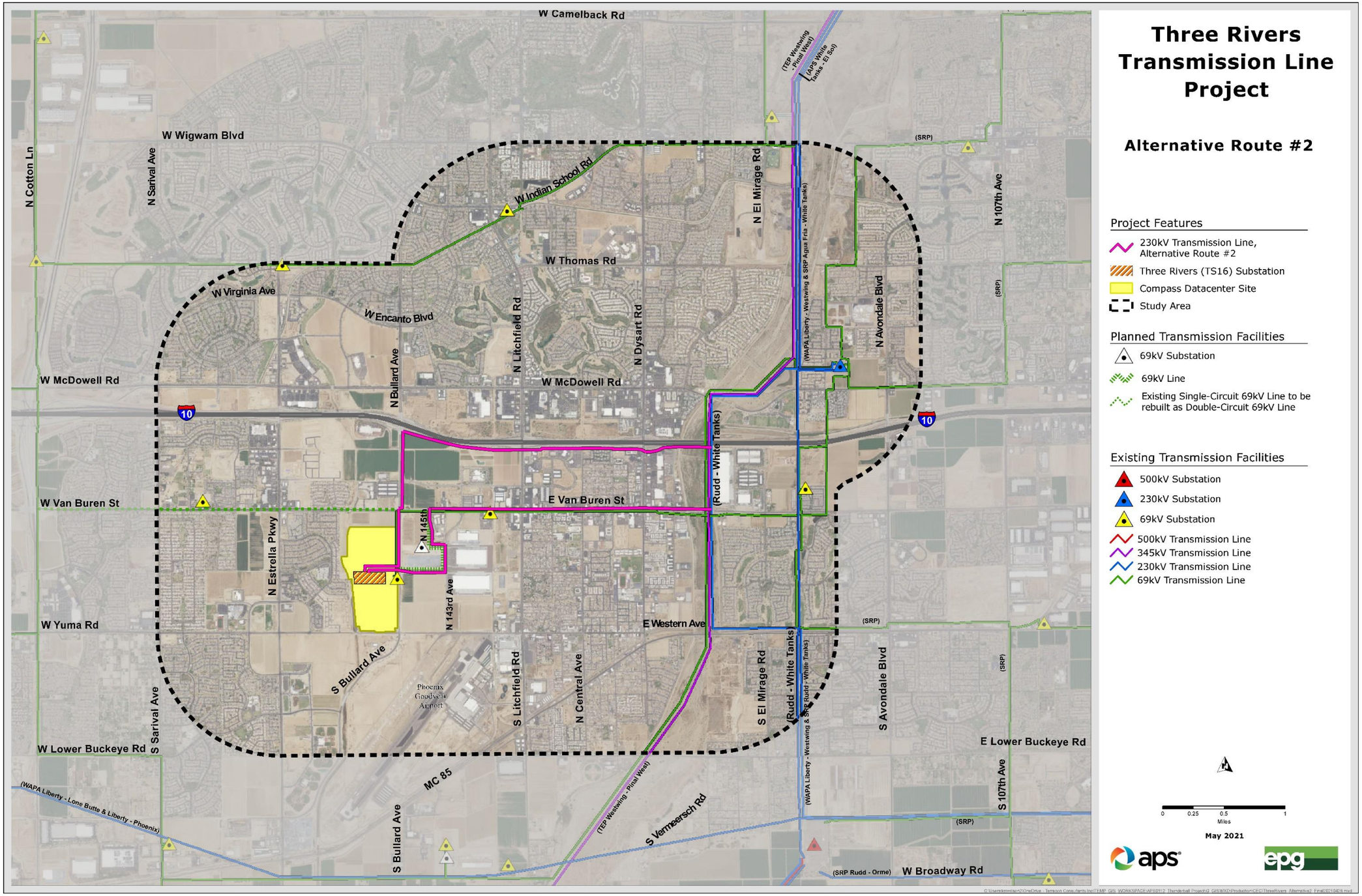

Figure 3. Alternative Route #2

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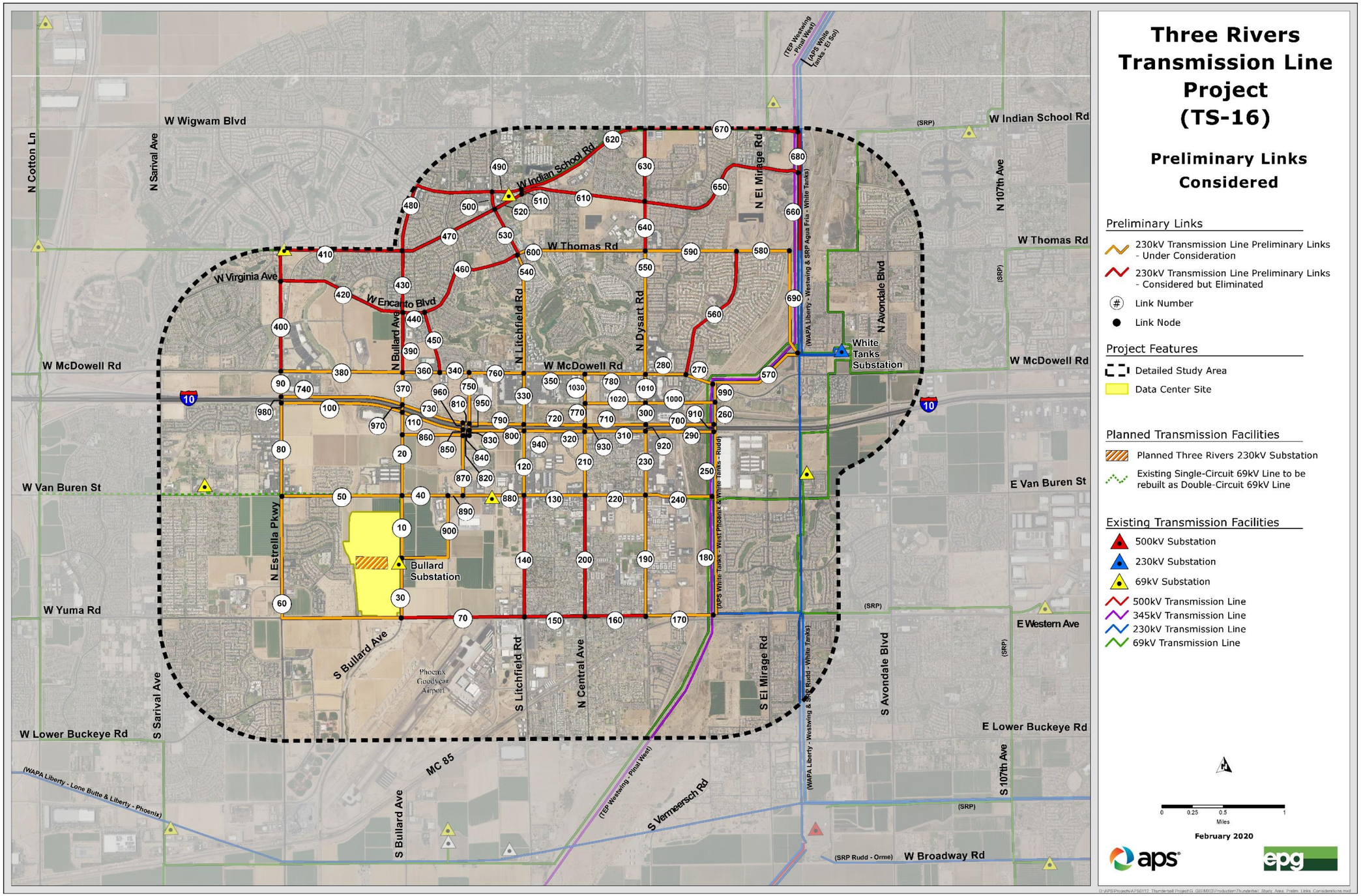

Figure 4. Preliminary Links Considered

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APPLICATION FOR CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

1. Name and address of Applicant:

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

2. Name, address and telephone number of a representative of an applicant who has access to technical knowledge and background information concerning the application in question and who will be available to answer questions or furnish additional information.

Stephen Eich
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 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 is included in Arizona Public Service's Ten-Year Plan that was filed with the Arizona Corporation Commission on January 31, 2020, on June 12, 2019 (supplemental filing), January 31, 2020, and January 29, 2021.

4. Description of the proposed facility, including:

a. Description of the electrical generating plant:

There are no electrical generating plants included in the Project.

b. Description of the 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 lines is 230kV.

(2) Description of proposed structures:

The 230kV transmission lines are anticipated to be constructed using steel monopole structures. The majority of the 230kV structures will be capable of accommodating 69kV underbuild. The structures would be approximately 115 to 195 feet in height. The average span length between structures will range between approximately 500 and 1,200 feet apart, depending on final design. The structures will have a dull 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.

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

(3) Description of proposed switchyards and substations:

The proposed 230kV transmission lines will terminate at the Three Rivers 230kV Substation. Three Rivers Substation will contain typical substation equipment, including dead-end structures, bus work, switches, transformers, breakers, communication equipment, and a control structure.

A conceptual layout of the substation described above is provided in Exhibit G.

(4) Purpose for constructing said transmission line:

The purpose of the Project is to deliver electrical power to the Datacenter site and continue to maintain reliable service for the area.

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 application is made.

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

The Project would include a system of two separate 230kV transmission lines, both connecting the Three Rivers Substation to the existing Rudd-White Tanks 230kV transmission line.

<u>Eastern Geographical Point – Rudd-White Tanks 230kV transmission line</u>

The Project's eastern termini is located along the Agua Fria River, where it connects to the existing Rudd-White Tanks 230kV transmission line at two separate points, both within the West half of Section 2 of Township 1 North, Range 1 West, Gila & Salt River Baseline & Meridian (G&SR B&M).

- The first point of connection would occur near the Interstate 10 (I-10) crossing of the Agua Fria River. Depending on the selected alternative, this connection would occur either to the north of I-10 within parcel 500-02-014D, or to the south of I-10 within parcels 500-02-014D and 500-02-015C.

- The second point of connection would occur at the northeast corner of East Van Buren's crossing of the Agua Fria River within parcel 500-02-015Q.

<u>Western Geographical Point – Three Rivers Substation</u>

The Project's western termini is located one-half mile south of the southwest corner of West Van Buren Street and South Bullard Avenue, where it connects to the Three Rivers Substation. This connection is within parcel 500-10-884 in the East half of Section 08 of Township 1 North, Range 1 West, G&SR B&M.

(2) Straight-line distance between such points:

The straight-line distance between the Project's eastern termini, at the Rudd-White Tanks 230kV transmission line, and its western termini, at the Three Rivers Substation is approximately 3 miles.

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

Table 1. Length of Transmission Line by Alternative	
Transmission Line Alternative	**Total Length of Transmission Line**
Preferred Route	7.55 miles
Alternative Route #1	7.55 miles
Alternative Route #2	7.45 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 right-of-way would be up to 120 feet wide within the requested corridor, which is generally 500 to 1,000 feet wide. The location of the alignment for the right-of-way within this corridor will be determined according to site-specific design, and environmental factors.

(2) Nominal length of spans:

The typical span length between structures will be approximately 500 to 1,200 feet, with variations made to achieve site-specific mitigation objectives or meet site-specific engineering requirements.

(3) Maximum height of structures above ground:

The height of the 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.)

Table 2. Costs of Transmission Line Alternatives				
Transmission Line Alternative	**Total Length of Transmission Line (miles)**	**Rights-of-Way Costs ($ millions)**	**Construction Costs ($ millions)**	**Total Rights-of Way and Construction Costs ($ millions)**
Preferred Route	7.55	10.5	17.5	28
Alternative Route #1	7.55	10.5	17.5	28
Alternative Route #2	7.45	10.4	17.4	27.8

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.)

Preferred Route

The Preferred Route would include a system of two separate 230kV transmission lines, both connecting the Three Rivers Substation to the existing Rudd-White Tanks 230kV transmission line.

First 230kV Transmission Line

The first line of the Preferred Route would originate at the northeast corner of the I-10 crossing of the Agua Fria River, where it would connect to the Rudd-White Tanks 230kV transmission line. From that point the Preferred Route would cross under the Tucson Electric Power (TEP) Westwing-Pinal West 345kV transmission line and over the existing APS Sarival–White Tanks 69kV subtransmission line, both of which run north-south along the Agua Fria River. The route would then proceed west for approximately 2.0 miles along the north side of I-10 where it would cross to the south side of I-10, a crossing distance of 0.1 miles. A depiction of the Preferred Route's crossing of I-10 is provided in Exhibit G-6. The Preferred Route would continue west for 0.5 miles along the south side of I-10 before heading south for 0.6 miles along the east side of North Bullard Avenue. North of the intersection of North Bullard Avenue and West Van Buren Street, the Preferred Route would cross to the west side of North Bullard Avenue. The route would then cross to the south side of West Van Buren Street, where it would be co-located with an existing APS 69kV subtransmission line along the west side of North Bullard Avenue for approximately 0.5 miles. A depiction of the Preferred Route along North Bullard Avenue is provided in Exhibit G-11. At that location, the Preferred Route would head west on the Datacenter's site for 0.25 miles where it would connect into the northern side of the Three Rivers Substation.

Second 230kV Transmission Line

The second 230kV transmission line would originate at the Three Rivers Substation and would be the second circuit on the 230kV poles of the first line, heading east approximately 0.15 miles along the north side of the substation. It would then separate from the 230kV structures of the first line and slightly angle to the southeast approximately 0.2 miles, crossing North Bullard Avenue, where it would be co-located with a planned 69kV subtransmission line, and proceed east for approximately 0.3 miles. At this point, the route would continue north along the west side of North 143rd Avenue for 0.25 miles where the route would head west for 0.1 miles. The route would then proceed north along North 145th Avenue for 0.3 miles. From that point, the Preferred Route would continue east along the north side of East Van Buren Street— co-located with an existing APS 69kV subtransmission line—for approximately 2.3 miles to connect with the Rudd-White Tanks transmission line. Exhibit G-9 depicts the Preferred Route's alignment along West Van Buren Street near North Litchfield Road, and Exhibit G-10 depicts the Preferred Route's alignment along East Van Buren Street near North Dysart Road.

The Preferred Route would be within City of Goodyear's and the City of Avondale's designated growth and redevelopment area. Specifically, development related to business and commerce are highly encouraged by both municipalities in the area from I-10 to Broadway Road and from Bullard Avenue to North Fairway Drive.

The Preferred Route, in comparison to the alternative routes, would cross the fewest parcels. The Preferred Route would result in impacts to open space land along I-10.

Table 3. Number of Parcels Crossed by Each Alternative			
Transmission Line Alternative	**Number of Private Parcels Crossed**	**Number of Public Parcels Crossed**	**Total Number of Parcels Crossed**
Preferred Route	62	7	69
Alternative Route #1	67	5	72
Alternative Route #2	69	4	73

Each alternative route considered in this CEC application would:

- be co-located with planned and existing 69kV transmission lines where possible,
- be compliant with Arizona Department of Transportation (ADOT) controlled access plans,
- be compliant with Federal Aviation Administration (FAA) requirements associated with the Phoenix Goodyear Airport, and
- be supported by the City of Goodyear.

As compared to Alternative Route # 1 and Alternative Route # 2, the Preferred Route would:

- result in the smallest number of private landowners directly affected by the Project,
- minimizes impacts to commercial properties,
- cross parcels designated by the City of Goodyear as a planned park, and
- be supported by the City of Goodyear and the City of Avondale.

Alternative Route #1

The first line of Alternative Route #1 would originate at the same point as the Preferred Route but would differ in the location it crosses I-10. From its connection to the existing Rudd-White Tanks 230kV transmission line, Alternative Route #1 would proceed west for approximately 1.0 miles along the north side of I-10 before heading south to cross I-10, a distance of 0.1 miles (Exhibit G-7). The route would then continue west for approximately 1.0 miles along the south side of I-10 to the same point where the Preferred Route crosses to the south side of I-10. From this point, the alignment of Alternative Route #1 would be identical to that described for the Preferred Route between its crossing of I-10 and the Three Rivers Substation. The second 230kV transmission line portion of Alternative Route #1 would be identical to that described for the Preferred Route between the Three Rivers Substation and its connection to the existing Rudd-White Tanks 230kV transmission line at the northeast intersection of the East Van Buren Street crossing of the Agua Fria River.

Alternative Route #1 would cross more parcels than the Preferred Route but fewer parcels than Alternative Route #2 (see Table 3 under the Preferred Route above).

Alternative Route #1 would:

- minimize the number of public lands directly affected by the Project as compared to the Preferred Route,

- result in impacts to additional commercial properties adjacent to the I-10 corridor as compared to the Preferred Route, and
- minimize the number of private parcels directly affected by the Project as compared to Alternative Route #2.

Alternative Route #2

The first line of Alternative Route #2 differs from the Preferred Route and Alternative Route #1 in its point of origination and in its alignment along I-10. Alternative Route #2 originates at the southeast corner of the I-10 crossing of the Agua Fria River where it would connect to the Rudd-White Tanks 230kV transmission line and proceed west along the south side of the interstate approximately 1.0 miles to the same point where the Alternative Route #1 crosses to the south side of I-10. From this point, the alignment of Alternative Route #2 would be identical to that described for the Alternative Route #1 between its crossing of I-10 and the Three Rivers Substation. All three project routes share the same alignment from the point where the Preferred Route crosses to the south side of I-10 to the Three Rivers Substation site. The second 230kV transmission line portion of Alternative Route #2 would be identical to that described for the Preferred Route between the Three Rivers Substation and its connection to the existing Rudd-White Tanks 230kV transmission line at the northeast intersection of the East Van Buren Street crossing of the Agua Fria River.

Alternative Route #2 crosses more parcels than the Preferred Route and Alternative Route #1. As compared to other alternative routes, Alternative Route #2 would:

- have terrain constraints and a greater number of pinch-points near I-10 and North Dysart Road, increasing the difficulty to construct and maintain the power line; and
- have a higher number of visual impacts to residences along the south side of I-10.

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.).

State lands would be traversed by all Project alternative routes as they cross the Agua Fria River near the I-10, as well as the crossing of I-10 by the Preferred Route and Alternative Route #1. Private land traversed by Project alternative routes include open space lands centered on the Agua Fria River and a City of Goodyear planned park located north of I-10 (Table 4).

Table 4. Percentage of Public and Private Land Crossed by Each Alternative

Transmission Line Alternative	Length of Alternative (miles)	Public			Private	
		Arizona Department of Transportation	Maricopa County	City of Goodyear	City of Goodyear	Avondale
Preferred Route	7.55	6.4%	3.8%	17.5%	65.6%	6.7%
Alternative Route #1	7.55	6.4%	3.8%	6.3%	76.8%	6.7%
Alternative Route #2	7.45	6.4%	3.8%	4.4%	78.9%	6.5%

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

All Project alternative routes are located within the jurisdictions of both the City of Goodyear and the City of Avondale, and no Project alternative routes are contrary to the zoning ordinances or master plans of these jurisdictions.

Project alternative routes cross areas zoned in the City of Goodyear Zoning Code as Agricultural, Commercial, Industrial, Open Space, Public/Quasi-public, and Transportation. The City of Goodyear Zoning Code indicates that public utility facilities are an allowable use within all of these zoning prescriptions but notes that within the areas zoned Agricultural a Use Permit is required; however, Chapter 9 Article 9-9 of the zoning code indicates that "[a]n electric line used for the bulk transmission of electricity between generating or receiving points and major substations or delivery points having a rating of over 12,000 volts…may be installed without such a permit."

Project alternative routes cross areas zoned in the City of Avondale Code as Freeway Commercial and Open Space and Parks. The City of Avondale Zoning Code indicates that public utility facilities are an allowable use within both of these zoning prescriptions.

All Project alternative routes are consistent with the requirements of City of Goodyear's as well as the City of Avondale's jurisdiction.

6. Description of 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 available secondary and field data related to biological resources, visual resources, cultural resources, recreational resources, land use, noise levels, and communications signals 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, C, D, E, F, H, and I to this application.

ARIZONA PUBLIC SERVICE COMPANY

By: /s/Stephen Eich
Stephen Eich, APS Transmission and Facility Siting Consultant

I HEREBY CERTIFY that on this 24th day of August 2021, I have delivered to the Arizona Corporation Commission twenty-five (25) copies of this application for a Certificate of Environmental Compatibility.

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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.*

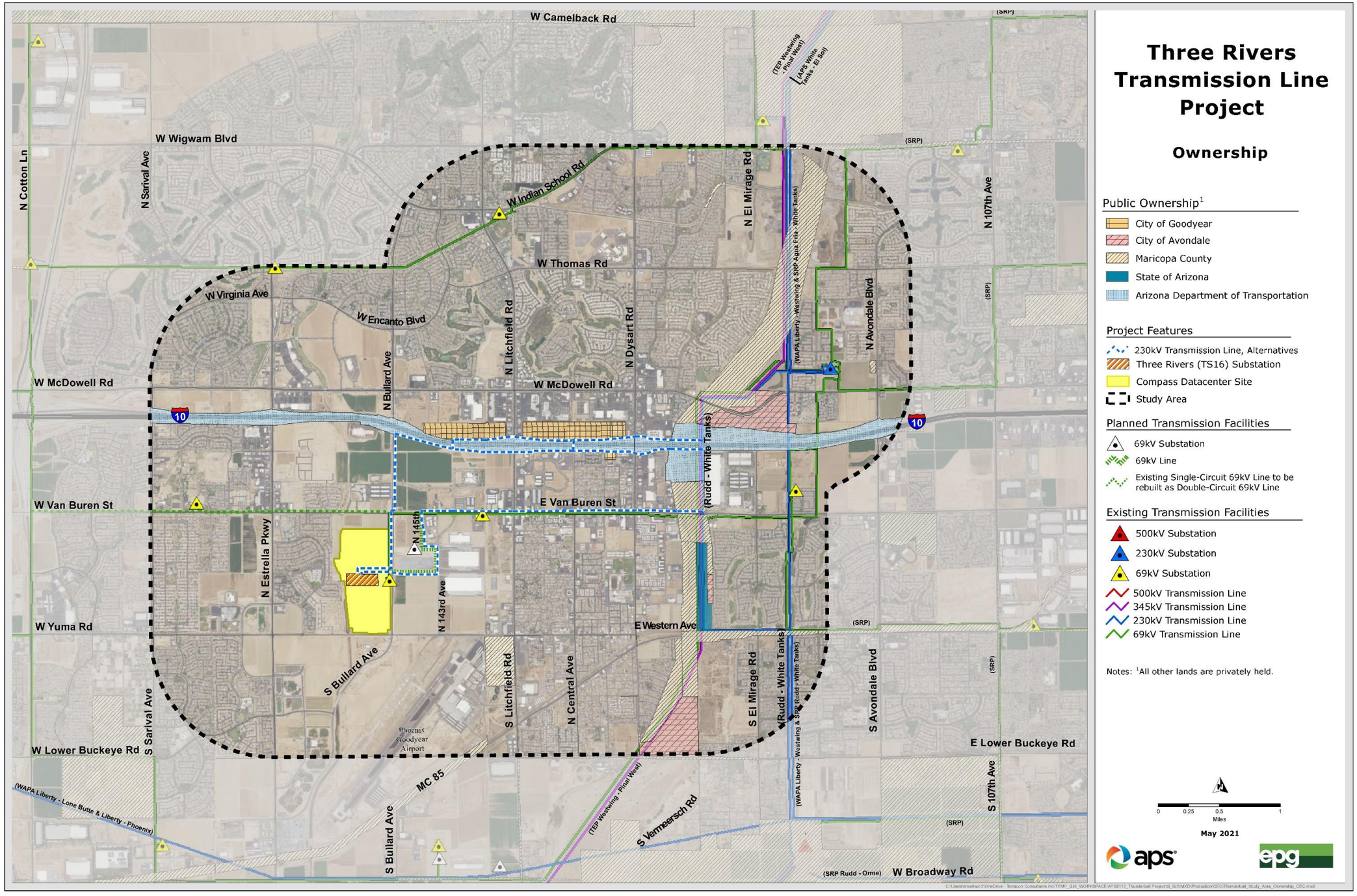
INTRODUCTION

The Project within Maricopa County and spans the boundary that divides the cities of Goodyear and Avondale. The Study Area is bound by West Indian School Road to the north, by Lower Buckeye Road to the south, by South Sarival Avenue to the west, and by South Avondale Boulevard to the east. This boundary was developed to encompass the many alternative links, which were analyzed as part of the Three Rivers 230kV Transmission Line Project.

LAND USE OVERVIEW

The following exhibits are required by the Arizona Administrative Code R14-3-219 to support the land use studies conducted for this application:

- Exhibit A-1 illustrates land ownership within the Study Area
- Exhibit A-2 illustrates jurisdiction encompassing the Study Area
- Exhibit A-3 illustrates existing land use within the Study Area
- Exhibit A-4 illustrates planned land use within the Study Area



Three Rivers Transmission Line Project

Ownership

Public Ownership[1]

- City of Goodyear
- City of Avondale
- Maricopa County
- State of Arizona
- Arizona Department of Transportation

Project Features

- 230kV Transmission Line, Alternatives
- Three Rivers (TS16) Substation
- Compass Datacenter Site
- Study Area

Planned Transmission Facilities

- 69kV Substation
- 69kV Line
- Existing Single-Circuit 69kV Line to be rebuilt as Double-Circuit 69kV Line

Existing Transmission Facilities

- 500kV Substation
- 230kV Substation
- 69kV Substation
- 500kV Transmission Line
- 345kV Transmission Line
- 230kV Transmission Line
- 69kV Transmission Line

Notes: [1]All other lands are privately held.

0 0.25 0.5 1 Miles

May 2021

Exhibit A-1. Land Ownership for Areas within 2 miles of the Study Area

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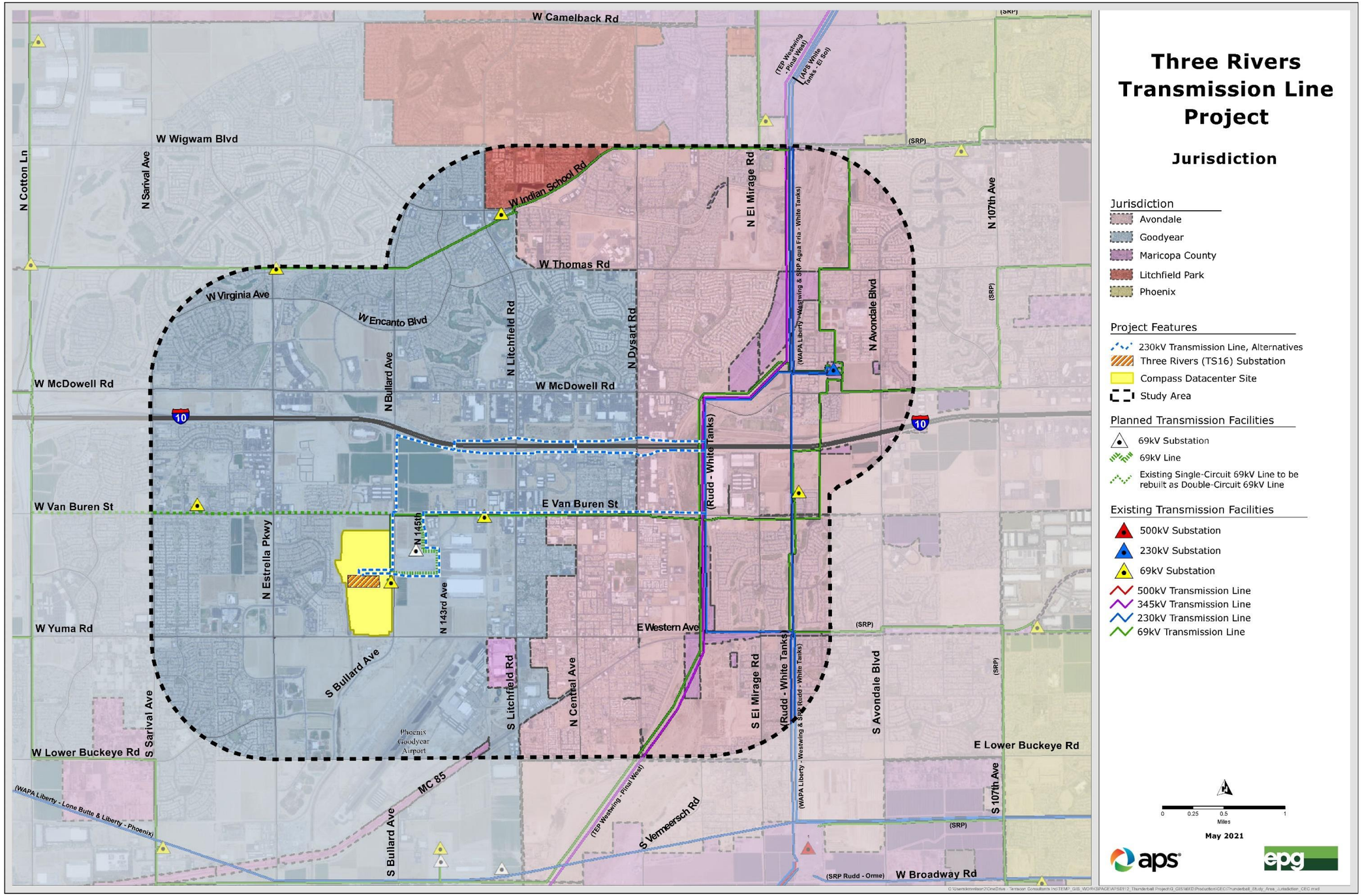

Exhibit A-2. Jurisdiction for Areas within 2 miles of the Study Area

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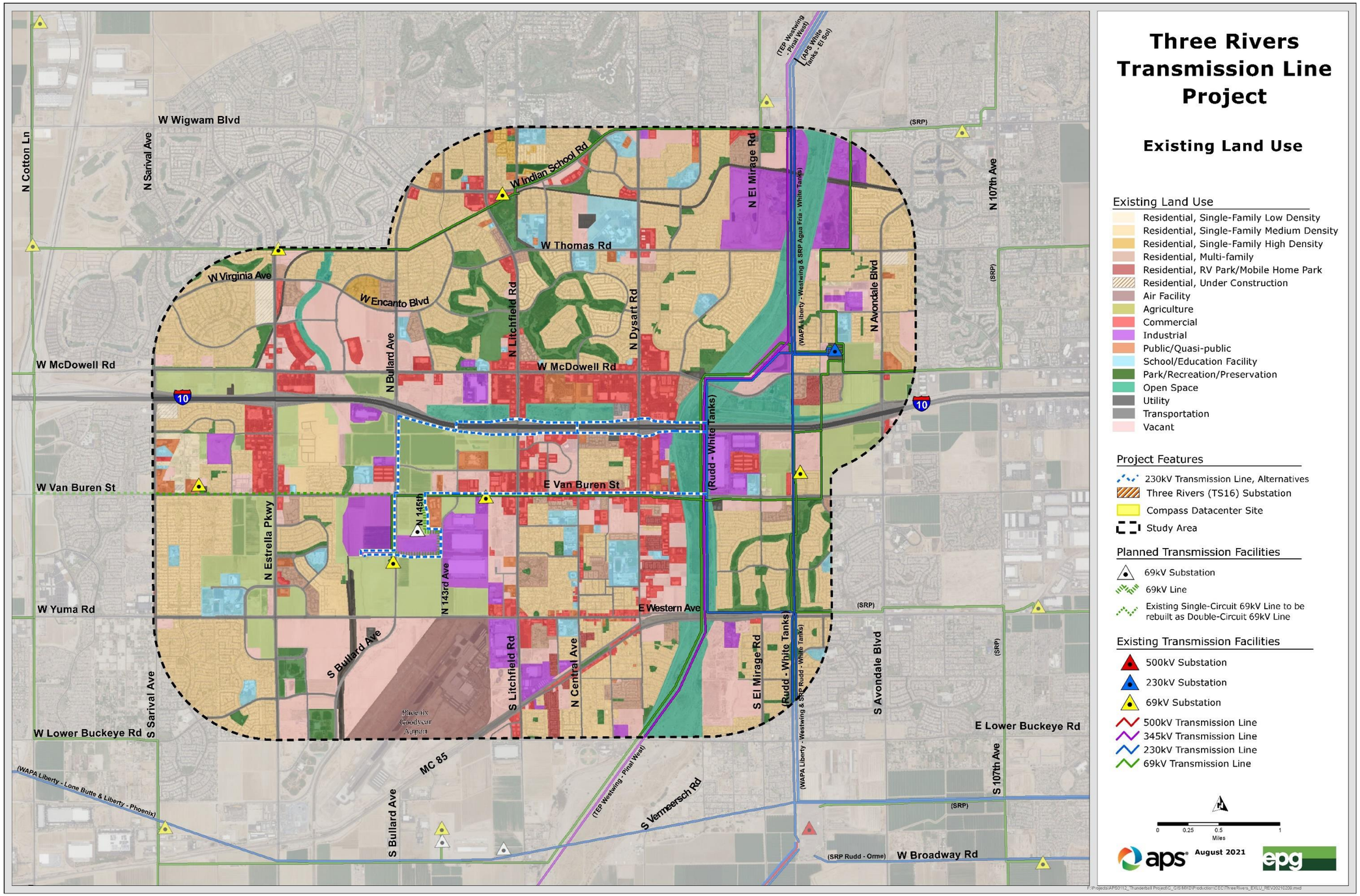

Exhibit A-3. Existing Land Use within the Study Area

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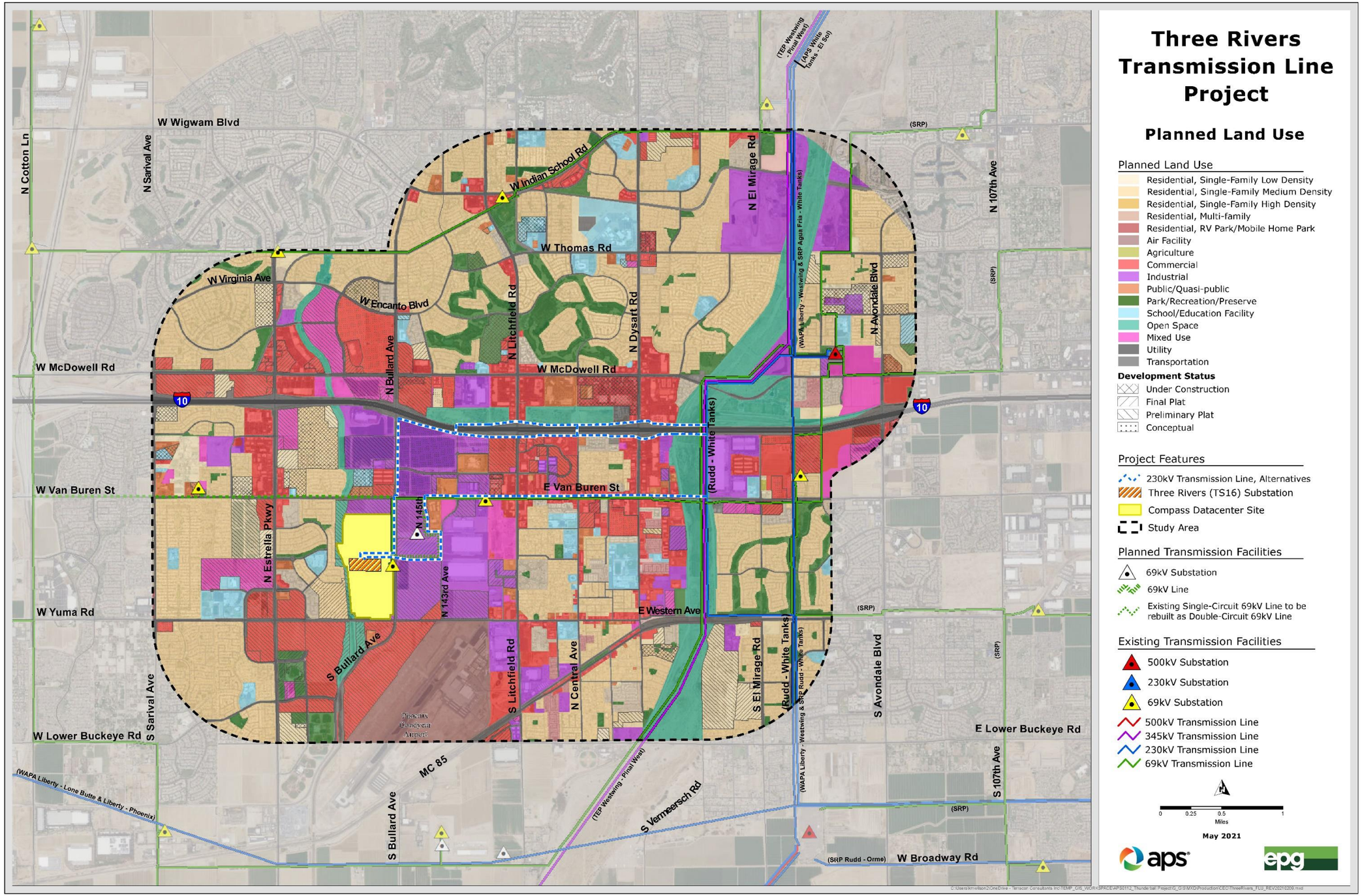

Exhibit A-4. Planned Land Use within the Study Area

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Exhibit B – Environmental Reports

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

EPG conducted environmental analysis for the Project including an evaluation of land use, biological, visual, cultural, and recreation resources within the Study Area. Below is a detailed inventory of the existing and planned land uses and potential impacts to those uses associated with the Preferred Route and two alternative routes. The biological, visual, cultural, and recreation resource studies are discussed in detail in Exhibits C, D, E, and F.

LAND USE

Inventory

A land use inventory was completed to identify, and map existing and planned land uses within the Study Area. Existing and planned land use data were compiled from various sources including the City of Goodyear and City of Avondale general plans, Maricopa County Comprehensive Plan, as well as various city and county planning documents. These data were compiled for the Study Area and displayed over aerial imagery for a preliminary mapping inventory of land use resources. Initial field investigations were conducted in November and December 2020 and included photo documentation and geospatial data collection to verify and refine the preliminary land use inventory mapping. An additional site visit and update of aerial imagery and geospatial data was conducted in March 2021 to confirm land use status. In addition, governmental agencies within the Study Area were contacted for information regarding development plans and known planned projects. This information was then compiled and mapped to complete the inventory of existing and planned land uses (see Exhibits A-3 and A-4). The following is a summary of the results.

Following are the primary planning documents that prescribe land uses in the Study Area (see References on page B-8):

- Goodyear 2025 – City of Goodyear General Plan, adopted 2014
- Goodyear Parks, Recreation, Trails and Open Space Master Plan, July 2014
- Avondale General Plan 2030, adopted 2012
- Maricopa County Vision 2030 Comprehensive Plan, adopted 2016
- Phoenix Goodyear Airport Master Plan 2018 Update

JURISDICTION AND LAND OWNERSHIP

The Study Area is in Maricopa County and is centered on the boundary between the City of Goodyear and the City of Avondale near Interstate 10 (I-10) (see Exhibits A-1 and A-2). While no alternative is within

City of Litchfield Park jurisdiction, the Study Area also includes a portion of land under this jurisdiction (see Exhibit A-2).

The Datacenter site is located on privately owned property, under the jurisdiction of the City of Goodyear. At its nearest point, the Datacenter site is approximately 2 miles west of the boundary between the City Goodyear and the City of Avondale. The Project will be located within the City of Goodyear and the City of Avondale.

EXISTING LAND USE

Existing land uses are mapped on Exhibit A-3. Overall, the Study Area can be described as a well-developed mix of community commercial and suburban residential development that includes existing utility infrastructure, industrial facilities, and scattered agricultural uses. These existing land uses are described below.

Air Facility – The Phoenix Goodyear Airport is a prominent land use and defining feature located in the southern portion of the Study Area. The airport does not operate commercial passenger flights but does operate more than 120,000 flights annually (Phoenix Goodyear Airport 2018). The facility operates under the jurisdiction of the City of Phoenix and the FAA and has operational boundaries that extend into the surrounding airspace, which limit building/structure heights in the vicinity of the airport.

Agriculture – A small amount of agriculture land exists within the Study Area adjacent to the Three Rivers Substation. The majority of agricultural lands are being developed to either commercial or industrial uses.

Commercial – Commercial land uses are found in the Study Area and are primarily found along I-10, East and West Van Buren Street, North Litchfield Road, Yuma Road, with a heavy concentration along North Dysart Road and West McDowell Road. Commercial land uses are quite varied and include big box retailers, car dealerships, restaurants, gas stations, grocery stores, small office complexes, auto shops, restaurants, and other businesses.

Education – There are 13 schools in the Study Area, including five K-8 schools, two elementary schools, two middle schools, three high schools, and one community college. These schools are generally located south and west of the Project routes. The nearest school, Avondale Middle School, is located on North Central Avenue, approximately 0.15 miles south of West Van Buren Street. Development exists between the Project routes and Avondale Middle School, including commercial and multi-family residential development along West Van Buren Street.

Industrial – Industrial land use in the Study Area includes large-scale data centers, storage facilities, distribution centers, and various industrial activities associated with the Phoenix Goodyear Airport.

Public/Quasi-Public – Public/quasi-public land use in the Study Area includes the City of Goodyear Municipal Complex, ADOT commercial driver's license testing center, Maricopa County Sheriff's Office, a church, and a charter school for children with Autism. The City of Goodyear Municipal his complex houses such services as the City of Goodyear's fire station, police station, library, and municipal court.
Recreation/Open Space – There are several community parks, public neighborhood parks, and open space areas located in the Study Area. Some private neighborhood parks are located within master planned communities. The closest master planned community is Centerra, which includes a Homeowners Association (HOA) common area located 0.3 miles west of the Three Rivers Substation. Public neighborhood parks within the Study Area include De Paz Park, Loma Linda Park, Fred Campbell Park, and Friendship Park. The Agua Fria River provides open space recreational opportunities/activities in the eastern portion of the Project area.

Residential – Residential land uses are present throughout the Study Area. Medium density residential land uses are the most prevalent residential use. Multiple high density residential and multi-family developments are scattered throughout the Study Area, primarily within the commercial areas of the City of Goodyear.

Transportation – Transportation facilities in the Study Area include a mix of state, local, county, and private roadways. Primary roadways in proximity to the Project are I-10, East and West Van Buren Street, North Bullard Avenue, North Litchfield Road, and North Dysart Road. No bus stations are present, but many bus stops are present along major roadways. In addition to these facilities is the Phoenix Goodyear Airport discussed earlier.

Utilities - Utilities in the Study Area include multiple high voltage transmission lines, various distribution lines, communications facilities, flood control facilities, and canals. Six individual high voltage transmission alignments are located approximately 3 miles to the east of the Datacenter site. These transmission lines vary in voltage from 69kV, 230kV, and 345kV and are owned by several utilities, including APS, Salt River Project, TEP, and Western Area Power Authority.

Vacant – Numerous large tracts of privately owned vacant undeveloped land are in the Study Area.

PLANNED LAND USE

Planned land uses in the Study Area are documented in the City of Goodyear's Comprehensive Plan and the City of Avondale's General Plan and are mapped on Exhibit A-4.

