WELCOME APS Pinal Electrical Improvement Project Open House





Project Description

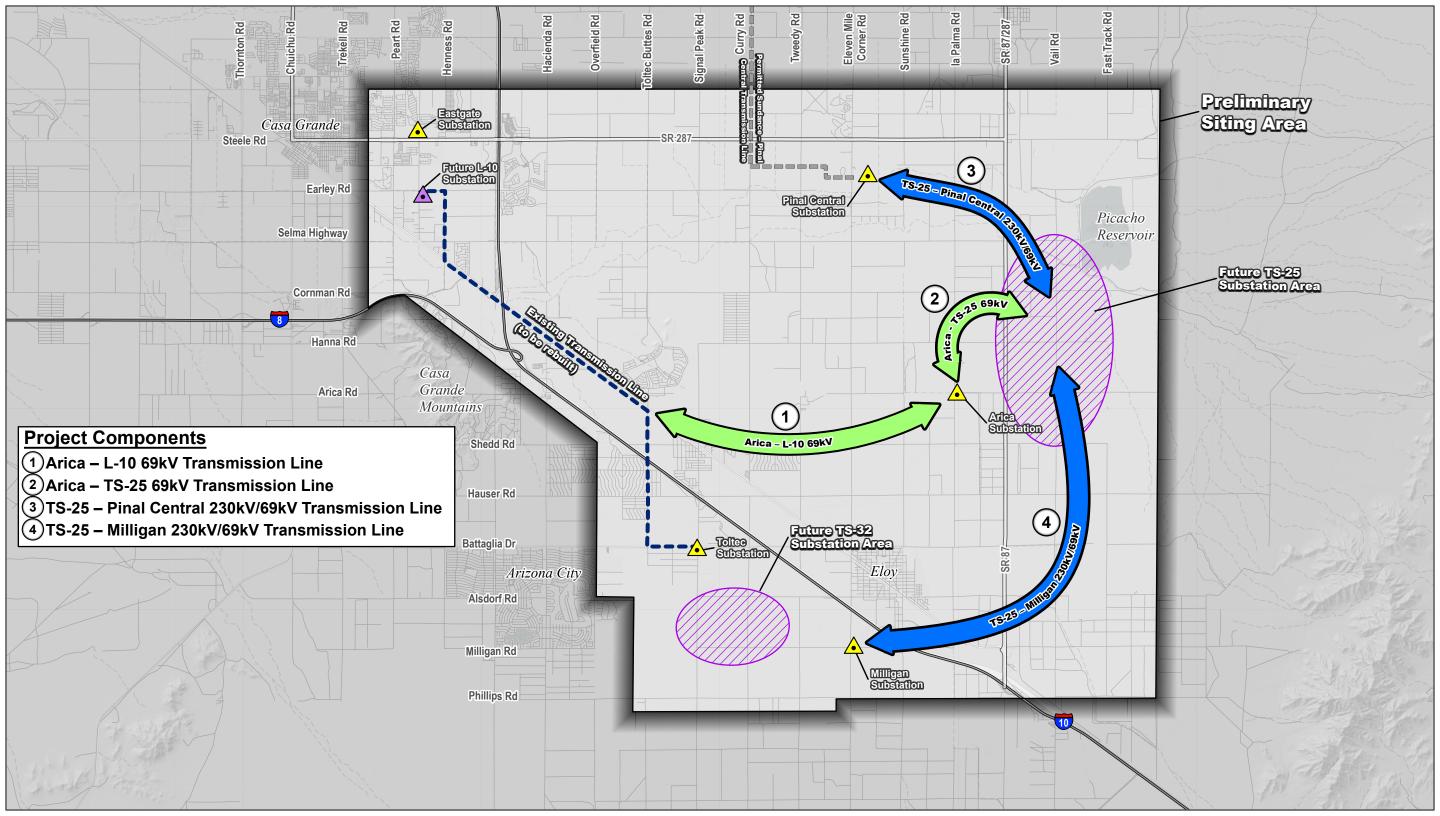


Project Overview

Arizona Public Service (APS) has started studies for the **Pinal Electrical Improvement Project** to determine appropriate locations for new transmission lines in the Pinal County area.

These 230kV and 69kV facilities will connect with existing transmission infrastructure and include the Project components listed below.

- 1. Arica L10 69kV Transmission Line Approximately 15-mile-long, 69kV transmission line from the existing Arica substation to the future L10 substation
- 2. Arica –TS25 69kV Transmission Line Approximately 3-mile-long, 69kV transmission line from TS25 substation to Arica substation
- 3. TS25 Pinal Central 230kV/69kV Transmission Line Approximately 10-mile-long, 230/69kV transmission line, which may include new and rebuilt portions connecting to permitted "Sundance" transmission line near Pinal Central Substation. Will require State of Arizona CEC permitting.
- **4. TS25 Milligan 230kV/69kV Transmission Line –** Approximately 10-mile-long, 230/69kV transmission line, which may include new and rebuilt portions. Will require State of Arizona CEC permitting.