The region is rapidly developing, and a variety of the planned land uses are at various stages of the development process—from conceptual developments, those that have been platted, to those under construction. The Goodyear 2025 General Plan identifies the Study Area as being located within a designated Redevelopment Area where growth and redevelopment are highly encouraged. The Study Area also includes two of the three designated Job Centers, where business and commerce development are highly encouraged. One designated Job Center is located along I-10 and the other surrounds the Phoenix Goodyear Airport property. Much of the Job Center surrounding the airport is designated for industrial uses. Between the Gila River and I-10, the City of Goodyear anticipates more than 53,000 jobs at build-out, which the city estimates to occur between 2035 and 2040 (City of Goodyear 2014a).

Similarly, the City of Avondale has designated the area between West McDowell Road and West Van Buren Street, centered on I-10, as a Growth Area throughout the municipal planning area. Specifically, the City of Avondale's General Plan designates lands in the Study Area as Freeway Commercial to the north of I-10, Urban Commercial along North Dysart Road from I-10 to West Van Buren Street, and Business Park along the western edge of the Agua Fria River from I-10 to West Van Buren Street.

The initial development phase of the Datacenter is presently served via 69kV infrastructure. While the 69kV components of the Three Rivers Substation are currently energized and serving customer load, construction of 230kV facilities is planned to begin in 2022 with an expected in-service date of 2023. Build-out of the Datacenter will require 230kV electrical infrastructure as described in detail below. The Project is needed for these planned land uses.

The Final Environmental Assessment and Finding of No Significant Impacts was issued in November 2019 for State Route 30 (SR30), a proposed new freeway corridor that would serve as an alternate route to I-10. Construction of the SR30 project is scheduled to begin in 2025 (ADOT 2019). The SR30 final alignment is located south of the Study Area, just north of the Gila River, approximately 2.75 miles south of the alternative routes.

IMPACT ASSESSMENT METHODS

Land use impacts may be defined primarily as restrictions on a land use, such as limitations on allowed uses within the right-of-way that would result from the construction or operation of the Project. Typically, restrictions on a land use would result from right-of-way or easement acquisition across a property. All route alternatives would cross both public and private land and would have aerial crossing of roads under county or city jurisdiction. Both the Preferred Route and Alternative Route #1 would include an aerial crossing of I-10. APS has coordinated with ADOT to avoid any potential conflicts with the controlled access along I-10. APS has requested 300-foot-wide corridors for the placement of an up to 120-foot-wide right-of-way within the corridor where controlled access is not present.

To assess Project impacts to land use, impact levels were assigned to each land use category based on their sensitivity to the introduction of a new transmission line. Examples of impact levels include:

1. Structure placement and right-of-way acquisition across residential land uses, resulting in high impact.

2. Structure placement and right-of-way acquisition across existing commercial, public, or recreation/open space land uses, resulting in moderate impact.

3. Structure placement and right-of-way acquisition across industrial land uses, resulting in low impact.

In locations where pole placement would occur within existing utility rights-of-way and the proposed transmission lines would be co-located with existing transmission or sub-transmission structures, impact levels would be lessened.

RESULTS

To minimize land use impacts, the Project routes were sited to follow existing linear features, such as existing distribution or transmission lines, roadways, canal laterals, existing rights-of-way, or on the edge of properties where feasible. The use of single-pole structures would minimize potential effects to land uses where structure footprints could directly interfere with land use activities.

Additionally, APS is coordinating with the Phoenix Goodyear Airport and the FAA regarding compliance with airspace restrictions related to the Phoenix Goodyear Airport. APS requested a preliminary Project review from the FAA as part of a civilian hypothetical review (14 Code of Federal Regulations Part 77.19), which indicated that Project structures would not exceed height restrictions related to the Phoenix Goodyear Airport's horizontal surface elevation limit. Further, APS will follow the FAA Obstruction Evaluation/Airport Airspace Analysis process and will file a Notice of Proposed Construction or Alteration with the FAA for the selected Project route, once determined.

PREFERRED ROUTE

The Preferred Route would originate at the northeast corner of the I-10 crossing of the Agua Fria River, where it would connect to the Rudd-White Tanks 230kV transmission line. From that point the Preferred Route would cross under the TEP Westwing-Pinal West 345kV transmission line and over the existing APS Sarival – White Tanks 69kV subtransmission line, both of which run north-south along the Agua Fria River. The route would then proceed west for approximately 2.0 miles along the north side of I-10 where it would cross to the south side of I-10, a crossing distance of 0.1 miles. A depiction of the Preferred Route's crossing of I-10 is provided in Exhibit G-6. The Preferred Route would continue west for 0.5 miles along the south

side of I-10 before heading south for 0.6 miles along the east side of North Bullard Avenue. North of the intersection of North Bullard Avenue and West Van Buren Street, the Preferred Route would cross to the west side of North Bullard Avenue. The route would then cross to the south side of West Van Buren Street, where it would be co-located with an existing APS 69kV subtransmission line along the west side of North Bullard Avenue for approximately 0.5 miles A depiction of the Preferred Route along North Bullard Avenue is provided in Exhibit G-11. At that location, the Preferred Route would head west on the Datacenter site for 0.25 miles where it would connect into the northern side of the Three Rivers Substation.

From this general location within the Three Rivers Substation, the Preferred Route would exit the substation to the north and co-locate with the existing 230kV poles, heading east approximately 0.15 miles along the north side of the substation. It would then separate from the existing 230kV structures and slightly angle to the southeast approximately 0.2 miles, crossing North Bullard Avenue, where it would be co-located with a planned 69kV subtransmission line, and proceed east for approximately 0.3 miles. At this point, the route would continue north along the west side of North 143rd Avenue for 0.25 miles where the route would head west for 0.1 miles. The route would then proceed north along North 145th Avenue for 0.3 miles. From that point, the Preferred Route would continue east along the north side of East Van Buren Street—co-located with an existing APS 69kV subtransmission line—for approximately 2.3 miles to connect with the Rudd-White Tanks transmission line. Exhibit G-9 depicts the Preferred Route's alignment along West Van Buren Street near North Litchfield Road, and Exhibit G-10 depicts the Preferred Route's alignment along East Van Buren Street near North Dysart Road..

The Preferred Route crosses a total of 69 parcels, of which 62 are privately owned and 7 are public properties. The majority of parcels crossed are commercially developed parcels along Van Buren Street.

The Preferred Route would result in the following moderate impacts to existing land uses where it crosses:

- 2.15 miles of agriculture land use
- 1.55 miles of commercial land use along I-10 and Van Buren Road
- 2.00 miles of open space along the north side of I-10 and along Agua Fria River
- 0.15 miles of public/quasi-public

The Preferred Route would result in the following low impacts to existing land uses where it crosses:

- 1.15 miles of industrial land uses within and around the Datacenter site
- 0.45 miles of low impact to vacant land
- 0.10 miles of transportation related land use (I-10 crossing)

The Preferred Route would be co-located with the existing 69kV infrastructure along Van Buren Street. The City of Goodyear General Plan identifies the open space land along the north side of I-10 as a planned community wellness park. All agriculture land use crossed by project routes is planned industrial land use.

ALTERNATIVE ROUTE #1

Alternative Route #1 would originate at the same point as the Preferred Route but would differ in the location it crosses I-10. From its connection to the existing Rudd-White Tanks 230kV transmission line, Alternative Route #1 would proceed west for approximately 1.0 miles along the north side of I-10 before heading south to cross I-10, a distance of 0.1 miles (Exhibit G-7). The route would then continue west for approximately 1.0 miles along the south side of I-10 to the same point where the Preferred Route crosses to the south side of I-10. From this point, the alignment of Alternative Route #1 would be identical to that described for the Preferred Route between its crossing of I-10 and the Three Rivers Substation. The second 230kV transmission line portion of Alternative Route #1 would be identical to that described for the

Preferred Route between the Three Rivers Substation and its connection to the existing Rudd-White Tanks 230kV transmission line at the northeast intersection of the East Van Buren Street crossing of the Agua Fria River.

Alternative Route #1 would cross more parcels than the Preferred Route but fewer than Alternative Route #2, with a total of 72 parcels, of which 67 are privately owned and 5 are public properties. The majority of parcels crossed are commercially developed parcels along Van Buren Street.

Alternative Route #1 would result in the following moderate impacts to existing land uses where it crosses:

- 2.65 miles of agriculture land use
- 1.85 miles of commercial land use along I-10 and Van Buren Road
- 0.85 miles of open space along the north side of I-10 and along Agua Fria River
- 0.15 miles of public/quasi-public

Alternative Route #1 would result in the following low impacts to existing land uses where it crosses:

- 1.20 miles of industrial land uses within and around the Datacenter site
- 0.75 miles of low impact to vacant land
- 0.10 miles of transportation related land use (I-10 crossing)

ALTERNATIVE ROUTE #2

Alternative Route #2 differs from the Preferred Route and Alternative Route #1 in its point of origination and in its alignment along I-10. Alternative Route #2 originates at the southeast corner of the I-10 crossing of the Agua Fria River where it would connect to the Rudd-White Tanks 230kV transmission line and proceed west along the south side of the interstate approximately 1.0 miles to the same point where the Alternative Route #1 crosses to the south side of I-10. From this point, the alignment of Alternative Route #2 would be identical to that described for the Alternative Route #1 between its crossing of I-10 and the Three Rivers Substation. All three project routes share the same alignment from the point where the Preferred Route crosses to the south side of I-10 to the Three Rivers Substation site. The second 230kV transmission line portion of Alternative Route #2 would be identical to that described for the Preferred Route between the Three Rivers Substation and its connection to the existing Rudd-White Tanks 230kV transmission line at the northeast intersection of the East Van Buren Street crossing of the Agua Fria River.

Alternative Route #2 crosses more parcels than the Preferred Route and Alternative Route #1, with a total of 73 parcels, of which 69 are privately owned and 4 are public properties.

Alternative Route #2 would result in the following moderate impacts to existing land uses where it crosses:

- 2.65 miles of agriculture land use
- 1.75 miles of commercial land use along I-10 and Van Buren Road
- 0.55 miles of open space along the Agua Fria River
- 0.25 miles of public/quasi-public

Alternative Route #2 would result in the following low impacts to existing land uses where it crosses:

- 1.25 miles of industrial land uses within and around the Datacenter site
- 0.90 miles of low impact to vacant land
- 0.10 miles of low impact to utility

CONCLUSIONS

The Preferred Route would minimize the number of private landowners directly affected by the Project, will be compliant with ADOT controlled access plans, will be compliant with FAA requirements associated with the Phoenix Goodyear Airport, and is supported by the City of Goodyear. Also, the Preferred Route would be consistent with designated growth and redevelopment area plans for the Cities of Goodyear and Avondale. Both municipalities encourage business and commerce development throughout the Study Area.

REFERENCES

Arizona Department of Transportation (ADOT). 2019. Final Environmental Assessment and Finding of No Significant Impact. Available at: https://azdot.gov/planning/transportation-studies/sr-30-loop-303-loop-202-study/documents-sr-30-loop-303-loop-202, accessed February 2020, 2019.

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Phoenix Goodyear Airport. 2018. Master Plan Update. Available at: https://apps.azdot.gov/files/Airports/MP_PDF/PHX_Goodyear/GYR-Final-MP-May-2018.pdf, accessed February 2020.

Exhibit C – Special-Status Species and Species of Concern

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

INTRODUCTION

Exhibit C addresses species protected by federal or state laws and policies because of their conservation status. Exhibit C also addresses whether any areas protected for conservation purposes (i.e., areas of biological wealth) are present in or near the vicinity of the Project. The Project vicinity, or Study Area, is generally defined as all areas within a 2-mile buffer of the Project alternative routes identified in this application, including the Datacenter site. The Study Area is where all ground disturbance associated with the Project would occur. However, some databases used to review existing data in the region do not return results based strictly on a 2-mile buffer. Exhibit C addresses the complete results of those database queries and discusses whether identified species or protected areas may be present or affected by the Project.

LAWS AND POLICIES

Laws and policies protecting rare species on private lands in Arizona include the following:

- The U.S. Fish and Wildlife Service administers the Endangered Species Act of 1973 (ESA), as amended. The ESA protects species listed as threatened or endangered from "take" (generally, directly or indirectly harming or disturbing listed species). Prior to being listed as threatened or endangered, a proposed listing rule is issued. When agency priorities take precedence over certain listing actions, species may also be designated as candidates, to be evaluated and potentially listed when no longer precluded by higher-priority actions. The ESA also allows for the designation of critical habitat (areas essential to the survival and recovery of listed species), although designation of critical habitat is not always required when a species is listed. 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 Arizona Game and Fish Department (AGFD) manages and conserves wildlife in Arizona. Nearly all take of wildlife is regulated in some manner through the hunting and fishing license system. Arizona does not have a counterpart to the federal ESA, but a list of rare species (Wildlife Species of Concern) was created in 1996 without creating any specific statutory protections for those species. However, hunting regulations are used to provide some protection, and no hunting or capture of any of those species is currently allowed.
- Arizona prepared a Comprehensive Wildlife Conservation Strategy in 2006 (AGFD 2006), later renamed State Wildlife Action Plan (SWAP), through a state-federal partnership and grant program. The SWAP was updated in 2012 (AGFD 2012). The SWAP identifies Species of Greatest Conservation Need (SGCN), in several tiers. Tier 1A includes ESA-listed species and other rare species. Tier 1B includes species that are not ESA-listed but are regionally rare or declining, species

with a United States 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 includes species with substantial data gaps and unknown conservation status but conservation concern may be warranted. Other tiers include species that are common, widespread, or are in stable populations. Exhibit C addresses Tier 1A and 1B SGCNs. Exhibit C does not address Tier 1C SGCNs, because the lack of conservation information does not necessarily indicate that those species meet the definition of "rare or endangered species" included in the statute. All SGCNs except Tiers 1A and 1B are addressed collectively with other wildlife in Exhibit D. Species identified as Wildlife Species of Concern in 1996 are included as SGCNs in the SWAP and are addressed as SGCNs in Table C-1 and the discussion in Exhibit C.

- Native plants in Arizona are managed by the Arizona Department of Agriculture, which regulates harvest and salvage. Harvest or salvage of most plant species may be permitted or required, and fees may be assessed on state land. Plants listed as Highly Safeguarded may only be taken or salvaged for scientific or conservation purposes. No Highly Safeguarded plant species, or any other rare plant species, are present in the Study Area.

No other federal or state agency has jurisdiction over sensitive biological resources in the Study Area.

INVENTORY

On February 15, 2021, EPG requested an automated database query report with SGCNs that may be present in the Study Area. The AGFD's database query is based on an additional 1-mile buffer of the Study Area, which may result in the inclusion of habitat types and species not present in the 2-mile buffer used for the remainder of the analysis. However, Table C-1 addresses the full results of that query. The U.S. Fish and Wildlife Service maintains an online database, the Information for Planning and Conservation (IPaC) database (https://ecos.fws.gov/ipac/), that generates lists of ESA-listed species and their critical habitat that may be present in an area subject to a query. The IPaC query results for the Study Area are attached to this exhibit.

A biologist from EPG visited the Study Area on February 19, 2021. The biologist conducted a reconnaissance-level survey to document existing conditions on the site and to note whether habitat features important to any special-status species were present in the Study Area.

PROTECTED AREAS

The Study Area does not include any areas protected for the benefit of wildlife, or other important wildlife concentration areas that could be considered Areas of Biological Wealth.

SPECIAL-STATUS SPECIES

Table C-1 addresses species listed in the reports from the AGFD and IPaC databases. Table C-1 provides summary information, including notes on whether each species may be present in the Study Area. If a species may be present, Exhibit C includes a discussion of the species and how it may be affected by the Project.

Because the Study Area has been previously subjected to ground disturbance, no undisturbed native vegetation remains. Some native plant species are present in disturbed areas and the floodplain of the Agua Fria, but no intact native vegetation communities are present. Most sensitive species in Table C-1 are dependent on native vegetation and are not present in the Study Area. However, some species, including

some bats and migratory birds, can live or forage in modified habitat such as that within the Study Area, and Table C-1 addresses the potential for those species to be present.

The discussions of species and potential impacts of the Project addresses species with similar habitat uses or types of impacts collectively wherever possible.

Determinations in Table C-1 regarding the potential presence in the Study Area are based on conditions observed during a reconnaissance survey, as well as information from the following sources:

- Mammals (AGFD Heritage Database Management System [Hoffmeister 1986])
- Birds (eBird 2012, Sibley 2014)
- Reptiles (Brennan and Holycross 2006, Jones and Lovich 2009)
- Amphibians (Brennan and Holycross 2006)
- Fish (Minckley and Marsh 2009)

Eight species of special-status bats were identified as having records near the Study Area, discussed together here because the potential issues are similar for all species. The Study Area does not appear to support suitable roost habitat for any bat species. However, the surrounding region likely includes features used by roosting bats, such as bridges, old buildings, and large trees. Many desert bat species prefer to forage over water, where insect prey is most available. Agricultural areas often also support high densities of insects and can be an important resource for foraging bats. Because some bat species travel long distances to forage, the Study Area likely supports foraging bats regardless of the absence of roost sites within the Study Area. Important foraging habitat is also present along the Gila River and associated wetlands south of the Study Area.

Special-status terrestrial mammals include the kit fox. The kit fox is native to the surrounding Sonoran Desert. Kit foxes may occasionally occur in or near areas with human activity. Because the Study Area is isolated and surrounded by farmland, native mammal dispersal from surrounding natural areas is likely to be infrequent but could occur.

Special-status raptors, including golden eagles, ferruginous hawks, and bald eagles, are not likely to nest in the Study Area. Golden eagles and bald eagles select nest sites without human disturbance, and the Study Area is surrounded by agricultural activities and rural residences. Ferruginous hawks do not nest in the Sonoran Desert but spend portions of the winter in farmland surrounding the Study Area. However, all species forage widely and may occasionally pass through or hunt prey in or near the Study Area. Burrowing owls use or modify existing small mammal burrows in areas with soft soils and open vegetation structure, including grasslands, desertscrub, and agricultural areas.

Special-status waterbirds include the wood duck and American bittern. The wood duck and American bittern prefer bodies of water with vegetation, although either species may occasionally be observed in non-typical habitat. These species may only be present in manmade bodies of water in the Study Area.

Special-status birds, other than those previously discussed, include several species of passerines (songbirds) that may occasionally occur in the Study Area or the surrounding region. Some species, such as the Pacific wren, Lincoln's sparrow, and Savannah sparrow, only occur in the Sonoran Desert during winter or migration, and do not nest in the region. Table C-1 notes habitats used by these species during winter or migration. Other special-status birds are associated with riparian areas and may occur in the Study Area along the Gila River away from the Study Area. Critical habitat has been proposed for the yellow-billed cuckoo outside the Study Area along the Gila River. Most other species listed in Table C-1 nest or are year-round residents in the region and regularly use human-modified landscapes or are occasionally observed in those landscapes. The level of disturbance and human activity may preclude some species from

successfully nesting in the Study Area, but these species may still occasionally forage or disperse through the Study Area.

The Sonoran Desert Toad is the only special-status amphibian that may be present in the Study Area. This species depends on pools formed after summer rains for reproduction but can also use manmade bodies of water if predators are absent. Sonoran Desert toads spend most of the year beneath ground and are only surface-active during and shortly before the midsummer monsoon season.

Special-status fish were historically present in the Gila River and its tributaries such as the Agua Fria in the Study Area. Records of past occurrences resulted in many of these species being identified by the queries that supported Table C-1. However, permanent water in the Study Area now supports many species of introduced fish, including aggressive predators and competitors of native fish. No species of native fish are likely to be present in any of the bodies of water in the Study Area.

ASSESSMENT OF POTENTIAL IMPACTS

Potential Impacts to Special-Status Bats – Bats can collide with manmade structures, particularly wind turbines during long-distance migration. Migrating special-status bats often fly high above ground level and do not actively echolocate. However, during normal foraging activity, special-status bats are actively using echolocation and are typically able to detect and avoid features such as overhead transmission lines. No information suggests that transmission lines in a setting such as the Study Area would pose a risk to special-status bats. Ground disturbance from the Project, taking place in previously disturbed areas and farm fields, would not appreciably affect any special-status bat species by removing foraging habitat. Abundant foraging habitat is present south of the Study Area, including farmland as well as riparian and wetland habitat along the Gila River.

Potential Impacts to All Special-Status Birds – Transmission lines can pose a collision risk to birds, including raptors (Avian Powerline 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, so that the collective infrastructure is likely to be perceived by birds and avoided. Birds also often attempt to fly above transmission lines and other obstacles. The Project would be constructed in an area with numerous existing transmission lines and are not likely to contribute to an increase in special-status bird mortality within the Study Area.

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 precluded almost entirely (APLIC 2006).

Most special-status birds are not likely to nest in the Study Area, given the entirely altered vegetation and ongoing human disturbance and activity associated with farming. However, burrowing owls can occupy and nest in fallow farmland, field margins, and canal banks. Because burrowing owls may in some cases retreat underground when alarmed rather than flying, and because their nests are underground, they are at risk of harm from ground-disturbing activities such as that resulting from construction of the Project. Burrowing owls were observed during a reconnaissance survey of the Study Area on the Datacenter site and may also be present along the transmission line alternative routes.

No special-status birds are regularly dependent on the disturbed, altered habitat present in the Study Area. Although some ground disturbance and vegetation removal would occur as a result of the Project, this is not likely to have a detectable effect on any special-status bird species.

Potential Impacts to Special-Status Small Mammals, Reptiles, and Amphibians – Ground disturbance creates a risk of harm to any small, terrestrial mammals. While some active, diurnal species may avoid construction activities and move out of work areas, burrowing and nocturnal species would not. However, as discussed above, the human-modified landscape surrounding the Study Area likely limits the potential for any of these special-status species to be present. The small patches of uncultivated vegetation within the Study Area are isolated and are not likely to be important to the maintenance of local population levels for any of these species, and habitat loss is not likely to have a detectable effect on any of these species.

Potential Impacts to Special-Status Fish – No impacts to special-status fish would occur from the Project.

MITIGATION

Because the Project would be constructed entirely in areas subject to previous disturbance, outside of areas that provide essential habitat for rare or endangered species, impacts to most special-status species present in the region would not occur or would not rise to a level that would warrant mitigation. The following measures address the risk that electrical infrastructure poses to special-status birds and the risk that ground-disturbing activities pose to burrowing owls:

- Transmission structures would be constructed in compliance with standards provided by APLIC (APLIC 2006). When these standards are used, the risk of electrocution for large birds, including all special-status species in the Study Area, is essentially eliminated.
- Preconstruction surveys for burrowing owls would be conducted by qualified biologists according to current protocols. Burrows occupied by burrowing owls would be avoided if feasible. If any burrowing owl relocation is necessary, this would be performed by a licensed wildlife rehabilitator.

CONCLUSION

The Project is not likely to significantly affect any rare species. No ESA-listed species are present, and none would be affected by the Project. No protected areas, or any areas of biological wealth, are within the Study Area. 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 the burrowing owl would address potential impacts to that species.

Impacts to burrowing owls and any other special-status species that may be incidentally present would be similar among alternatives, but proportional in extent to the length of the alternatives. However, given the low sensitivity of the area affected, differences in impacts to sensitive species among the alternatives would be negligible and difficult to discern.

Table C-1. Special-Status Species that May Occur in the Vicinity of the Project		
E: Endangered, ESA **T:** Threatened, ESA	**DPS:** Distinct Population Segment **NEP:** Nonessential Experimental Population, ESA **BGEPA:** Bald and Golden Eagle Protection Act	**SGCN:** Species of Greatest Conservation Need, AGFD **1A, 1B:** SGCN Tier
Common Name ***Scientific Name***	**Habitat and Notes**	**Status**
Mammals		
Bat Colony Species not identified	Bat colonies can be in a variety of locations with minimal disturbance and shelter from extreme temperatures, including caves, mines, rock crevices, old buildings, and vegetation.	None
Lesser Long-nosed Bat *Leptonycteris curasoae yerbabuenae*	Habitat: Sonoran Desertscrub, grasslands, and forests with Saguaros and Agaves as forage plants. Potential: Study Area is outside the range of the species.	SGCN 1A
California Leaf-nosed Bat *Macrotus californicus*	Habitat: Roosts in caves, mines, and tunnels. Forages in desertscrub. Potential: May forage in or near the Study Area.	SGCN 1B
Townsend's Big-eared Bat *Corynorhinus townsendii*	Habitat: Roosts in caves, mines, tunnels, and occasionally buildings. Potential: May forage in or near the Study Area.	SGCN 1B
Spotted Bat *Euderma maculatum*	Habitat: Roosts in high cliffs and canyons, prefers to forage high above water. Potential: No suitable habitat in Study Area.	SGCN 1B
Western Red Bat *Lasiurus blossevillii*	Habitat: Roosts in large trees in riparian areas. Forages above tree canopy, often near water. Potential: May forage in or near the Study Area.	SGCN 1B
Western Yellow Bat *Lasiurus xanthinus*	Habitat: Roosts in trees, particularly palms. Potential: May forage in or near the Study Area.	SGCN 1B
Arizona Myotis *Myotis occultus*	Habitat: Woodlands and riparian areas across central Arizona. Potential: Not likely to occur in or near Study Area.	SGCN 1B
Yuma Myotis *Myotis yumanensis*	Habitat: Roosts in buildings, cliffs, swallow nests, and caves or mines Forages near or over water. Potential: May forage in or near the Study Area.	SGCN 1B
Cave Myotis *Myotis velifer*	Habitat: Roosts in caves, mines, and bridges. Forages in desertscrub, but generally near water. Potential: May forage in or near the Study Area.	SGCN 1B
Pocketed Free-tailed Bat *Nyctinomops femorosaccus*	Habitat: Roosts in cliffs and occasionally buildings. Forages widely for large insects. Potential: May forage in or near the Study Area.	SGCN 1B
Brazilian Free-tailed Bat *Tadarida brasiliensis*	Habitat: Roosts in caves, tunnels, and buildings. Forages widely, often over farmland. Potential: May forage in or near the Study Area.	SGCN 1B
Western Mastiff Bat *Eumops perotis*	Habitat: Roosts in crevices in cliffs. Forages widely for large insects. Potential: May forage in or near the Study Area.	SGCN 1B
Antelope Jackrabbit *Lepus alleni*	Habitat: Desertscrub and sparse grasslands. Potential: No suitable habitat in Study Area.	SGCN 1B
American Beaver *Castor canadensis*	Habitat: Lakes, rivers, and large streams. Potential: Not likely to occur in or near Study Area.	SGCN 1B
Harris's Antelope Squirrel *Ammospermophilus harrisii*	Habitat: Rocky slopes in Sonoran Desertscrub. Potential: Not likely to occur in or near Study Area.	SGCN 1B

Table C-1. Special-Status Species that May Occur in the Vicinity of the Project		
E: Endangered, ESA **T:** Threatened, ESA	**DPS:** Distinct Population Segment **NEP:** Nonessential Experimental Population, ESA **BGEPA:** Bald and Golden Eagle Protection Act	**SGCN:** Species of Greatest Conservation Need, AGFD **1A, 1B:** SGCN Tier
Common Name ***Scientific Name***	**Habitat and Notes**	**Status**
Little Pocket Mouse *Perognathus longimembris*	Habitat: Arid valley bottoms in Sonoran Desertscrub, near the Colorado River and in central Arizona. Potential: Not likely to occur in or near Study Area. Distribution is unclear in Maricopa County.	SGCN 1B
Kit Fox *Vulpes macrotis*	Habitat: Prefers flat, open desertscrub with soft or sandy soils. Potential: May occur in or near Study Area.	SGCN 1B
Jaguar *Panthera onca*	Habitat: Rugged or mountainous habitat with large herbivore prey, preferably near water sources. Potential: Outside known range of species.	E, SGCN 1A
Sonoran Pronghorn *Antilocapra americana sonoriensis*	Habitat: Sonoran Desertscrub valley bottoms. Potential: Not likely to occur in or near Study Area.	E (NEP), SGCN 1A
Desert Bighorn Sheep *Ovis canadensis mexicana*	Habitat: Steep, rugged desert mountain ranges. Potential: Not likely to occur in or near Study Area.	SGCN 1B
Birds		
Wood Duck *Aix sponsa*	Habitat: Prefers streams and ponds with trees and other dense vegetation. Potential: May occur incidentally or during migration in or near the Study Area.	SGCN 1B
California Least Tern *Sterna antillarum browni*	Habitat: Forages over open water, and nests on sandbars and beaches. Potential: Not likely to occur in the Study Area.	E, SGCN 1A
American Bittern *Botaurus lentiginosus*	Habitat: Marshes and wetlands, preferably with reeds and emergent vegetation. Potential: May occur incidentally in or near the Study Area.	SGCN 1B
Yuma Clapper Rail *Rallus longirostris yumanensis*	Habitat: Marshy vegetation in shallow water around large ponds or backwater areas. Potential: Not likely to occur in or near Study Area.	E, SGCN 1A
Ferruginous Hawk *Buteo regalis*	Habitat: Grasslands and open deserts, and often in agricultural areas in winter. Potential: Likely to occur in or near Study Area during winter.	SGCN 1B
Bald Eagle *Haliaeetus leucocephalus*	Habitat: Prefers large bodies of water with large fish for prey. Potential: May occur incidentally in or near the Study Area.	SGCN 1A
Golden Eagle *Aquila chrysaetos*	Habitat: May forage widely, but often in open areas. Nest sites are on rocky cliffs or large trees. Potential: May occur incidentally in or near the Study Area.	BGEPA, SGCN 1B
Peregrine Falcon *Falco peregrinus*	Habitat: Forages widely, often near water where large bird prey is present. Potential: Likely to occur in or near Study Area.	SGCN 1A
Burrowing Owl *Athene cunicularia*	Habitat: Open areas with low brush cover, including grasslands, agricultural margins, and desertscrub. Potential: Likely to occur in or near Study Area.	SGCN 1B
Gilded Flicker *Colaptes chrysoides*	Habitat: Sonoran desertscrub with Saguaros present, or riparian woodlands with mature trees. Potential: Likely to occur in or near Study Area.	SGCN 1B
Gila Woodpecker *Melanerpes uropygialis*	Habitat: Sonoran desertscrub with Saguaros present, or riparian woodlands with mature trees Potential: Likely to occur in or near Study Area.	SGCN 1B

Table C-1. Special-Status Species that May Occur in the Vicinity of the Project		
E: Endangered, ESA **T:** Threatened, ESA	**DPS:** Distinct Population Segment **NEP:** Nonessential Experimental Population, ESA **BGEPA:** Bald and Golden Eagle Protection Act	**SGCN:** Species of Greatest Conservation Need, AGFD **1A, 1B:** SGCN Tier
Common Name ***Scientific Name***	**Habitat and Notes**	**Status**
Yellow-billed Cuckoo, Western DPS *Coccyzus americanus*	Habitat: Nests in late summer in riparian woodlands, generally with large, mature trees. Potential: Not likely to occur in or near Study Area. No proposed critical habitat within Study Area.	T, SGCN 1A
Southwestern Willow Flycatcher *Empidonax traillii extimus*	Habitat: Dense, seasonally flooded riparian woodlands. Potential: Not likely to occur in or near Study Area. Critical habitat designated outside Study Area.	E, SGCN 1A
Le Conte's Thrasher *Toxostoma lecontei*	Habitat: Sonoran desertscrub dominated by creosote bush, with scattered trees used for nesting Potential: No suitable habitat in Study Area.	SGCN 1B
Bell's Vireo *Vireo bellii*	Habitat: Dense vegetation along desert washes and streams. Potential: Likely to occur in or near Study Area.	SGCN 1B
Pacific Wren *Troglodytes pacificus*	Habitat: Uncommon in Arizona deserts. Prefers dense vegetation near water. Potential: May occur incidentally or during migration in or near the Study Area.	SGCN 1B
Yellow Warbler *Setophaga petechia*	Habitat: Migrates through central Arizona, using riparian areas, landscaping, often near water. Potential: Likely to occur in or near Study Area.	SGCN 1B
Sprague's Pipit *Anthus spragueii*	Habitat: Winters in central Arizona, generally in closed-cropped or bare agricultural fields. Potential: Study Area is outside the range of the species.	SGCN 1A
Abert's Towhee *Melozone aberti*	Habitat: Dense, brushy vegetation, often but not always near water. Potential: Likely to occur in or near Study Area.	SGCN 1B
Savannah Sparrow *Passerculus sandwichensis*	Habitat: Winters in central Arizona. Widespread in desertscrub, grassy fields, and near farmland. Potential: Likely to occur in or near Study Area.	SGCN 1B
Lincoln's Sparrow *Melospiza lincolnii*	Habitat: Winters in central Arizona. Prefers dense, brushy areas, often near water. Potential: Likely to occur in or near Study Area.	SGCN 1B
Reptiles		
Sonoran Mud Turtle *Kinosternon sonoriense*	Habitat: Occurs in various aquatic habitats, most often in natural stream systems. Potential: No longer present in Study Area.	SGCN 1B
Sonoran Desert Tortoise *Gopherus morafkai*	Habitat: Rocky slopes, boulder fields, and washes throughout the Sonoran Desert up to 5,300 feet. Potential: Not likely to occur in or near Study Area.	SGCN 1A
Sonoran Collared Lizard *Crotaphytus nebrius*	Habitat: Rocky areas in Sonoran Desertscrub. Potential: Not likely to occur in or near Study Area.	SGCN 1B
Goode's Horned Lizard *Phrynosoma goodei*	Habitat: Valley bottoms in Sonoran Desertscrub. Potential: Likely to occur in or near Study Area.	SGCN 1B
Regal Horned Lizard *Phrynosoma solare*	Habitat: Valley bottoms in Sonoran Desertscrub and desert grasslands, avoiding the lowest elevations. Potential: No suitable habitat in Study Area.	SGCN 1B

Table C-1. Special-Status Species that May Occur in the Vicinity of the Project		
E: Endangered, ESA **T:** Threatened, ESA	**DPS:** Distinct Population Segment **NEP:** Nonessential Experimental Population, ESA **BGEPA:** Bald and Golden Eagle Protection Act	**SGCN:** Species of Greatest Conservation Need, AGFD **1A, 1B:** SGCN Tier
Common Name ***Scientific Name***	**Habitat and Notes**	**Status**
Gila Monster *Heloderma suspectum*	Habitat: Widespread in Sonoran Desertscrub. Typically absent from disturbed and developed areas. Potential: Not likely to occur in or near Study Area.	SGCN 1A
Variable Sandsnake *Chilomeniscus stramineus*	Habitat: Sandy valley soils in Sonoran Desertscrub. Potential: Likely to occur in or near Study Area.	SGCN 1B
Tucson Shovel-nosed Snake *Chionactis occipitalis klauberi*	Habitat: Sandy valley soils in Sonoran Desertscub. Potential: No suitable habitat in Study Area.	SGCN 1A
Sonoran Whipsnake *Coluber bilineatus*	Habitat: Widespread, particularly in desert canyons and washes, in the Sonoran Desert. Potential: Not likely to occur in or near Study Area.	SGCN 1B
Sonoran Coralsnake *Micruroides euryxanthus*	Habitat: Widespread in Sonoran Desertscrub up to oak woodlands. Potential: Likely to occur in or near Study Area.	SGCN 1B
Tiger Rattlesnake *Crotalus tigris*	Habitat: Rocky slopes in Sonoran Desertscrub. Potential: Not likely to occur in or near Study Area.	SGCN 1B
Amphibians		
Lowland Leopard Frog *Lithobates yavapaiensis*	Habitat: Permanent or near-permanent water sources at low to moderate elevations. Potential: No longer present in Study Area.	SGCN 1A
Arizona Toad *Anaxyrus microscaphus*	Habitat: Rivers and streams across a wide elevation range. Potential: Study Area is outside the range of the species.	SGCN 1B
Sonoran Green Toad *Anaxyrus retiformis*	Habitat: Valley bottoms with soft soils and areas that can capture summer rainfall in temporary pools. Potential: Study Area is outside the range of the species.	SGCN 1B
Sonoran Desert Toad *Incilius alvarius*	Habitat: Widespread throughout Sonoran Desert valleys and mountains. May occur in farmland. Potential: May be present in Study Area.	SGCN 1B
Fish		
Sonora Sucker *Catostomus insignis*	Habitat: Shallow, free-flowing streams. Potential: Study Area is outside the range of the species.	SGCN 1B
Flannelmouth Sucker *Catostomus latipinnis*	Habitat: Large desert rivers and their tributaries. Potential: No longer present in Study Area.	SGCN 1A
Desert Sucker *Catostomus clarkii*	Habitat: Shallow, free-flowing streams. Potential: Study Area is outside the range of the species.	SGCN 1B
Little Colorado Sucker *Catostomus* sp. 3	Habitat: Little Colorado River watershed in northern Arizona. Potential: Study Area is outside the range of the species.	SGCN 1A
Razorback Sucker *Xyrauchen texanus*	Habitat: Desert streams and large rivers. Potential: No longer present in Study Area.	E, SGCN 1A
Gila Topminnow *Poeciliopsis occidentalis*	Habitat: Shallow or densely vegetated areas in slow-moving or standing water. Potential: No longer present in Study Area.	E, SGCN 1A

Table C-1. Special-Status Species that May Occur in the Vicinity of the Project		
E: Endangered, ESA **T:** Threatened, ESA	**DPS:** Distinct Population Segment **NEP:** Nonessential Experimental Population, ESA **BGEPA:** Bald and Golden Eagle Protection Act	**SGCN:** Species of Greatest Conservation Need, AGFD **1A, 1B:** SGCN Tier

Common Name *Scientific Name*	Habitat and Notes	Status
Desert Pupfish *Cyprinodon macularis*	Habitat: Shallow or densely vegetated areas in slow-moving or standing water. Potential: No longer present in Study Area.	E, SGCN 1A
Longfin Dace *Agosia chrysogaster*	Habitat: Widespread in tributaries throughout the Gila River basin. Potential: No longer present in Study Area.	SGCN 1B
Colorado Pikeminnow *Ptychocheilus lucius*	Habitat: Desert streams and large rivers. Potential: No longer present in Study Area.	E, SGCN 1A
Bonytail Chub *Gila elegans*	Habitat: Desert streams and large rivers. Potential: No longer present in Study Area.	E, SGCN 1A
Roundtail Chub *Gila robusta*	Habitat: Desert streams and large rivers. Potential: No longer present in Study Area.	SGCN 1A

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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.

PROJECT AREA SETTING

The Study Area is generally defined as all areas within a 2-mile buffer of the Project's features, including all alternative routes, as identified in this application. The Study Area includes all areas where ground disturbance associated with the Project may occur.

Physical Setting

The Study Area is set within the Sonoran Desert, which is the wettest, most productive, and most diverse of the North American deserts. Geologically, the Sonoran Desert is a part of the Basin and Range Province (physiographic region), which is a large area of North America generally between the Sierra Nevada and Rocky Mountains, extending into Mexico. The Basin and Range Province is represented by numerous steep rugged mountain ranges separated by valleys with deep alluvial fill and relatively low slopes. Some of these valleys contain regional major rivers, although most rivers have been hydrologically altered with dams and water diversion.

The Study Area is set in a broad, nearly level valley, formed by the confluences of the Agua Fria River with the Gila River. Much of the Phoenix metropolitan area is constructed on alluvial fill deposited by these rivers. The Agua Fria River is dammed at Lake Pleasant upstream, so is supported primarily by urban runoff and treated wastewater in the Phoenix area and is ephemeral or intermittent within the Study Area. South of the Study Area, the Gila River has perennial flow, primarily supported by treated wastewater from the Phoenix metropolitan area.

The Sonoran Desert experiences a bimodal precipitation pattern, with winter storms from the Pacific Ocean often providing widespread regional rainfall, and a midsummer monsoon season bringing tropical moisture into the region. Rainfall in the summer monsoon season is typically provided by isolated, but potentially strong, thunderstorms. Rainfall during summer can be extremely variable, both seasonally depending on the strength and duration of the overall monsoon weather pattern, and locally depending on the occurrence of individual thunderstorms. Rainfall generally increases with elevation, but the Study Area is at a relatively low elevation, between 900 and 1,000 feet. Average annual rainfall is approximately 7 inches (Western Region Climate Center 2021).

Vegetation

The Sonoran Desertscrub biotic community, as described by Turner (1994) and mapped by Brown (1994), is divided in two major subdivisions. The Arizona Upland subdivision is typical of rocky slopes and moderate elevations and is dominated by numerous desert tree species and the Saguaro (*Carnegiea gigantea*). The Study Area is set within the more-arid Lower Colorado River Valley subdivision. The Lower Colorado River Valley subdivision is much less diverse than the Arizona Upland subdivision and is typical of lower elevations and valley bottoms. Creosote Bush (*Larrea tridentata*) is the dominant species in many areas and cacti are uncommon, although some Saguaros and other cacti may be present near the lower

slopes of mountain ranges. On the lowest slopes, particularly level areas in or near river floodplains, Creosote Bush and other upland plants can be replaced by Saltbush (*Atriplex* spp.) and other plants adapted to higher soil salinity.

Although the Study Area is set within an area that was once typical of the Lower Colorado River Valley subdivision of Sonoran Desertscrub, much of the Study Area has been subject to human disturbance and has been converted to non-native vegetation types. The Study Area is a well-developed mix of community commercial and suburban residential development that includes existing utility infrastructure, industrial facilities, and some agricultural uses. Scattered native plants that are tolerant of disturbance are present along field margins and in fallow fields.

Each of the alternative routes are within modified, non-native vegetation types, and no impacts to native vegetation would occur from construction of any of these alternative routes. No clear differences or meaningful comparisons can be made among alternative routes based on their potential for impacts to vegetation.

Wildlife Species

This section discusses wildlife species that may be present in the Study Area. The Study Area is largely converted to non-native vegetation, although some mobile or disturbance-tolerant wildlife species may occur throughout the Study Area. However, the number of species present in any location or at any one time would be a small proportion of the species discussed here.

Mammals

Parts of the Sonoran Desert support very high mammal diversity, particularly in bats and small rodents. Few large mammal species are tolerant of highly modified landscapes, and many small burrowing mammals cannot persist in areas subject to tilling and ground disturbance. However, some disturbance-tolerant small mammals can be very abundant in farmland, using canal banks and road margins for burrow construction. Coyotes (*Canis latrans*) can become tolerant of human activities and will prey on small mammals in agricultural areas. Some bats can use ornamental trees, old buildings, and other manmade features as roost sites. Other bats may roost outside of developed areas but travel miles to forage on the high numbers of insects associated with farmland. Surface water associated with human activity is also an important resource for bats in arid regions. Manmade bodies of water in the Study Area are likely to provide food and water resources for bats and other mammals. Table D-1 lists mammal species that may be present in the Study Area.

Birds

A small number of bird species are year-round residents in the Sonoran Desert. However, a much larger number of species are migratory, and may winter in the Study Area, pass through the Study Area during migration, or nest in the Study Area but winter elsewhere. Because of the high mobility of birds, many species may be uncommon or prefer natural vegetation but still occasionally be recorded in agricultural landscapes.

South of the Study Area, wetlands along the Gila River support large and diverse bird populations, particularly in winter and during migration. Some raptor species are common in the Study Area, exploiting the increased availability of rodent and bird prey around fields. Agricultural landscapes also provide suitable wintering and foraging habitat for some wading birds, shorebirds, and grassland species that prefer sparse vegetation, shallow water, and other characteristics of farmed areas. Table D-2 lists bird species that may be present in the Study Area, focused on species that occur somewhat regularly. Species that normally

do not occur in the Study Area but may have been recorded in the past on very few occasions are generally not listed.