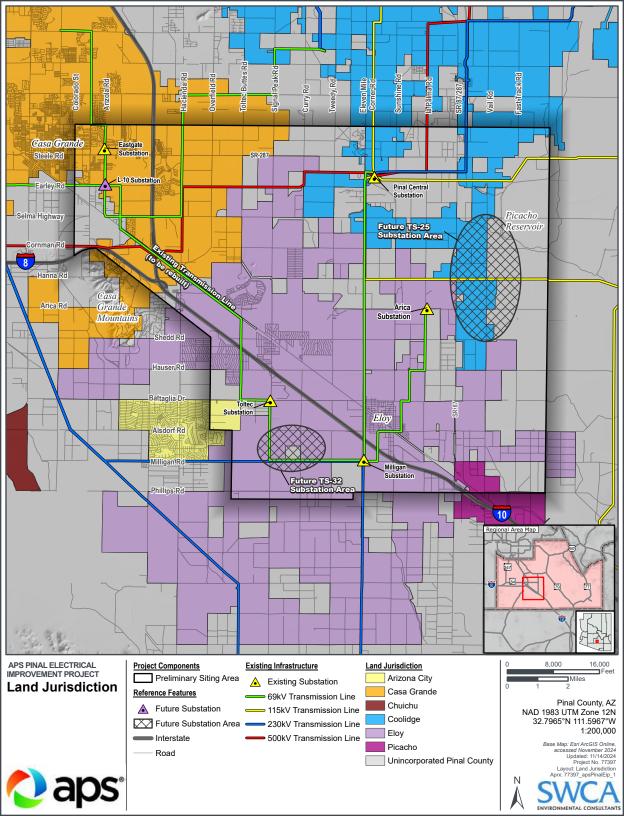
Project Need & Details

- The Project provides route options to support current and future APS customers. These Project components will provide additional reliability and redundancy for the APS transmission system in Pinal County.
- The Project will require new electrical infrastructure, including new steel poles. Refer to the "Typical Infrastructure" board for examples of typical structures.



Project Location

- The preliminary siting area that is being evaluated includes existing substations and infrastructure needed to support the proposed improvements and is large enough to allow for the analysis of multiple routes that meet the Project need.
- The preliminary siting area is located largely within Casa Grande, Eloy, Coolidge, and unincorporated Pinal County, Arizona.
- The Project will connect 69kV lines from Arica Substation to the future TS25 substation site 1-2 miles to the east, and 8-9 miles to the west to an existing power line just west of the Interstate 10. A separate 230kV line will connect the Milligan substation 17-18 miles north to the permitted "Sundance" power line near Pinal Central Substation that continues north 6-7 miles to the TS33 Substation.





Project Schedule and Status



Siting Process Overview and Schedule

- Inventory/mapping Review land use and conduct field ground-truthing, review culturally and biologically sensitive areas. Q3/Q4 2023
- Public Open House #1 Q2 2024
- Opportunities and Constraints Analysis Rank the land uses and culturally and biologically sensitive areas to identify areas of opportunities and constraints. Q1/Q2 2024
- Preliminary Link Development Using the opportunities and constraints rankings, develop potential links for siting the proposed facilities. Q2 2024
- Link Review/Refinement Rank the preliminary links based on their suitability for siting the proposed facilities.
 Q2/Q3 2024
- Route Alternative Development Based on the link rankings, develop alternatives for full routes for siting the proposed facilities. Q4 2024

Public Open House #2 Q4 2024

- Route Alternative Refinement/Selection Rank and refine the preliminary alternative routes to select proposed routes. Q4 2024
- Permitting Permit the proposed routes (CEC Application, Hearing, and ACC Open Meeting) for Components #3 and #4. Q3 2025
- Design and Construction: Q4 2025 Q1 2027
- Anticipated In-Service: 2027



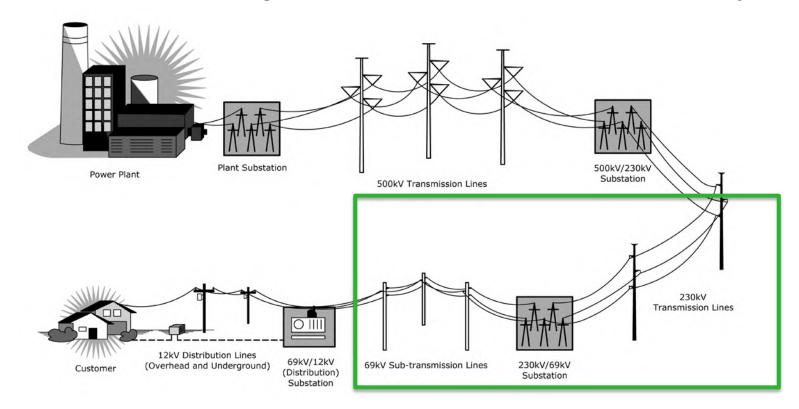


Typical Infrastructure



Typical Infrastructure

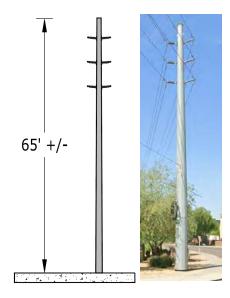
The **APS Pinal Electrical Improvement Project** includes the addition of 69kV and 230kV components. The diagram below provides an overview of how 69kV and 230kV components fit within the larger electrical transmission and distribution system.



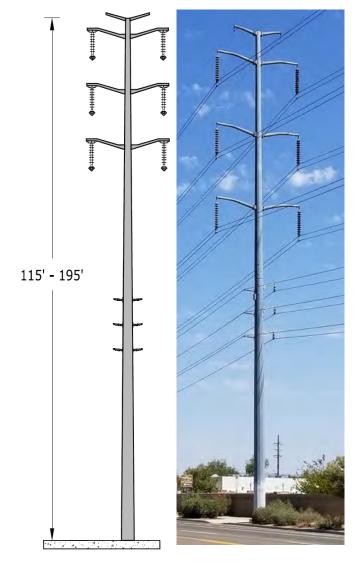


Typical Structures

- The new 69kV transmission line pole structures will be approximately 65 feet tall, placed in new or existing rights of way or easements up to 60 feet in width.
- The new double-circuit 230/69kV transmission line pole structures will be approximately 115 to 195 feet tall, placed in new or existing rights of way or easements up to 120 feet in width.
- Examples of 69kV and 230kV structures are on the right.



Double-circuit 69kV Monopole Structure



Double-circuit 230kV with 69kV Underbuild Monopole Structure



Project Considerations



Technical Considerations

Electric and Magnetic Field (EMF) Data

Electric Field

Fields created by voltage on the transmission line that can cause an electric charge to build up on insulated objects near the line. This can create nuisance shocks (much like walking across carpet and touching a door handle) to individuals touching grounded objects near the line.

The standard for maximum electrical field value outside of the powerline right-of-way is 5.0kV/m. We expect studies, currently underway, to show the value for this project to be well below this standard.

Magnetic Field

Fields that are created by ALL devices that use, carry, or generate electricity. Magnetic fields drop off dramatically as distance from the source increases. To date, no federal or Arizona state standards have been established for magnetic field levels.

We recognize the public concern for magnetic fields and have included those considerations in the design of this project. The estimated value for the magnetic field at the edge of this 230kV right-of-way is approximately 45mG.

We continue to monitor U.S. and international studies regarding EMF.

Typical magnetic fields measured at various distances from common electrical appliances

All measurements are in milligauss (mG)

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

Source: EMF In Your environment, epa.com

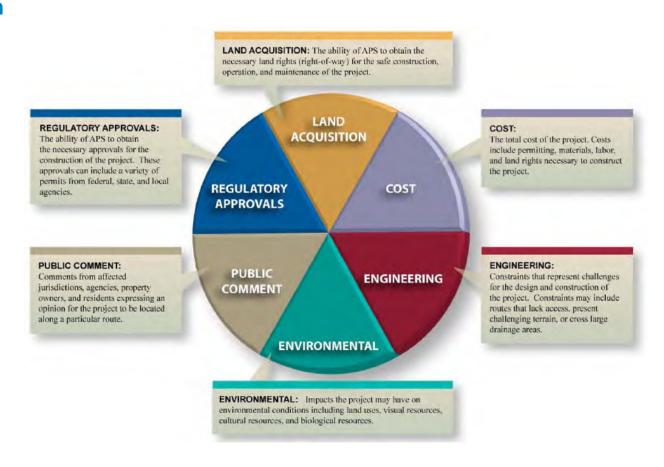
Note: The asterisk (*) indicates measurement same as background fields.



Siting Considerations

Factors Considered in Route Identification

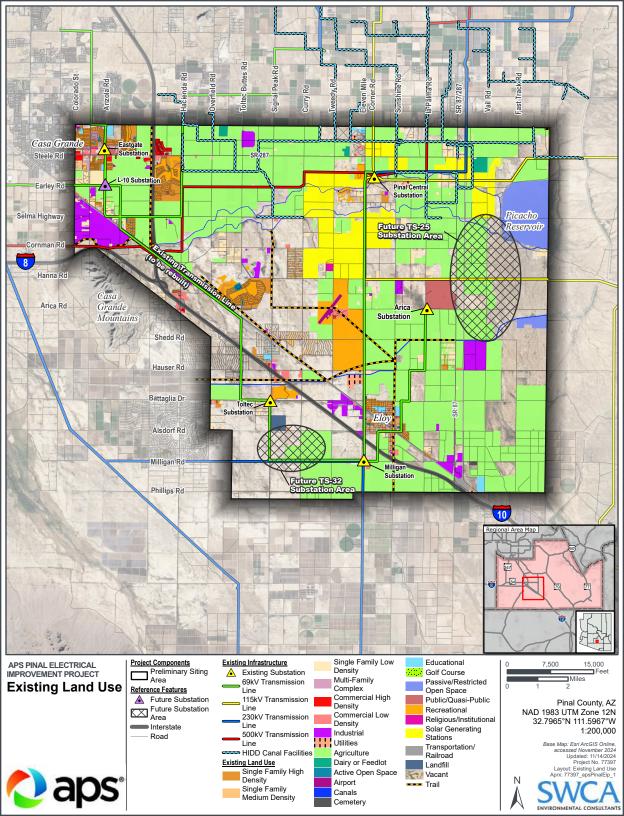
- When siting new electrical facilities, we strive to minimize impacts to sensitive resource areas (i.e., residential developments, airports, etc.) and maximize use of siting opportunities, including locating near existing linear features and/or compatible land uses (i.e., transmission lines, roads,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