Reptiles

Although the Sonoran Desert has a very high diversity of snakes and lizards, few species are tolerant of extensive disturbance and agricultural activities. However, some species are able to persist in modified environments, and may prey on rodents and insect pests associated with farmland. No native turtles would be present in the Study Area, although some introduced aquatic turtles may be present in manmade bodies of water. Table D-3 lists reptile species that may be present in the Study Area. Dumping of unwanted captive turtles can result in the presence of unanticipated species that are not listed in Table D-3, although self-sustaining populations of these species are not likely to be present.

Amphibians

Several species of toads are the only native amphibians likely to be present in the Study Area. Toads in the Sonoran Desert typically depend on summer rainfall and reproduce rapidly in temporary pools that are formed. Some of these species, particularly the Sonoran Desert toad (*Incilius alvarius*) can also use manmade bodies of water and may occur in agricultural areas. The introduced American bullfrog (*Lithobates catesbeianus*) requires permanent water and would be present in many of the ponds in the Study Area. Table D-4 lists amphibian species that may occur in the Study Area.

Fish

No native fish species are likely to be present in the Study Area. Native species that were historically present are now generally absent from the highly modified remnants of river systems in the Phoenix area (Minckley and Marsh 2009, Marsh and Minckley 1982). Some introduced fish species are present in Arizona's major canal systems. No major canals are crossed by the Project, although several small irrigation delivery ditches support farm fields in the Study Area. Table D-5 lists fish species most likely to occasionally be present in the Study Area. Many of the introduced fish are the result of intentional introduction for sport fishing, mosquito control, and other aquatic management objectives. However, unmanaged releases, such as dumping of aquarium fish, result in the presence of unanticipated fish species not listed in Table D-5.

ASSESSMENT OF POTENTIAL IMPACTS

All potential impacts of the Project have the same potential to occur, regardless of which alternative is selected. All alternatives cross similar biological resources, and no clear differentiation among alternatives can be made based on the types of impacts that may occur.

Potential Impacts to Mammals

Ground disturbance creates a risk of harm to any small, terrestrial mammals. While some active, diurnal species are likely to avoid construction activities and move out of work areas, burrowing species would not. However, as discussed above, the human-modified landscape surrounding the Study Area likely limits the potential for most native mammal species to be present. The cultivated and fallow fields and field margins within the Study Area are not likely to be important to the maintenance of local population levels for any of these species, and loss of this type of habitat is not likely to have a detectable effect on any of these species.

Bats can collide with manmade structures, particularly wind turbines during long-distance migration. Migrating bats often fly high above ground level and do not actively echolocate. However, during normal foraging activity, bats are actively using echolocation and are typically able to detect and avoid features

such as overhead transmission lines. Ground disturbance from the Project, taking place in previously disturbed areas with little vegetation, would not appreciably affect any bat species by removing foraging habitat.

Potential Impacts to Birds

Transmission lines can pose a collision risk to birds, including raptors (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, so that the collective infrastructure is likely to be perceived by birds and avoided. Birds also often attempt to fly above transmission lines and other obstacles. The Project would be constructed in an area with numerous existing subtransmission lines and are not likely to contribute to an increase in bird mortality within the Study Area.

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 precluded almost entirely (APLIC 2006).

Most native birds are not likely to nest in the Study Area. However, burrowing owls can use nests in fallow farmland, field margins, and canal banks. Because burrowing owls may in some cases retreat underground when alarmed rather than flying; and because their nests are underground, they are at risk of harm from ground-disturbing activities such as that resulting from construction of the Project. No burrowing owls were confirmed to be present during a reconnaissance survey of the Study Area. Burrowing owls could occur anywhere in the Study Area.

Some native birds regularly forage in farmland such as those present in the Study Area. However, the Project would result in a minimal loss of farmland, and substantial farmland is present elsewhere south of the Study Area. Although some ground disturbance and vegetation removal would occur as a result of the Project, this is not likely to have a detectable effect on any bird species.

Potential Impacts to Reptiles

Potential impacts to reptiles would be the same as those described for terrestrial mammals and would be related to the risk of harm during ground-disturbing activities. Very few reptiles are likely to be present in the Study Area.

Potential Impacts to Amphibians

Potential impacts to amphibians would be the same as those described for terrestrial mammals and would be related to the risk of harm during ground-disturbing activities. Very few amphibians are likely to be present in the Study Area.

Potential Impacts to Fish

Irrigation ditches pass through the Study Area, but do not have surface water continuously present so do not provide permanent fish habitat. Because the Project would not affect any canals or irrigation facilities, and because no self-sustaining population of fish is present in the Study Area, the Project would have no impacts on fish.

Potential Impacts to Vegetation

Minimal impacts to vegetation are anticipated because of the Project. The Project would predominantly be constructed in previously disturbed areas that do not support native vegetation communities.

MITIGATION MEASURES

Because the Project would be constructed entirely in areas subject to previous disturbance outside of areas that provide essential habitat for native wildlife, impacts to most species present in the region would not occur or would not rise to a level that would warrant mitigation. The following measures address the loss of native vegetation, the risk that electrical infrastructure poses to birds, and the risk that ground-disturbing activities pose to nesting birds, including burrowing owls.

- Transmission structures would be constructed in compliance with standards provided by APLIC (APLIC 2006). When these standards are used, the risk of electrocution for large birds, including all special-status species in the Study Area, is essentially eliminated.
- Preconstruction surveys for nesting birds and burrowing owls would be conducted by qualified biologists. Burrowing owl surveys would be conducted according to a current protocol. Burrows occupied by burrowing owls would be avoided if feasible. If any burrowing owl relocation is necessary, this would be performed by a licensed wildlife rehabilitator.

CONCLUSION

Because construction of the Project would take place in a setting that is highly altered and contains little or no native vegetation, and is surrounded by disturbed areas and farmland, the Project would not contribute significantly to the loss of native vegetation that provides wildlife habitat or declines in any native plant or wildlife species.

Impacts that may occur as a result of the Project would be similar among alternatives. However, given the low sensitivity of the area affected, differences in impacts to biological resources among the alternatives would be negligible and difficult to discern.

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Table D-1. Mammal Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
California Leaf-nosed Bat *Macrotus californicus*	Sonoran and Mojave desertscrub. Roosts in caves, mines, and rock shelters. Forages for large arthropods, capturing them on the ground or in vegetation.
Cave Myotis *Myotis velifer*	Roosts primarily in mines or caves in xeric habitats. Requires a permanent water source near roost sites; may also utilize bridges or buildings for roosts.
Yuma Myotis *Myotis yumanensis*	Riparian woodland, desertscrub, and woodlands. Roosts in caves, mines, attics, buildings, and underneath bridges. Forages for insects over water.
California Myotis *Myotis californicus*	Desertscrub with rock faces. Roosts in crevices, occasionally caves and mines. Preys on insects.
Western Mastiff Bat *Eumops perotis*	Sonoran desertscrub adjacent to cliffs. Roosts in rock crevices; requires a 10-foot vertical drop to launch flight. Forages for insects at considerable heights.
Western Yellow Bat *Lasiurus xanthinus*	Associated primarily with palm trees, although they will use riparian gallery forests. Forages for flying insects.
Western Red Bat *Lasiurus blossevillii*	Riparian gallery forests. Roosts in trees, occasionally leafy shrubs. Forages for insects in open areas.
Townsend's Big-eared Bat *Corynorhinus townsendii*	Desertscrub, piñon-juniper woodland, and other coniferous woodlands. Roosts in caves, mines, and buildings. Captures small insects in flight.
Western Pipistrelle *Parastrellus hesperus*	Areas with canyon walls or cliff faces for roosting, streambeds and tanks for foraging.
Big Brown Bat *Eptesicus fuscus*	Ponderosa pine forest, piñon-juniper woodlands, and desertscrub. Uses a wide range of roost sites. Preys on beetles and moths.
Hoary Bat *Lasiurus cinereus*	Mixed deciduous-coniferous forests and woodlands. Roosts among foliage in trees. Preys on a variety of insects. Migratory.
Pallid Bat *Antrozous pallidus*	Desertscrub and evergreen woodlands. Roosts in caves, mines, cliffs, and bridges. Preys on ground-dwelling insects.
Pocketed Free-tailed Bat *Nyctinomops femorosaccus*	Desertscrub and arid lowland habitats. Roosts in crevices in cliffs or in rocky areas. Preys on flying insects.
Brazilian Free-tailed Bat *Tadarida brasiliensis*	Desertscrub and foothills. Roosts in mines, caves, bridges, rock crevices and old buildings. Captures small insects in flight.
Desert Cottontail *Sylvilagus audubonii*	Desertscrub, semi-desert grassland
Black-tailed Jackrabbit *Lepus californicus*	Desertscrub and other areas with open ground cover.
Round-tailed Ground Squirrel *Xerospermophilus tereticaudus*	Creosote bush/saltbush desert with sandy or gravelly soil.
Botta's Pocket Gopher *Thomomys bottae*	Any area with soil suitable for digging burrows from sea level to above timberline.
Little Pocket Mouse *Perognathus longimembris*	Arid valley bottoms in Sonoran Desertscrub. Unclear distribution in central Arizona.
Arizona Pocket Mouse *Perognathus amplus*	Arid valley bottoms in Sonoran Desertscrub.
Desert Pocket Mouse *Chaetodipus penicillatus*	Sandy areas of desertscrub with sparse vegetation.
Bailey's Pocket Mouse *Chaetodipus baileyi*	Flats and lower slope areas of desertscrub.
Merriam's Kangaroo rat *Dipodomys merriami*	Sandy areas of desertscrub.
Desert Kangaroo Rat *Dipodomys deserti*	Areas with friable sand such as washes, or wind-blown sands stabilized by creosote bush or other vegetation.
Western Harvest Mouse *Reithrodontomys megalotis*	Desertscrub or chaparral.
Deer Mouse *Peromyscus maniculatus*	May occur in riparian areas in the Study Area.

Table D-1. Mammal Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
White-footed Mouse *Peromyscus leucopus*	Mixed deciduous forests, agriculture fields and semi-desert grasslands.
Arizona Cotton Rat *Sigmodon arizonae*	Mesquite scrub and weedy areas along canals and washes.
Desert Woodrat *Neotoma lepida*	Rocky and densely vegetated areas in Sonoran Desertscrub.
White-throated Woodrat *Neotoma albigula*	Areas below the conifer belt, especially with Prickly Pear or Paloverde.
Brown Rat *Rattus norvegicus*	Grain fields, salt marshes and urban areas. Introduced, non-native species. Population status unclear in Arizona.
Roof Rat *Rattus*	Strongly associated with human development but may stray into open woodlands. Introduced, non-native species.
House Mouse *Mus musculus*	Cultivated fields, in or at the edges of towns in rural areas. Introduced, non-native species.
Coyote *Canis latrans*	Cosmopolitan, from spruce forest to low desert. Tolerant of urban areas and human presence.
Kit Fox *Vulpes macrotis*	Desertscrub and desert grassland with sandy or softer clay soils.
Gray Fox *Urocyon cinereoargenteus*	Open desertscrub, chaparral, lower-elevation woodland.
Ringtail *Bassariscus astutus*	Widespread in Sonoran Desertscrub, including occasionally around agricultural activity.
Northern Raccoon *Procyon lotor*	Occupies a ride range of habitats ranging from wetlands and mesic woodlands to urban areas.
Western Spotted Skunk *Spilogale gracilis*	Open woods, canyons, and agriculture fields.
American Badger *Taxidea taxus*	Flats and drainages adjacent to mountains, grasslands.
Mountain Lion *Puma concolor*	Almost any area that provides prey. Individuals from desert mountains such as the Sierra Estrella may enter developed areas.
Bobcat *Lynx rufus*	Rocky upland areas interspersed with open desert, grassland, or woodland.
Collared Peccary *Pecari tajacu*	Desertscrub and up to approximately 6,500 feet; washes and brushy hillsides; shelter in mine adits.
Mule Deer *Odocoileus hemionus*	Semi-desert grasslands, desertscrub and dry coniferous forests.
SOURCE: Hoffmeister 1986	

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Eared Grebe *Podiceps nigricollis*	Lakes and ponds. Present in Study Area in winter.
Clark's Grebe *Aechmophorus clarkii*	Lakes, ponds, and lagoons. Migrates though Study Area.
Western Grebe *Aechmophorus occidentalis*	Open, deep water lakes and bays. Winters within Study Area.
Pied-billed Grebe *Podilymbus podiceps*	Shallow ponds and marshes with emergent vegetation. Present in Study Area year-round.
American White Pelican *Pelecanus erythrorhynchos*	Shallow, protected water. Migrates through the Study Area.

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Brown Pelican *Pelecanus occidentalis*	Primarily coastal habitats; occasionally inland at large water bodies. May rarely occur in Study Area year-round.
Neotropic Cormorant *Phalacrocorax brasilianus*	In the inland Southwest, occurs around large, usually manmade bodies of water. May occur in Study Area year-round.
Double-crested Cormorant *Phalacrocorax auritus*	Lakes, ponds, streams, and aqueducts. Present in Study Area in winter.
American Bittern *Botaurus lentiginosus*	Freshwater habitats with dense emergent vegetation. Winters within the Study Area. Present in Study Area in winter.
Least Bittern *Ixobrychus exilis*	Marshy wetlands with dense, tall emergent vegetation. Present in Study Area year-round.
Black-crowned Night-heron *Nycticorax nycticorax*	Freshwater swamps, marshes, and ponds with emergent vegetation. Present in Study Area year-round.
Green Heron *Butorides virescens*	Streams, ponds, or marshes that include edge canopy. Present in Study Area year-round.
Cattle Egret *Bubulcus ibis*	Pastures, weedy fields, along weedy irrigation ditches. Present in Study Area year-round.
Snowy Egret *Egretta thula*	Marshes, drainage ditches, wetlands. Present in Study Area year-round.
Great Egret *Ardea alba*	Wetland habitats including marshes, drainage ditches, and ponds. Present in Study Area year-round.
Great Blue Heron *Ardea herodias*	Rivers, streams, lakes, reservoirs, canals, and agricultural fields. Present in Study Area year-round.
White-faced Ibis *Plegadis chihi*	Any open water source. Migrates through the Study Area.
Mallard *Anas platyrhynchos*	Lakes, ponds, streams, and canals. Present in Study Area year-round, although many residents are of captive origin.
Mexican Duck *Anas diazi*	Formerly considered a subspecies of the Mallard. Occurs in similar habitat. uncommon in Study Area year-round.
Gadwall *Anas strepera*	Shallow fresh water. Winters within the Study Area.
Green-winged Teal *Anas crecca*	Shallow ponds, marshes, and flooded fields. Winters within the Study Area.
Northern Pintail *Anas acuta*	Shallow ponds and marshes with emergent vegetation. Winters within the Study Area.
American Wigeon *Mareca americana*	Freshwater lakes and ponds; may graze in fields. Winters within the Study Area.
Cinnamon Teal *Spatula cyanoptera*	Ponds, streams, and canals. Winters within the Study Area.
Blue-winged Teal *Spatula discors*	Often in shallow, marshy wetlands. Winters within the Study Area.
Northern Shoveler *Spatula clypeata*	Shallow, weedy or grassy ponds. Winters within the Study Area.
Redhead *Aythya americana*	Lakes and ponds. May nest within Study Area.
Ring-necked Duck *Aythya collaris*	Ponds and rivers, often near trees. Winters within the Study Area.
Lesser Scaup *Aythya affinis*	Ponds, lakes, and protected bays. Winters within the Study Area.
Bufflehead *Bucephala albeola*	Open lakes, harbors, and bays. Winters within the Study Area.
Common Goldeneye *Bucephala clangula*	Diving duck, most often found in open water. Winters within the Study Area.

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Common Merganser *Mergus merganser*	Deep, clear lakes and rivers. Winters within the Study Area.
Hooded Merganser *Lophodytes cucullatus*	Wetlands, streams, and rivers. Winters within the Study Area.
Red-breasted Merganser *Mergus serrator*	Occasionally present in larger bodies of water in the Study Area in winter.
Ruddy Duck *Oxyura jamaicensis*	Lakes and ponds. Present in Study Area year-round.
Black-bellied Whistling-duck *Dendrocygna autumnalis*	Wetland and riparian areas. Present in Study Area year-round.
Wood Duck *Aix sponsa*	Sheltered ponds, rivers, and swamps; usually stays near emergent vegetation. May winter within the Study Area.
Canvasback *Aythya valisineria*	Marshes and ponds. Winters within the Study Area.
Snow Goose *Chen caerulescens*	Roosts on sheltered water and forages on agriculture fields. May winter within the Study Area.
Ross's Goose *Chen rossii*	Roosts on sheltered water and forages on agriculture fields. May winter within the Study Area.
Greater White-fronted Goose *Anser albifrons*	May be present around farm fields and shallow marshy areas in the Study Area in winter.
Canada Goose *Branta canadensis*	Common around bodies of water, including in highly urbanized areas. Some individuals may be present year-round.
Turkey Vulture *Cathartes aura*	Open country, woodlands, farms. May nest within the Study Area.
Black Vulture *Coragyps atratus*	Sonoran desertscrub with abundant trees.
Osprey *Pandion haliaetus*	Lakes, rivers, and estuaries. Perches in trees, poles, and towers. Migrates through the Study Area.
White-tailed Kite *Elanus leucurus*	Open grasslands with scattered shrubs.
Northern Harrier *Circus cyaneus*	Wetlands, grasslands, and fallow agricultural fields. Winters within the Study Area.
Ferruginous Hawk *Buteo regalis*	Healthy, arid grasslands and adjacent agriculture fields. Winters within the Study Area.
Harris's Hawk *Parabuteo unicinctus*	Semi-arid woodland and desertscrub. May nest within the Study Area.
Red-tailed Hawk *Buteo jamaicensis*	Plains, prairie groves, desert. May nest within the Study Area.
Red-shouldered Hawk *Buteo lineatus*	Most likely to be associated with riparian areas and wetlands in the Study Area.
Swainson's Hawk *Buteo swainsoni*	Prairies and agriculture fields. May nest within the Study Area.
Cooper's Hawk *Accipiter cooperii*	Broken woodlands or streamside groves. May nest within the Study Area.
Sharp-shinned Hawk *Accipiter striatus*	Mixed coniferous forests; forages along forest edges, hedgerows, and urban areas. Winters within Study Area.
Zone-tailed Hawk *Buteo albonotatus*	Foothill canyons with permanent streams and open woodland.
Bald Eagle *Haliaeetus leucocephalus*	Commonly found adjacent to lakes, reservoirs and perennial rivers, and rare elsewhere in the region. Winters in Study Area.
American Kestrel *Falco sparverius*	Open country in a variety of habitat types, as well as cities. May nest within the Study Area.

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Prairie Falcon *Falco mexicanus*	Dry, open country; prairies.
Peregrine Falcon *Falco peregrinus*	Predator on birds such as doves and waterfowl, often foraging near water. Nesting habitat not present in the Study Area.
Merlin *Falco columbarius*	Open forests. Winters within the Study Area.
Gambel's Quail *Callipepla gambelii*	Desert scrublands and thickets. May nest within the Study Area.
Common Gallinule *Gallinula galeata*	Lakes and pond with abundant emergent vegetation. Year-round resident within the Study Area.
Sandhill Crane *Grus canadensis*	Winters in large flocks on open grasslands and agriculture fields and roosts in shallow waters. Winters within the Study Area.
American Coot *Fulica americana*	Lakes, ponds, streams, and marshes. May nest within the Study Area.
Virginia Rail *Rallus limicola*	Occurs in marshes and other wetlands with dense emergent vegetation. Present in Study Area year-round.
Sora *Porzana carolina*	Occurs in marshes and other wetlands with dense emergent vegetation. Present in Study Area year-round.
Killdeer *Charadrius vociferus*	Open terrain, not always associated with shores; disturbed ground; agricultural areas. May nest within the Study Area.
American Avocet *Recurvirostra americana*	Open, shallow bodies of water.
Black-necked Stilt *Himantopus mexicanus*	Shallow, open waters of treatment plants and ponds.
Greater Yellowlegs *Tringa melanoleuca*	Shallow water and mudflats. May winter within the Study Area.
Lesser Yellowlegs *Tringa flavipes*	Shallow water and mudflats with scattered emergent vegetation. Migrates through the Study Area.
Solitary Sandpiper *Tringa solitaria*	Small freshwater mudflats and ponds with emergent vegetation. Migrates through the Study Area.
Spotted Sandpiper *Actitis macularius*	Any manmade or natural aquatic habitat. Winters within the Study Area.
Western Sandpiper *Calidris mauri*	Mudflats and sandy beaches. Migrates through the Study Area.
Least Sandpiper *Calidris minutilla*	Mudflats with scattered vegetation. Migrates through the Study Area.
Baird's Sandpiper *Calidris bairdii*	Mudflats and adjacent short-grass fields. Migrates through the Study Area.
Stilt Sandpiper *Calidris himantopus*	Shallow muddy ponds and flooded fields. Migrates through the Study Area.
Pectoral Sandpiper *Calidris melanotos*	Mudflats with scattered vegetation. Migrates through the Study Area.
Dunlin *Calidris alpina*	Mudflats with scattered vegetation. Migrates through the Study Area.
Willet *Tringa semipalmata*	Open beaches and mudflats. Migrates through the Study Area.
Long-billed Curlew *Numenius americanus*	Wetlands; fallow agricultural fields. Winters within the Study Area.
Long-billed Dowitcher *Limnodromus scolopaceus*	Shallow muddy pools and freshwater ponds. Winters within the Study Area.
Wilson's Snipe *Gallinago delicata*	Most damp to shallow wet habitats with adjacent vegetation. May winter within the Study Area.

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Wilson's Phalarope *Phalaropus tricolor*	Shallow ponds and grassy marshes. Migrates through the Study Area.
Ring-billed Gull *Larus delawarensis*	Lakes, ponds, and rivers. Migrates through the Study Area.
Bonaparte's Gull *Larus delawarensis*	Uses various wetlands and bodies of water during migration. Migrates through the Study Area.
California Gull *Larus delawarensis*	Uses large bodies of water during migration, often forages in urban areas and near landfills. Migrates through the Study Area.
Forster's Tern *Sterna forsteri*	Open water and marshes. Migrates through the Study Area.
Caspian Tern *Hydroprogne caspia*	Often found over open water. Migrates through the Study Area.
Black Tern *Chlidonias niger*	Marshes and ponds; roosts on sandbars. Migrates through the Study Area.
Rock Pigeon *Columba livia*	Nonnative. Towns, parks, agricultural landscapes; associated with human developments. May nest within the Study Area.
Eurasian Collared-dove *Streptopelia decaocto*	Associated with human development. Non-native, invasive species. May nest within the Study Area.
Mourning Dove *Zenaida macroura*	Wide variety of habitats. May nest within the Study Area.
White-winged Dove *Zenaida asiatica*	Habitat generalists. May nest within the Study Area.
Inca Dove *Columbina inca*	Associated with urban and rural human developments. May nest within the Study Area.
Common Ground-dove *Columbina passerina*	Open or brushy areas near washes. May nest within the Study Area.
Greater Roadrunner *Geococcyx californianus*	Scrub desert and mesquite groves, less common in chaparral and oak woodland. May nest within the Study Area.
Yellow-billed Cuckoo *Coccyzus americanus*	Prefers large patches of riparian woodland for nesting but may occur in lower-quality riparian areas during dispersal and migration.
Barn Owl *Tyto alba*	Open country; nests in embankments, mine adits, buildings, bridges, and other locations. May nest within the Study Area.
Western Screech-owl *Megascops kennicottii*	Open woodlands, streamside groves, deserts, suburban areas.
Great Horned Owl *Bubo virginianus*	Common in wide variety of habitats. May nest within the Study Area.
Burrowing Owl *Athene cunicularia*	Open country, golf courses, and airports. May nest within the Study Area.
Lesser Nighthawk *Chordeiles acutipennis*	Dry, open country, scrubland, desert. May nest within the Study Area.
Common Nighthawk *Chordeiles minor*	Open environments including clearings, ponds, and urban areas. May nest within the Study Area.
Common Poorwill *Phalaenoptilus nuttallii*	Occurs in a wide range of vegetation communities in arid and semi-arid country. May nest within the Study Area.
Vaux's Swift *Chaetura vauxi*	May occur anywhere insect prey is present while foraging. Migrates through the Study Area.
White-throated Swift *Aeronautes saxatalis*	May occur anywhere insect prey is present while foraging. Present in Study Area year-round.
Black-chinned Hummingbird *Archilochus alexandri*	Habitat generalists in lowlands and low mountains. May nest within the Study Area.
Rufous Hummingbird *Selasphorus rufus*	Mountain meadows and riparian habitats. Migrates through the Study Area.

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Anna's Hummingbird *Calypte anna*	Coastal lowlands, mountains, deserts. May nest within the Study Area.
Costa's Hummingbird *Calypte costae*	Desert washes, dry chaparral. May nest within the Study Area.
Broad-tailed Hummingbird *Selasphorus platycercus*	Can occur in a wide range of habitat, including urban areas, while migrating.
Belted Kingfisher *Megaceryle alcyon*	Sheltered, open water. Winters within the Study Area.
Gila Woodpecker *Melanerpes uropygialis*	Towns, scrub desert, cactus country, streamside woods. May nest within the Study Area.
Acorn Woodpecker *Melanerpes formicivorus*	Open mixed coniferous forests with an abundance of oaks.
Ladder-backed Woodpecker *Picoides scalaris*	Dry shrublands; mesquite and cactus country; towns and rural areas. May nest within the Study Area.
Gilded Flicker *Colaptes chrysoides*	Sonoran Desert upland; favors Saguaro forests. May nest within the Study Area.
Northern Flicker *Colaptes auratus*	Riparian woodlands. May nest within the Study Area.
Rosy-faced Lovebird *Agapornis roseicollis*	Only present in urban and developed landscapes in Arizona. Widespread in the Phoenix area. Non-native. Present in Study Area year-round.
Black Phoebe *Sayornis nigricans*	Rivers, streams, canals, ponds, reservoirs, and other aquatic habitats. May nest within the Study Area.
Say's Phoebe *Sayornis saya*	Dry, open areas; canyons, cliffs.
Olive-sided Flycatcher *Contopus cooperi*	Prefers montane woodlands but uses other habitat types during migration. Migrates through the Study Area.
Western Wood Pewee *Contopus sordidulus*	Riparian areas and other woodlands. Migrates through the Study Area.
Hammond's Flycatcher *Empidonax hammondii*	Mixed coniferous forests. Winters within the Study Area.
Dusky Flycatcher *Empidonax oberholseri*	Brushy patches of forest clearings. Winters within Study Area.
Gray Flycatcher *Empidonax wrightii*	Sagebrush shrublands within arid piñon-juniper woodlands. Winters in Study Area.
Pacific-slope Flycatcher *Empidonax difficilis*	Riparian areas and other woodlands. Migrates through the Study Area.
Vermilion Flycatcher *Pyrocephalus rubinus*	Streamside shrubs, bottomlands; near small wooded ponds.
Ash-throated Flycatcher *Myiarchus cinerascens*	Wide variety of habitats. May nest within the Study Area.
Brown-crested Flycatcher *Myiarchus tyrannulus*	Saguaro desert, riparian woodlands, groves, and low elevation woodlands. May nest within the Study Area.
Western Kingbird *Tyrannus verticalis*	Dry, open country. May nest within the Study Area.
Cassin's Kingbird *Tyrannus vociferans*	Mixed coniferous forests with interspersed meadows. May nest within the Study Area.
Thick-billed Kingbird *Tyrannus crassirostris*	Lowland riparian woodlands. May nest within the Study Area.
Tropical Kingbird *Tyrannus melancholicus*	Lowland riparian woodlands and urban areas. May nest within the Study Area.
Loggerhead Shrike *Lanius ludovicianus*	Open and relatively flat habitats with thorny trees and shrubs. May nest within the Study Area.

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Common Raven *Corvus corax*	Mountains, deserts, coastal areas. May nest within the Study Area.
Bell's Vireo *Vireo bellii*	Riparian areas, especially in mesquite trees.
Plumbeous Vireo *Vireo plumbeus*	Open ponderosa pine and mixed conifer woodlands.
Cassin's Vireo *Vireo cassinii*	Mixed coniferous woodlands. Migrates through the Study Area.
Warbling Vireo *Vireo gilvus*	Riparian woodlands.
Horned Lark *Eremophila alpestris*	Habitat generalists in areas with open, barren ground. May nest within the Study Area.
Northern Rough-winged Swallow *Stelgidopteryx serripennis*	Banks of streams and canals, streams, ponds, and lakes. May nest within the Study Area.
Cliff Swallow *Petrochelidon pyrrhonota*	Lakeside, cliffs, and canals; nesting under nearby bridges, buildings, and other overhangs; streams and ponds. May nest within the Study Area.
Barn Swallow *Hirundo rustica*	Variety of open habitats; nest in on bridges, buildings, culverts, etc.; require access to mud for nest building. May nest within the Study Area.
Bank Swallow *Riparia riparia*	Often forages over or near water, and also in farmlands, where insect prey is abundant. Migrates through the Study Area.
Tree Swallow *Tachycineta bicolor*	Often forages over or near water, and also in farmlands, where insect prey is abundant. Migrates through the Study Area.
Violet-green Swallow *Tachycineta thalassina*	Open habitats; nest in tree cavities and cliff crevices. May nest within the Study Area.
Purple Martin *Progne subis*	Sonoran desertscrub in the presence of saguaros. May nest within the Study Area.
Verdin *Auriparus flaviceps*	Southwestern deserts, including Sonoran Desertscrub. May nest within the Study Area.
Red-breasted Nuthatch *Sitta canadensis*	Wooded areas, including riparian forests. Winters within Study Area.
Brown Creeper *Certhia americana*	Prefers montane forests in the Southwest, but occasionally present in desert riparian woodlands in winter.
Cactus Wren *Campylorhynchus brunneicapillus*	Desertscrub habitats. May nest within the Study Area.
Canyon Wren *Catherpes mexicanus*	Rocky slopes and canyons in Sonoran Desertscrub. Present in Study Area year-round.
Bewick's Wren *Thryomanes bewickii*	Dense, brushy habitats from mesquite thickets to chaparral and riparian thickets. May nest within the Study Area.
Pacific Wren *Troglodytes pacificus*	Uncommon in Arizona deserts. Prefers dense vegetation near water.
Rock Wren *Salpinctes obsoletus*	Rocky habitats in canyons, open hillsides, talus slopes. May nest within the Study Area.
House Wren *Troglodytes aedon*	Dense, brushy areas. May nest within Study Area.
Marsh Wren *Cistothorus palustris*	Marshes of cattails, tules, or reeds. Winters within Study Area.
Ruby-crowned Kinglet *Regulus calendula*	Woodlands, thickets. Winters within Study Area.
Black-tailed Gnatcatcher *Polioptila melanura*	Desert, especially washes. May nest within the Study Area.
Blue-gray Gnatcatcher *Polioptila caerulea*	Interior chaparral and arid piñon-juniper woodlands. May nest within the Study Area.

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Northern Mockingbird *Mimus polyglottos*	Variety of habitats. May nest within the Study Area.
Mountain Bluebird *Sialia currucoides*	Winters in piñon-juniper woodlands, desertscrub, and agriculture fields. Winters within the Study Area.
Western Bluebird *Sialia mexicana*	Mixed coniferous forests with open grassy patches and occasionally in urban environments such as parks.
American Robin *Turdus migratorius*	Often present in urban landscapes in winter.
Hermit Thrush *Catharus guttatus*	Present in winter in the Southwest in dense vegetation, such as riparian and landscaped urban areas.
Bendire's Thrasher *Toxostoma bendirei*	Desertscrub and brushy grasslands. May nest within the Study Area.
Curve-billed Thrasher *Toxostoma curvirostre*	Cholla deserts and suburban areas. May nest within the Study Area.
Crissal Thrasher *Toxostoma crissale*	Tall, dense brush and shrub thickets. May nest within the Study Area.
Sage Thrasher *Oreoscoptes montanus*	Sagebrush shrublands; as well as shrub-steppe. Winters within the Study Area.
Phainopepla *Phainopepla nitens*	Riparian areas, especially in trees with mistletoe. May nest within the Study Area.
European Starling *Sturnus vulgaris*	Generally distributed. Non-native, invasive species. May nest within the Study Area.
American Pipit *Anthus rubescens*	Expansive open prairies, fields, and beaches. Winters within the Study Area.
Cedar Waxwing *Bombycilla cedrorum*	Winters in open woodlands with abundant fruit, including urban environments. Winters within the Study Area.
Lucy's Warbler *Oreothlypis luciae*	Mesquite and cottonwood along water courses and xeric washes. May nest within the Study Area.
Orange-crowned Warbler *Oreothlypis celata*	Winters in brushy habitats, including interior chaparral, open woodlands, desertscrub, and urban environments. Winters within the Study Area.
MacGillivray's Warbler *Geothlypis tolmiei*	Dense thickets in riparian woodlands and piñon-juniper woodlands.
Virginia's Warbler *Oreothlypis virginiae*	Dense, brushy undergrowth of open piñon-juniper woodlands.
American Redstart *Setophaga ruticilla*	Uncommon but regularly present in riparian areas in winter in the Sonoran Desert.
Yellow Warbler *Setophaga petechia*	Riparian thickets.
Yellow-rumped Warbler *Setophaga coronata*	Brushy undergrowth of piñon-juniper woodlands, as well as riparian thickets. Winters within Study Area.
Black-throated Gray Warbler *Setophaga nigrescens*	Pine-oak woodlands.
Hermit Warbler *Setophaga occidentalis*	Mixed coniferous forests. Migrates through the Study Area.
Townsend's Warbler *Setophaga townsendi*	Mixed coniferous forests with an oak understory. Migrates through the Study Area.
Wilson's Warbler *Cardellina pusilla*	Riparian thickets, especially willows. Migrates through the Study Area.
Common Yellowthroat *Geothlypis trichas*	Thick, low vegetation in damp areas.
Yellow-breasted Chat *Icteria virens*	Dense thickets and brush, often in marshes or near water.

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Canyon Towhee *Melozone fuscus*	Sonoran desertscrub.
Abert's Towhee *Melozone aberti*	Riparian areas, suburban areas. May nest within the Study Area.
Green-tailed Towhee *Pipilo chlorurus*	Dense brush; in lowlands in winter. Winters within the Study Area.
Spotted Towhee *Pipilo maculatus*	Chaparral, shrub-steppe, riparian thickets, and oak stands in piñon-juniper woodlands.
Chipping Sparrow *Spizella passerina*	Brushy edges and riparian areas.
Grasshopper Sparrow *Ammodramus savannarum*	Semidesert grasslands with scattered shrubs. Winters in Study Area.
Black-chinned Sparrow *Spizella atrogularis*	Brush hillsides in chaparral or desertscrub vegetation.
Brewer's Sparrow *Spizella breweri*	Deserts, field edges, and suburban areas. Winters within Study Area.
Sagebrush Sparrow *Artemisiospiza nevadensis*	Sagebrush shrublands and arid shrub-steppe. Winters within Study Area.
Savannah Sparrow *Passerculus sandwichensis*	Semidesert grasslands, marshes, and agriculture fields. Winters within Study Area.
Lark Sparrow *Chondestes grammacus*	Brushy, weedy areas, riparian areas, and field edges.
Lark Bunting *Calamospiza melanocorys*	Semidesert grasslands and desertscrub. Winters within the Study Area.
Song Sparrow *Melospiza melodia*	Dense undergrowth near water.
Lincoln's Sparrow *Melospiza lincolnii*	Upland grasslands near riparian areas. Winters within Study Area.
Swamp Sparrow *Melospiza georgiana*	Fallow agriculture fields adjacent to water. Winters within the Study Area.
Vesper Sparrow *Pooecetes gramineus*	Habitat generalists. Winters within Study Area.
Black-throated Sparrow *Amphispiza bilineata*	Desertscrub. May nest within the Study Area.
White-crowned Sparrow *Zonotrichia leucophrys*	Suburban, riparian, and other brushy areas. Winters within the Study Area.
White-throated Sparrow *Zonotrichia albicollis*	Mixed coniferous-deciduous forests. Winters within the Study Area.
Dark-eyed Junco *Junco hyemalis*	Open woodlands including urban environments. Winters within Study Area.
Northern Cardinal *Cardinalis cardinalis*	Woodland edges, swamps, streamside thickets, suburban gardens. May nest within the Study Area.
Pyrrhuloxia *Cardinalis sinuatus*	Thorny brush, mesquite thickets, desert, woodland edges, ranchlands. May nest within the Study Area.
Black-headed Grosbeak *Pheucticus melanocephalus*	Open woodlands including deciduous and mixed conifer-deciduous forests.
Blue Grosbeak *Passerina caerulea*	Riparian areas and mesquite bosques.
Lazuli Bunting *Passerina amoena*	Weedy and shrubby areas along irrigation ditches and other bodies of water and suburban areas. Winters within Study Area.
Summer Tanager *Piranga rubra*	Mature riparian woodlands. May nest within the Study Area.

Table D-2. Bird Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Western Tanager *Piranga ludoviciana*	Prefers montane coniferous woodlands but may be present in low-elevation riparian areas in winter and during migration.
Western Meadowlark *Sturnella neglecta*	Fields and other open areas; deserts. May nest within the Study Area.
Yellow-headed Blackbird *Xanthocephalus xanthocephalus*	Marshy areas with emergent vegetation. Winters within the Study Area.
Red-winged Blackbird *Agelaius phoeniceus*	Emergent vegetation in wetland habitats; including irrigated agricultural lands. May nest within the Study Area.
Great-tailed Grackle *Quiscalus mexicanus*	Open areas with reliable water sources; including agricultural and urbanized areas. May nest within the Study Area.
Brewer's Blackbird *Euphagus cyanocephalus*	Open habitats; gregarious. Winters within the Study Area.
Brown-headed Cowbird *Molothrus ater*	Habitat generalists; common in human modified environments. May nest within the Study Area.
Bronzed Cowbird *Molothrus aeneus*	Rural and urban areas. May nest within the Study Area.
Bullock's Oriole *Icterus bullockii*	Riparian woodlands. May nest within the Study Area.
Scott's Oriole *Icterus parisorum*	Arid scrub and open woodland landscapes. May nest within the Study Area.
Hooded Oriole *Icterus cucullatus*	Open woodlands often adjacent to fan palms. May nest within the Study Area.
House Finch *Haemorhous mexicanus*	Riparian and suburban areas, farmland, desert. May nest within the Study Area.
Lesser Goldfinch *Carduelis psaltria*	Riparian areas. May nest within the Study Area.
American Goldfinch *Spinus tristis*	Orchards, hedgerows, overgrown fields and gardens. Winters within the Study Area.
Lawrence's Goldfinch *Spinus lawrencei*	Riparian corridors and piñon-juniper grasslands. Winters within the Study Area.
House Sparrow *Passer domesticus*	Associated with human presence. Introduced non-native. May nest within the Study Area.
SOURCES: Corman and Wise-Gervais 2005; Sibley 2014; eBird 2012	

Table D-3. Reptile Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Spiny Softshell *Apalone spinifera*	Rivers, urban lakes, and irrigation canals. Non-native.
Pond Slider *Trachemys scripta*	Commonly kept in captivity and frequently released into ponds, canals, and rivers in Arizona. Non-native.
Painted Turtle *Chrysemys picta*	Commonly kept in captivity and frequently released into ponds, canals, and rivers in Arizona. Non-native.
Desert Iguana *Dipsosaurus dorsalis*	Creosote bush desert to subtropical scrub, most common in sandy habitats, also along rocky streambeds, on bajadas, floodplains, and clay soils.
Zebra-tailed Lizard *Callisaurus draconoides*	Frequents washes, desert pavements of small rocks, and hardpan.
Long-tailed Brush Lizard *Urosaurus graciosus*	Lower Colorado River and Mojave desertscrub; brushy habitats along drainages and also on valley flats.
Ornate Tree Lizard *Urosaurus ornatus*	Often in riparian and xeroriparian areas, but also may occur in treeless areas in desertscrub.

Table D-3. Reptile Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Common Side-blotched Lizard *Uta stansburiana*	Arid or semi-arid regions with sand, rock, hardpan, or loam with grass, shrubs, and scattered trees; often found along sandy washes.
Desert Spiny Lizard *Sceloporus magister*	Arid and semi-arid regions on plains and lower slopes of mountains, found in most desertscrub habitats and associated riparian areas.
Goode's Horned Lizard *Phrynosoma goodei*	Flat valley bottoms in Sonoran Desertscrub, restricted to areas south of the Gila River.
Desert Horned Lizard *Phrynosoma platyrhinos*	Flat valley bottoms in Sonoran Desertscrub, restricted to areas north of the Gila River.
Long-nosed Leopard Lizard *Gambelia wislizenii*	Widespread in Sonoran Desertscrub, although usually in valley bottoms.
Tiger Whiptail *Aspidoscelis tigris*	Inhabits deserts and semi-arid habitats, usually where plants are sparse; also found in woodland, streamside growth, and in warmer, drier forests.
Western Banded Gecko *Coleonyx variegatus*	Widespread throughout desertscrub communities.
Mediterranean House Gecko *Hemidactylus turcicus*	Introduced non-native gecko associated with urbanized areas.
Gila Monster *Heloderma suspectum*	Widespread in Sonoran Desertscrub, but most often in canyons and areas near watercourses.
Western Threadsnake *Rena humilis*	Inhabits elevations from desertscrub up to chaparral; primarily nocturnal.
Variable Sandsnake *Chilomeniscus stramineus*	Arizona Upland desertscrub but may occur at lower elevations along drainages.
Western Groundsnake *Sonora semiannulata*	Inhabit elevations from Lower Colorado River desertscrub up into woodland habitats.
Sonoran Lyresnake *Trimorphodon lambda*	Rocky slopes in Sonoran Desertscrub.
Desert Nightsnake *Hypsiglena chlorophaea*	Inhabits Lower Colorado Subdivision Sonoran Desert up into Petran Montane Conifer Forest; crepuscular to nocturnal.
Gophersnake *Pituophis catenifer*	Nearly all terrestrial habitats from mountains to low desert and coastal areas.
Glossy Snake *Arizona elegans*	Below 6,000 feet in sparsely vegetated woodland, chaparral, grassland or desertscrub with loose soil.
Spotted Leaf-nosed Snake *Phyllorhynchus decurtatus*	Open desert with finer loose soils, especially creosote bush.
Desert Patch-nosed Snake *Salvadora hexalepis*	Piñon–juniper woodland to low deserts on variety of soil types .
Coachwhip *Coluber flagellum*	Sparsely vegetated areas from juniper woodland to low desert.
Long-nosed Snake *Rhinocheilus lecontei*	Desertscrub, prairie, tropical woodland to 5,500 feet.
California Kingsnake *Lampropeltis californiae*	Inhabits elevations from desertscrub up to lower portions of Great Basin Conifer Woodland and Madrean Evergreen Woodland.
Mojave Rattlesnake *Crotalus scutulatus*	Wide range of habitat preferences, but generally in valley bottoms in the Study Area.
Western Diamondback Rattlesnake *Crotalus atrox*	Wide range of habitats below 7,000 feet; predominantly nocturnal.
Sonoran Coralsnake *Micruroides euryxanthus*	Widespread in the Sonoran Desert, but often in rocky areas and canyons, as well as near riparian areas.
SOURCES: Brennan and Holycross; Jones and Lovich 2009	

Table D-4. Amphibian Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Couch's Spadefoot *Scaphiopus couchii*	Frequents shortgrass plains, mesquite savannah, creosote bush desert, thornscrub, tropical deciduous forest, and other areas of low rainfall.
Woodhouse's Toad *Anaxyrus woodhousii*	Desertscrub, woodland, and agricultural habitats.
Great Plains Toad *Anaxyrus cognatus*	Inhabits valley bottoms in prairies or deserts, often breeding after heavy rains in summer in shallow temporary pools or quiet streams.
Sonoran Desert Toad *Incilius alvarius*	Ranges from arid lowlands and arid grasslands into riparian mountain canyons, often found near permanent water.
American Bullfrog *Lithobates catesbeianus*	Highly aquatic, remaining in or near permanent standing water. Introduced, invasive species.
SOURCES: Brennan and Holycross 2006	

Table D-5. Fish Species that May Occur in the Study Area	
Common Name ***Scientific Name***	**Habitat**
Red Shiner *Cyprinella lutrensis*	Occupies a variety of habitats and can thrive in waters of high turbidity, high temperatures, and intermittency. Non-native.
Yellow Bullhead *Ameiurus natalis*	Present in many types of water bodies throughout the Southwest. Non-native.
Black Bullhead *Ameiurus melas*	Stagnant or slow moving waters. Non-native.
Flathead Catfish *Pylodictis olivaris*	Present in large rivers, canals, and reservoirs. Non-native.
Channel Catfish *Ictalurus punctatus*	Widespread in diverse bodies of water, although generally not present in small, fast-flowing streams. Non-native.
Blue Tilapia *Oreochromis aureus*	Herbivorous, and prefers standing or slow-moving bodies of water. Non-native.
Smallmouth Bass *Micropterus punctulatus*	Present in lakes, reservoirs, larger ponds, and slow-moving rivers. Non-native.
Largemouth Bass *Micropterus salmoides*	Present in lakes, reservoirs, larger ponds, and slow-moving rivers. Non-native.
Black Crappie *Pomoxis nigromaculatus*	Widespread in diverse bodies of water, although generally not present in small, fast-flowing streams. Non-native.
Bluegill *Lepomis macrochirus*	Prefers standing water such as ponds and lakes, but also may be present in slow-moving rivers. Non-native.
Green Sunfish *Lepomis cyanellus*	Warm-water lakes and streams. Prefers rocky substrate and piles of rubble. Non-native.
Fathead Minnow *Pimephales promelas*	Occupies a variety of habitats and can thrive in waters with high turbidity and low oxygen. Non-native.
Western Mosquitofish *Gambusia affinis*	Shallow waters or in dense vegetation protected from larger fish. Non-native.
Grass Carp *Ctenopharyngodon idella*	Sterile Grass Carp are introduced into canals in the Phoenix area to manage vegetation growth. Non-native.
Common Carp *Cyprinus carpio*	Large bodies of slow-moving or standing water. Non-native.
SOURCE: Minckley and Marsh 2009	

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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 archeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facilities will have thereon.