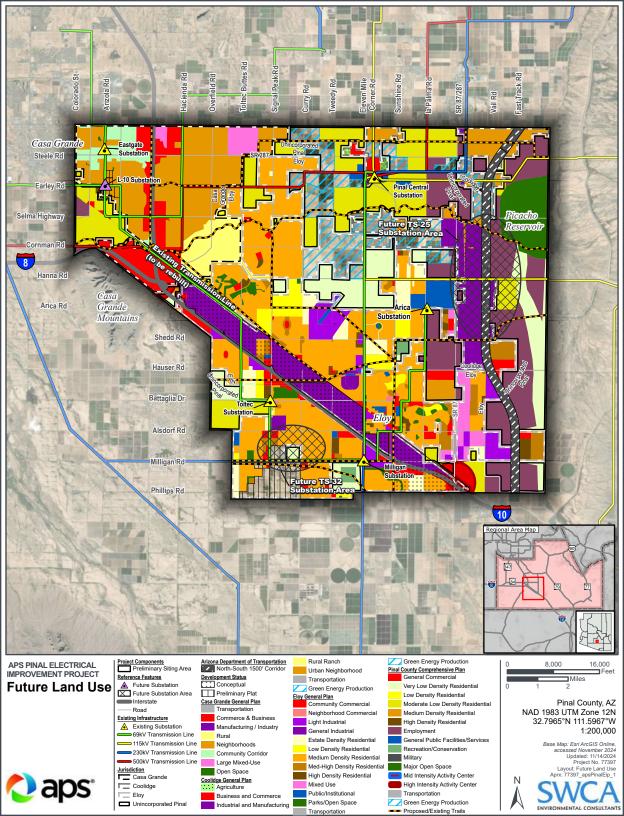




Environmental Considerations

- Land Use compatibility with existing and future land uses, transportation facilities (roadway and aviation), and jurisdictional planning guidelines.
- Visual minimization of impacts to sensitive viewers (residences, parks, and travel routes)
- Cultural avoidance of culturally or archaeologically sensitivity areas
- Biological avoidance of sensitive habitat







Opportunity and Constraints Analysis



Identifying Opportunities and Constraints

- We have conducted an evaluation of land uses and environmental resources to identify areas that better accommodate the transmission lines (opportunities), and locations that would be less accommodating for the transmission lines (constraints).
- The criteria shown in the Opportunities and Constraints chart helps us identify route opportunities for the construction, operation, and maintenance of the new facilities. We also try to minimize impacts of the lines to homes or other sensitive areas.



Siting Opportunities

Existing and Future Land Use Opportunities	Opportunity Level
Large Overhead Transmission Lines and Corridors	High
Freeways/Interstates, existing or planned	High
Utilities	High
Canals	Moderate
Major Roadway ROW	Moderate
Arterial Roadways	Low
Railroads	Low
All Other Areas	None