Exhibit E includes summaries of existing visual and cultural resources, and the potential impacts the Three Rivers 230kV transmission lines project may have on each one.

SCENIC AREAS AND VISUAL RESOURCES SUMMARY

This section includes a summary of the existing scenic/visual resources in the Study Area and potential impacts resulting from the Preferred Route and Alternative Routes. The methodology for this assessment follows.

Inventory and Assessment Methodology

The methods used to conduct the visual resource inventory and assessment are consistent with past studies conducted for similar projects approved by the state siting committee. The inventory of visual resources was based on field observations, consultation with participating agencies, input from public scoping comments, review of available geographic information system (GIS) data, aerial photography, relevant plans, and on-site field verification. These data were used to develop a comprehensive understanding of the existing landscape and associated visual resources.

Scenery

Scenery is the combination of features that give character to the landscape. Every landscape consists of a variety in landform, vegetation, and built features, which combine to exhibit landscape character. Landscapes with greater diversity in landforms and vegetation are typically considered more visually pleasing. For this analysis, impacts to scenic quality were based on comparing the inventoried quality of the scenery to the anticipated quality of the scenery considering any contrast related to construction of the Project features.

The term "sensitive viewers" refers to specific user groups associated with various land uses that have a sensitivity to landscape change and, therefore, could be adversely affected by the construction and operation of the Project. In this regard, viewing locations are typically associated with key travel routes, recreation areas, and residential areas.

Impacts to both scenic quality and sensitive viewers are determined, in part, by evaluating the visual contrast the proposed facilities would have with the existing landscape. Visual contrast refers to the degree that the Project features would either match/repeat existing features in the landscape or contrast with features of the existing landscape. The degree of visual contrast considers the existing landforms, vegetation, and built features present in the landscape and is described in terms of the degree of perceptible change in the basic design elements of form, line, color, and texture that would be evident by the introduction of the Project in the landscape.

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 a dominant feature 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.

To illustrate the Project's visual characteristics, visual simulations were completed from three key locations within the Study Area and are included in Exhibit G. The locations of the visual simulations were chosen to best demonstrate possible Project visual impacts to sensitive viewers closest to the Project. The following visual simulations were completed:

- **Simulation 1** illustrates the Preferred Route as seen from recreation and travel route views along west-bound I-10 adjacent to City of Goodyear open space (Exhibit G-6)
- **Simulation 2** illustrates Alternative Route #1 as seen from recreation and travel route views along west-bound I-10 adjacent to City of Goodyear open space (Exhibit G-7)
- **Simulation 3** illustrates Alternative Route #2 as seen in context of residential development along Palo Verde Drive, east of Desert Sage Apartments (Exhibit G-8)
- **Simulation 4** illustrates all three Alternative Routes as seen within neighborhood commercial setting along West Van Buren Street (Exhibit G-9)
- **Simulation 5** illustrates all three Alternative Routes as seen within neighborhood commercial setting along from East Van Buren Street. (Exhibit G-10)
- **Simulation 6** illustrates all three Alternative Routes as seen from travel route views North Bullard Avenue (Exhibit G-11)

These simulations are based on available Project and site data, using 3-D modeling software to ensure a high degree of accuracy.

Inventory Results

Scenery

The Study Area falls within the Sonoran Basin and Range Level III ecoregion, and more specifically within the Gila/Salt Intermediate Basins Level IV ecoregion (Environmental Protection Agency 2006). These flat to slightly rolling areas contain the majority of the state's population, resulting in permanently altered ecological features. This region makes up the urban and agricultural core of south-central Arizona, and is dominated by urban, suburban, and agricultural land uses. The Study Area itself is dominated by commercial and residential development to the east and agriculture interspersed with industrial land uses to the west. Views of the landscape within the Study Area are mostly open and panoramic in nature, and include views of distant mountains, such as the Sierra Estrella Mountains to the south of the Project corridor. Built features include small office complexes, gas stations, grocery stores, auto shops, and restaurants, most of which are centered on primary travel routes such as I-10, West McDowell Road, South Litchfield Avenue, North Dysart Road, West Van Buren Street, and Bullard Avenue.

Overall, the visibility, scale, and mixed commercial appearance of the existing infrastructure overpowers the otherwise rural landscape features. The overall scenic quality within the Study Area is low based on the lack of interesting landforms and vegetation and the prominence of the existing infrastructure features.

Sensitive Viewers

Several important viewer types are located within the Study Area, including residential, recreational, and travel routes.

Residences

Residences are located within the Study Area, including medium density residences, suburban neighborhoods, and multi-family residences in commercial center settings. The closest residential viewers are adjacent to I-10, surrounded by commercial development. Views from residences within the Study Area range from views of mixed commercial and industrial setting to views of agricultural cropland transitioning to industrial use. The existing development along the major roads in the Study Area is also visible from many residences. Except for residences on the outer edge of the residential development, views are largely contained within the local setting. However, along the edge of the suburban development, views from residences are more open and panoramic in nature and include views of distant mountains. Residential viewers are expected to have a long duration of view and are more likely to have higher sensitivities to visual changes.

Recreation Areas

Recreation opportunities within the Study Area include a number of local and pocket parks (typically located within suburban residential developments). These parks are scattered throughout the Study Area, with the nearest pocket park located approximately 0.2 miles north of East Van Buren Street and the nearest municipal park (City of Avondale's Friendship Park) located approximately 0.25 miles from the Project. Maricopa County's Estrella Mountain Regional Park is located approximately four miles from the nearest Project alternative. Open space lands along the north side of I-10 between North Bullard Avenue and North Dysart Road are identified in the City of Goodyear's Parks, Recreation, Trails, and Open Space Master Plan as a planned community wellness park (City of Goodyear 2014). Views from this future park would be in context of the commercial and interstate setting that surround it. The City of Goodyear's 2025 General Plan identifies the I-10 area as a targeted job center in which development is promoted. The Agua Fria River corridor includes designated open space area with both planned and unplanned recreation trails. Each of the Project alternatives tie into the existing Rudd-White Tanks 230kV transmission line within open space along the Agua Fria River corridor. Views from recreational users within the Study Area typically include suburban commercial and residential development, agricultural croplands, and the parks and open space areas in which they are often located. Recreational viewers are expected to have a relatively moderate duration of view and fairly high sensitivities to visual changes.

Travel Routes

The primary travel route within the Study Area is I-10, which runs east-west. Other major east-west roads in the Study Area include West McDowell Road, West and East Van Buren streets, and West Yuma Road. North Bullard Avenue, North Litchfield Avenue, and North Dysart Road are the major north-south roads. Existing views from travel routes are similar to those described above for residences, but are shorter in duration, and occur as a linear experience rather than from a stationary location. Views from the travel routes within the Study Area are generally of mixed commercial and industrial development amongst scattered agricultural landscapes.

Impact Assessment Results

The following descriptions provide an overview of the potential impacts on scenery and sensitive viewers from the construction of Project alternatives. The three routes under consideration share much of the same alignment. Where their alignments differ (along I-10), they remain relatively close in alignment (0.1 mile)

and are viewed within the same setting. It is important to note that a thorough inventory and screening was conducted of more than 100 alternative link segments in order to identify the three alternatives now under consideration. These remaining three alternatives are the most compatible options with existing and future conditions of the Study Area. In context of the industrial and commercial zoning throughout the majority of the Study Area, and the burgeoning development of large-scale data centers, storage facilities, and distribution centers near the Three Rivers Substation, the alternative routes are considered more compatible in this setting than in the largely residential settings that exist to the north and west of the Study Area.

Because the alternative routes share much of the same alignment and to reduce duplication in the descriptions of alternatives, the description of visual impacts starts with a description of impacts to scenery and sensitive views common to all alternatives and is followed by a brief description of the differences between these alternative routes.

Description of Impacts Common to All Alternatives

Scenery

The Project would introduce additional transmission lines and tall vertical structures into the landscape. In areas where the Project would be co-located with existing transmission facilities, such as along Van Buren Street and Bullard Avenue, the lines, forms, colors, textures, and scale of the Project would be similar in appearance to those in the existing landscape and is expected to create weak contrast with the existing scenery. Along I-10, the Project would be co-dominant with the existing visual character of the interstate setting, creating moderate contrast with existing scenery.

Sensitive Viewers

Residences

Although views of the Project from residences would vary from unobstructed to partially and even fully obstructed, most views would be at least partially obstructed by existing features in the landscape, such as trees, buildings, and other built features. Further screening would occur from buildings currently under construction and/or to be constructed as part of the Datacenter's development.

Residences in the western portion of the Study Area are located between Van Buren Street and Yuma Road along Estrella Parkway. Specifically, the Centerra neighborhood backs onto agricultural land bordered by industrial development, including the existing Bullard Substation and the 69kV portion of the Three Rivers Substation; an existing 69kV transmission line; the Datacenter site, storage facilities, and distribution centers; and the Phoenix Goodyear Airport. Most views from this neighborhood would be contained to the local setting, with little to no visibility to the Project. However, those residences on the outer edge of the development would view the Project in context of the above-mentioned development. The nearest residences are within foreground views of the Project, which would range from unobstructed to partially obstructed. Based on the viewing distance, the presence of industrial development, and co-locating the Project with the existing 69kV transmission line, the Project is anticipated to be seen but not attract attention and would appear as co-dominant features within the existing landscape. Therefore, the result would be a weak degree of contrast and low/moderate degree of visual impact. Exhibit G-11 illustrates the Project from Bullard Avenue in an area east of the Centerra neighborhood, which is in the midst of transitioning from an agricultural to industrial setting.

Views from residential neighborhoods located between Litchfield Road and North Dysart Road are largely contained to the local setting. At its nearest point, these residences would be within the foreground view of the Project along East Van Buren Street with commercial development and an existing 69kV transmission line between these residences and the Project. Based on the viewing distance, the presence of commercial

development, and co-locating the Project with the existing 69kV transmission line along Van Buren Street, the Project is anticipated to be seen but not attract attention and would appear as co-dominant features within the existing landscape. Therefore, the result would be a weak degree of contrast and moderate visual impact. Exhibit G-9 and Exhibit G-10 illustrate the Preferred Route within neighborhood and commercial center views along Van Buren Street. For residences immediately adjacent to I-10, the impacts are not common to all alternative routes and are discussed for each alternative route.

Recreation Areas

The Agua Fria River corridor also includes a designated open space area with both planned and unplanned recreation trails. The Project would tie into the existing Rudd-White Tanks 230-kV transmission line within open space along the Agua Fria River corridor. Based on viewing distance and the presence of existing transmission line features along the Agua Fria River, the Project would result in a moderate degree of contrast and moderate impacts. Impacts to the City of Goodyear planned health and wellness park located between Bullard Avenue and Dysart Road are not common to all alternatives and are discussed for each alternative route.

In addition to open space lands, several local parks are scattered throughout the Study Area. The nearest parks are De Paz Park, located approximately 0.2 miles north of Van Buren Street and the City of Avondale's Friendship Park, located 0.2 miles northeast of I-10 crossing of the Agua Fria River. Views within De Paz Park are somewhat contained to the local residential development that surrounds it. Views within Avondale's Friendship Park are within the context of I-10 and the existing transmission lines that traverse the Agua Fria River. Where visible, views of the Project from these parks are anticipated to attract attention but not dominate the view, resulting in a moderate degree of contrast and moderate impacts.

Travel Routes

The primary travel route within the Study Area is I-10, located immediately adjacent to the alternative routes. Due to the number of lanes and overall width of the interstate, views along I-10 are relatively open and unobstructed. While the alternative alignments vary in location, either to the south or to the north of I-10, the proximity and setting of the alternative routes as seen from travelers on I-10 would be viewed in similar context and would result in similar impacts. Based on the level of development along I-10 through the Study Area and the context of the interstate environment, the Project is anticipated to be seen but not attract attention and would appear as co-dominant features within the existing landscape. Therefore, the result would be a weak contrast and low visual impact.

Bullard Avenue and Van Buren Street are also located immediately adjacent to the Project. Both Bullard Avenue and Van Buren Street are paralleled by existing 69kV transmission lines. Based on the viewing distance, the presence of commercial development, and co-locating the Project with the existing 69kV transmission line, the Project is anticipated to be seen but not attract attention and would appear as co-dominant features within the existing landscape. Therefore, the result would be a weak degree of contrast and low/moderate degree of visual impact. Exhibit G-9 illustrates the Preferred Route within neighborhood and commercial center views along West Van Buren Street near South Litchfield Road. Exhibit G-10 illustrates the Preferred Route within neighborhood and commercial center views along East Van Buren Street near North Dysart Road. Exhibit G-11 illustrates the Preferred Route within rural agricultural setting that is transitioning to industrial along North Bullard Avenue.

Description of Impacts Unique to Each Alternative

Preferred Route

The Preferred Route would result in visual impacts to views from the open space/future City of Goodyear Park. The Preferred route crosses the southern edge of the open space, along I-10 for 1.3 miles. Views from the open space/planned park along I-10 would be in context of the interstate facilities. The Preferred Route is anticipated to attract attention but not dominate the view, resulting in moderate contrast and impacts. Exhibit G-6 illustrates the Project within sensitive recreation and travel route views adjacent to a planned City of Goodyear park along westbound I-10.

Alternative Route #1

Alternative Route #1 is in the immediate foreground of open space/future City of Goodyear Park. Alternative Route #1 traverses the southern edge of the open space, along I-10 for 0.3 miles. Views from the open space/planned park along I-10 would be in context of the interstate facilities. Alternative Route #1 is anticipated to attract attention but not dominate the view, resulting in moderate contrast and impacts. Exhibit G-7 illustrates the Project within sensitive recreation and travel route views adjacent to a planned City of Goodyear park along westbound I-10.

Alternative Route #2

Alternative Route #2 would be directly adjacent to the Desert Sage apartment complex resulting in visual impacts to views from this residential development located south of I-10. Exhibit G-8 illustrates the Project within sensitive residential views. The close viewing distance would increase the relative scale of the Project, would attract attention, and be co-dominate with the interstate setting as seen from these residences. Therefore, the result would be a moderate contrast and moderate/high impacts.

HISTORIC SITES AND STRUCTURES AND ARCHAEOLOGICAL SITES

As required by the Arizona Administrative Code R14-3-219, Ex. 1(E), the potential effects of the Project on historic sites and structures and archaeological sites were assessed. The assessment also was prepared to support Commission compliance with the State Historic Preservation Act (A.R.S. §§ 41-861 – 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 (less, if they have special significance) and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. They 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 significant historical events or trends
- Criterion (b): be associated with historically significant persons
- Criterion (c): have distinctive characteristics of a style or type, or have artistic value, or represent a significant entity whose components may lack individual distinction
- Criterion (d): have yielded or have potential to yield important information concerning history or prehistory

In consultation with the SHPO, EPG examined information for historic sites, structures, and archaeological sites within 0.5 miles of the Project from the following sources:

- ARHP
- AZSITE database
- Historic General Land Office Plats
- Historic U.S. Geological Survey topographic quadrangle maps
- National Register of Historic Places

Historic Sites and Structures

The records review identified four known historic sites, structures, or archaeological sites within 0.5 miles of the Project. These are a historic road, a historic railroad spur, and two historic irrigation sites.

The historic road is Bullard Avenue, which appears as an unimproved road on 1937 and 1950 Maricopa County highway maps and was determined by SHPO to be ineligible for the ARHP.

The historic railroad is the abandoned Litchfield Park railroad spur, segments of which have been determined by SHPO to be eligible for listing on the ARHP under criteria (a) and (b). In those areas of the site crossed by the Project, the railroad is not intact—lacking rails, ties, and ballast.

The historic irrigation sites are abandoned wells with associated concrete and metal parts and canal or ditch features. Neither site has been determined eligible for listing on the ARHP.

Archaeological Sites

There are no known archaeological sites in the Study Area.

Assessment of Effects

A project can have direct and/or indirect effects on historic sites and structures and archaeological sites 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 or 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 which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe
- Transfer, lease, or sale of 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

Direct Effects

Direct effects would include the areas that would be disturbed by construction and operation of the Project. The only historic site, structure, or archaeological site in the area of direct effects is the railroad spur. The Project would cross above the railroad alignment but would not directly affect the alignment itself.

Indirect Effects

The remaining three historic sites, structures, or archaeological sites are outside the area of direct effects. Although the construction of the Project would indirectly introduce a visual element to the area, it would be restricted to the vicinity of existing built environment elements such as roads and overhead utility lines. The Project will not have indirect effects to historic sites, structures, or archaeological sites.

Conclusion

Based on the foregoing information, the Project is not expected to directly or indirectly effect historic sites, structures, or archaeological sites.

REFERENCES

Environmental Protection Agency. 2006. Ecoregion Download Files by State - Region 6. “Level III and IV Ecoregions of New Mexico--poster front side 45 X 35" (24 mb).” Ecoregions of New Mexico map. https://www.epa.gov/eco-research/ecoregion-download-files-state-region-6.

City of Goodyear. 2014. Parks, Recreation, Trails and Open Space Master Plan. Accessed February 2020, 2019. Available at: http://www.goodyearaz.gov/home/showdocument?id=10645.

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Exhibit F– Recreational Purposes and Aspects

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.

Existing and future recreational sites within the Study Area are managed by the City of Goodyear, City of Avondale, and Maricopa County. Existing recreation opportunities found within the Study Area, include open space along the Agua Fria River, a community park and sports complex, and neighborhood parks within residential developments.

The Goodyear Parks, Recreation, Trails and Open Space Master Plan (City of Goodyear 2014) identifies existing and proposed recreation opportunities within the city of Goodyear. The City of Goodyear has planned proposed health and wellness park on a 129-acre site adjacent to I-10 between North Bullard Avenue and North Dysart Road. Project alternatives run in an east-west direction along I-10. The Preferred Route would traverse 1.3 miles of the planned park's southern edge along I-10 and Alternative Route #1 would traverse 0.3 miles. Coordination with the City of Goodyear for structure placement, construction, and maintenance of any of the Project alternative routes would avoid unnecessary conflicts with proposed recreational facilities. All other City of Goodyear proposed park and recreation facilities would not be directly affected by implementation of the Project.

The City of Avondale Parks, Recreation, Libraries and Trails Master Plan Update (City of Avondale 2017) identifies existing and proposed recreation opportunities within the City of Avondale. The Project would not cross existing or proposed park and recreation facilities within the City of Avondale.

The Agua Fria river corridor, which bisects the eastern portion of the Study Area, provides open space, and active and passive recreation opportunities. The Maricopa County Regional Trail System Plan (Maricopa County Trails Commission 2004), the Goodyear Parks, Recreation, Trails and Open Space Master Plan (City of Goodyear 2014), and the Avondale Parks, Recreation, Libraries and Trails Master Plan Update (City of Avondale 2017) identify future non-motorized unpaved regional trails along the Agua Fria river corridor. The proposed Sun Circle Trail along the Agua Fria River is within the Study Area. Maricopa County generally considers transmission line corridors as suitable locations for recreational trails.

If planned recreational activities are developed near the Project, APS will cooperate with the appropriate planning authorities and communities to accommodate the appropriate recreational uses with due consideration for the transmission line operational and maintenance requirements, as well as safety considerations. It is not anticipated that the Project would affect the future siting of proposed recreational facilities.

REFERENCES

City of Avondale. 2017. City of Avondale Parks, Recreation, Libraries and Trails Master Plan Update.

City of Goodyear. 2014. Parks, Recreation, Trails and Open Space Master Plan. Available at: http://www.goodyearaz.gov/home/showdocument?id=10645, accessed February 20, 2019.

Maricopa County Trails Commission. 2004. Maricopa County Regional Trail System Plan.

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 plant or transmission line structures and switchyards, which applicant believes may be informative to the Committee.

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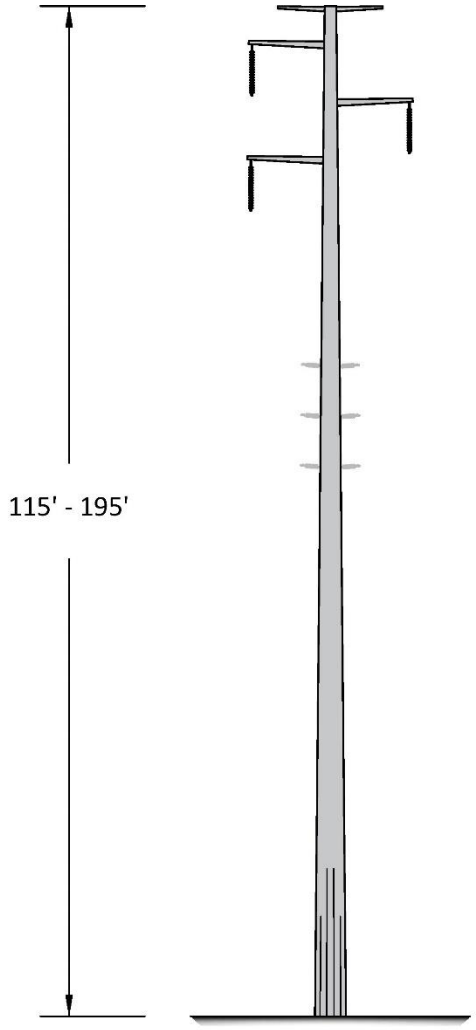
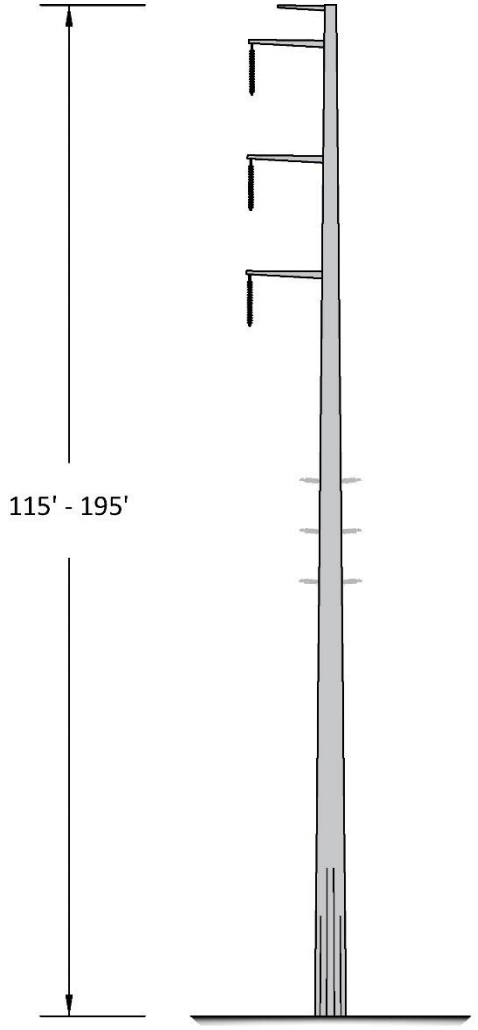


NOT TO SCALE

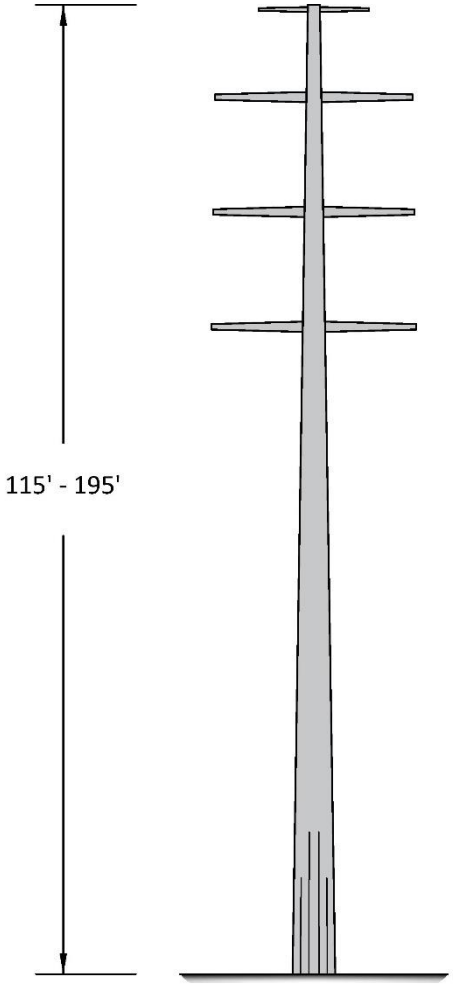
Delta Configuration with Double-Circuit 69kV Underbuild Capable



NOT TO SCALE

Verticle Configuration with Double-Circuit 69kV Underbuild Capable

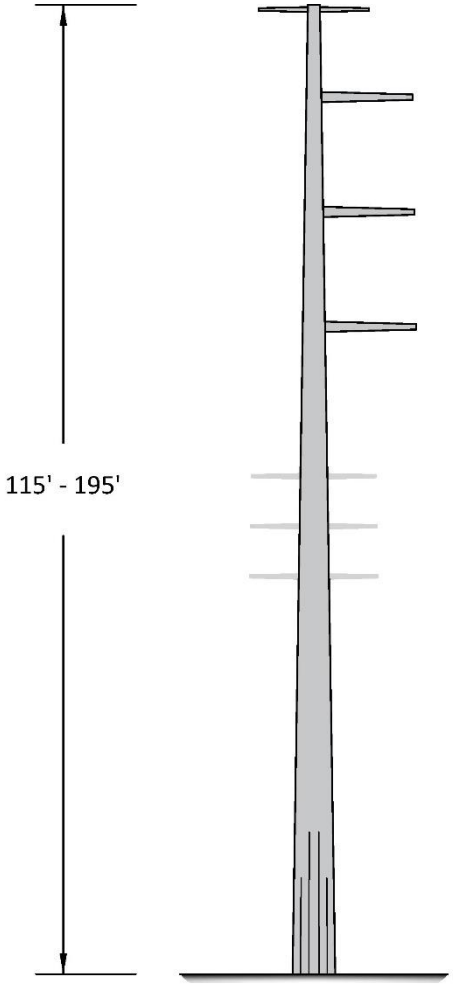
Exhibit G-1. Examples of Single-Circuit/Double-Circuit Capable 230kV Tangent Monopole Structures



NOT TO SCALE

Typical Double-Circuit 230kV Dead-End Monopole Structure

(or Single-Circuit 230kV with Single Circuit 69kV capable)

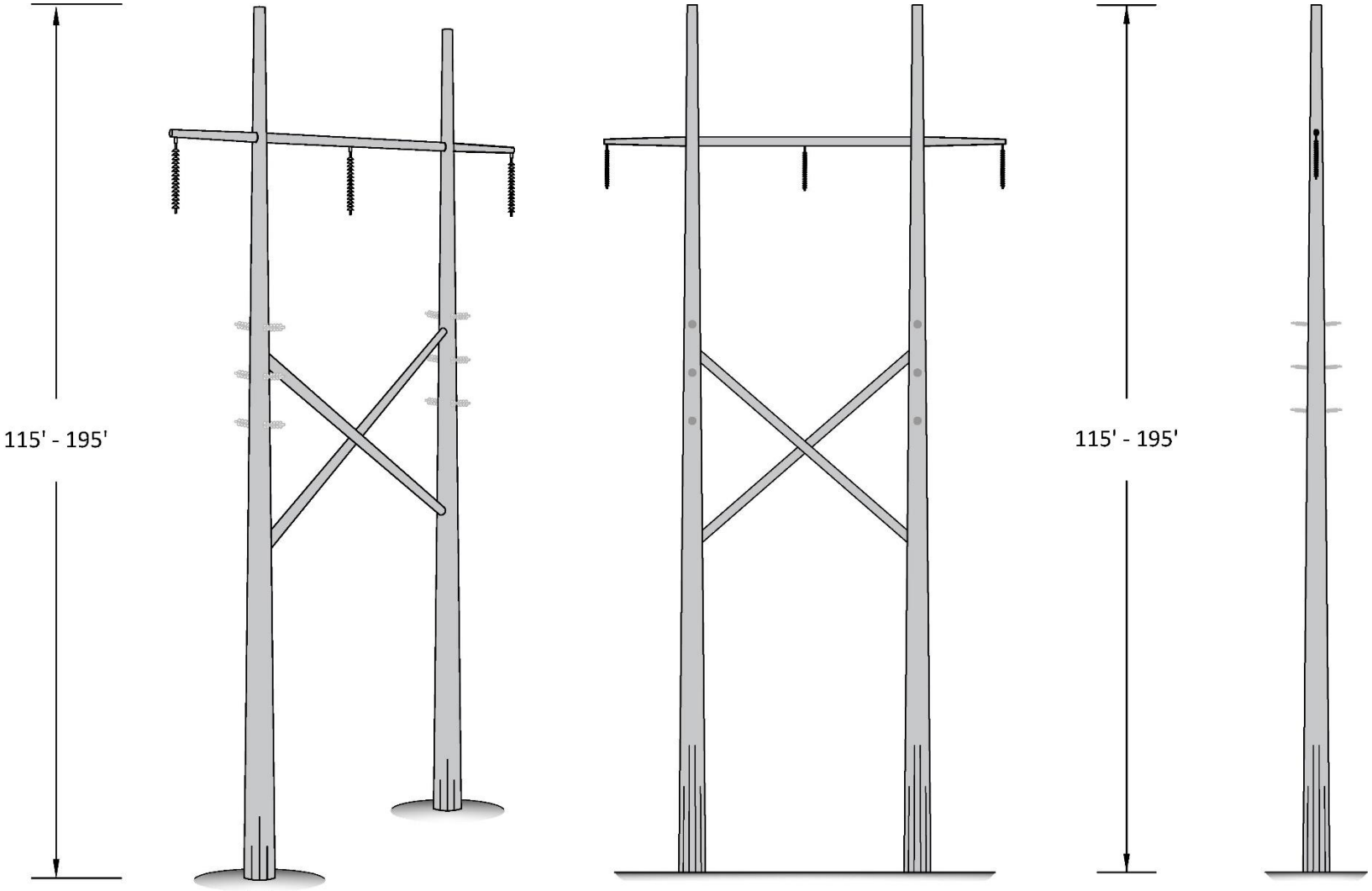


NOT TO SCALE

Typical Single-Circuit 230kV Dead-End Monopole Structure

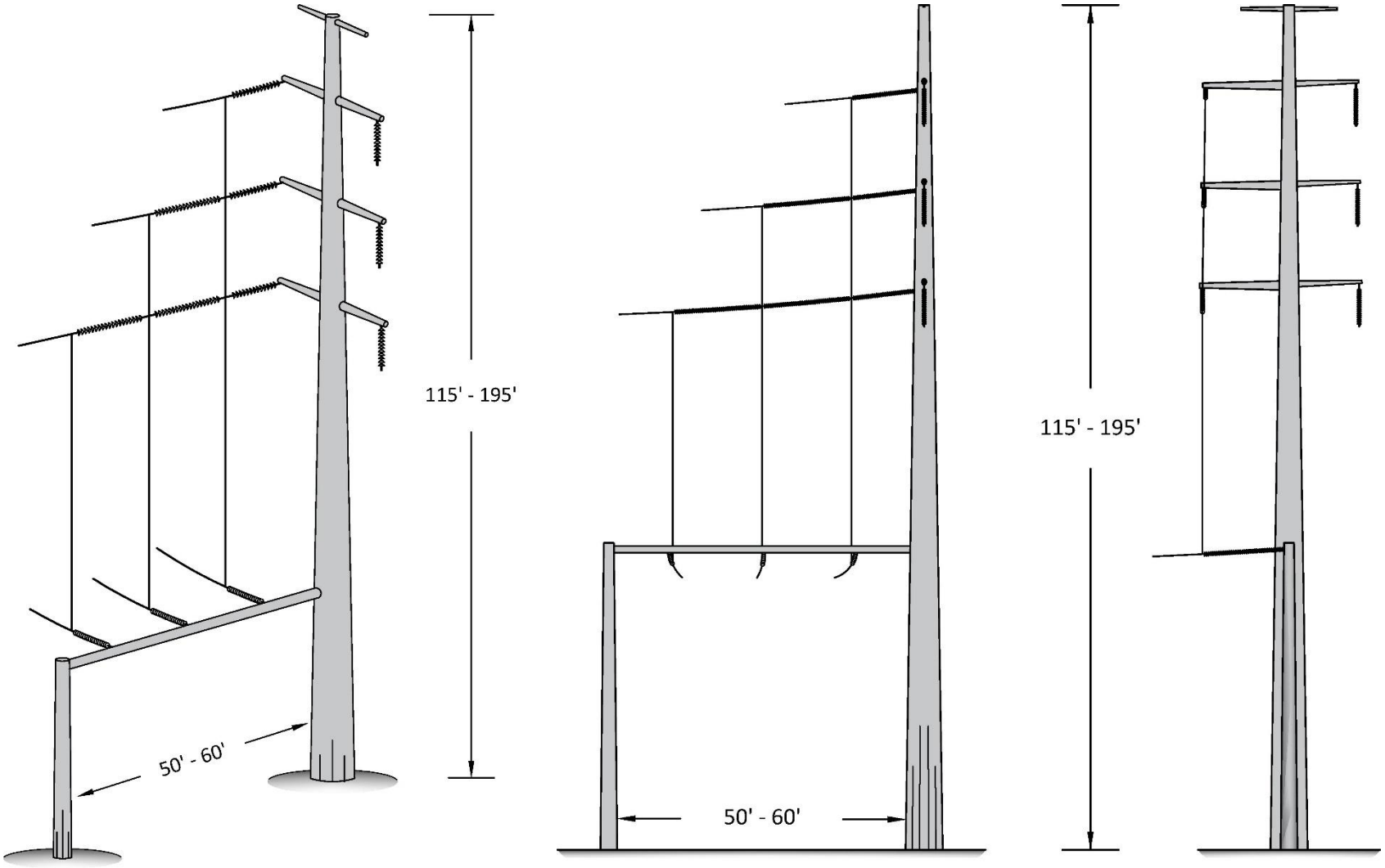
(with Double-Circuit 69kV Underbuild Capable)

Exhibit G-2. Examples of 230kV Dead-End Monopole Structures



NOT TO SCALE
Typical Single-Circuit 230kV H-Frame (with Perpendicular Double-Circuit 69kV Underbuild Capable)

Exhibit G-3. Example of Single-Circuit 230kV H-Frame Structure



NOT TO SCALE
Typical Double-Circuit 230kV Dead-End/Tangent Structure (with Single-Circuit 230kV Cut-in)

Exhibit G-4. Example of Double-Circuit 230kV Dead-End/Tangent Structure

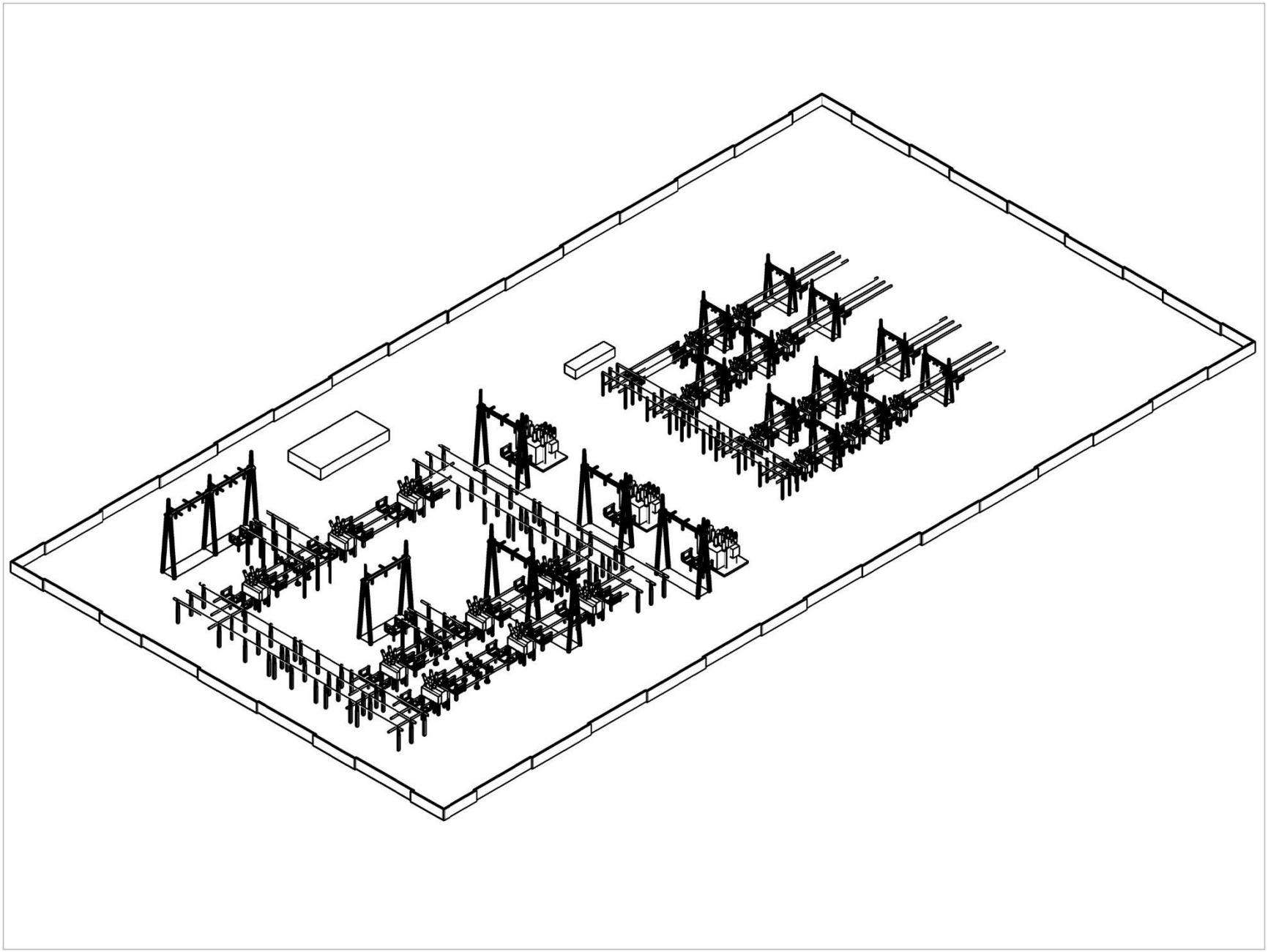


Exhibit G-5. Example of Three Rivers 230kV Substation Layout

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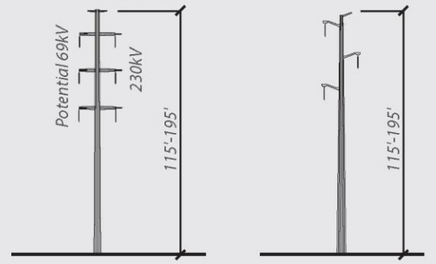
Existing Condition View from west-bound I-10 approaching the Bullard Avenue exit.

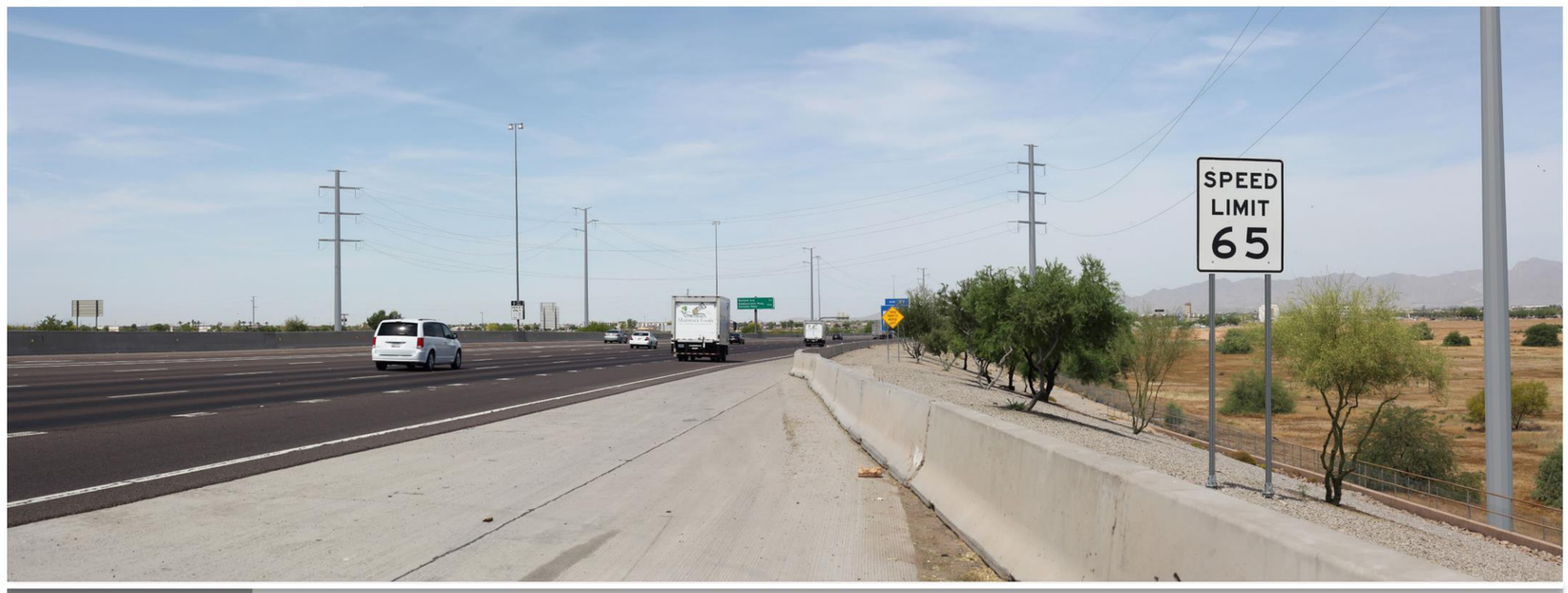
Photo Date and Time: May 8, 2020, 11:17 a.m.

Focal Length: 50mm (The original photographs were taken at 50mm, then stitched together to create this panorama, resulting in an approximately 59-degree field of view)

Typical 230 kV Structures



Single Circuit Dead End *Single Circuit Tangent*



Simulated Condition View of Preferred Route, I-10 crossing.

Three Rivers 230kV Transmission Line Project

Simulation of Preferred Route (I-10 Crossing)

August 2021

aps epg

This simulation and structure diagram are for illustrative purposes only. The project depicted in the simulation reflects preliminary siting information. Final locations will differ based on final enaineerina and desian.

Exhibit G-6. Visual Simulation 1: Preferred Route as viewed from west-bound I-10

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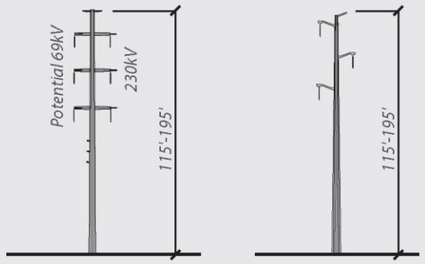
Existing Condition View from west-bound I-10 approaching the Litchfield Road exit.

Photo Date and Time: May 8, 2020, 11:09 a.m.

Focal Length: 50mm (The original photographs were taken at 50mm, then stitched together to create this panorama, resulting in an approximately 59-degree field of view)

Typical 230 kV Structures



Single Circuit Dead End *Single Circuit Tangent*

Simulated Condition View of Alternative Route #1, I-10 crossing.

Three Rivers 230kV Transmission Line Project

Simulation of Alternative Route #1 (I-10 crossing)

August 2021

aps epg

This simulation and structure diagram are for illustrative purposes only. The project depicted in the simulation reflects preliminary siting information. Final locations will differ based on final enaineerina and desian.

Exhibit G-7. Visual Simulation 2: Alternative Route #1 as viewed from west-bound I-10

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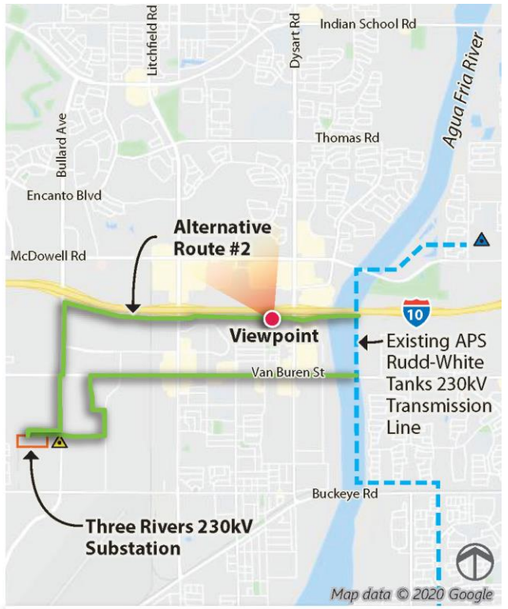
Existing Condition View looking north from North Palo Verde Drive, east of Desert Sage Apartments.

Simulated Condition View of Alternative Route #2, North Palo Verde Drive, east of Desert Sage Apartments.

This simulation and structure diagram are for illustrative purposes only. The project depicted in the simulation reflects preliminary siting information. Final locations will differ based on final enaineerina and desian.



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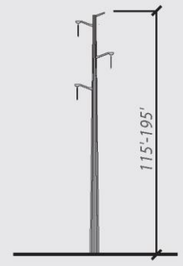
Focal Length: 50mm (The original photographs were taken at 50mm, then stitched together to create this panorama, resulting in an approximately 58-degree field of view)



Single Circuit Tangent

Three Rivers 230kV Transmission Line Project

Simulation of Alernative Route #2 (North Palo Verde Drive)

August 2021

aps epg

Exhibit G-8. Visual Simulation 3: Alternative Route #2 as viewed from Palo Verde Drive, east of Desert Sage Apartments

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Existing Condition View from west-bound West Van Buren Street approaching Litchfield Road.

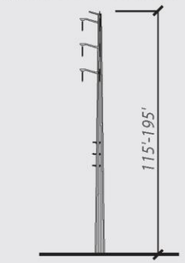
Simulated Condition View of Preferred Route (this view common to all alternatives).

This simulation and structure diagram are for illustrative purposes only. The project depicted in the simulation reflects preliminary siting information. Final locations will differ based on final enaineerina and desian.

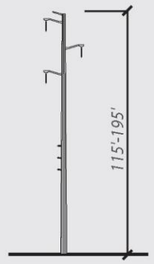
Photo Date and Time: May 8, 2020, 3:22 p.m.

Focal Length: 50mm (The original photographs were taken at 50mm, then stitched together to create this panorama, resulting in an approximately 45-degree field of view)

Typical 230 kV Structures



Single Circuit with 69kV Single Circuit Underbuild Dead End



Single Circuit with 69kV Single Circuit Underbuild Tangent

Three Rivers 230kV Transmission Line Project

Simulation of Preferred Route (West Van Buren Street)

August 2021

aps epg

Exhibit G-9. Visual Simulation 4: Represents all three Project Routes as viewed from West Van Buren Street

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Existing Condition View from east-bound East Van Buren Street approaching Dysart Road.

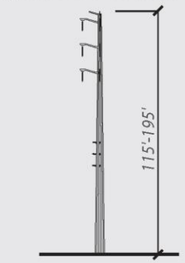
Simulated Condition View of Preferred Route (this view common to all alternatives).

This simulation and structure diagram are for illustrative purposes only. The project depicted in the simulation reflects preliminary siting information. Final locations will differ based on final enaineerina and desian.

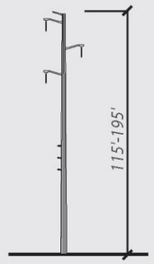
Photo Date and Time: May 8, 2020, 3:22 p.m.

Focal Length: 50mm (The original photographs were taken at 50mm, then stitched together to create this panorama, resulting in an approximately 45 -degree field of view)

Typical 230 kV Structures



Single Circuit with 69kV Single Circuit Underbuild Dead End



Single Circuit with 69kV Single Circuit Underbuild Tangent

Three Rivers 230kV Transmission Line Project

Simulation of Preferred Route (East Van Buren Street)

August 2021

Exhibit G-10. Visual Simulation 5: Represents all three Project Routes as viewed from East Van Buren Street

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Existing Condition View from south-bound North Bullard Avenue approaching the Bullard and Three Rivers Substations.

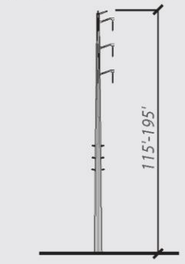
Simulated Condition View of Preferred Route (this view common to all alternatives).

This simulation and structure diagram are for illustrative purposes only. The project depicted in the simulation reflects preliminary siting information. Final locations will differ based on final enaineerina and desian.

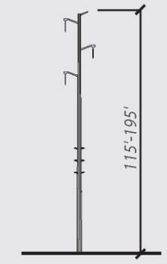
Photo Date and Time: February 21, 2021, 2:34 p.m.

Focal Length: 50mm (The original photographs were taken at 50mm, then stitched together to create this panorama, resulting in an approximately 51-degree field of view)

Typical 230 kV Structures



Single Circuit with 69kV Double Circuit Underbuild Dead End



Single Circuit with 69kV Double Circuit Underbuild Tangent

Three Rivers 230kV Transmission Line Project

Simulation of Preferred Route (Bullard Avenue)

August 2021

aps epg

Exhibit G-11. Visual Simulation 6: Represents all three Project Routes as viewed from North Bullard Avenue

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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-3 and A-4, and are discussed in Exhibit B. As part of the land use study, general and specific plans were gathered for the Project Study Area from Maricopa County and cities of Goodyear and Avondale. During the planning process, members of the Project team also met with representatives from Maricopa County, and the cities of Goodyear and Avondale, the Phoenix Goodyear Airport, as well as private landowners within the Project Study Area. In February 2021, letters were sent to the jurisdictions (listed in Table H-1) to provide Project information, announce the Preferred Route, and request new or additional information on plans or planned developments. Exhibit H-1 is an example of the letter sent on February 15, 2021, requesting information or written comments regarding development plans in the vicinity of the Project. Exhibit H-2 through Exhibit H-12 are copies of the letters, written responses, and other correspondence from relevant entities. It is important to note that the Alternative Route #1, as shown on the maps with the letters sent on February 15, 2021, was subsequently identified as the Preferred Route in March 2021.

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

Contact Name	Title	Jurisdiction/Agency
Debra Planalp	Engineering Permits & Utility Tech III	Arizona Department of Transportation
Ginger Ritter	Project Evaluation Program Supervisor	Arizona Game and Fish Department
Kathryn Leonard	State Historic Preservation Officer	Arizona State Historic Preservation Office
Ruben Ojeda	Manager, Right-of-Way Section	Arizona State Land Department
Gina Montes	Assistant City Manager	City of Avondale
Julie Arendall	City Manager	City of Goodyear
Pam Maslowski	Planning Services Director	City of Litchfield Park
Alan Stephenson	Planning and Development Director	City of Phoenix
Jordan D. Feld	Deputy Aviation Director	City of Phoenix Aviation Department Planning and Environmental Division
Randy Payne	Project Manager	City of Phoenix Aviation Department Planning and Environmental Division
Heather Mitchell	Right-of-Way Permit Specialist	Flood Control District of Maricopa County
Steven Warburton	Property Management	Flood Control District of Maricopa County
Kimberly Antone	Director	Gila River Indian Community, Land Use Planning and Zoning
Matt Holm	Planning Supervisor	Maricopa County
Jennifer Toth	Transportation Director/County Engineer	Maricopa County Department of Transportation
Ken Vonderscher	Planning and Development Manager	Maricopa County Parks and Recreation Dept.
Glen Vortherms	General Manager	Maricopa Water District
Bradley Hagen	Airport Manager	Phoenix Goodyear Airport
Donovan Neese	Superintendent	Roosevelt Irrigation District
Janeen Rohovit	Public Involvement Representative	Salt River Project
Yvonne Martinez	Manager Engineering	Salt River Project
Kenny Varga		Tucson Electric Power
Eduardo Uribe	Electrical Engineer	Western Area Power Administration, Desert Southwest Region

4685 S. Ash Ave, Suite H-4, Tempe, AZ 85282
P (480) 897-8200 | F (480) 897-1133

February 15, 2021

Julie Arendall
City Manager
City of Goodyear
190 N. Litchfield Road
Goodyear, AZ 85338

Subject: Arizona Public Service Application for a Certificate of Environmental Compatibility for the APS Three Rivers 230kV Transmission Line Project

Dear Julie Arendall,

Arizona Public Service Company (APS) plans to file an application for a Certificate of Environmental Compatibility (CEC) for a customer-driven 230 kilovolt (kV) transmission line project with the Arizona Power Plant and Transmission Line Siting Committee in April of 2021. This project is referred to as the Three Rivers 230kV Transmission Line Project (Project). The Project would include development of a 230kV transmission line and associated substation facility needed to serve a new data center located west of Bullard Avenue between Van Buren Street and Yuma Road. The proposed project is designed to connect the new Three Rivers Substation, located near Bullard Avenue and Van Buren Street in Goodyear, to an existing 230kV transmission line along the Agua Fria River in Avondale.

APS and its consultant, Environmental Planning Group, implemented a comprehensive public siting process to identify and evaluate suitable locations for proposed transmission line routes. Through this process, an APS-preferred route and two alternative routes were identified that will be brought before the Siting Committee (see attached maps). APS will request Siting Committee approval for the CEC for the preferred transmission line route.

Arizona Administrative Code Rule R14-3-219 directs an applicant to include in its CEC application an Exhibit H addressing the following: "To the extent the 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."

Your organization is invited to provide information or written comments regarding development plans in the vicinity of the proposed Project (as depicted on the maps). If you have already provided information on the project, that information is included as part of the project record. APS requests your comments be submitted in writing, specifically including your organization's existing or future development plans that you have identified or are known to you at this time.

To allow your information to be included in APS's CEC application(s), please forward your written comments to me by Tuesday, February 26, 2021 via email at ptrenter@epgllc.co, or by physical mail at 4685 South Ash Avenue, Suite H-4,Tempe, AZ 85282.

Sincerely,

Paul Trenter,
Regional Manager/Principal
Environmental Planning Group

cc: Stephen Eich
Enclosure

Exhibit H-1a. Example of Letter Sent February 15, 2021

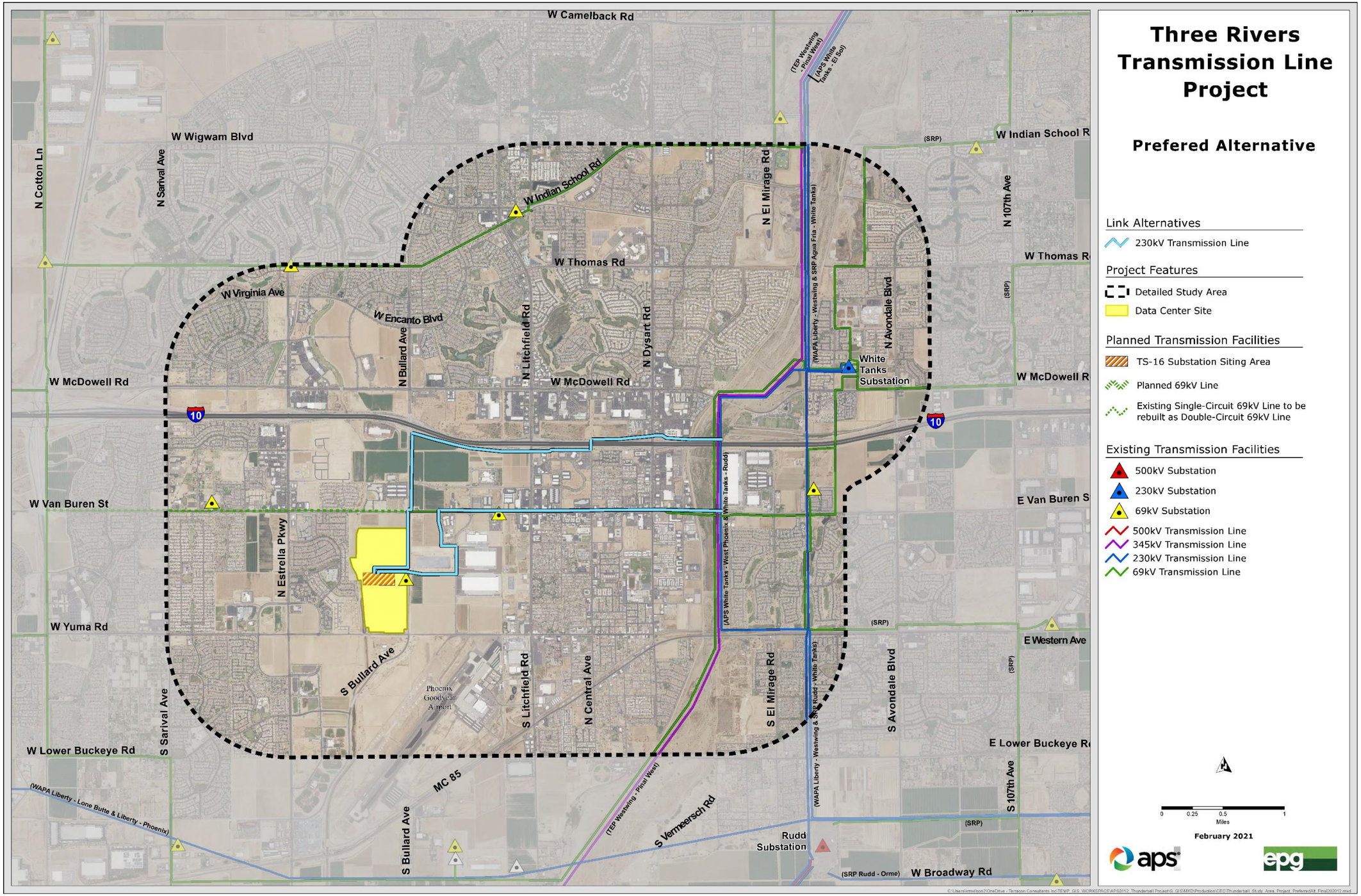

Exhibit H-1b. Example of Enclosure to Letter Sent February 15, 2021 – Preferred Route

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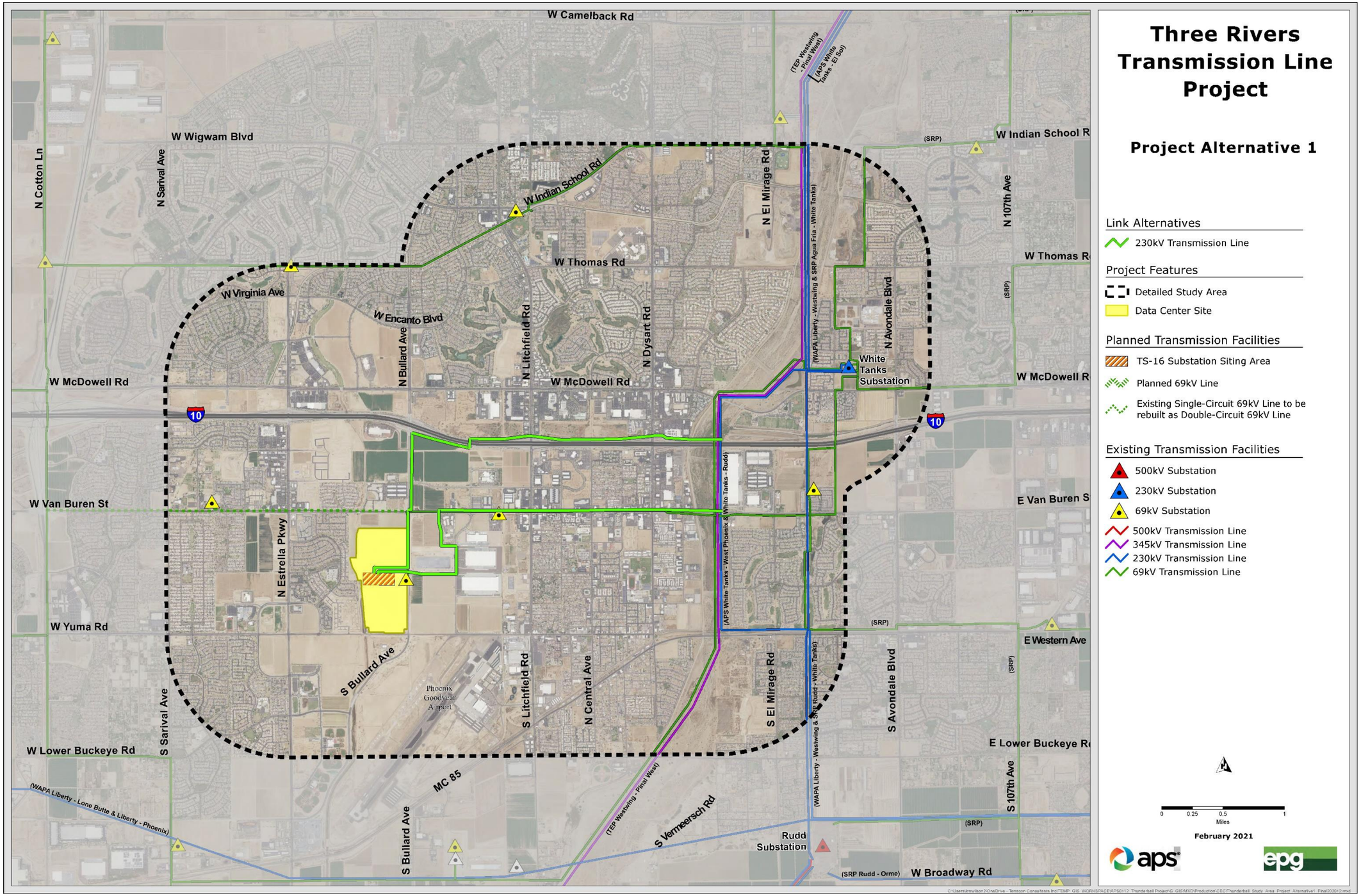

Exhibit H-1b. Example of Enclosure to Letter Sent February 15, 2021 – Project Alternative 1

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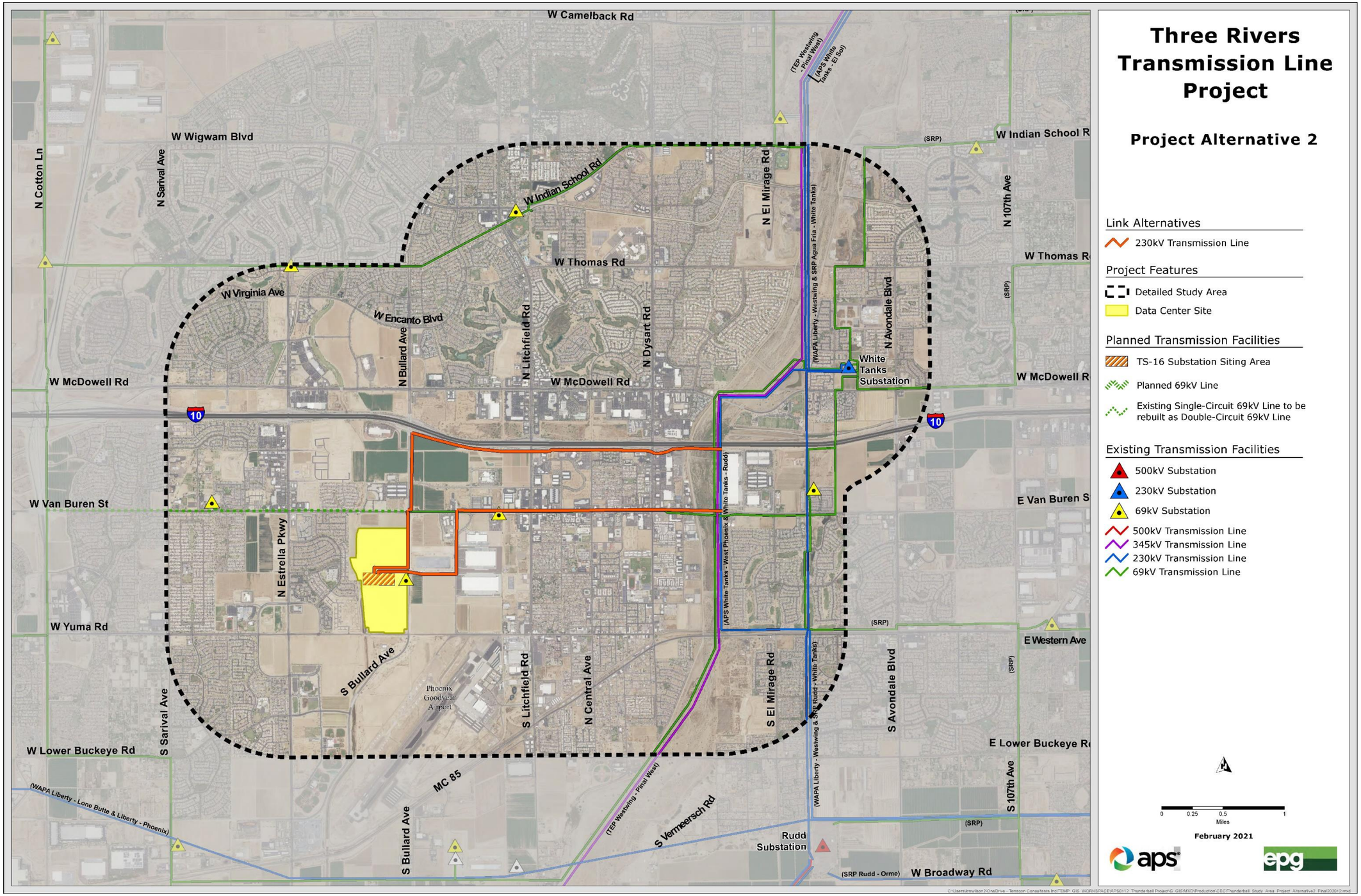

Exhibit H-1d. Example of Enclosure to Letter Sent February 15, 2021 – Project Alternative 2

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City of Goodyear
Office of the Mayor and Council

March 2, 2021

Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

RE: Letter of Support
APS Three Rivers 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 (CEC) and APS' selection of their preferred route and the two identified alternate routes to connect new power lines and a substation into an existing 230kV transmission line to serve a new data center, located west of Bullard Avenue between Van Buren Street and Yuma Road.

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,

Georgia Lord

Mayor
City of Goodyear, Arizona

190 North Litchfield Road, Goodyear, AZ 85338
P 623-882-7776 F 623-882-7091 TDD 623-932-6500 goodyearaz.gov

Exhibit H-2. Written Response 1 from City of Goodyear on March 2, 2021

From: Ginna Carico
To: Perry, Jessica
Cc: Eich, Stephen K
Subject: RE: Three Rivers Alternative Route Update
Date: Wednesday, March 31, 2021 3:05:33 PM

Hi Jessica –

Thank you for sharing this and for being so responsive and helpful with our additional questions. The City remains supportive of all three routes, and is okay with the preferred route being changed.

Please let me know if you may need anything additional from us.

Talk to you soon,

Ginna

From: Jessica.Perry@aps.com <Jessica.Perry@aps.com>
Sent: Friday, March 19, 2021 8:29 AM
To: Ginna Carico <Ginna.Carico@goodyearaz.gov>
Cc: Stephen.Eich@aps.com
Subject: FW: Three Rivers Alternative Route Update

Hi Ginna,

Please see the note below from Stephen Eich. If you wouldn't mind circling this email to team Goodyear and confirming if there are any concerns, questions or if there is a need to meet, we would appreciate it.

I just want to echo Stephen in that all three alternative route alignments remain the same, the only difference is our Preferred Route is being switched with the original Route Alternative 1 which is now reflected in the attached maps.

As always, we appreciate the City of Goodyear's input and partnership with this project. Feel free to call me if any clarification is needed.

Thank you,

Jessica

JESSICA PERRY
Public Affairs Manager
400 N. 5th Street, M.S. 8010, Phoenix, AZ 85004
Tel 602-250-2784 **Cell** 623-696-6217
Jessica.Perry@aps.com **aps.com**

From: Eich, Stephen K <Stephen.Eich@aps.com>
Sent: Friday, March 19, 2021 8:09 AM
To: Perry, Jessica <Jessica.Perry@aps.com>
Subject: Three Rivers Alternative Route Update

Hi Jessica.

As you know, we recently sent out letters to various stakeholders for the Three Rivers 230kv project, asking for feedback regarding the final 3 alternative routes that we plan to take forward in our CEC application. Although we received supportive responses from these stakeholders, including the City of Goodyear, we were also given additional information from ADOT and some of the adjoining landowners that led us to decide it would be best to switch our Preferred Route with Route Alternative 1. All three alternative route alignments remain the same, the only difference is our Preferred Route is now the one that continues along the north side of the I-10 the furthest west before crossing to the south (shown as the green line on the included map), and our Alternative 1 Route would cross the I-10 to the south at the Central Road alignment (shown as the light blue line on the included map).

Exhibit H-3a. Written Response 2 from City of Goodyear on March 31, 2021 – Page 1

The letter we received from the City (also attached) indicates support for all 3 of our alternative routes, and it appears that making this preference switch would not cause any concern. However, I want to be sure they are aware of this switch prior to us making the CEC application.

Please feel free to let them know about this small adjustment. As always, if they have any questions or concerns, I am happy to meet with them to discuss this further if they would like.

Thank you,

aps
STEPHEN EICH
Siting Consultant
P.O. Box 53933, M.S. 3293
Phoenix, AZ 85702
Cell 928-243-2648
stephen.eich@aps.com

Exhibit H-3b. Written Response 2 from City of Goodyear on March 31, 2021 – Page 2

From: Kevin Murphy
Sent: Wednesday, February 24, 2021 4:04 PM
To: TO'Neil@epgllc.com
Subject: Three Rivers CEC Application

Teresa,
Avondale would prefer Alternate 1 for the following reasons:

- Transmission line is routed along the north side of I-10, as opposed to the south side of I-10, which would place the lines in close proximity to the Litchfield Shadows residential community
- We prefer that the 90 degree crossing from the north side of I-10 to the south side of I-10, occur further west (between Bullard and Litchfield as shown in Alternative 1) rather than the crossover location at the Central Avenue alignment as showed in the Preferred Alternative

The maps do not clearly indicate which side of Van Buren Street the transmission lines are proposed to be routed along. Currently, there appear to be 69kV lines running along the south side of Van Buren between the Agua Fria River and Sam's Club (just east of Dysart), then the lines cross over Van Buren to the north side and continue west along the north side of Van Buren. We'd prefer this existing route be followed, to minimize having high tension lines on both sides of Van Buren, if possible.

Please let me know if you have any questions,
Thanks,

Kevin Murphy, PE | Director, Development & Engineering Services Department
City of Avondale
11465 W. Civic Center Dr., #110 | Avondale, AZ | 85323
Direct phone: 623-333-4011 | Email: kmurphy@avondaleaz.gov
Avondale Office Hours: M-TH 7am-6pm; Office closed Fridays

Exhibit H-4. Written Response from City of Avondale

From: Raul Amavisca <ramavisca@azdot.gov>
Sent: Thursday, March 4, 2021 3:26 PM
To: Trenter, Paul <PTrenter@epgllc.co>
Cc: Kendra.Lee@pinnaclewest.com; Debra Planalp <dplanalp@azdot.gov>
Subject: Re: APS proposed transmission lines

Mr. Trenter,
I appreciate the discussion and understand that there is not an intent to run the lines along our right of way.

We understand there will be a need to cross and will work towards finding a mutually agreeable solution.

Respectfully,

Raul G. Amavisca, PE
Engineering Administrator
ADOT Central District
2140 W. Hilton Avenue, Mail Drop PM00
Phoenix, AZ 85009
602.206.2543 Cell
www.azdot.gov
ADOT
Infrastructure Delivery and Operations

On Thu, Mar 4, 2021 at 1:38 PM Raul Amavisca <ramavisca@azdot.gov> wrote:
Mr. Trenter,
Correction on Debra's title is that she is now the Permits Supervisor.

Your letter notes that comments should have been provided by last week so I take it that you haven't had a chance to process them. I expect a correction taking into account the comments provided will be in follow up correspondence.

While you are welcome to research our record drawings for conflicts at https://road.azdot.gov/Home/Terms, I am concerned that you are seeking environmental 'clearance' for a path that is not available.

Respectfully,

Raul G. Amavisca, PE
Engineering Administrator
ADOT Central District
2140 W. Hilton Avenue, Mail Drop PM00
Phoenix, AZ 85009
602.206.2543 Cell
www.azdot.gov
ADOT
Infrastructure Delivery and Operations

Exhibit H-5a. Written Response from Arizona Department of Transportation – Page 1

On Thu, Mar 4, 2021 at 9:25 AM Debra Planalp <dplanalp@azdot.gov> wrote:

Paul,

I just received you your proposed transmission line overview yesterday. As I discussed with APS over a year ago, ADOT ROW should only be utilized as a crossing from one side of the freeway to the other, not for pole runs. Scott Vollrath and I pointed out several conflicts with ADOT fiber, landscape, drainage, cell site, ADOT yard, etc. Your overview does not indicate footage from or in ADOT ROW, but It appears ADOT comments were not taken into consideration on any of the proposals you provided.

I have escalated to my manager and I'm sure he will be contacting you soon.

Thank you.

--
Debra Planalp
ADOT Central District
Permits and Utilities Supervisor
2140 W. Hilton Ave. MD PM00
Phoenix, AZ 85009
602-882-8018
dplanalp@azdot.gov

Exhibit H-5b. Written Response from Arizona Department of Transportation – Page 2

From: Ruben Ojeda <rojeda@azland.gov>
Sent: Thursday, February 18, 2021 9:00 AM
To: O'Neil, Teresa
Subject: Out of Office Re: APS Three Rivers CEC Application

Thank you for your email. I am out of the office and will be returning on Monday, February 22nd. If you need assistance in my absence, please email Scott Sherwood at ssherwood@azland.gov.

Thank you and have a wonderful day!

Sincerely,

Ruben Ojeda
ROW Section Manager
Arizona State Land Department

--

Ruben Ojeda | Rights of Way Section Manager Arizona State Land Department
1616 W. Adams Street | Phoenix, AZ 85007
<https://urldefense.com/v3/__https://www.google.com/maps/place/1616*W*Adams*St,*Phoenix,*AZ*85007/@33.4495549,-112.0960746,17z/data=!3m1!4b1!4m5!3m4!1s0x872b122d4047d85d:0x448952f29286aa8b!8m2!3d33.4495504!4d-112.0938859__;KysrKysr!!JrcuqBw_IQ!z4kooO7LXFvh3xCZM-aB9IE6MxkVjPCQTwkmWs-RC_dFEMX1MlYAA5uHyAhJIcP05CM$ >
O: 602-542-2648 | rojeda@azland.gov

<https://urldefense.com/v3/__https://land.az.gov/__;!!JrcuqBw_IQ!z4kooO7LXFvh3xCZM-aB9IE6MxkVjPCQTwkmWs-RC_dFEMX1MlYAA5uHyAhJbwUfbMs$ >
<https://urldefense.com/v3/__https://www.facebook.com/azstateland/__;!!JrcuqBw_IQ!z4kooO7LXFvh3xCZM-aB9IE6MxkVjPCQTwkmWs-RC_dFEMX1MlYAA5uHyAhJGbjEL9g$ >
<https://urldefense.com/v3/__https://twitter.com/AZStateLand__;!!JrcuqBw_IQ!z4kooO7LXFvh3xCZM-aB9IE6MxkVjPCQTwkmWs-RC_dFEMX1MlYAA5uHyAhJ-11l7e0$ >

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Exhibit H-6. Written Response from Arizona State Land Department

From: Jordan D Feld <jordan.feld@phoenix.gov>
Sent: Wednesday, February 24, 2021 9:31 AM
To: Trenter, Paul
Cc: Stephen.Eich@aps.com; Clayton.Allsop@pinnaclewest.com; O'Neil, Teresa; Bradley Hagen; Randy Payne
Subject: RE: APS Three Rivers CEC Application

City of Phoenix appreciates the siting analysis inclusion of critical airport/FAA safety surface affecting the project area. City of Phoenix requests the APS project continue to consider and conform to FAA safety surfaces through the CEC application and thereafter.
Thank you

Jordan D. Feld, CM, AICP
Deputy Aviation Director - Planning & Environmental
City of Phoenix Aviation Department
jordan.feld@phoenix.gov
602-273-4072

From: O'Neil, Teresa <TO'Neil@epgllc.co>
Sent: Thursday, February 18, 2021 9:02 AM
To: Jordan D Feld <jordan.feld@phoenix.gov>
Cc: Stephen.Eich@aps.com; Trenter, Paul <PTrenter@epgllc.co>; Clayton.Allsop@pinnaclewest.com
Subject: APS Three Rivers CEC Application

Dear Jordan Feld,
Thank you for taking the time to review the attached files related to Arizona Public Service Application for a Certificate of Environmental Compatibility for the APS Three Rivers 230kV Transmission Line Project.
Best,

Teresa O'Neil
Senior Environmental Planner

Environmental Planning Group, A Terracon Company
4685 S. Ash Ave., Suite H-4 | Tempe, AZ 85282
D (623) 244-3612 | F (480) 897 1133 | M (480) 299-8869

Exhibit H-7. Written Response from City of Phoenix Aviation Department Planning and Environmental Division

From: Steven Warburton (RED) <Steven.Warburton@Maricopa.Gov>
Sent: Thursday, February 18, 2021 4:44 PM
To: O'Neil, Teresa
Cc: Stephen.Eich@aps.com; Trenter, Paul
Subject: RE: APS Three Rivers CEC Application

My apologies. Heather Mitchell is the correct contact for west valley projects.

Thank you,

STEVEN F. WARBURTON, SR/WA
PROPERTY MANAGEMENT SUPERVISOR
Maricopa County Real Estate Department
Office (602) 506-4746
Fax (602) 506-4161
2801 W. Durango Street
Phoenix, AZ 85009

From: O'Neil, Teresa <TO'Neil@epgllc.co>
Sent: Thursday, February 18, 2021 2:16 PM
To: Steven Warburton (RED) <Steven.Warburton@Maricopa.Gov>
Cc: Stephen.Eich@aps.com; Trenter, Paul <PTrenter@epgllc.co>
Subject: RE: APS Three Rivers CEC Application

Thank you for your quick response, Mr. Warburton. I sent this information about the Three Rivers Project to Mitchell Heather this morning. Please let me know if you still feel it necessary to forward it to Sarelda Marshall.
Best, Teresa

From: Steven Warburton (RED) <Steven.Warburton@Maricopa.Gov>
Sent: Thursday, February 18, 2021 1:59 PM
To: O'Neil, Teresa <TO'Neil@epgllc.co>
Cc: Stephen.Eich@aps.com; Trenter, Paul <PTrenter@epgllc.co>
Subject: RE: APS Three Rivers CEC Application

Theresa,

These reviews are typically submitted directly to the Flood Control District right of way permitting group. The review of proposals impacting District property are a collective effort of various District/County personnel coordinated by the Permitting staff. Please direct this request to Sarelda Marshall Sarelda.marshall@maricopa.gov.

Thank you,

STEVEN F. WARBURTON, SR/WA
PROPERTY MANAGEMENT SUPERVISOR
Maricopa County Real Estate Department
Office (602) 506-4746
Fax (602) 506-4161
2801 W. Durango Street
Phoenix, AZ 85009

Exhibit H-8. Written Flood Control District of Maricopa County Real Estate Department

From: Ken Vonderscher (PRK) <Ken.Vonderscher@Maricopa.Gov>
Sent: Tuesday, February 23, 2021 2:04 PM
To: Stephen.Eich@aps.com
Cc: O'Neil, Teresa
Subject: RE: APS Three Rivers CEC Application

Hey Stephen

1. Currently we do not have any plans or future plans that conflict.
2. It seems much cleaner and efficient to keep all the facilities on the south side of the I-10.

Thanks

Ken

Ken Vonderscher
Park Planning and Development Manager
Maricopa County Parks and Recreation
41835 N Castle Hot Springs Rd
Morristown AZ 85342
Email: ken.vonderscher@maricopa.gov
602 506-9503

From: Stephen.Eich@aps.com <Stephen.Eich@aps.com>
Sent: Tuesday, February 23, 2021 1:06 PM
To: Ken Vonderscher (PRK) <Ken.Vonderscher@Maricopa.Gov>
Cc: TO'Neil@epgllc.co
Subject: FW: APS Three Rivers CEC Application

Hello Ken,

I left a voice message with you, but thought I'd follow up with an email.

My name is Stephen Eich, and I am APS's Siting Consultant for the Three Rivers 230kv Line Siting Project. Thank you for your response to the letter that was recently mailed and emailed to you by our consultant, Teresa O'Neil, at EPG. Your input is appreciated, and I'd like to ask for further clarification regarding your preference for Route Alternative 2.

Specifically:

1. Do you (Maricopa County Parks and Recreation) have any existing or future development plans that would conflict with any of the three route alternatives?
    a. If so, please explain.
2. Are there any reasons why you could not support the Preferred Alternative or Alternative 1 route options?

Please feel free to call me at any time to talk about this project and these 3 route alternatives.

Thanks again,

Exhibit H-9a. Written Response from Maricopa County Parks and Recreation Department – Page 1

From: Ken Vonderscher (PRK) <Ken.Vonderscher@Maricopa.Gov>
Sent: Thursday, February 18, 2021 4:49 PM
To: O'Neil, Teresa
Subject: RE: APS Three Rivers CEC Application

Hi Teresa

Project alternative 2 seems to be the most efficient. We have no other comments or concerns with the project.

Thanks

Ken

Ken Vonderscher
Park Planning and Development Manager
Maricopa County Parks and Recreation
41835 N Castle Hot Springs Rd
Morristown AZ 85342
Email: ken.vonderscher@maricopa.gov
602 506-9503

From: Maricopa County Parks <MaricopaCountyParks@maricopa.gov>
Sent: Thursday, February 18, 2021 4:32 PM
To: Ken Vonderscher (PRK) <Ken.Vonderscher@Maricopa.Gov>
Subject: FW: APS Three Rivers CEC Application

From: O'Neil, Teresa <TO'Neil@epgllc.co>
Sent: Thursday, February 18, 2021 9:02 AM
To: Maricopa County Parks <MaricopaCountyParks@maricopa.gov>
Cc: Stephen.Eich@aps.com; Trenter, Paul <PTrenter@epgllc.co>
Subject: APS Three Rivers CEC Application

Dear Ken Vonderscher,
Thank you for taking the time to review the attached files related to Arizona Public Service Application for a Certificate of Environmental Compatibility for the APS Three Rivers 230kV Transmission Line Project.
Best,

Teresa O'Neil
Senior Environmental Planner

Environmental Planning Group, A Terracon Company
4685 S. Ash Ave., Suite H-4 | Tempe, AZ 85282
D (623) 244-3612 | F (480) 897 1133 | M (480) 299-8869

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Exhibit H-9b Written Response from Maricopa County Parks and Recreation Department – Page 2

From: Martinez Yvonne G <Yvonne.Martinez@srpnet.com>
Sent: Wednesday, February 24, 2021 7:52 AM
To: O'Neil, Teresa
Cc: Stephen.Eich@aps.com; Trenter, Paul; Felix David; Priest Bryce L; Tang Eric C; Heim Zackary J (Zack)
Subject: RE: APS Three Rivers CEC Application

Good morning Teresa,

Thank you for reaching out. SRP will review and provide comments but this will take some time, the attached letter requested comments by Tuesday Feb 26,2021. Not sure if you meant by this Friday but I would like request another week to properly review the proposed routes.