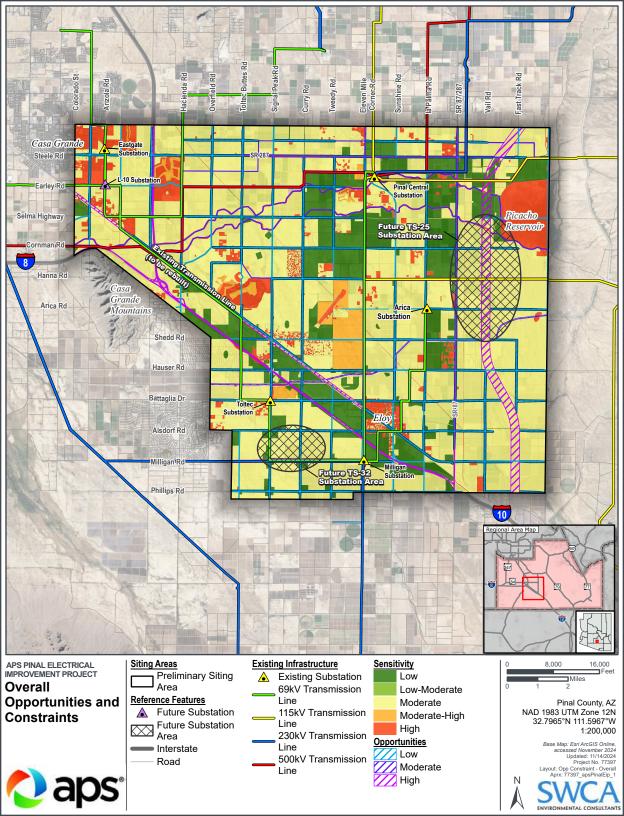


Siting Constraints

Existing Land Use Constraints	Sensitivity Level	Future Land Use Constraints	Sensitivity Level
Single Family High Density Residential	High	General Commercial	Moderate
Single Family Medium Density Residential	High	Very Low Density Residential	Moderate
Single Family Low Density Residential	High	Low Density Residential	Moderate
Multi-Family Complex	High	Moderate Low Density Residential	Moderate
Active Open Space	High	Medium Density Residential	Moderate
Airport	High	High Density Residential	Moderate
Cemetery	High	Recreation/Conservation	Moderate
Educational	High	Major Open Space	Moderate
Religious/Institutional	High	Mid Intensity Activity Center	Moderate
Golf Course	Moderate-High	High Intensity Activity Center	Moderate
Recreational	Moderate-High	Neighborhood Commercial	Moderate
Commercial High Density	Moderate	Estate Density Residential	Moderate
Commercial Low Density	Moderate	Med-High Density Residential	Moderate
Public/Quasi-Public	Moderate	Mixed Use	Moderate
Passive/Restricted Open Space	Low-Moderate	Parks/Open Space	Moderate
Industrial	Low	Commerce & Business	Moderate
Utilities	Low	Rural	Moderate
Agriculture	Low	Neighborhoods	Moderate
Dairy or Feedlot	Low	Community Corridor	Moderate
Canals	Low	Large Mixed-Use	Moderate
Solar Generating Stations	Low	Open Space	Moderate
Transportation/Railroad	Low	Business and Commerce	Moderate
Landfill	Low	Rural Ranch	Moderate
Vacant	Low	Urban Neighborhood	Moderate
		Green Energy Production	Low
		Employment	Low
		General Public Facilities/Services	Low
		Military	Low
		Community Commercial	Low
		Light Industrial	Low
		General Industrial	Low
		Public/Institutional	Low
		Manufacturing / Industry	Low
		Agriculture	Low
		Industrial and Manufacturing	Low

Cultural Resources Constraints				
Locations of known NRHP-eligible or -listed sites and structures.	High			
Areas surveyed before 2004, and sites and structures that have not been evaluated for the NRHP eligibility.	Moderate			
Areas surveyed after 2004 with no sites or structures, and sites and structures that have been determined ineligible for the NRHP.	Low			
*NRHP=National Register of Historic Places				

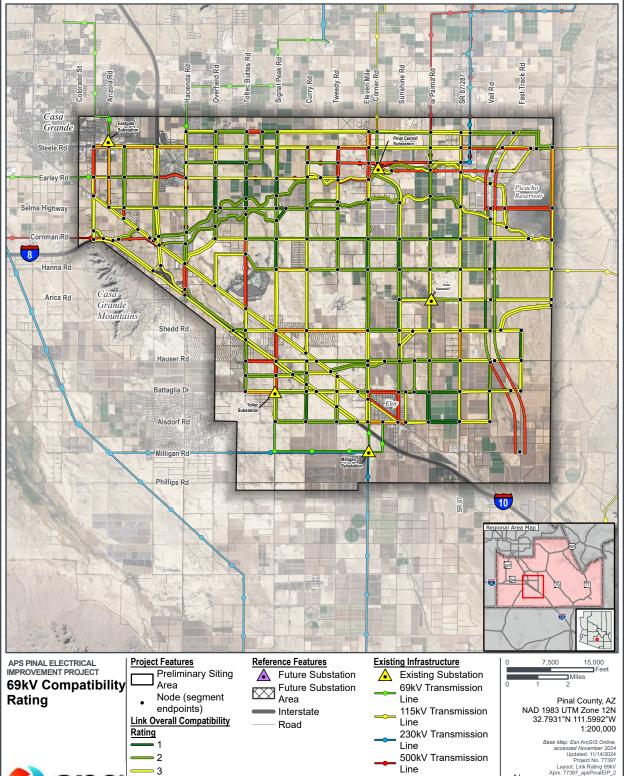
Natural Resources Constraints	Sensitivity Level
Special designation areas (such as designated critical habitat or other special areas) where the designation prohibits development and areas where species occur in high numbers (e.g., bat roosts or ESA-listed species established territory).	High
Areas where special-status species could occur or special designation areas (e.g., designated wildlife movement areas) do occur, but impacts can be minimized and mitigated.	Moderate
Areas generally compatible with development, including areas where special-status species could occur or special designation areas do occur, but any impacts could easily be mitigated or avoided.	Low
*ESA=Endangered Species Act	



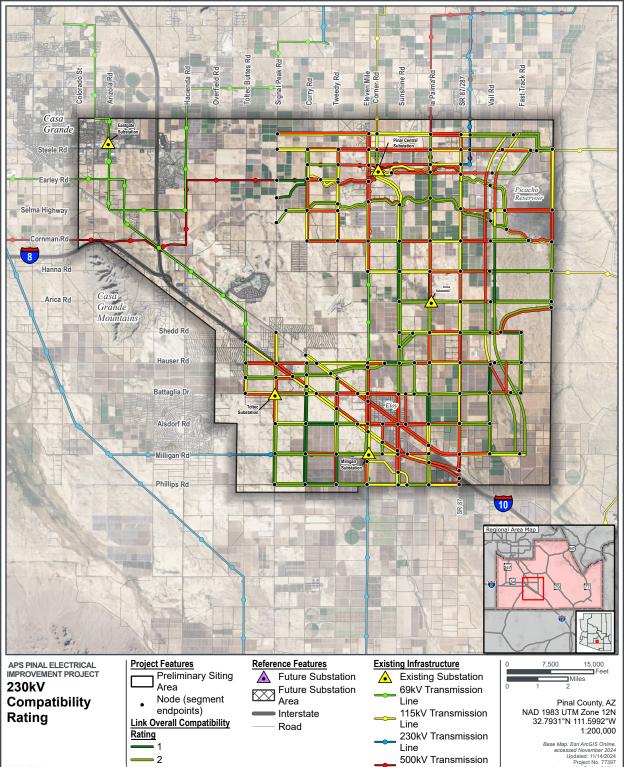


Development of Preliminary Links

- Following the opportunities and constraints mapping and stakeholder outreach activities, we identified preliminary transmission line links focused generally in areas of higher opportunity and/or lower constraint.
- A link is defined as a discrete connection, that when added together with other links, can create a transmission line route.
- Once these links were developed, our team completed a detailed links analysis, including mapping and a study of the compatibility of each link with regard to visual resources, land use, right-of way, engineering, construction/maintenance, and vegetative maintenance.
- Once the overall compatibility was determined, the least compatible links were eliminated from further analysis. Then any links that no longer provided a connection to other links (i.e., were isolated) were eliminated from further consideration.