Thank you,

Yvonne Martinez
Manager Engineering
SRP | Transmission Line Design and Project Controls | EVS119
P.O. Box 52025, Phoenix, AZ 85072-2025
P: (602) 236-8005 | **M**: (602) 423-8612

From: O'Neil, Teresa <TO'Neil@epgllc.co>
Sent: Thursday, February 18, 2021 9:03 AM
To: Martinez Yvonne G <Yvonne.Martinez@srpnet.com>
Cc: Stephen.Eich@aps.com; Trenter, Paul <PTrenter@epgllc.co>
Subject: APS Three Rivers CEC Application

Dear Yvonne Martinez,
Thank you for taking the time to review the attached files related to Arizona Public Service Application for a Certificate of Environmental Compatibility for the APS Three Rivers 230kV Transmission Line Project.
Best,

Teresa O'Neil
Senior Environmental Planner
Environmental Planning Group, A Terracon Company
4685 S. Ash Ave., Suite H-4 I Tempe, AZ 85282
D (623) 244-3612 I F (480) 897 1133 I M (480) 299-8869

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Exhibit H-10. Written Response 1 from Salt River Project on February 24, 2021, letter

From: Martinez Yvonne G <Yvonne.Martinez@srpnet.com>
Sent: Tuesday, March 02, 2021 2:46 PM
To: O'Neil, Teresa
Cc: Eich, Stephen K; Trenter, Paul; David Felix; Tang Eric C; Heim Zackary J (Zack); Nielsen Bryce K; Tarango Jesus M (Manny); Augustin Philip J; Leon Andre D; Ramaley Karilee S
Subject: RE: APS Three Rivers CEC Application

Good afternoon Teresa,

SRP does not have any 6-year or 10-year projects in these proposed corridors. SRP does not have power infrastructure west of White Tanks. The proposed APS substation and lines are beyond SRP's western electric boundary.

Thank you for the opportunity to review and provide feedback.

Yvonne Martinez
Manager Engineering
SRP | Transmission Line Design and Project Controls | EVS119
P.O. Box 52025, Phoenix, AZ 85072-2025
P: (602) 236-8005 | **M**: (602) 423-8612

Exhibit H-11. Written Response 2 from Salt River Project on March 2, 2021

From: Uribe, Eduardo <Uribe@WAPA.GOV>
Sent: Thursday, February 18, 2021 12:50 PM
To: O'Neil, Teresa; Berry, Sean
Cc: Stephen.Eich@aps.com; Trenter, Paul
Subject: RE: [EXTERNAL] APS Three Rivers CEC Application
Attachments: [EXTERNAL] APS Three Rivers CEC Application

Teresa,

I'm including our Environmental Protection Supervisor so he is also aware. I checked with my manager and felt that this deserves his input as well. Thanks for reaching out.

Sean,

Attachments in the attached email will provide you some perspective. Let me know if you have any questions.

Eduardo D. Uribe | Electrical Engineer
Department of Energy
Western Area Power Administration | Desert Southwest Region
(O) 602.605.2914 | (M) 480.493.7542
Western Area Power Administration

From: O'Neil, Teresa <TO'Neil@epgllc.co>
Sent: Thursday, February 18, 2021 9:01 AM
To: Uribe, Eduardo <Uribe@WAPA.GOV>
Cc: Stephen.Eich@aps.com; Trenter, Paul <PTrenter@epgllc.co>
Subject: [EXTERNAL] APS Three Rivers CEC Application

Dear Eduardo Uribe,
Thank you for taking the time to review the attached files related to Arizona Public Service Application for a Certificate of Environmental Compatibility for the APS Three Rivers 230kV Transmission Line Project.
Best,

Teresa O'Neil
Senior Environmental Planner
Environmental Planning Group, A Terracon Company
4685 S. Ash Ave., Suite H-4 | Tempe, AZ 85282
D (623) 244-3612 | F (480) 897 1133 | M (480) 299-8869

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Exhibit H-12. Written Western Area Power Administration, Desert Southwest Region

Exhibit I – Anticipated Noise Emissions and Potential Interference with Communication Signals

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.*

INTRODUCTION

Certain electromagnetic effects are inherently associated with overhead transmission of electrical power at high voltage. These effects are produced by the electric and magnetic fields of the transmission line with one of the effects being corona discharge. Corona effects are manifest as audible noise, radio interference, and television interference. 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 was used to calculate these various electromagnetic effects, which are presented here (EPRI 1982). The project involves transmission lines that are modeled in five different segments, each of which are evaluated separately. Summaries levels represent the highest modeled results of the various segments. Exhibit I-1 gives a map of the segments.

CORONA

Corona is a luminous discharge due to ionization of the air surrounding a conductor and is caused by a voltage gradient that 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 9.7 to 10.9 root mean square kilovolt per centimeter (kVrms/cm). For comparison purposes, the breakdown strength of air is 21.1 kVrms/cm at 25°C and 76 millimeter 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.

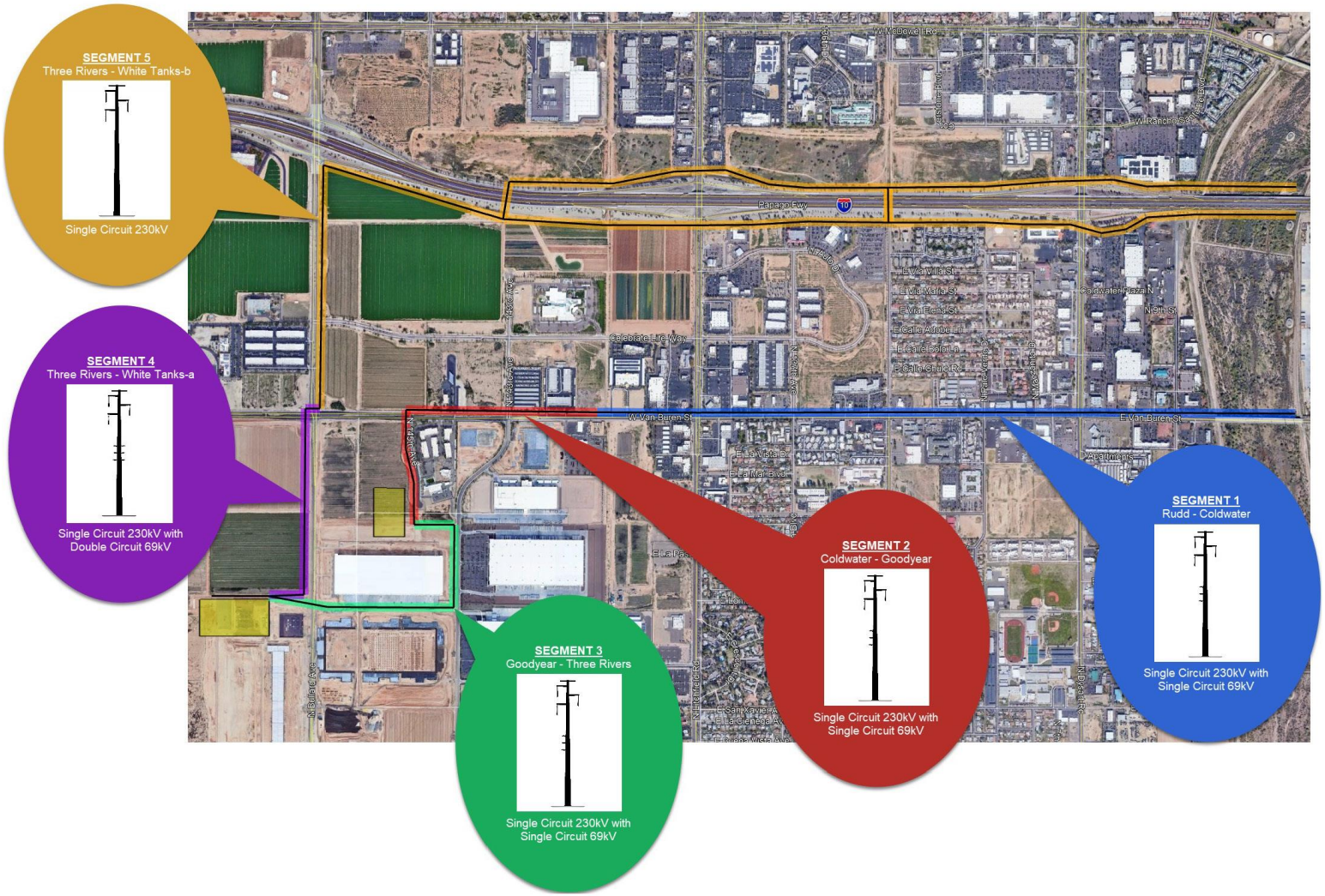

Exhibit I-1. Map of Segments Modeled

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 level generated by these transmission line designs during foul weather (rain) may occasionally reach 49.3 decibels (dB) measured on an "A" weighted scale at the edge of the right-of-way. These noise levels will occur during very heavy rain conditions[1], and such conditions will tend to mask the noise. During light rain[2], or wet conductor conditions, the expected audible noise is in the range of 23.7 A-weighted decibels (dB(A)) or lower at the edge of the right-of-way. During fair weather, the audible noise generated by this line as heard at the edge of the right-of-way is significantly reduced with a maximum calculated value of 10.5 dB(A).

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 a distance of 100 feet from the centerline of a transmission 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. Exhibit I-2 and Exhibit 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.

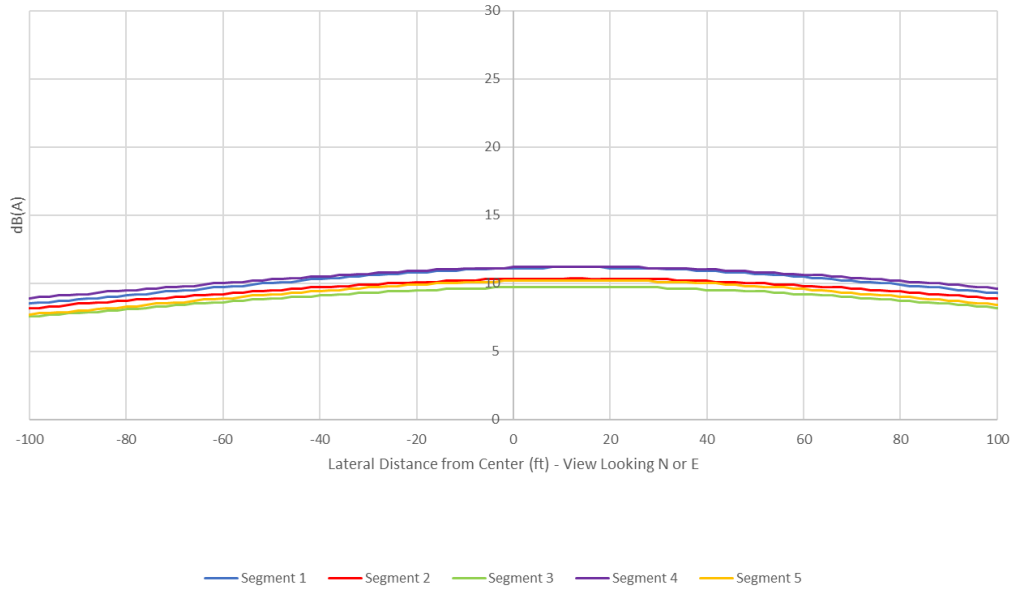

Exhibit I-2. L50 Fair Weather Audible Noise by Line Segment

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

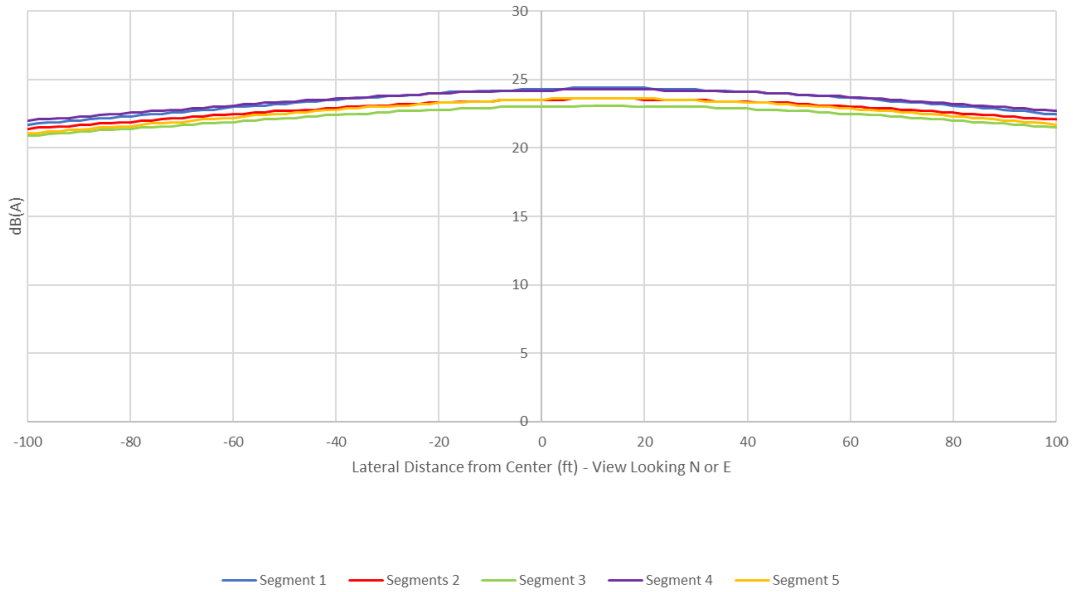

Exhibit I-3. L50 Rain Audible Noise by Line Segment

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 megahertz (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 MHz to 100 MHz depending on the distance to the conductor (EPRI 1982).

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 24.1 to 28.4 dB, at a distance of 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 45.7 to 50.0 dB, 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 a given 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 Exhibit I-4 and Exhibit I-5.

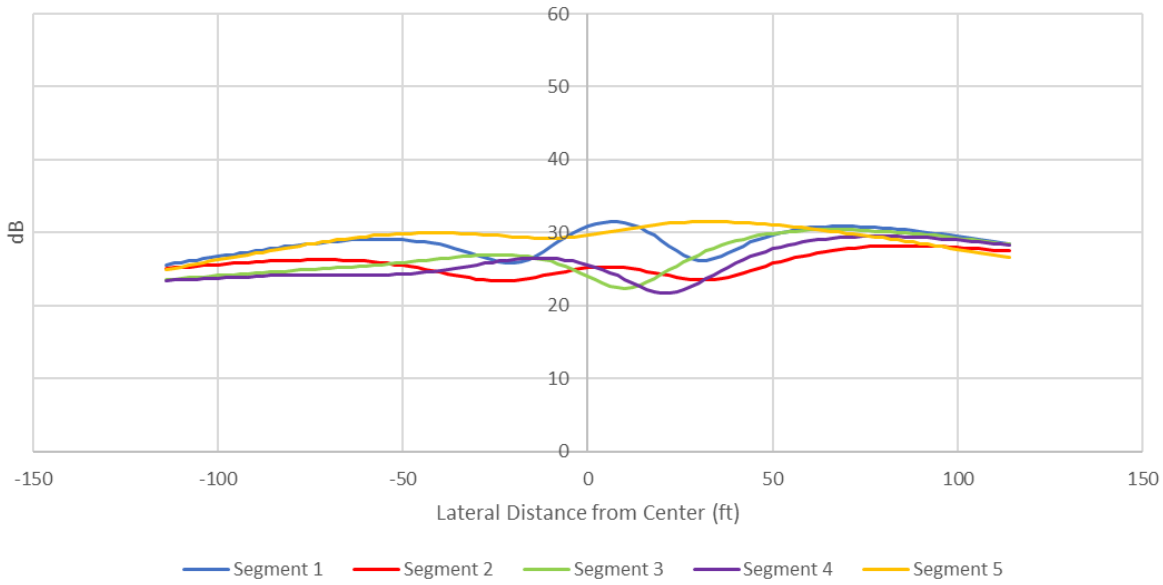

Exhibit I-4. Average Stable Fair Weather Radio Noise Profile – Segments 1 through 5

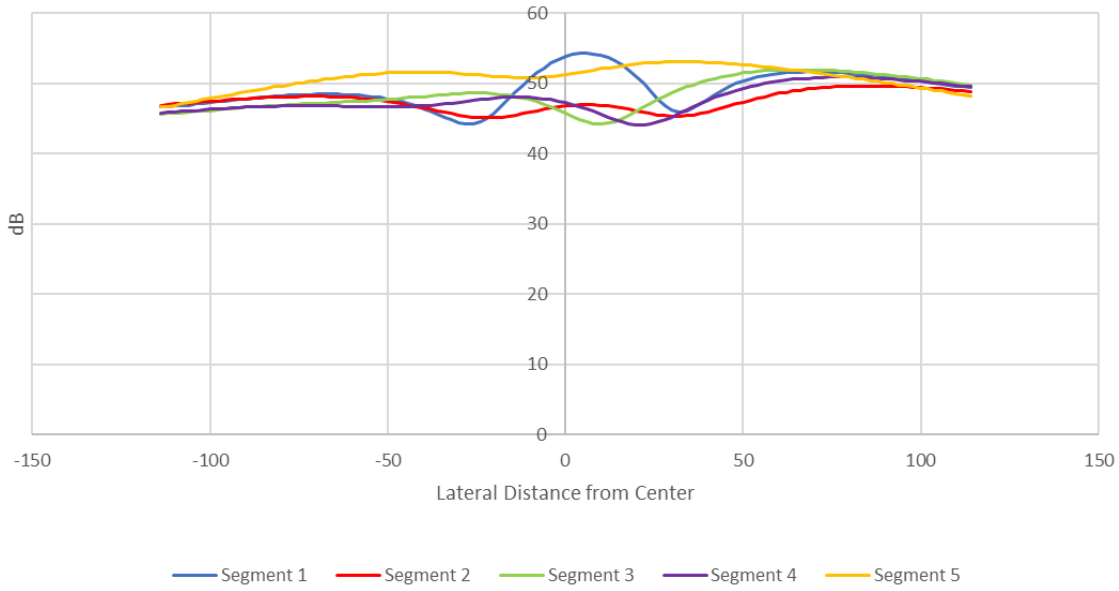

Exhibit I-5. Average Stable Foul Weather Radio Noise Profile – Segments 1 through 5

TELEVISION INTERFERENCE

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

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

Television interference reduces with increasing frequency above 100 MHz. Consequently, television interference only affects the lower very high frequency (VHF) band (Channels 2 through 6), and no

interference will be experienced in the upper VHF (Channels 7 through 13) and ultra-high frequency (UHF) bands (Channels 14 through 83) even during foul weather.

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

In cases where transmission line-generated television interference 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 right-of-way. 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 television interference 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 television interference 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 that 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 as long as 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 the conductive objects. Exhibit I-6 shows the expected electric field (calculated 1 meter above ground) for the various expected configurations of the lines. Note that the expected electric field is well below the 5kV/meter limit outside the right-of-way and 10kV/meter inside the right-of-way as specified by IEEE Standards (IEEE 2002:C95.6).

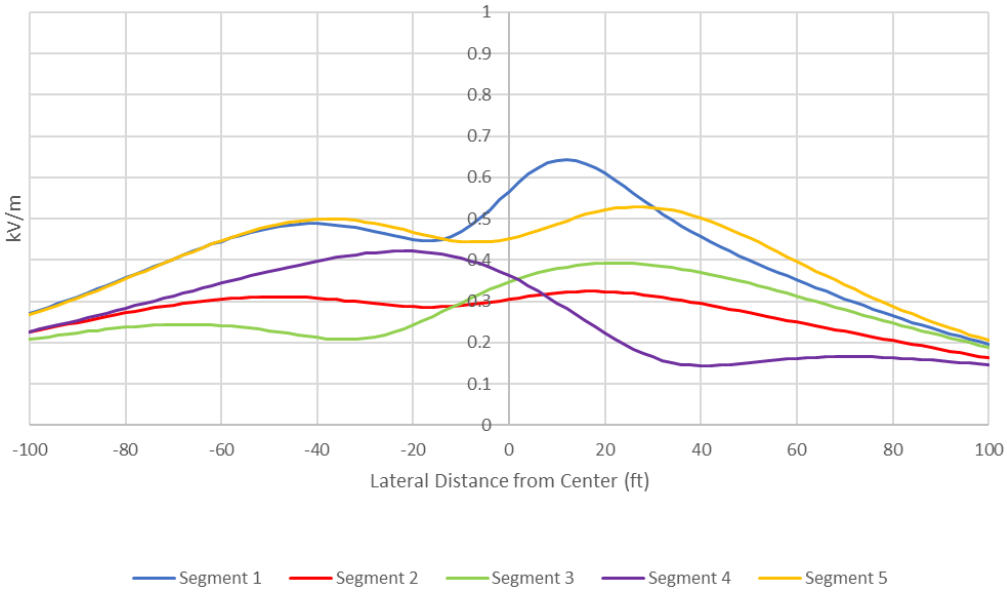

Exhibit I-6. Calculated Electric Field (kV/meter) – Segments 1 through 5

The magnetic fields associated with transmission lines can also induce voltages and currents in conductive objects (e.g., fences, communication lines, railroads, pipelines, etc.), which 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 EMF induction issues described above, scientific and public interest regarding potential health effects of human exposure to 60 hertz EMF has led to extensive study for more than 30 years. One recent example of such research was a study completed in 2007 by the World Health Organization (WHO). The report titled "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 kilohertz (kHz) (WHO 2007). 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 and International Agency for Research on Cancer (IARC) that the use of electricity does not pose a major unrecognized health danger (National Institute of Environmental Science 1999, IARC 2002).

As noted above, the WHO report concurred with the overall conclusions of the 2002 IARC report on EMFs. The 2002 IARC report did not conclude that power frequency fields present a specific health risk; however, IARC stated 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 EMFs 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 EMFs 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 configuration (calculated 1 meter above ground).

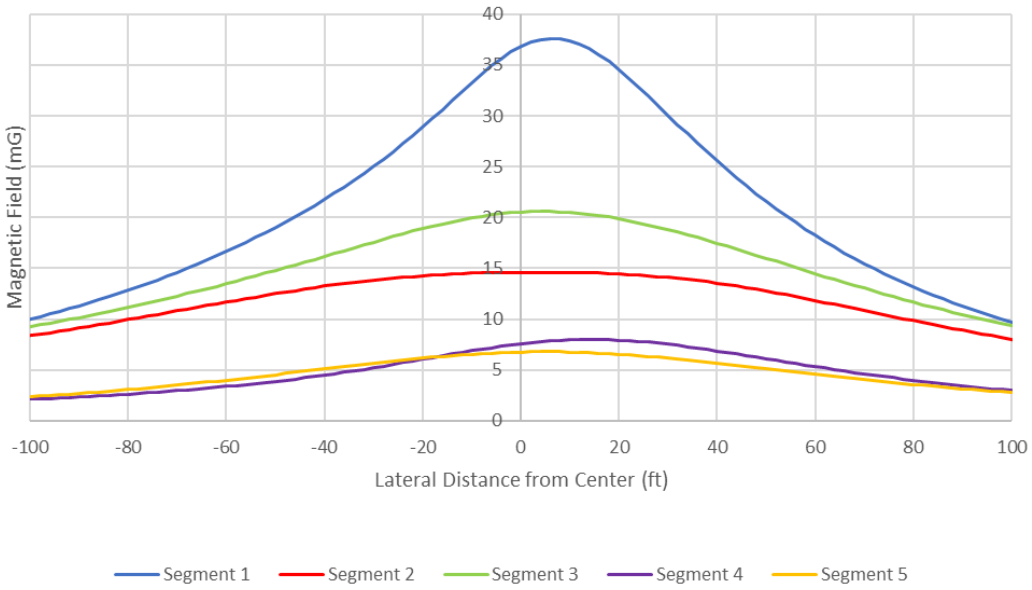

Exhibit I-7. Calculated Magnetic Field – Segments 1 through 5, Optimum Phasing

CALCULATION NOTES

The EPRI "ACDCLine" program was used to calculate the various corona, noise, and EMF quantities reported herein based on the expected transmission line designs for the lines of interest (EPRI 1982). Different cases based on the different expected conductor configurations of the lines were modeled to represent the conditions expected along the entire line lengths.

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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

This exhibit includes information on the public and agency involvement program that has been conducted for the Project. Initial stakeholder outreach efforts began in February 2019. The outreach efforts provided information to agencies and individuals, solicited information on the Project area and preliminary alternatives, and helped to identify potential issues relative to the Project.

PUBLIC INVOLVEMENT PROGRAM SUMMARY

To reach the affected residents and agencies, APS and EPG instituted multiple public participation activities, including public open house meetings, jurisdictional meetings, agency briefings, landowner contacts, newsletter mailings, newspaper advertisements, telephone information line, and a website. Feedback was received on how the public viewed proposed alternatives and how those alternatives may impact certain locations.

Project Newsletters and Postcard

Three newsletters and a postcard have been or will be prepared during the public involvement process to provide technical information to the public, announce the public open house, and inform the public of the various methods to comment on the Project (e.g., in writing, by telephone, and via the Project's website or email address) and otherwise become involved in the siting process.

Newsletter One

The first Project newsletter mailing (Exhibit J-2) was prepared and distributed on February 3, 2020 to approximately 30,000 residents, businesses, landowners, agencies, and key stakeholders within the Project area. The newsletter announced the Project to the public, and to provide notice of two public open house meetings held later in February 2020, one in Avondale and one in Goodyear. The content of the newsletter included an overview of the Project's purpose and need, an overview of the CEC application process, a description of the infrastructure being proposed, and information about when, where, and how the public could be involved.

Newsletter Two

The second Project newsletter mailing (Exhibit J-3) was prepared and distributed on June 29, 2020 and sent to the same mailing list used in the previous newsletter mailing. The newsletter announced the identification of seven preliminary alternative routes, the status of the evaluation of environmental impacts, as well as the project virtual open house.

Newsletter Three

A third newsletter was prepared and distributed on June 29, 2021 to approximately 35,500 residents, businesses, landowners, agencies, and key stakeholders within the Project area (Exhibit J-4). The newsletter announced the alternative routes proposed within this CEC application and provided a Project update and CEC schedule. The existing mailing list was updated to include any changes within 1-mile of the Project alternatives.

Future Postcard

A postcard will be prepared for distribution and is anticipated to be sent out in September 2021. The postcard will announce the dates of the Project's Siting Committee hearings and information about when, where, and how the public could be involved in the process. This mailing will be sent to the same mailing list used in the previous newsletter mailings.

Website

The Project website (www.aps.com/threerivers) was created and continually maintained to provide access to information and electronic versions of distributed materials. Through the website, viewers can access the newsletter, maps, and public open house materials, and can provide their comments or questions on the Project through an embedded comment form. The website address was advertised in newsletters, email, social media, at public open houses, and in paid newspaper advertisements. A copy of this website is included in Exhibit J-5.

Public Open Houses

Both in person as well as virtual public open house meeting were held for the Project. These meetings were announced in newsletters, through paid newspaper advertisements, and on the Project website and telephone information line.

The first set of open house meetings were held on February 19, 2020, at the Collier Elementary School in Avondale, Arizona, and on February 20, 2020, at the Centerra Mirage Stem Academy in Goodyear, Arizona. The format of the meeting was an informal open house arrangement held from 5:00 p.m. to 7:00 p.m., which allowed community members to attend at their convenience, review information displays, and have one-on-one personal communication with members of the Project team to provide comments or ask questions. The meeting consisted of several stations with large maps; text boards with highlighted details of the Project, including the Project's purpose and need, proposed facilities, facility siting criteria and process, and environmental data; and a GIS workstation for interactive views of the Project and surrounding area. All attendees were encouraged to fill out a comment form about the project and provide input on alternative link segments to the project team to help identify multiple route alternatives. A copy of the blank comment form is included in Exhibit J-7.

The second open house meeting was held virtually due to the COVID-19 pandemic and social distancing requirements. Beginning Wednesday July 1, 2020, members of the public and all interested parties were invited to visit APS's virtual open house (www.threeriversopenhouse.com), where they could learn more about the project, provide input, and request a call from a subject matter expert. Project information was provided at multiple stations with detailed project information including FAQs, videos, and maps identifying seven route alternatives, as well as an interactive map. Participants were able to navigate through the virtual setting by using their mouse to click and drag or touch and drag on mobile devices. Virtual stations included the project overview and need, the planning process, a Project Map print-out and interactive online map displaying the seven alternative routes, technical considerations, photos and simulations, and agency outreach and next steps. Attendees at the virtual open house were encouraged to

complete a questionnaire throughout the month of July 2020 where they could specify their preferred routes, ask questions, and leave any input they might have. Results of the questionnaire were then analyzed to help identify the final route alternatives. Public comments and input through email, phone, letter, and the project webpage continued to be accepted, monitored, and responded to throughout the CEC process. Images of the virtual open house are shown in Exhibit J-6. Participants were able to rank their top three route choices and provide comments and feedback by signing into the open house and using the online questionnaire. Electronic comment forms were also available on the project webpage at www.aps.com/threerivers (Exhibit J-7).

During the public comment period, more than 1,500 people visited Three Rivers virtual open house. The most frequently visited pages included the Project Overview and Need, the introductory video, photo simulations illustrating Project alternatives, and the overview of the planning process. The Three Rivers virtual open house site received its highest visitation following a July 15, 2021, email blast, midway through the comment period, to 20,477 recipients, and Facebook and Instagram posts placed between July 16 to 22. (see media relations below). On July 16, the Three Rivers virtual open house site reached peak attendance with nearly 1,000 page views, and approximately 700 views the following day (Exhibit J-1). Most respondents indicated they had heard about the virtual public open house through the project newsletter in which APS introduced the Project and announced the open house meeting. Respondents overwhelmingly reported that the site was easy to use, informative, and helpful to their understanding of the project Results of the online questionnaire, including specific comments, showed a preference for those alternative alignments along Van Burren Street, North Bullard Avenue, and I-10.

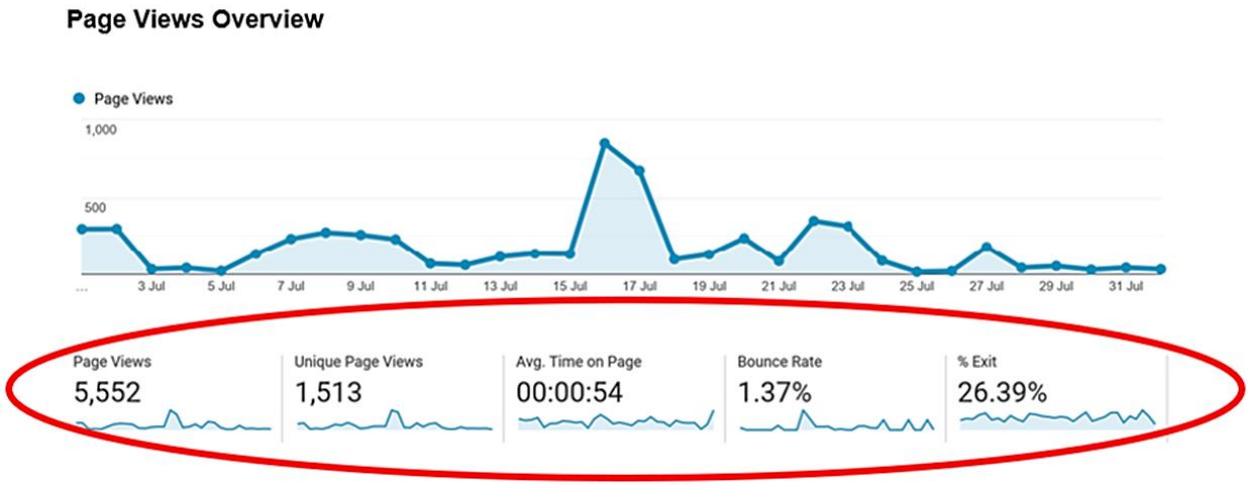

Exhibit J-1 Three Rivers Public Open House Virtual Open House Page View Overview

Media Relations

The Applicant placed paid advertisements in the *West Valley View* and the Zone 5 market segment of the *Arizona Republic* (*Southwest Valley Republic*), which has a distribution territory that encompasses the Project location. These advertisements introduced the Project and announced the open house meeting. Advertisements were published in The *West Valley View* on February 2 and 12, 2020, and July 1 and 15, 2020, and in the *Arizona Republic* on February 2, 7, 8, 12, 14, and 15, 2020, and July 1, 3, 4, 15, 17, and 18, 2020. Copies of the display advertisements are included in Exhibit J-8 and Exhibit J-9.

Social media posts were placed on Twitter on June 30 and July 13, 2020 (Exhibit J-10), Facebook and Instagram on June 30 and July 16 through July 22, 2020 (Exhibit J-11), and LinkedIn on July 13, 2020 (Exhibit J-12), as well as an email blasts on July 16 and 25, 2020 (Exhibit J-13). The email blast introducing the project and announcing the open house was sent to over 20,000 individuals, viewed approximately

7,052 times, and utilized to access the project open house, newsletter, and/or webpage by 264 recipients. The posts on Facebook and Instagram reached over 77,000 people, with an average of 7,700 people viewing the ad daily, and 89 actually clicking on the post.

A second email blast was sent to more than 28,500 individuals on June 25, 2021, to notify of project updates, including the identification of the Preferred Route, Alternative Route #1, and Alternative Route #2. The email was viewed more than 17,000 times, with 374 recipients accessing our project newsletter and/or our project webpage (Exhibit J-13).

Future Media Relations

Paid advertisements, social media posts, and email blasts will be prepared for distribution and are anticipated to be sent out in September 2021. These media announcements will announce the dates of the Project's Siting Committee hearings and information about when, where, and how the public could be involved in the process.

Agency, Landowner, and Local Official Briefings

Throughout the Project, team members held meetings with local jurisdiction and agency representatives, including elected officials and planning staff, and others to relay information on the Project, answer questions, and request feedback. These meetings enable the Project team to identify stakeholder issues, consider suggestions during the planning process, and relay information on developments in the Project. The Applicant also met with and received information from private landowners/lessees during the planning process. A list of agency meeting/outreach is included as Table J-1.

Table J-1 Agency Briefings (in-person or online)

Jurisdiction/Representation	Date
Phoenix Goodyear Airport, City of Phoenix Aviation Department	April 29, 2019
City of Goodyear	May 8, 2019
City of Avondale	May 14, 2019
City of Litchfield Park	May 14, 2019
Arizona Department of Transportation	October 16, 2019
Phoenix Goodyear Airport, City of Phoenix Aviation Department	October 31, 2019
City of Litchfield Park	November 14, 2019
Arizona Department of Transportation	December 2019
Flood Control District of Maricopa County	January 2020
City of Avondale, City Council and Mayor	February 18, 2020
Flood Control District of Maricopa County	April 20, 2020
City of Goodyear, staff meeting online	April 30, 2020
City of Goodyear, staff meeting online	June 29, 2020
City of Goodyear, City Council meeting online	July 7, 2020
City of Goodyear Police Department, met online with John Sater re: cell tower	July 14, 2020
City of Goodyear, staff meeting online	September 29, 2020
City of Goodyear, City Council meeting online	November 2, 2020
City of Goodyear, me online with City Manager and Deputy Manager	March 2, 2021
City of Goodyear, staff meeting online	May 24, 2021

APS also met with several private landowners whose land potentially could be crossed directly by the Project alignments to review right-of-way constraints and feasibility issues.

Telephone Line

APS created a dedicated telephone information line as an additional opportunity for members of the public to learn about the Project and to leave comments or questions. The telephone number was provided in the newsletter mailing, the newspaper advertisements, the Project website, and at the public open house meeting. Initially, the telephone line gave a brief message about the Project and announced the public open house meeting date, time, and location. Following the public open house meeting, APS updated the telephone line message to inform callers that the open house had occurred, and that APS was in the process of reviewing comments, refining Project alternatives, and developing a CEC application. The telephone line continued to provide callers with the opportunity to leave a voicemail comment or request information.

All voice messages requesting further information were returned within approximately 24 hours by a Project team member, unless received on a weekend or holiday.

Public Comment

Throughout the public involvement program, comments from the public were solicited and considered in the planning process. Fifty-six public comments were received either by written comment form, email, or voicemail. In addition, many verbal comments were provided both in person to the Project team (at the open house) or over the phone with the APS Project Manager. Comments from agency and jurisdiction representatives were also received and considered in the planning process.

Most of the comments received recommended avoidance of existing and planned residences/residential areas and requested that APS maximize the siting of the Project with existing transmission lines and the Interstate. Table J-2 presents the comments received and APS's responses.

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Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
02/06/2020	A	1	**Customer Comment** **[Open House 1 – letter]** Xxxx has a large rental center at the south east corner of VanBuren and Dysart in Avondale. He is concerned that the line will be put along the north side of VanBuren. He wrote asking if the ROW along I-10 had been considered for one or both lines. He feels as though there is already too much traffic in the VanBuren ROW making the I-10 ROW a better option. **APS Response** None
02/08/2020	B	2	**Customer Comment** **[Open House 1 – Email]** Hi….. Read your brochure and is it not possible to put all of these underground?? **APS Response** Hello Xxxx, I'm glad you were able to read through the project newsletter, and I appreciate your inquiry. We are early on in the process, and are considering all options as we evaluate this project. The simple answer to your question is yes, it is possible to put power lines underground. However, there are many factors that play into the feasibility and constructability of putting a power line underground. Power lines range in voltage, and the higher the voltage, the greater the difficulty to bury underground. This project involves the construction of high voltage lines (230,000 volts to be exact) which are much higher than the power lines that are more commonly seen in neighborhoods and communities (usually 12,000 volts). Placing transmission power lines underground is significantly more expensive than placing them overhead. Actual cost differences depend on various elements, including terrain, project length, environmental concerns, labor and material differences, etc. The type of material that would be needed for an underground 230,000 volt line requires a much more robust and expensive cable. Considering the inability for these lines to be cooled by the ambient (surrounding) air as in an overhead configuration, underground 230,000 volt power lines require special technology to keep the wires cool. The clearances required to safely bury a 230,000 volt line are also much greater, which can be very difficult, if not impossible, in developed cities/communities. Depending on final routes, the existing underground utilities may also prohibit an underground option Although actual cost differences of overhead to underground can be difficult to determine this early in the process, estimates are approximately 3-5 times the cost of overhead, and would likely be the difference of millions of dollars. While APS will financially contribute the amount that would be necessary to install the lines overhead, the difference in cost between an overhead line and underground line would be borne by the customer, community, or any other organization requesting the underground option. I hope I've been able to sufficiently answer your question, but please let me know if you have any other questions or concerns. I encourage you to attend one of our upcoming open houses next Wednesday or Thursday night (as shown on the brochure) where you can talk one-on-one with APS staff and learn more about the project and provide any additional comments or input you might have.
02/19/2020	C	3	**Customer Comment** **[Open House 1 – Phone]** Xxxx called regarding a specific mobile home community of which the company she works owns. She gave a specific address and asked if the powerline is going to run directly through or adjacent to the address. Xxxx's company is concerned about the health impacts to the community as well as the potential socioeconomic impact of depreciating land value from the power lines. **APS Response** 2/19: Hayden (EPG) called Xxxx to educate her on the public meetings taking place 2/19 and 2/20. Xxxx mentioned that she new about them, but wasn't sure if it was beneficial to go. Hayden talked about EPG's role in the project as a 3rd party and explained that these power lines are still in preliminary stages and that these public meetings are to focus on educating the public and for gaining public comments. After talking Xxxx said she would definitely try and have someone at these public meetings to provide comment and learn more about the direct impacts to her company's mobile home park and its residents. Xxxx was thrilled at the timely response and info provided. 2/21: Stephen Eich emailed Xxxx after the 2/20 public meeting providing mailing numbers. Stephen included the amount of people at each of their mobile home communities that were mailed newsletters. **Customer Reply** Xxxx responded to Stephen's email sent on 2/21. Xxxx thanked Stephen and noted that she explained the Project to her office. She also noted that comments from Sun Home Communities Mgmt, LLC as well as residence from the mobile home communities will be sent in the next couple weeks.
02/20/2020	D	4	**Customer Comment** **[Open House 1 – Comment Form at open house]** Looking at the possible routes or reference point, I'd like to see these new lines on Van Buren St. I think on the north side of the street. Please keep me posted as this project gets closer to a final decision. **APS Response** None
02/20/2020	E	5	**Customer Comment** **[Open House 1 – Comment Form at open house]** Avoid [links] 50 & 20 **APS Response** None
02/20/2020	F	6	**Customer Comment** **[Open House 1 – Comment Form at open house]** I am commenting on suggested placement of the transmission lines and areas to avoid. Common sense is to place the lines as compactly as possible and where the highest concentration of links currently exist.