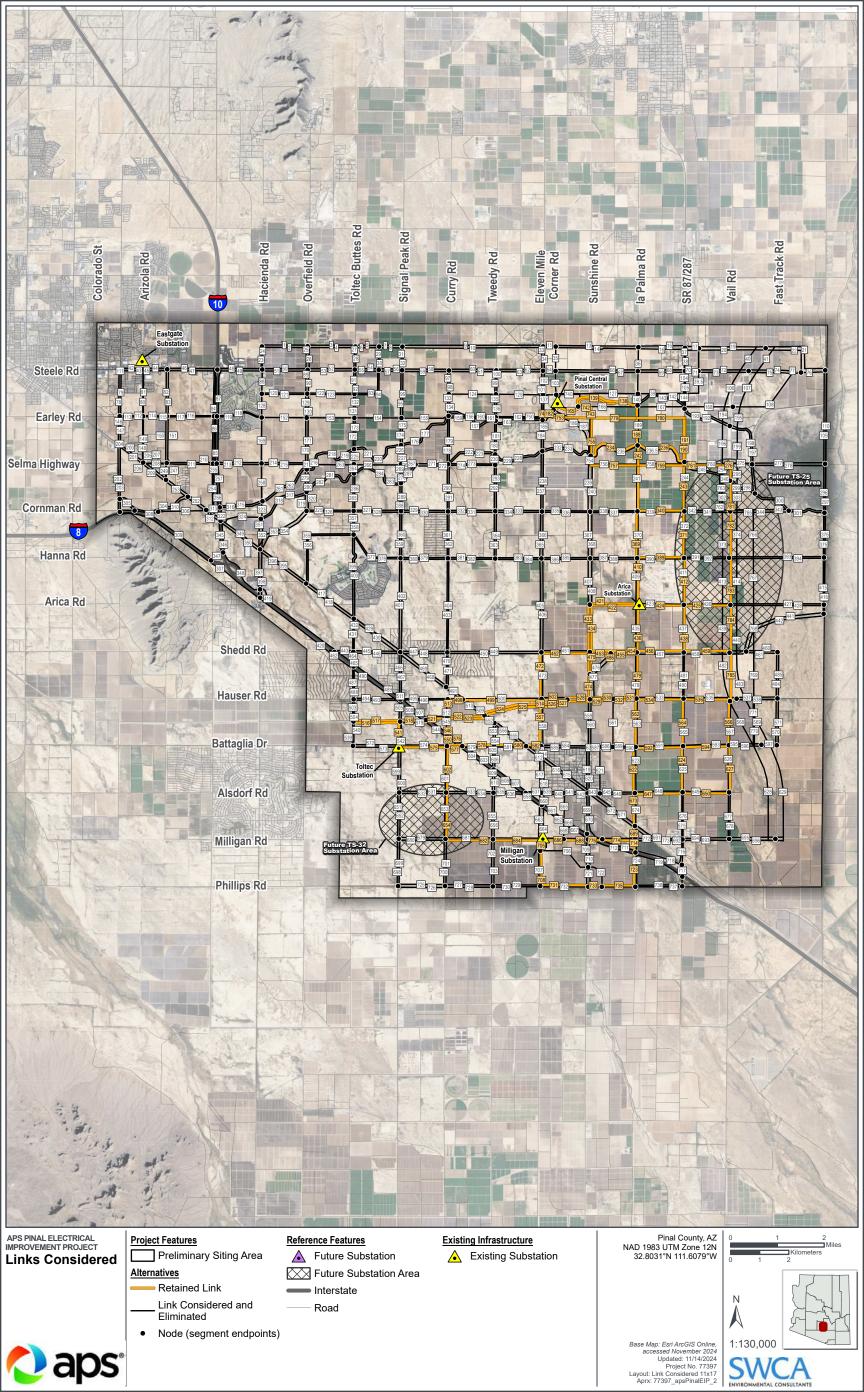
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Layout: Link Rating 230kV Aprx: 77397_apsPinalEIP_2