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
			I suggest lines be placed along Van Buren and I-10. I suggest you avoid placement along W Thomas Road and Litchfield Road because of a high concentration of residential areas, as well as large public gathering places, including: *Goodyear Community Park, 3151 N Litchfield Road *Estrella Mountain Community College * St. Thomas Aquinos Catholic Church **APS Response** None
02/20/2020	G	7	**Customer Comment** **[Open House 1 – Comment Form at open house]** * I would not want additional lines added on [link] 50 as there is residential areas north & south of it on Van Buren * [Links] 80 & 60 are not good areas to add lines as Goodyear residents are paying millions to develop a community park/facilities * I would propose one line come along I-10 and a second line along McDowell which is already commercial * I am concerned about the unsightly appearance of the substation - plant short trees and shrubs to detract from the massive structures - I understand it is a power station. **APS Response** None
02/20/2020	H	8	**Customer Comment** * Preferably maximize existing infrastructure along [link] 220 west to 40/10 node * Shift cost of burying lines & supporting infrastructure to Compass Data * Under the CEC - please emphasize visual & noise impacts to residential units * Eliminate link 60 & 80 - residential presence, visual impacts, noise & EMF * Construct double circuit single monopole w/69kV underbuild to reduce impact, improve constructability & lower cost * Utilize Links & Nodes along I-10 corridor to lessen impact to commercial, industrial & residential exposures * Link 20, 870, 860, 900 would be preferred * Link 80 has high density housing & significant commercial density **APS Response** None
02/21/2020	C	9	**Customer 2nd Comment** **[Open House 1 – Email]** [During the open house the previous night, this customer was concerned that tenant addresses for a trailer parks she manages were not included on our newsletter mailing list. I told her I would look into it and get back with her] **APS Response** Hello Xxxx, It was nice to meet you last night at the Three Rivers 230kV open house. Thank you for attending and I hope we were able to clearly explain the project, and answer your questions. One of the concerns you brought up was regarding the mailing list, and ensuring I have all the tenant addresses for the trailer parks you manage. I searched our spreadsheet and found the following: [Address 1]: approximately 40 newsletters were mailed to various tenants/lot numbers at this address. [Address 2]: Approximately 71 newsletters were mailed to various tenants/lot numbers at this address. [Address 3]: 1 newsletter was mailed to this address to yyyyyyy. If you have any additional information to improve or update the list, please let me know. Thank you, **Customer Reply** Thank you for the update. It looks like you're reaching a lot of people. I explained to my office what this project is about. You guys will be receiving comments from our company and some of our residents within the next week or two. Thanks again for taking the time to explain it all. Please keep us on your mailing/email list. Best regards,
02/21/2020	I	10	**Customer Comment** **[Open House 1 – Email]** Hi, Are these proposed transmission lines intended to be placed above ground or below ground? **APS Response** Hello Xxxx,

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
			Thank you for your inquiry. The transmission lines are intended to be built above ground, and will typically be hung on single-pole structures approximately 115' – 150' tall. However, depending on the terrain and potential crossings of other utilities, structure heights may increase for those situations. At this point, no definite routes have been determined, and we continue to ask for any input from the public to help identify the proper locations for these power lines. We recently held public open houses over the past 2 nights, wherein we could talk one on one with the public, answer questions, and ask for public comments and input for the location of these lines. I will be uploading several slides that we shared at the open houses, that may be helpful for you to learn more about the project. These slides should be on the Three Rivers 230kV project webpage within the next few days. Based on multiple criteria, including environmental studies, public input, engineering and construction requirements, cost, and more, we will bring forth multiple line route options to the public in the next few months at our next round of open houses. We again will ask for public input that will help us narrow down these options to determine the preferred route alignments that we will be proposing. I hope this helps answer any questions you might have, and again, I encourage you to review our project webpage and slides that will be uploaded in the next few days.
02/21/2020	J	11	**Customer Comment** **[Open House 1 – Email]** Please add my contact information to your email and mailing lists regarding the Three Rivers project. Thanks **APS Response** 2/21: Stephen Eich responded letting Xxxx know that his information has been added while providing additional info about the Project website.
02/22/2020	K	12	**Customer Comment** **[Open House 1 – Email]** First of all, it doesn't seem as if the online comment form works. The form's URL is: https://www.aps.com/-/media/APS/APSCOM-PDFs/About/Construction-and-Power-Line-Siting/Power-Line-Siting/Power-Line-Siting-Projects/Three-Rivers/ThreeRiversCommentForm.ashx?la=en&hash=913D2B12A42A78999A909651DE785F7E Whether or not I'm logged into APS the form does not seem active in that I can't fill out any fields and the SUBMIT button does nothing. I attended the project's open house on February 20 in Goodyear and these are my comments relating to that. My suggested route would be to use the I-10 corridor as much as possible and then route the line south along Bullard Ave to the 230kV substation. The I-10 route pole placement should consider co-existence with a future possible light rail path. There should also be coordination with the power requirements of the other (Microsoft?) data center south of MC-85, taking into airspace restrictions around the Goodyear airport. I thought the APS and other people supporting the open house did a great job. I was not expecting the level of detailed knowledge to be available, only a "management overview". Thanks for the open house. **APS Response** Thank you for attending the open house, and for emailing your comments. We will be sure to include this in our process. I apologize for the issues we are having with the comment form posted on the project webpage. This is something I am working on, and will hopefully have sorted out soon. Since the online form simply sends a PDF copy of your comments as an email attachment, sending a direct email works just as well. I appreciate your kind remarks regarding the open house, and am glad to know you were able to have a productive discussion with our staff. Based on the environmental studies, public input, and other criteria that have gone into this effort, we will begin identifying various power line route options. In the next few months we expect to mail out newsletters to announce project updates and hold another round of public open houses, where we will present these alternative routes and ask for further public input to help us identify the preferred routes that we will ultimately propose. Please feel free to email with any other comments or questions you may have at any time.
07/02/2020	L	13	**Customer Comment** **[Open House 2/Virtual Open House – Email]** NO, NO, AND NO...please...not through a housing subdivision as this will detract from the beauty of the subdivision and possibly the value of our homes! **APS Response** None
07/02/2020	M	14	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** Was there any consideration given to running power lines underground? Aesthetically this would be a much better solution for the community in the long run. I know cost will be more but the neighborhood will forever look nicer and appealing then looking like an industrial park. Just a thought Are the cost for these new lines on APS or are the taxpayers customers on the hook for this project? I am really most interested in the final appearance than any other issue. I'm all for advancement - progress for business - economics. But certainly don't wish to view these electrical poles - lines from my backyard. **Virtual Open House Top 3 Routes Ranking:** 1) 7 (Van Buren to 143rd)

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
			2) 2 (Rancho Santa Fe to Central Ave to I-10 (Alt. Route 1 crossing)) 3) 4 (N. side of I-10 to Central Ave) **APS Response** None
07/04/2020	N	15	**Customer Comment** **[Open House 2/Virtual Open House – Email** I could not get the form on your web site to submit. Here is the information from that form. It appears to me that alternative #3 or alternative #4 would have the least impact on our community. It also appears that alternative #5 has some merit since, I would assume, the poles installed along Van Buren would be the poles needed to support the 69kv future expansion along that route. If that is not true then the alternative #3 would be best choice. **APS Response** Hello Xxxx, I'm sorry you weren't able to open the comment form from our web site. There may be firewall settings on your computer blocking the comment form. However, we will ensure your comments below are included. The Van Buren Street alignment is considered a good opportunity for routing the new 230kv line, since it already has a 69kV power line along the north side of the road, and we would simply replace it with larger poles to hang the new 230kV wires, as well as re-hanging the existing 69kV wires onto the new (larger poles), combining both 69kV and 230kV wires onto the new poles. Our intent would be that any route that travels along Van Buren (a small portion of Alternatives 1, 2 & 3, and large portions of 6 & 7) would replace the existing 69kV poles with the new 230kV poles. Our virtual open house contains additional information and 2 simulated pictures of what it could like with the new 230kV power line. One picture along Van Buren road, and one picture along the I-10. If you haven't already done so, I encourage you to visit the virtual open house at www.ThreeRiversOpenHouse.com and pan round the room to visit the six display board stations, videos, and interactive map which provide great information. The table at the center of the room also contains an FAQ sheet and an online questionnaire to provide us your input and give your route selections and feedback. Thanks again for participating in this effort!
07/04/2020	O	16	**Customer Comment** **[Open House 2/Virtual Open House – Email]** To Whom it may concern, As a resident living within the affected area, I am opposed to Alternative 1 as illustrated on the map for TS-16. Specifically the portion that runs along W. McDowel Rd between N. Litchfield Rd and N. Dysart Rd. Construction of towers up to 195' in an area that directly borders a highly populated residential community will not only decrease property values, but will also create additional safety concerns for residents. These towers will also create unsightly and overbearing obstacles for people living in that area. These towers will permanently change the area and make it less attractive to potential new homeowners and businesses. There appear to be several other nearby alternatives that run on the north or south side of Interstate 10. These alternatives appear to be in more commercial areas that would have less impact on local residents and not so visually offensive. The W. McDowel Rd route should be removed from the current list of alternatives. Your online comment form does not appear to be working. It will not allow me to submit my comments. **APS Response** Thank you, Xxxx, for your input. We are looking into the comment form issue, and I appreciate you bringing this to our attention. We will be sure to include your comments below to our evaluation process.
07/05/2020	P	17	**Customer Comment** **[Open House 2/Virtual Open House – -PROVIDED TOP 3 RANKINGS ONLY]** 1) 7 (Van Buren to 143rd) 2) 6 (Van Buren to Bullard Ave) 3) 3 (N. side of I-10 to Preferred Crossing) **APS Response** None
07/06/2020	Q	18	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** Alternative 1 is through too much of a business and residential area. **Virtual Open House Top 3 Routes Ranking:** 1) 3 (N. side of I-10 to Preferred Crossing) 2) 4 (N. side of I-10 to Central Ave) 3) 5 (S. side of I-10 to Bullard Ave) **APS Response** None

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
07/08/2020	R	19	**Customer Comment** **[Open House 2/Virtual Open House – Email]** Hello, My name is Xxxx and I am a homeowner residing at Xxxxxxxxx, Goodyear, AZ 85395. I have some input for the Three Rivers Siting project that I would appreciate if taken into consideration. Alternative 1 for this project would be disadvantageous to my community, Palm Valley, and I urge you to consider the homeowner when choosing where to put your lines. It seems, from the map, that Alternatives 3, 4, and 5 would have the least amount of impact on the homeowner. Business values won't drop due to view lines, but home values certainly will if there are huge poles surrounding the neighborhoods. Please take this into consideration when choosing a location. Thank you for your time and consideration, **APS Response** Hello Xxxx, Thank you for your input and involvement in this process. We'll be sure to include your comments with our evaluations. Please feel free to reach out any time with any questions or concerns you might have regarding the Three Rivers 230kV project.
07/09/2020	S	20	**Customer Comment** **[Open House 2/Virtual Open House – - Comments from Questionnaire]** Alternate 1 is too close to homes, hospital and school. Power structures need to be away from these type of structures. Helicoptors fly into hospital and power structures could obscure flight pattern. We are also the flight pattern for Goodyear airport. Power structures are not a beautiful view from our homes. Also not good to have power lines near hospital. Thank you. **Virtual Open House Top 3 Routes Ranking:** 1) 5 (S. side of I-10 to Bullard Ave) 2) 7 (Van Buren to 143rd) 3) 3 (N. side of I-10 to Preferred Crossing) **APS Response** None
07/10/2020	T	21	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** My concern and consideration in selecting the preferred routes was that these represented the lowest physical and health impact to the community and the residential areas, en route to the Data Center. My 3 choices were the most direct, and traveled mostly along the I-10 and then south down Bullard directly into the Data Center. Bullard south of I-10 to the Data Center is mostly zoned agricultural and commercial, thus minimizing residential area impact and avoiding the unsightly large utility poles and transmission lines. I am hoping to not have them travel west down Van Buren Street and there is a lot of local residential traffic on this street since it is a dense residential area and one that is growing quickly as witnessed by all the new housing developments going up west of Litchfield. Thank you for the opportunity to give my input. Would it not be best to take the most direct route to the Data Center, and one with the least impact on the community and residents? Hence my choice for 4,3,2 in that order **Virtual Open House Top 3 Routes Ranking:** 1) 4 (N. side of I-10 to Central Ave) 2) 3 (N. side of I-10 to Preferred Crossing 3) 2 (Rancho Santa Fe to Central Ave to I-10 (Alt. Route 1 crossing)) **APS Response** None
07/13/2020	U	22	**Customer Comment** **[Open House 2/Virtual Open House – Email]** Oh no... alternative route 1 on McDowell and Litchfield. I live in palm valley phase 1 no way do I want my property values fall for development in the west valley. Place the lines abutting the 10 freeway not in my backyard. But of course whatever my opinion does not count as APS does not care. Oh no...not in my back yard do I want those beamouth towers. I live in palm valley phase 1 of McDowell between Litchfield and Dysart. I paid a pretty penny for my home in this development and why should my property values suffer for the development of the west valley data centers. Run the darn lines along the ds10 freeway. Also how are these lines going to affect the heliport for abruzzo hospital. **APS Response** None
07/13/2020	V	23	**Customer Comment** **[Open House 2/Virtual Open House – Email]** I have real concerns about traffic in these area doing construction of the new wiring for the Three River Transmission Line under alternatives 1 and 5. Alt 1 & 5 are major arterial roads that move stakeholders through the City of Goodyear. With these Alternatives, the construction needs to be done on two major streets, McDowell and Estrella. Both street have the highest traffic count in the city. Alt 6 seems like the best option as the facilities are there. If Alt 6, does not work I would suggest. Alt 2, Alt 7, Alt 4 and Alt 3 would seem to have the least impact during construction to all stakeholders. Thank you **APS Response** None

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
07/13/2020	W	24	**Customer Comment** **[Open House 2/Virtual Open House – Email]** Please do not place massive ugly 195 ft Towers along McDowell between Desert and Litchfield Road. Not only will my property value take a hit, it is too dangerous and such a busy busy road. **APS Response** None
07/13/2020	X	25	**Customer Comment** **[Open House 2/Virtual Open House – Email]** After reviewing the information provided by APS on the Three Rivers 230k Project, we would like to propose using a route that minimizes the view of the towers from residential areas. It seems that Alternative 3 which runs along I10 would be the best to avoid residential areas and have the straightest route. Thanks for the information and allowing us to give input. **APS Response** None
07/15/2020	Y	26	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** I live north and west of the proposed Three Rivers 230kV Substation. Alternatives 1 and 5 route overhead lines adjacent to recently developed (and developing) residential areas. My options above reflect a preference for routes adjacent to commercial areas. Alternatives 2, 3, and 4 are of equal preference. **Virtual Open House Top 3 Routes Ranking:** 1) 7 (Van Buren to 143rd) 2) 6 (Van Buren to Bullard Ave) 3) 4 (N. side of I-10 to Central Ave) **APS Response** None
07/15/2020	Z	27	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** Preference should be given to routes adjacent to commercial areas. As such, Alternatives 1 and 5 are untenable. Alternatives 2, 3, and 4 are about the same. **Virtual Open House Top 3 Routes Ranking:** 1) 7 (Van Buren to 143rd) 2) 6 (Van Buren to Bullard Ave) 3) 2 (Rancho Santa Fe to Central Ave to I-10 (Alt. Route 1 crossing)) **APS Response** None
07/16/2020	G	28	**Customer 2nd Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** Alts 1 & 5 go through a gateway to the new community park/center being built as well as through a residential area. Goodyear already sold out those residents for Developmemt, don't need power lines in my backyard too. I live in Centerra. I would like to see 7 or 6. Don't want to see it when exiting freeway to go south on Bullard. Already upset as stated above. Seeing the powerlines would be just another daily reminder of the city selling us out. Keep it away from residential as much as possible. Goodyear is spending millions of our tax dollars to improve Estrella Parkway. The powerline would negatively impact those efforts. I signed up to be notified on any updates for this project, but I haven't received anything in the mail or through my email that I am aware of. **Virtual Open House Top 3 Routes Ranking:** 1) 7 (Van Buren to 143rd) 2) 6 (Van Buren to Bullard Ave) 3) 2 (Rancho Santa Fe to Central Ave to I-10 (Alt. Route 1 crossing)) **APS Response** None
07/16/2020	AA	29	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** Property values of existing home owners over homes that are yet to be built. Ideally kept to areas not near existing homes and closest to the areas being developed with warehouses south of the I-10. Leverage areas that have deminished value due to existing superfund site or move further south and run it near or in lake bed. **Virtual Open House Top 3 Routes Ranking:** 1) 6 (Van Buren to Bullard Ave) 2) 7 (Van Buren to 143rd) 3) 5 (S. side of I-10 to Bullard Ave)

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
			APS Response None
07/16/2020	AB	30	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** Why no alternative that follows the south side of I-10 and then heads south on Bullard, avoiding crossing I-10? The path would be segments 290, 310, 320, 1080, 800, 110, 20, 10. All listed alternatives that follow I-10 and come down via Bullard start on the north side of I-10 and then jog over to the south side of I-10. The only listed alternative that remains fully on the south side of I-10 doesn't drop down until Estrella Parkway. **Virtual Open House Top 3 Routes Ranking:** 1) 7 (Van Buren to 143rd) 2) 6 (Van Buren to Bullard Ave) 3) 4 (N. side of I-10 to Central Ave) **APS Response** None
07/17/2020	AC	31	**Customer Comment** **[Open House 2/Virtual Open House – Email]** Just want to say this is an excellent overview of the project, and want to thank you for sharing it so that we know what to expect. **APS Response** None
07/17/2020	AD	32	**Customer Comment** **[Open House 2/Virtual Open House – Email]** Power lines are ugly and these are huge!! Why in the world are we not charging these new companies to put underground like many other cities do, nothing makes a city look like crap than massive power lines...we should be making efforts to bury power, cable lines not ruining the views! **APS Response** None
07/17/2020	AE	33	**Customer Comment** **[Open House 2/Virtual Open House – Email]** Where are the proposed locations for this? **APS Response** Hello Xxxxx, Thank you for your participation in this process. Our virtual open house at www.threeriversopenhouse.com is set up to explain the process that we've gone through to identify 7 alternative route options for you to review and give your input on. We will ultimately need 2 separate routes and we are asking for public input to tell us which routes you prefer, and/or which routes you do not prefer. As you pan around the virtual room, you'll find 12 different displays to help you learn more about the project and learn how these routes were identified. The virtual room includes videos, maps, photos, diagrams, and even an Interactive Map station to help you in this process. To navigate around the virtual open house, simply click and drag your screen from right to left (or swipe your screen on your phone). This will give you a full view of all the display boards, and you can find copy of the map with the 7 alternative routes at station 3 - "Alternative Routes and Links", and within the "Interactive Map" station. The alternative routes are identified by different line colors and shown as "Alternative 1" through "Alternative 7" in the key on the right side of the map. I have also attached a PDF copy of the map to this email for your convenience. You can send us your comments through the virtual open house website, or you can simply reply to this email with your comments, and it will be included in our assessment. Thank you,
07/17/2020	O	34	**Customer 2nd Comment** **[Open House 2/Virtual Open House – Email]** In addition to my previously submitted comments, I am also concerned that towers 115 - 195 feet tall along W McDowell Rd will have a negative impact on helicopter flights into and out of Abrazo Hospital located on McDowell between Litchfield and Dysart. All flights, including emergency flights operating under high stress, would have to take additional precautions upon arriving and departing and be placed at greater risk due to the towers and power lines. Additionally, towers placed along McDowel, would require an additional aircraft warning system that includes flashing lights that would be visible from a great distance and negatively affect the surrounding neighborhoods. Please find a safer and better route for your towers! **APS Response** None
07/17/2020	AF	35	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** Keep the new lines away from as much residential homes as possible due to EMF concerns as well as it negatively impacting property values. I think you should install these along I-10 as this will have the least impact to residential homes. I think the new lines will be unsightly and should be along a commercial or industrial or freeway corridor.

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
			Negative impact to residential property values and concerns about EMF from living close to these lines. **Virtual Open House Top 3 Routes Ranking:** 1) 4 (N. side of I-10 to Central Ave) 2) 3 (N. side of I-10 to Preferred Crossing) 3) 5 (S. side of I-10 to Bullard Ave) **APS Response** None
07/17/2020	AG	36	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** I think avoiding residential areas is best. **Virtual Open House Top 3 Routes Ranking:** 1) 7 (Van Buren to 143rd) 2) 6 (Van Buren to Bullard Ave) 3) 2 (Rancho Santa Fe to Central Ave to I-10 (Alt. Route 1 crossing)) **APS Response** None
07/17/2020	AH	37	**Customer Comment** **[Open House 2/Virtual Open House – PROVIDED TOP 3 RANKINGS ONLY]** 1) 7 (Van Buren to 143rd) 2) 6 (Van Buren to Bullard Ave) 3) 2 (Rancho Santa Fe to Central Ave to I-10 (Alt. Route 1 crossing) **APS Response** None
07/17/2020	AI	38	**Customer Comment** **[Open House 2/Virtual Open House – PROVIDED TOP 3 RANKINGS ONLY]** 1) 6 (Van Buren to Bullard Ave) 2) 7 (Van Buren to 143rd) 3) 1 (McDowell to RR to I-10 to N Estrella Pkwy to Van Buren then back to Bullard) **APS Response** None
07/18/2020	AJ	39	**Customer Comment** **[Open House 2/Virtual Open House – Email]** I wanted to give some feedback on the Three Rivers new power lines project. Please do not use alternative 1 down McDowell Rd. As a resident of the neighborhoods north of McDowell I do not want large power lines in my view. Thank you. **APS Response** Xxxx, thank you for your feedback. I will make sure we incorporate your comments into our consideration. I hope you found the virtual open house helpful and easy to use. In these unprecedented times we are trying to find new ways of engaging the public in our projects.
07/19/2020	AK	40	**Customer Comment** Routes 1 and 5 do not make a lot of sense. In the same path as existing power lines to minimize the disruption of developments. **Virtual Open House Top 3 Routes Ranking:** 1) 6 (Van Buren to Bullard Ave) 2) 7 (Van Buren to 143rd) 3) 4 (N. side of I-10 to Central Ave) **APS Response** None
07/20/2020	AL	41	**Customer Comment** **[Open House 2/Virtual Open House – Email]** Hello! This is legit THE COOLEST project information site I've ever seen. Is this a specific platform? Or did APS code/build this site? Thanks for sharing any information!

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
			APS Response Xxxx, I am a co-worker of Stephen Eich and am responding to emails while he is taking some time off. Thank you so much for sending some feedback to us! This is something new for us and it is great to hear that you were able to view and navigate through the information in the virtual open house. APS did not create the actual site, but we did provide all the content that is presented. A local consultant that we use, AECOM, created the platform and worked with APS to organize and present the information. AECOM is a worldwide environmental consultant that has a local office in Phoenix. If you are interested in more details, I'm sure we can provide you with our contact there. Thanks again for using the site and providing your feedback! Stay healthy and stay safe!
07/21/2020	AM	42	**Customer Comment** **[Open House 2/Virtual Open House – Phone Call]** [Left a VM] My name is Xxxxx my number is xxx-xxx-xxxx. I'd like to speak to a project manager about this Three Rivers Project. I have two questions one concerning safety in terms of exposure to these very powerful electrical wires and secondly in terms in aesthetics with this power line, in particular related to our community. I have some suggestions in regards to this project. Please call me back, it is July 21 at 11:55am, Thank you **APS Response** **[Summary of my call back]** I called Xxxx and talked to him about his concerns. He lives near Indian School Road and Bullard Road and thought the green line shown along Indian School Road was one of the Alternative Routes. Once I explained to him that the line was an existing line and not one of the alternative routes, he was not as concerned about the project. He did ask about the EMF studies, and I explained to him that we had a display board on our VOH site with EMF information that he could review. I also suggested he visit the NIEHS or WHO websites, which are the government approved sites we reference in our studies, and that results of their EMF research have not shown a cause-effect relationship between EMF and human health. He admitted he never visited the open house, and only read the newsletter, so I encouraged him to visit the VOH site to learn more and give any input he may have. He was very pleasant to talk to and appreciated the call back.
07/22/2020	AN	43	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** line 6 would be the best route for this project please consider the potential growth for the north side of I-10. South of I -10 is already set up for industrial and would accommodate this 230kv line in the landscape. **Virtual Open House Top 3 Routes Ranking:** 1) 6 (Van Buren to Bullard Ave) 2) 7 (Van Buren to 143rd) 3) 2 (Rancho Santa Fe to Central Ave to I-10 (Alt. Route 1 crossing)) **APS Response** None
07/22/2020	AO	44	**Customer Comment** **[Open House 2/Virtual Open House – Comments from Questionnaire]** Generally concerned about traffic impacts during construction and what is the proposed length of time for construction once a route has been chosen and established. **VOH Top 3 Routes Ranking:** 1) 3 (N. side of I-10 to Preferred Crossing) 2) 4 (N. side of I-10 to Central Ave) 3) 5 (S. side of I-10 to Bullard Ave) **APS Response** None
07/23/2020	AP	45	**Customer Comment** **[Open House 2/Virtual Open House – Phone Call]** I live at Xxxxxxx in The Preserve in Goodyear, AZ and very happy that there is a computer data storage center coming to Goodyear; however, this is going to require lots of power to service. With good planning now on the part of APS; this could lay the groundwork for more data centers and of course require a lot more power. 1) There is a 69 Kv line which comes directly West into a distribution sub-station adjacent to the data . center property. Why not plan on installing poles for a 500 Kv line along that easement but at this time only install the 230 Kv loop lines and hang the 69 Kv line on one of the lower rungs. APS already has the easement and it provides for future expansion of the existing data center – which is a certainty for the future. 2) Alternatively my vote is for Alternative 4 route. This may be the cheaper route since it appears that only additional arms and cable are required for this route. HOWEVER, this only solves the power demand problem for now and does not take into consideration future upgrades to the existing data center and more data centers in the area. APS does a great job and provides very clean, reliable power. Maybe a little pricy; however, it is better to pay more for good service.

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
			APS Response Hello Xxxx, Thank you for your thoughtful feedback. I will make sure we incorporate your comments into our consideration. In response to the points you made, I just wanted you to know that we do consider existing power lines as great opportunities to locate the new 230kV powerline. It sounds like you have a good understanding of how that would work; rebuilding these existing lines to the new 230kV standards, and then hang the existing lines on the same poles. Alternative Routes 6 and 7 along Van Buren Street is a good example of this option, and we show a simulated view of this option in Station 5 of the virtual open house (see attached PDF "Station-5_Sim-2"). Since we will need to build 2 different 230kV routes, I want to be sure that I clearly understand your preference(s). It appears that your first preference would be to utilize existing powerline routes, correct? Since the Van Buren alignment reflects this scenario, are you suggesting Alternative 6 and/or 7 would be your first preference? And it looks like your second preference would then be Alternative Route #4, correct? I have attached a PDF copy of the alternative routes map for your convenience. I hope you found the virtual open house helpful and easy to use. In these unprecedented times we are trying to find new ways of engaging the public in our projects. Please let me know if you have any other questions or concerns. Thank you,
07/25/2020	AQ	46	**Customer Comment** **[Open House 2/Virtual Open House – Email]** I don't not approve of the alternative route #1 along McDowell Rd in Goodyear. I live in Palm Valley phase one. That route would decrease home values in our neighborhood and other neighborhoods along McDowell say nothing of the view from front and backyards. Alternative #5 next to the freeway and along farm land would be a better alternative as it is not near shopping centers and neighborhoods decreasing the value of this part of Goodyear. The high tension wires are unsightly. **APS Response** Xxxxe, thank you for your feedback. I will make sure we incorporate your comments into our consideration. I hope you found the virtual open house helpful and easy to use. In these unprecedented times we are trying to find new ways of engaging the public in our projects. Sincerely,
7/28/2020	AR	47	**Customer Comment** **[Open House 2/Virtual Open House – Phone Call]** Hi this is Xxxxx with the Xxxxxs. I was calling to check in terms of the current public input period . . . checking to see what comes next on the schedule for this project, and if you have any time tables set for construction. I'd be grateful for any information you could provide about this. My number is Xxxxxx. My email is Xxxxxxx. Thank you very much, goodbye
08/01/2020	AS	48	**Customer Comment** **[Open House 2/Virtual Open House – Email]** Thank you for providing this public outreach. We are in support of the project since it is located within existing or future industrial area and along Van Buren Rd which is already built-out. However, we are not in support of data centers that this accommodates. **APS Response** None
08/21/2020	AT	49	**Customer Comment** *During a separate meeting, this person (a Youngtown City representative) made a comment that he did not receive a newsletter for this project.* **APS Response** Aug. 21 - Xxxxt, first I want to thank you for joining us in the meeting earlier today to discuss our West Valley Central 230kV Connection. I think we had some good comments and a positive discussion. As we move the project along, we will engage with Youngtown again prior to going out to engage the general public. I have copied Xxxxxx, a co-worker of mine, who is leading a project in Goodyear called the Three Rivers 230kV Project. APS's first virtual open house was held throughout the month of July and I believe it is still online although the official public comment period is over. I want to again apologize that you did not get notified of the event and I can assure you that any comments you have will still be valid and considered. Xxxxx will follow up with you next week and make sure you have a chance to review the project information and hopefully you will still be able to view the open house. Xxxxx did a great job in putting it together and we have received quite a lot of good feedback on the virtual event. Have a great weekend and thanks again for your comments and the information you provided us during our meeting. Stay safe and stay healthy! Aug. 25 - Xxxx, Good morning. I just wanted to reach out to you to get further information from you, and to be able to provide further project information for the Three Rivers 230kV project to you. I am sorry you didn't get notified of the Three Rivers Project. Although we try to do all we can to ensure every resident and property owner within the study area are notified, it is possible we inadvertently missed your address. Please send me your mailing address and contact information so I can ensure you are on our list. As Xxxxx mentioned, although the comment period ended at the beginning of August, we are still evaluating our options, and I will be sure to consider your comments as well. Feel free to call or email me directly, or send a comment to the project email at ThreeRiversSiting@aps.com. Please send any comments you have within the next few days if possible. You can review the project by going to our virtual open house at www.ThreeRiversOpenHouse.com. You can also review our project webpage at www.aps.com/ThreeRivers. Thank you, and I look forward to hearing from you soon. **Customer Reply** I was just outside the project map area. I am between Sarival and Cotton just south of Van Buren. A lot of line work and pole replacement extended west of Sarival to Cotton that is not in your project area and affected a lot of residents along Van Buren. Prior announcements along that reach would have been nice. The work at Bullard caused some traffic issues. But the project as a whole if very good and well done.

Table J-2. Comments Received and APS Responses			
Date	**Commenter ID**	**Comment Number**	**Comments/Responses**
			Nothing more to add at this time. I will drive along the River to see if there is anything more. Thanks
06/29/21	AU	50	**Customer Comment** **[Comment from email blast]** What are the disadvantages of running this line (besides having the giant poles in the air blocking views of the mountains? 2. Can you not go underground like our neighborhood lines are? **APS Response** Hi xxxx, Thank you for your interest and participation in this project. I believe any disadvantages of this project is subjective and may differ from person to person. The Line-Siting process that we have conducted over the past 2 years has included various studies, such as engineering/constructability, environmental impacts, land-use, jurisdictional input, public input, and more, all to determine the most ideal route(s) that would minimize negative impacts as much as possible. It's our opinion that these routes meet that criteria. The neighborhood lines you reference are typically installed underground and are a much lower voltage to serve homes and businesses. Many city ordinances require the developer to install these lower voltage lines underground. The high voltage lines needed for this project is not required to be built underground. The amount of right-of-way clearances and depths for these high-voltage lines, along with the additional cooling methods needed, makes it much more difficult to find available routes and is much more expensive to build and maintain (anywhere from 10-20 times the cost of the typical neighborhood lines), and would need to be paid for by either the developer or a third party. You can visit our project webpage at www.aps.com/threerivers to learn more about the project. There is an FAQ link near the bottom of the page where you can find additional details about your specific underground question. Please let me know if you have any other questions or concerns. Thank you, **Customer Reply** Thanks for the follow up. Wouldn't APS have to pay for that additional expense, since they are the company benefiting from the sale of the energy? **APS Response** I think the project website's FAQ sheet might help answer this question on the top of page 3, stating: "While we will financially contribute the amount that would be necessary to install the lines overhead, the difference in cost between an overhead line and underground line would be borne by the community, developer, or any other organization requesting the underground option. Of interest to community members or others requesting an underground option is an existing state law, Arizona Revised Statute 48-620 (https://www.azleg.gov/ars/48/00620.htm), which may provide a mechanism to fund the additional costs through the formation of an underground improvement district. Use of ARS 48-620 or any other agreement would need to be in place and approved prior to beginning the engineering of the underground facility and procurement of materials and must meet our scheduled need for the line." I hope this helps clarify things. Let me know if have any other questions. Thank you, **Customer Reply** Thanks for following up as I probably won't be able to attend a public hearing and the entire text is too massive for me to sift through...but my feedback would be to go underground if financially feasible. **APS Response** Understood. I'm happy to help clarify and answer any other questions you might have. Thanks again for your feedback and participation in the process. Sincerely,

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Exhibit J-2a. Project Newsletter 1 – Page 1

THREE RIVERS 230kV POWER LINE PROJECT

February 2020

The greater Phoenix region has emerged as one of the top markets in the western United States for attracting high-tech industries, including data center companies. The west valley, in particular, is benefiting from economic development activity that will bring jobs and revenue to the area. Arizona Public Service (APS) is dedicated to providing safe and reliable electric service to support this growth.

With the arrival of these high-tech companies, and the load demand they bring, comes a need for new 230 kilovolt (kV) power lines and a substation in the area to serve a new data center customer. APS has begun studies to determine appropriate routes for two separate power lines that will connect the new Three Rivers Substation (located on the west side of South Bullard Avenue, approximately one-half mile south of West Van Buren Street in Goodyear) to existing power lines along the Agua Fria River (see Points "A" and "B" on the attached map). APS is working to identify locations for the new transmission lines that best meet the needs of the customer, the community, and regulatory agencies.

APS conducts a rigorous public process to site new transmission power line projects. This includes hiring an outside environmental consultant to study various factors such as cultural, biological and visual impacts, and to assist with the public outreach process. APS and the environmental consultant will study options for locating power lines, gather input from the community, and then identify a preferred route for the new lines.

At the conclusion of the environmental studies and the public process, APS will present the project to the Arizona Power Plant and Line Siting Committee (Committee). The Committee will hear the evidence from APS, the consultant and any stakeholders wishing to participate in the siting process. This hearing is open to the public, and there will be time available for public comments. If the Committee approves the proposal, they will issue a Certificate of Environmental Compatibility (CEC) that is then submitted to the Arizona Corporation Commission (ACC) for final approval.

To support growth, APS has begun studies to determine appropriate locations for new 230kV power lines, including structures/poles approximately 115-195 feet tall, placed in new or existing rights-of-way or easements up to 120 feet in width.

New electrical infrastructure is needed to provide safe and reliable electric service to a new data center customer, and support overall growth in the west valley.

Routing for new power lines will start from an existing 230kV transmission line, located along the Agua Fria River (Point "A"), to the project site, located on the west side of South Bullard Avenue, approximately one-half mile south of West Van Buren Street, in Goodyear (Point "B").

For more information, please visit our website at aps.com/siting

Para más información, por favor visite nuestra página de internet aps.com/es-mx/siting

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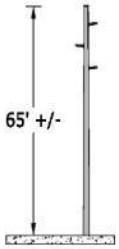
Exhibit J-2b. Project Newsletter 1 – Page 2

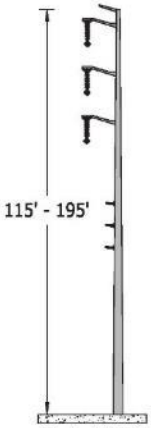
PROJECT FEATURES*

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 tall to a maximum height of 195 feet depending on routing, terrain and crossing of existing structures, including elevated roads and other power lines. The typical rights-of-way or easements will be approximately 120 feet wide (60 feet each side of the structure). Any opportunity to utilize existing 69kV power line routes for the new 230kV structures will be considered.**

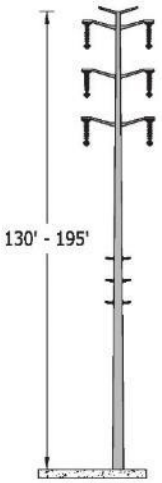
**Exact structure, height and right-of-way or easement width may vary.*



Typical Existing 69kV Single Circuit Monopole Structure



Typical 230kV Single Circuit with 69kV Single Circuit Underbuild Monopole Structure



Typical 230kV Double Circuit with 69kV Double Circuit Underbuild Monopole Structure

**Existing 69kV line along the north side of Van Buren Street, east of Litchfield Road

230kV Single Circuit

230kV Double Circuit with 69kV Double Circuit Underbuild

Exhibit J-2c. Project Newsletter 1 – Page 3

PUBLIC INPUT

An important component of our siting process is to receive input from residents, tenants, property owners and businesses within the study area. Members of the public and all interested parties are invited to join APS at one of the two open houses shown here, to learn more about the purpose and need for the project, the siting process and route alternatives. The same information will be shared at both open houses, and no formal presentation will be given, allowing everyone to attend 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.

APS welcomes your feedback for this project. To learn more, please visit the Three Rivers 230kV Power Line Project website at aps.com/siting and select "Power line siting projects", or scan the QR code below. Comments and questions may be submitted by clicking the comment form link on the project website, or by phone or email to:

STEPHEN EICH
Siting Consultant
Project information phone number: 833 387 7518
ThreeRiversSiting@aps.com

APS Siting
Projects Website

Open House - Avondale
Wednesday, February 19, 2020
5:00-7:00 p.m.
Collier Elementary School
350 S. 118th Ave.
Avondale, AZ 85323

Open House - Goodyear
Thursday, February 20, 2020
5:00-7:00 p.m.
Centerra Mirage Stem Academy
15151 W. Centerra Drive
Goodyear, AZ 85338

PROJECT SCHEDULE

3RD/4TH QUARTER 2019
- Collect data
- Announce project
- Develop preliminary alternatives

1ST/2ND QUARTER 2020
- Hold 1st open house
- Continue public outreach
- Hold 2nd open house
- Narrow alternatives

3RD/4TH QUARTER 2020
- Develop and submit CEC application to ACC
- Hold public hearings with Committee and ACC
- Determine final routes

Exhibit J-2d. Project Newsletter 1 – Page 4

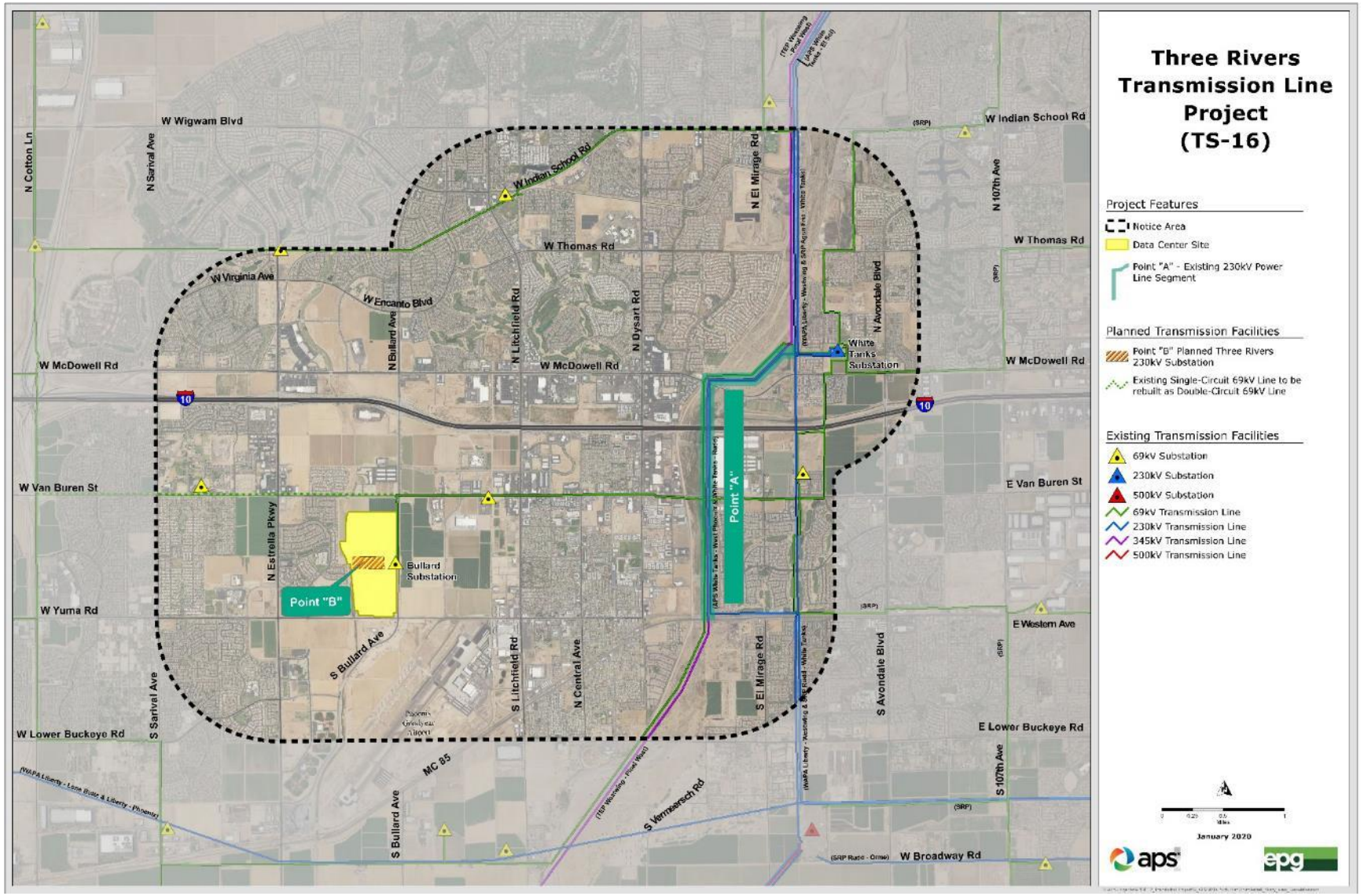


Exhibit J-2e. Project Newsletter 1 – Page 5

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Exhibit J-3a. Project Newsletter 2 – Page 1

THREE RIVERS 230kV POWER LINE PROJECT

July 2020

In February 2020, we announced the need for new electrical infrastructure to serve a new data center in Goodyear, and support the overall growth in the west valley. We held public open house meetings on February 19 and 20, in Avondale and Goodyear to explain the purpose and need for this project, answer questions, discuss potential routes for the power lines, and solicit input from all who attended.

Public commenting through mail, email, telephone and the project webpage, will continue to be available to the public, and incorporated into our studies to help us identify proper locations for two separate 230 kilovolt (230kV) power lines. These lines are needed to connect the new Three Rivers Substation, located near Bullard Avenue and Van Buren Street in Goodyear, to the existing power line along the Agua Fria River in Avondale.

We continue to evaluate environmental impacts, engineering and construction feasibility, land acquisition timing and costs, potential impacts to existing and planned neighborhoods and businesses and input from agencies and the public. Results of these studies have led to identifying seven preliminary alternative routes, as shown on the included map. We encourage you to attend our virtual open house to learn more about the project, the seven alternative routes, and to provide additional comments. Your input is valuable, and will ultimately help us narrow down and identify the appropriate locations for the two separate power lines.

At the conclusion of the environmental studies and the public process, we will present the project to the Arizona Power Plant and Line Siting Committee. The Committee will hear the evidence from us, the environmental consultant, and any stakeholders wishing to participate in the siting process. This hearing is open to the public, and there will be time available for public comments. If the Committee approves the proposal, they will issue a Certificate of Environmental Compatibility that is then submitted to the Arizona Corporation Commission for final approval.

WHAT

To support growth, we are continuing studies to determine appropriate locations for two new 230kV power lines, including structures/poles approximately 115-195 feet tall, placed in new or existing rights-of-way or easements up to 120 feet in width.

WHY

New electrical infrastructure is needed to provide safe and reliable electric service to a new data center customer, and support overall growth in the west valley.

WHERE

Routing for two new power lines will start from an existing 230kV transmission line, located along the Agua Fria River, to the project site, located on the west side of South Bullard Avenue, approximately one-half mile south of West Van Buren Street, in Goodyear (see included map).