Line

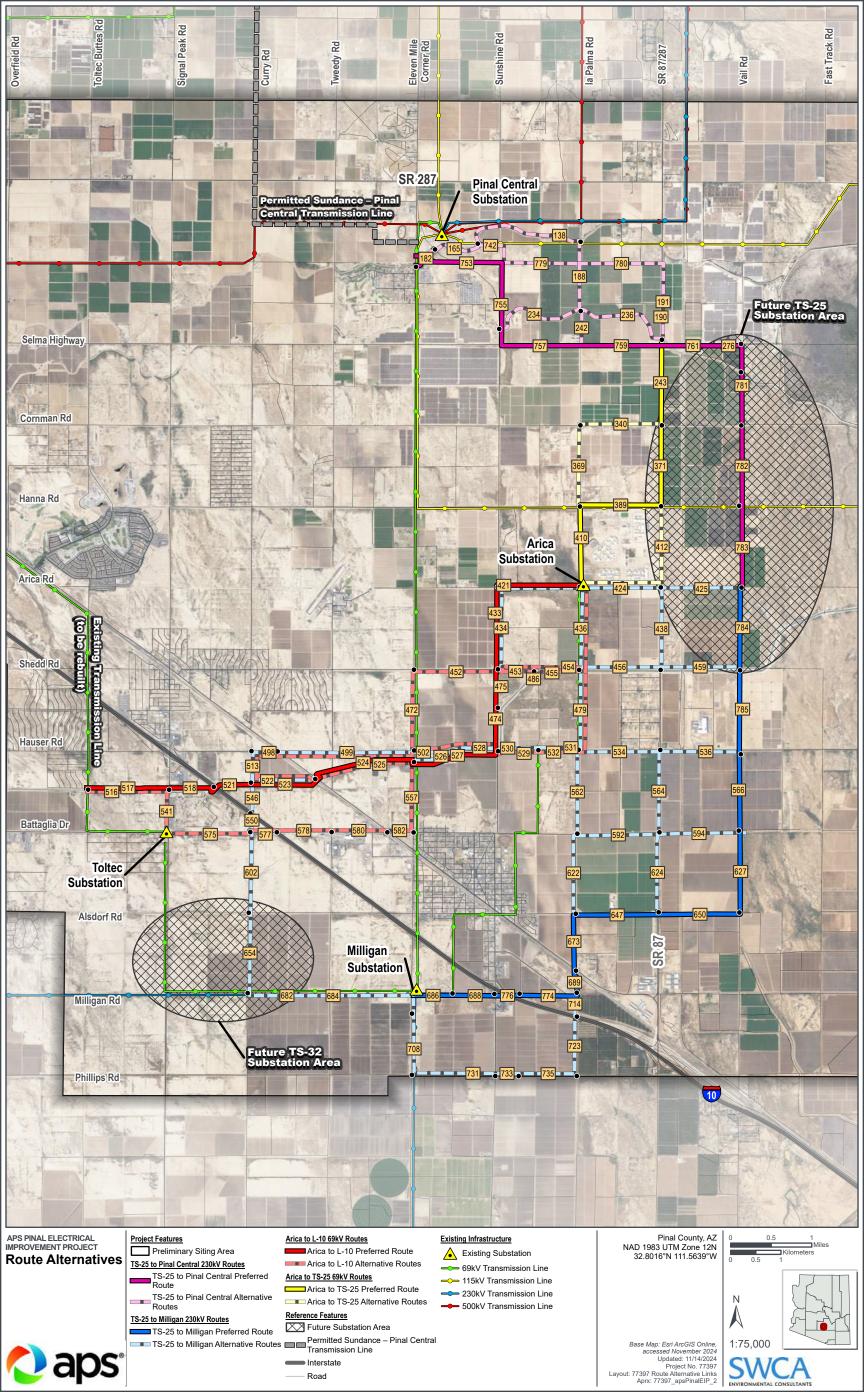
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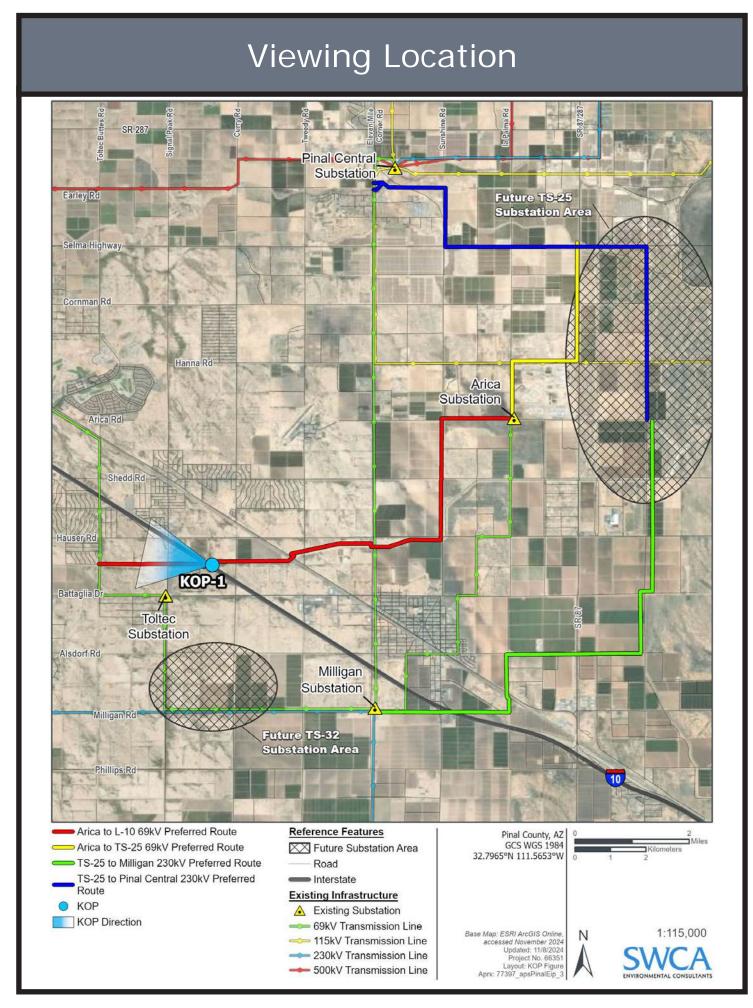