For more information, please visit our website at aps.com/ThreeRivers
Para más información, por favor visite nuestra página de internet aps.com/es-mx/ThreeRivers

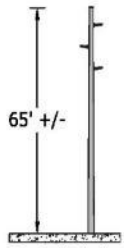
aps

Exhibit J-3b. Project Newsletter 2 – Page 2

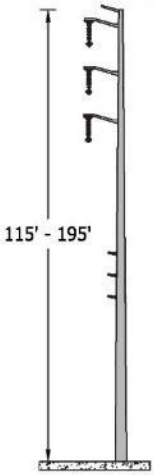
PROJECT FEATURES*

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 tall to a maximum height of 195 feet depending on routing, terrain and crossing of existing structures, including elevated roads and other power lines. The typical rights-of-way or easements will be approximately 120 feet wide (60 feet each side of the structure). Any opportunity to utilize existing 69kV power line routes for the new 230kV structures will be considered.**

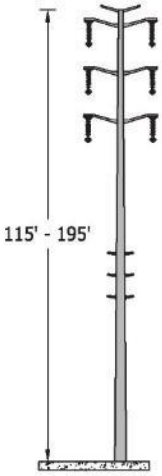
**Exact structure, height and right-of-way or easement width may vary.*



Typical Existing 69kV Single Circuit Monopole Structure



Typical 230kV Single Circuit with 69kV Single Circuit Underbuild Monopole Structure



Typical 230kV Double Circuit with 69kV Double Circuit Underbuild Monopole Structure

**Existing 69kV line along the north side of Van Buren Street, east of Litchfield Road

230kV Single Circuit

230kV Double Circuit with 69kV Double Circuit Underbuild

Exhibit J-3c. Project Newsletter 2 – Page 3

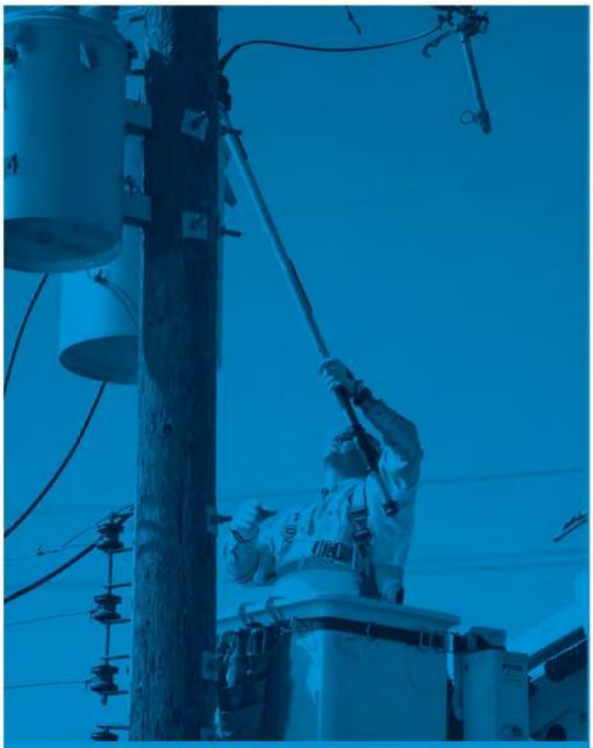
PUBLIC INPUT

An important component of our siting process is to receive input from residents, property owners and businesses within the study area. Members of the public and all interested parties are invited to visit our virtual open house at any time online at threeriversopenhouse.com, to learn more about the purpose and need for the project, the siting process and route alternatives. You will be able to provide input and, if desired, request a call to speak with one of our subject matter experts. If you cannot 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 for this project. All comments must be submitted by August 1, 2020 to ensure its review and consideration in this process. To learn more, please visit the Three Rivers 230kV Power Line Project website at aps.com/threerivers. Comments and questions may be submitted within the virtual open house, by clicking the comment form link on the project website, or by phone or email to:

STEPHEN EICH
Siting Consultant
Project information phone number: (833) 387-7518
ThreeRiversSiting@aps.com

Three Rivers 230kV Project Website



Public Information Virtual Open House

Launch Date:	**Wednesday July 1, 2020**
Attend Online:	**threeriversopenhouse.com**
Comment Period:	**July 1 - August 1, 2020**

PROJECT SCHEDULE

2ND QUARTER 2020
- Continue siting studies
- Continue public outreach
- Identify preliminary alternative routes

3RD/4TH QUARTER 2020
- Hold 2nd open house
- Identify preferred routes
- Develop and submit CEC application to ACC

1ST QUARTER 2021
- Hold public hearings with Siting Committee and ACC
- ACC to determine final routes and grant CEC

Exhibit J-3d. Project Newsletter 2 – Page 4

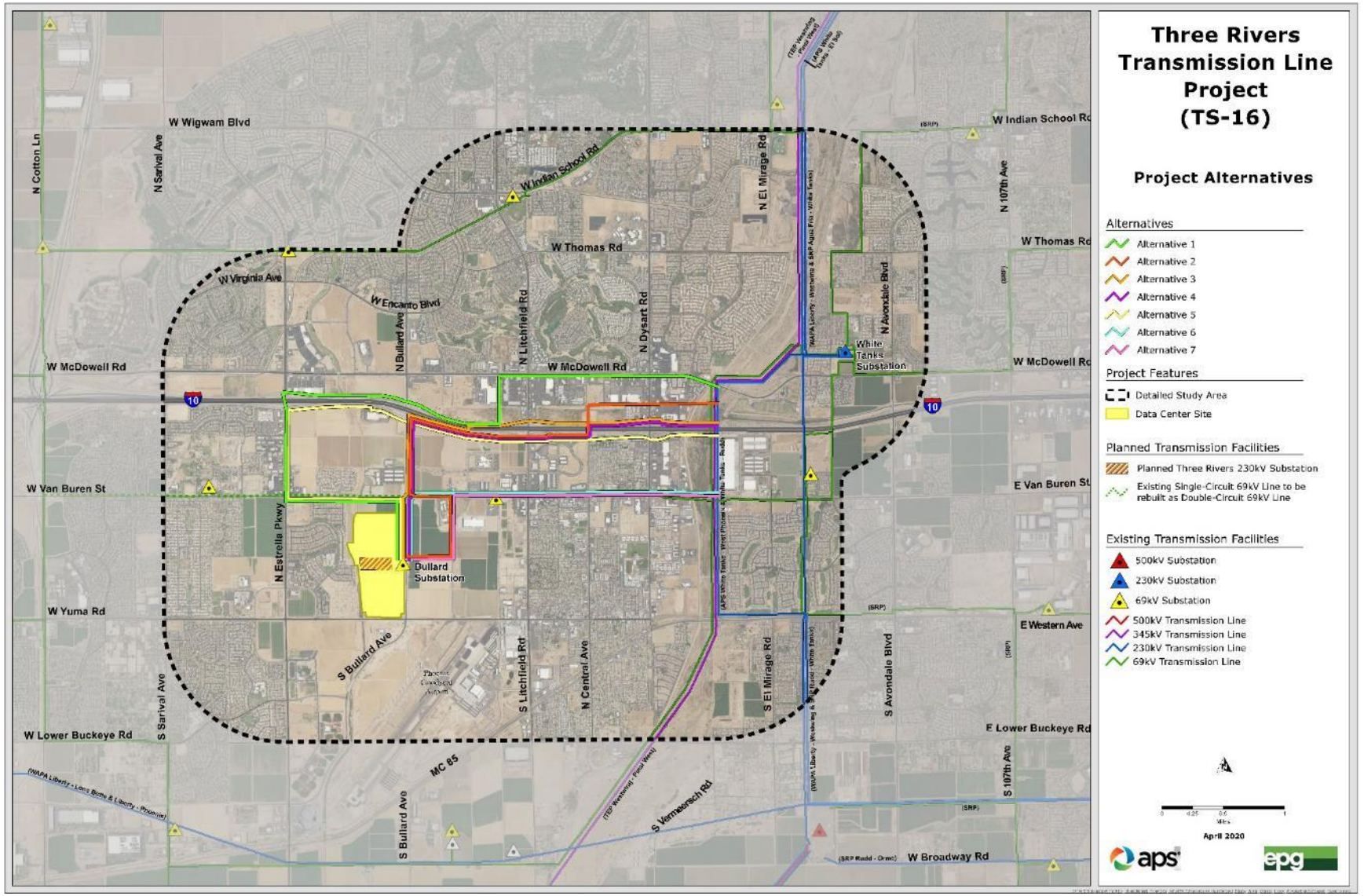


Exhibit J-3e. Project Newsletter 2 – Page 5

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THREE RIVERS 230kV POWER LINE PROJECT

June 2021

In early 2020, we announced the need for new electrical infrastructure to serve a new data center in Goodyear and support the overall growth in the west valley.

- We conducted environmental studies and held multiple jurisdictional and public meetings to develop multiple route options for new 230kV transmission lines.
- In February 2020 we held public open houses to discuss the project face-to-face with local community members, answer questions, and solicit feedback on the project. The feedback you provided helped us identify several route alternatives.
- In July 2020 we launched a virtual open house to share the results of these studies and once again gather public input, answer questions, and solicit feedback to determine optimal route options for the new transmission lines.

Your feedback during this process helped us identify three route options: a Preferred Route, Alternative Route #1, and Alternative Route #2 (*see included map*). Each route option forms a looped connection from the existing 230kV transmission line along the Agua Fria River in Avondale to the Three Rivers Substation located near Bullard Avenue and Van Buren Street in Goodyear, then back to the existing 230kV transmission line.

We have identified three route options for new 230kV power lines to serve the energy needs in the west valley, which will be presented before the Arizona Corporation Commission for final approval.

New electrical infrastructure is needed to provide safe and reliable electric service to a new data center customer in Goodyear and to support overall growth in the west valley.

Two separate 230kV power lines would be built from an existing line along the Agua Fria River in Avondale, to the Three Rivers Substation located near Bullard Avenue and Van Buren Street in Goodyear (*see included map*).

PROJECT SCHEDULE

3RD QUARTER 2021

- Continue public and stakeholder outreach
- Prepare and file CEC* Application

4TH QUARTER 2021

- Hold public hearing with Arizona Transmission Line Siting Committee for CEC Application

**Certificate of Environmental Compatibility*

For more information, please visit our website at aps.com/threerivers
Para más información, por favor visite nuestra página de internet aps.com/es-mx/threerivers

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Exhibit J-4a. Project Newsletter 3 – Page 1

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 tall to a maximum height of 195 feet depending on routing, terrain and crossing of existing structures, including elevated roads and other power lines. The typical rights-of-way or easements will be approximately 120 feet wide (60 feet each side of the structure). Any opportunity to utilize existing 69kV power line routes for the new 230kV structures will be considered.

**Exact structure, height and right-of-way width may vary*

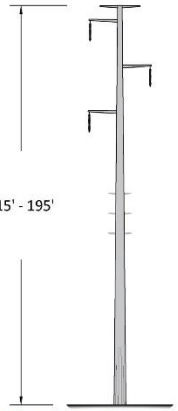
PUBLIC HEARING

We are planning to file an Application for a Certificate of Environmental Compatibility (CEC) in August 2021, presenting the results of the environmental studies for all proposed routes. This CEC Application will be submitted to the Arizona Power Plant and Transmission Line Siting Committee (Siting Committee), and available for public review. A public hearing for the Project will be scheduled before the Siting Committee, and notification of the multi-day hearing will be made to the public via mail, email, social media and newspaper ads.

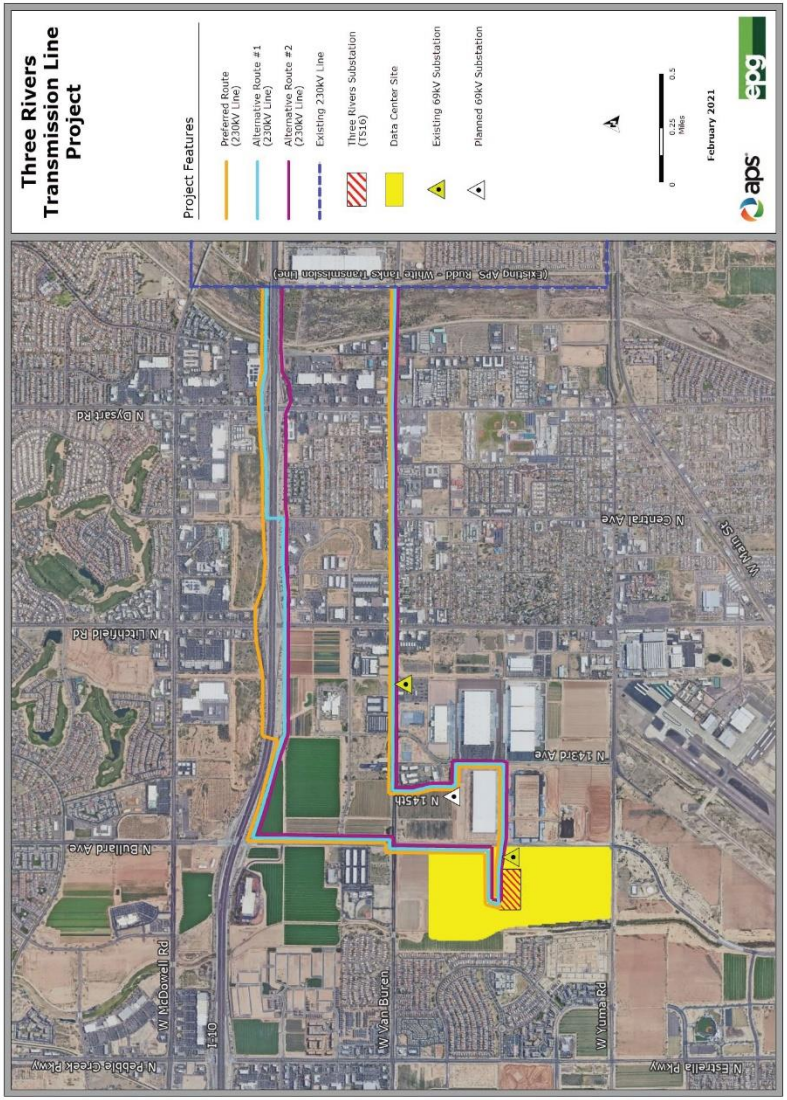
At the hearing, the Siting Committee will review evidence from us, our environmental consultant, and other parties wishing to participate in the process. Public comment will also be taken at time(s) during the hearing, which will be listed on a future notification. If the Siting Committee approves our application, the Committee will issue a CEC, which will be submitted to the Arizona Corporation Commission for its consideration.

To learn more, please visit the Three Rivers 230kV Power Line Project website at www.aps.com/threerivers. Comments and questions may be submitted to:

STEPHEN EICH
Siting Consultant
ThreeRiversSiting@aps.com



Typical Single-Circuit 230kV Pole with Double-Circuit 69kV Underbuild Capable



Map can also be viewed online at aps.com/threerivers

Exhibit J-4b. Project Newsletter 3 – Page 2

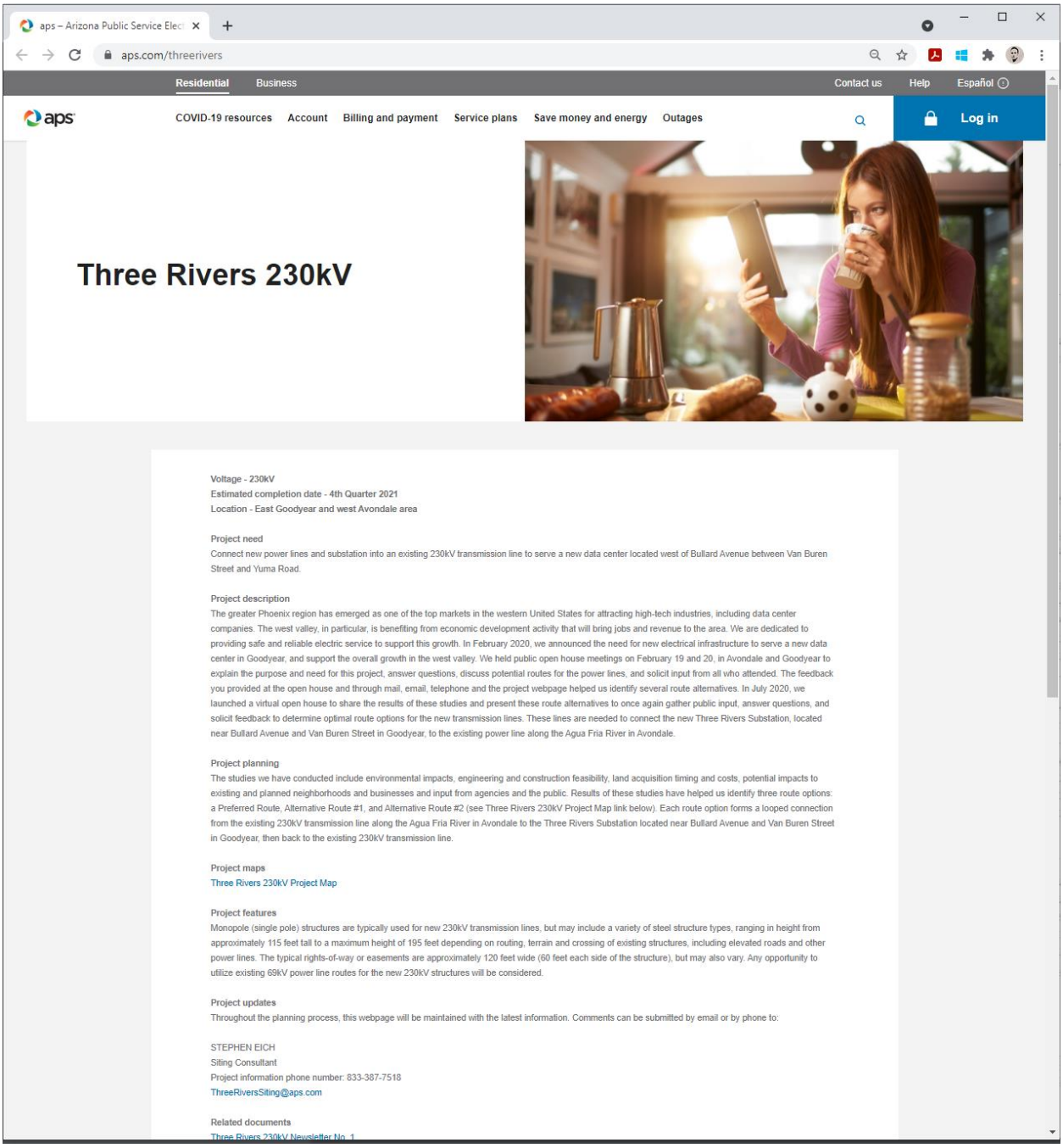
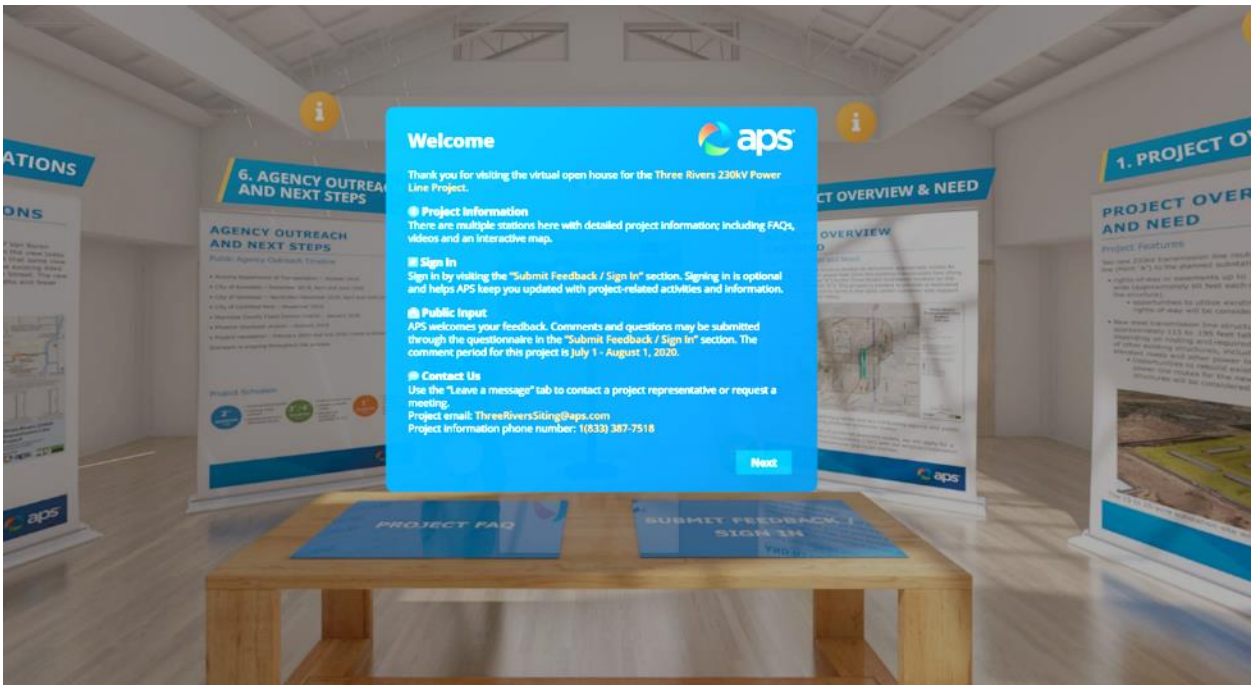


Exhibit J-5. Website



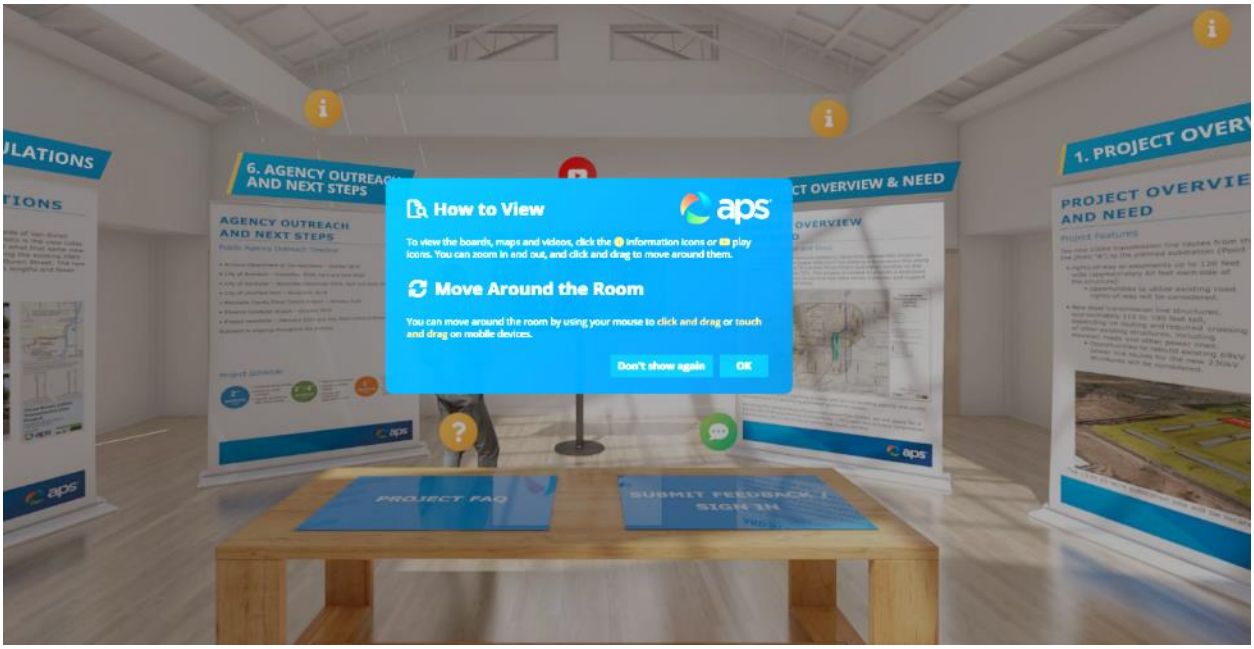


Exhibit J-6a Images of Virtual Open House – Page 1

Exhibit J-6b Images of Virtual Open House – Page 2

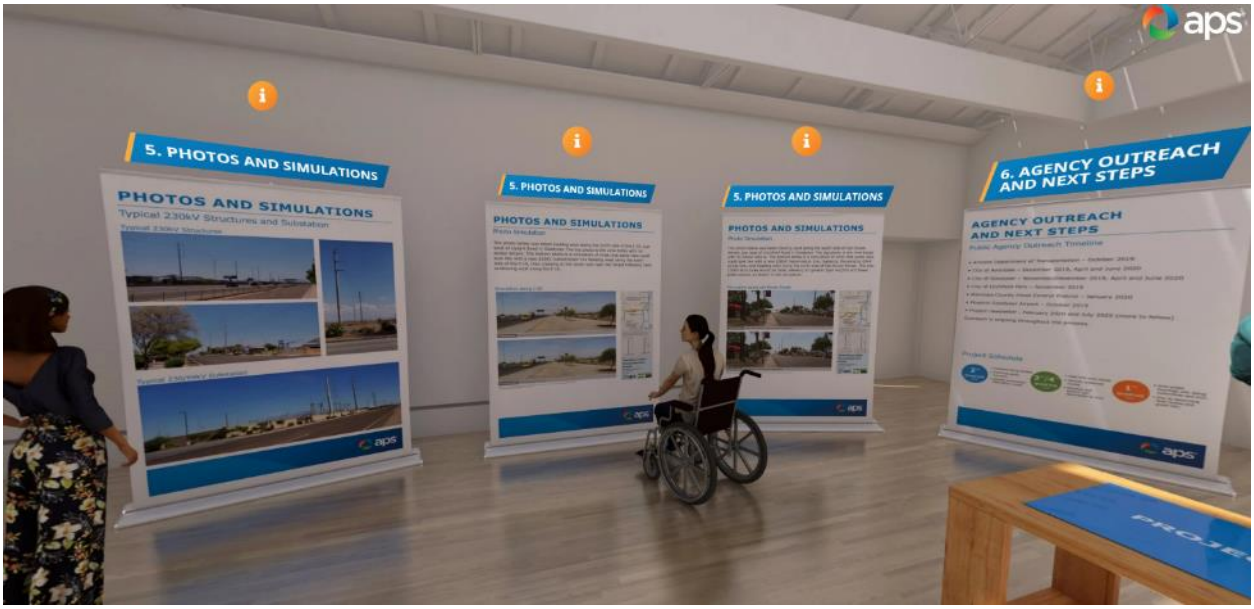


Exhibit J-6c Images of Virtual Open House – Page 3

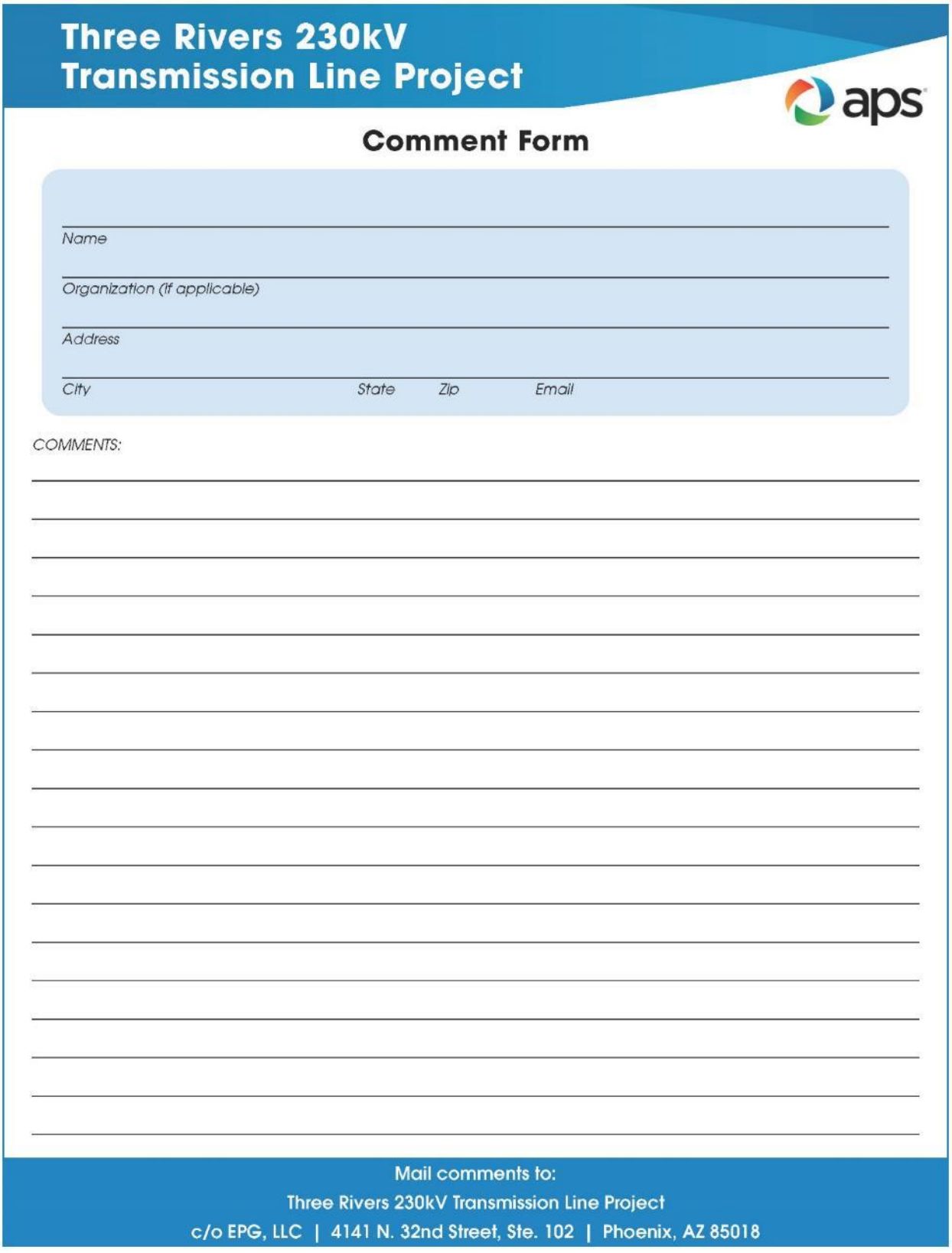


Exhibit J-7. Open House Comment Form

A PUBLIC INVITATION FROM APS

aps

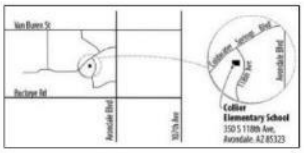
APS 230-kV Power Line Project Public Information Open House

We are in the early stages of a public process to determine routes for new 230-kilovolt (kV) power lines in Avondale and Goodyear, known as the Three Rivers 230kV Power Line Project. The additional lines are needed to serve a new data center customer located southwest of the intersection of West Van Buren Street and South Bullard Avenue, and to support electrical service reliability for new high-tech industries in the Goodyear area. APS is working to identify locations for the new lines that are acceptable to the public, regulatory agencies, and new customers.

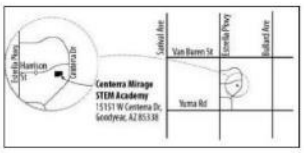
Your input is very important to us. Although we are holding two separate open houses, members of the public and all interested parties need only to attend one, as both will contain the same information. No formal presentation will be given, allowing everyone to attend at any time within the two-hour window. You will be able to speak one-on-one with team members, ask questions and provide your input.

Information about the Three Rivers 230kV Power Line Project can also be found on our projects webpage. Go to aps.com/siting and select "Current and completed siting projects," or scan the QR code below. Comments and questions may be submitted by clicking the comment form link on the project website, emailing ThreeRiversSiting@aps.com, or by calling (833) 387-7518.

February 19, 2020
5:00–7:00 p.m.
Collier Elementary School
350 S 118th Avenue
Avondale, AZ 85323



February 20, 2020
5:00–7:00 p.m.
Centerra Mirage
STEM Academy
15151 W Centerra Drive
Goodyear, AZ 85338



aps.com

Exhibit J-8. Display Advertisement for February 19 and 20, 2020, Open Houses

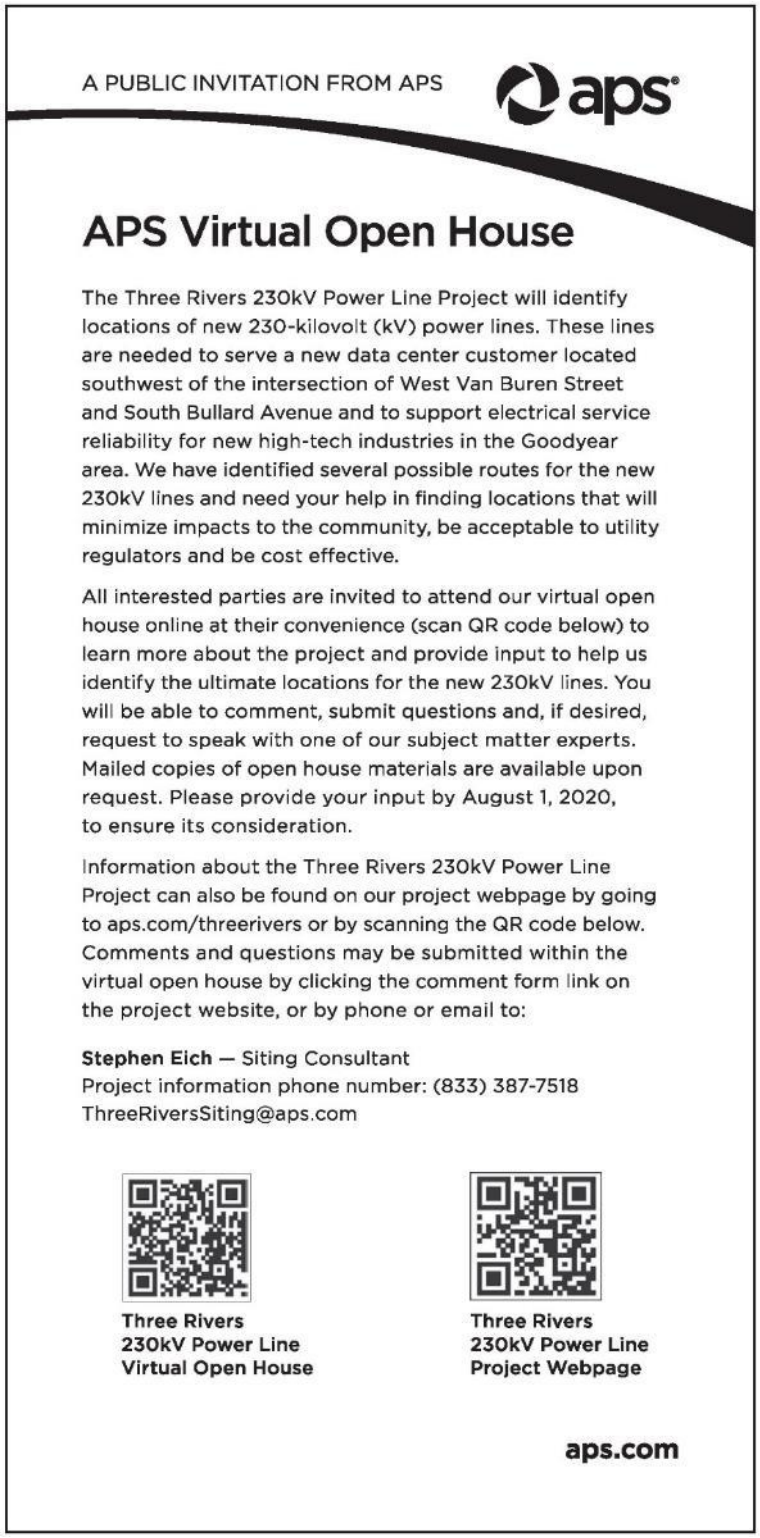


Exhibit J-9. Display Advertisement for Virtual Open House

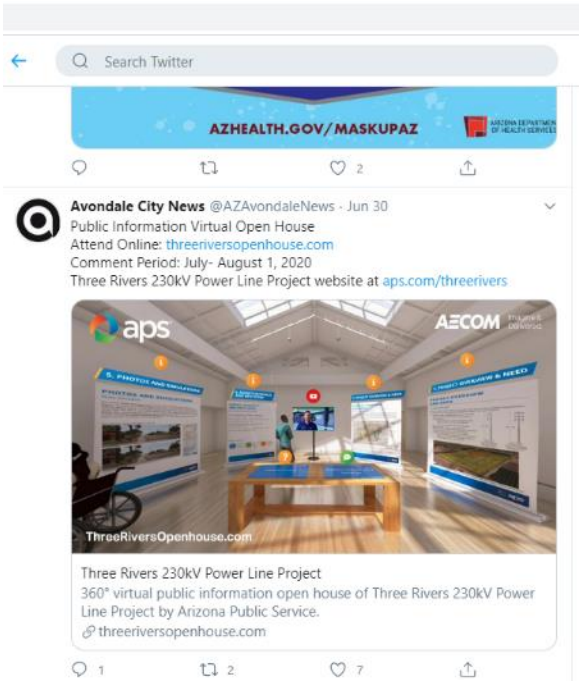
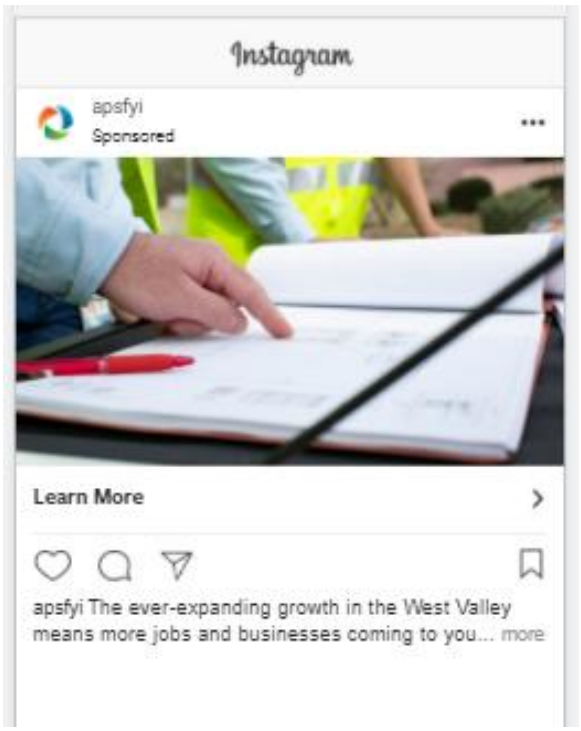


Exhibit J-10 Tweets



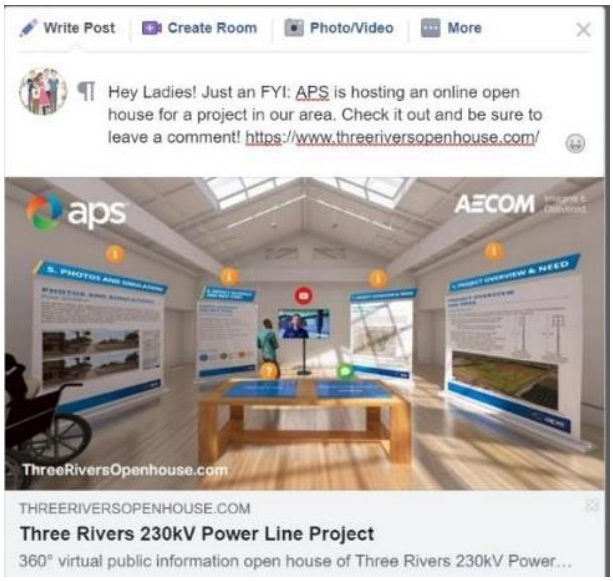


Exhibit J-11 Facebook and Instagram

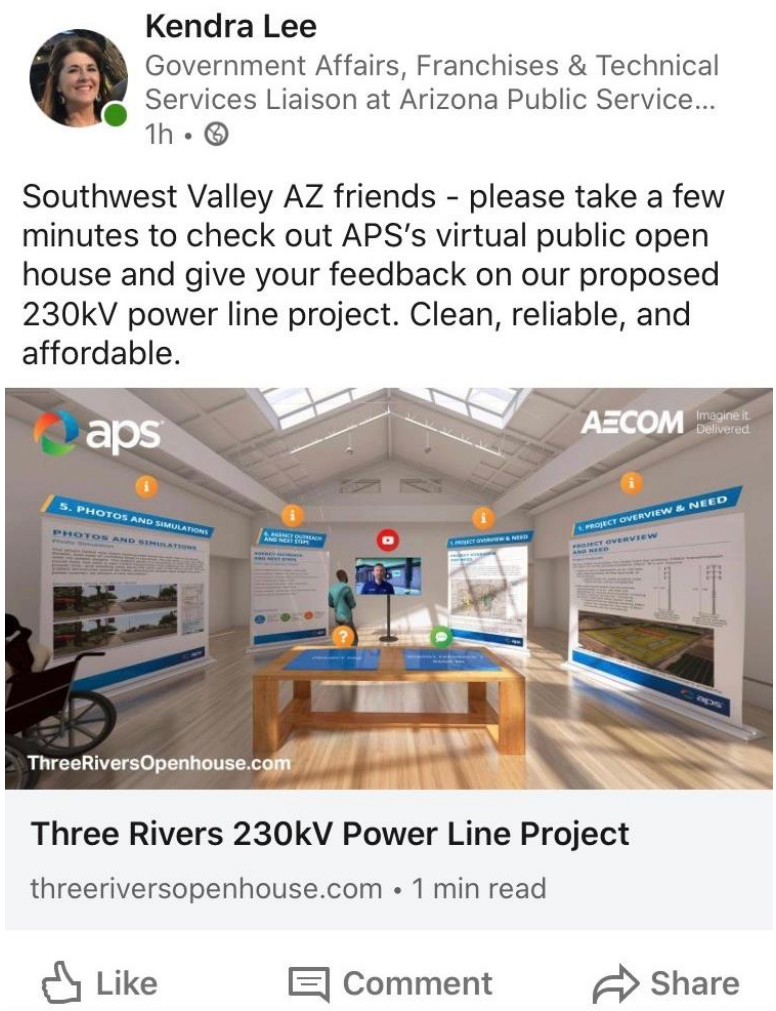
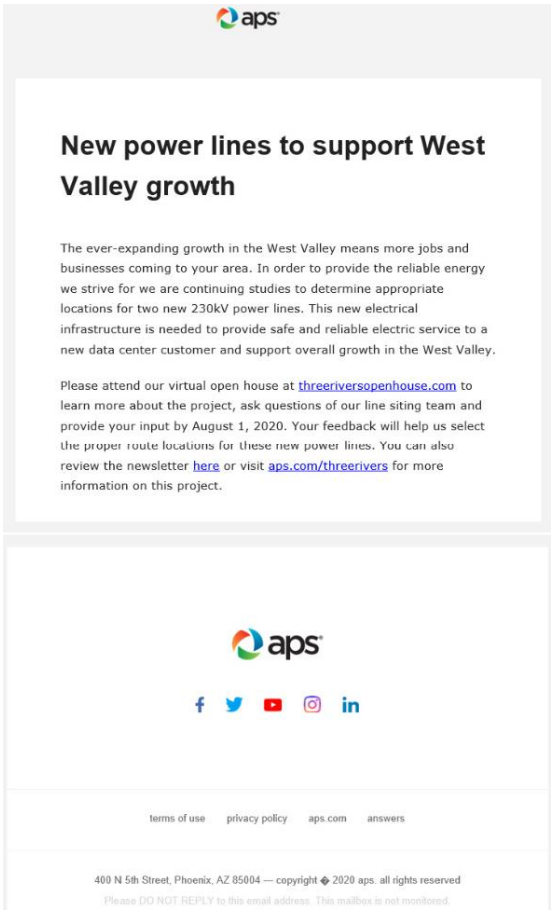
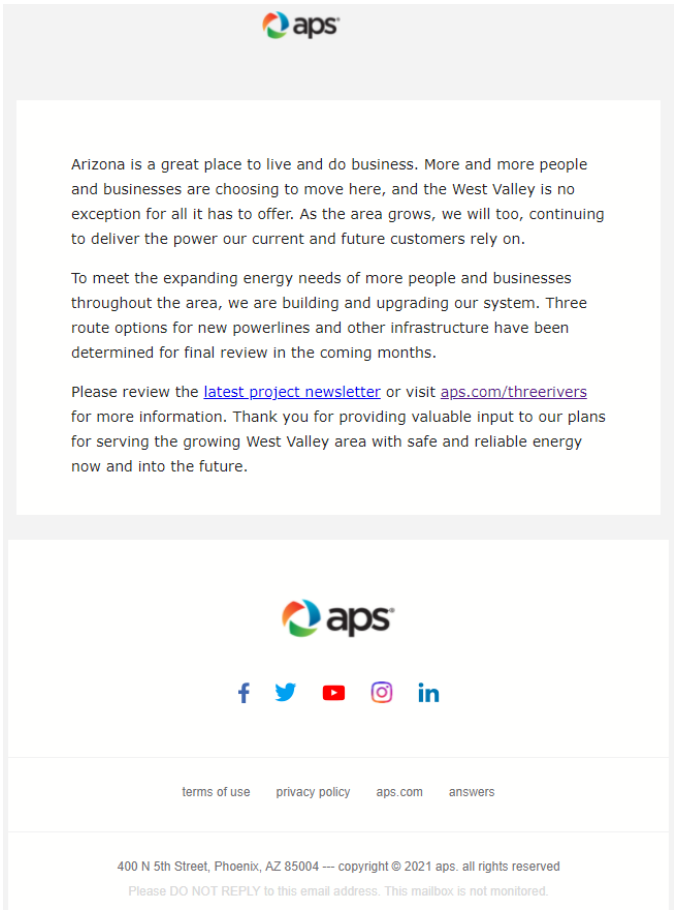


Exhibit J-12 Linkedin



July 16, 2020



July 25, 2021

Exhibit J-13 Email Blasts

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