Development of Route Alternatives

- Following the preliminary links review and eliminations, we began reviewing and analyzing the remaining links to develop potential power line routes – or full power line connections to meet the Project need.
- After initial route development, Project route alternatives were mapped, reviewed in the field for applicability and feasibility, refined and in some cases, eliminated to identify routes to be taken to the public and stakeholders for input.
- That review and analysis led to the identification and mapping of a Preferred Route and Alternative Routes for each Project segment, including:
 - 1. Arica L10 69kV Transmission Line
 - 2. Arica TS25 69kV Transmission Line
 - 3. Pinal Central TS25 230kV/69kV Transmission Line
 - 4. TS25 Milligan 230kV/69kV Transmission Line









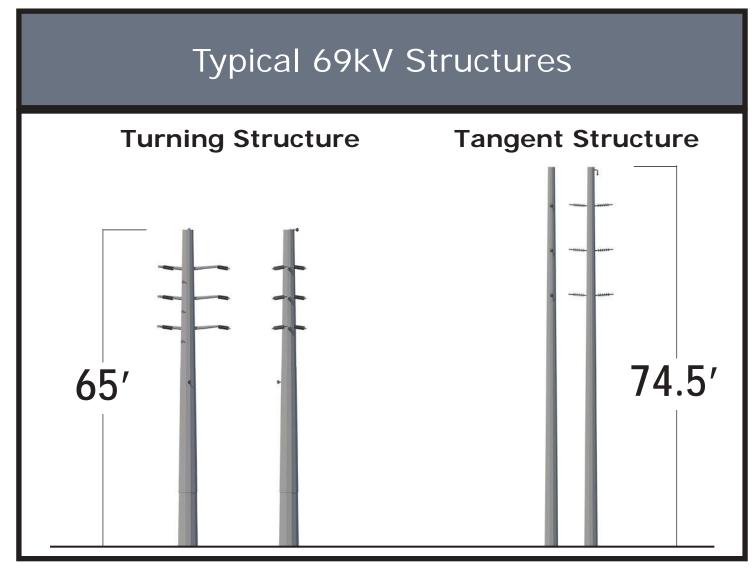


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View Location: Approximate distance to nearest new structure from photo location is 300 feet.

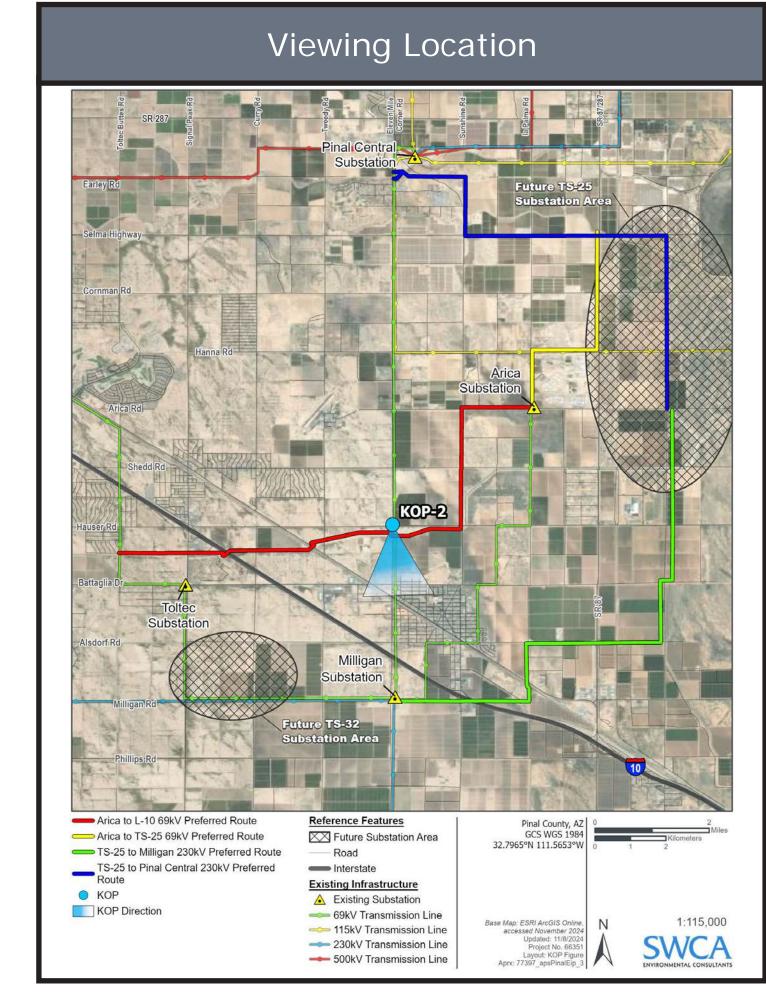
Simulations were prepared using information provided by APS. Structure locations, colors, and heights may be different based on final engineering and design.





APS Pinal County Electrical Improvement Project | Arica to L10 69kV | Preferred Route Simulation from KOP 1: View from Interstate 10 near exit 203







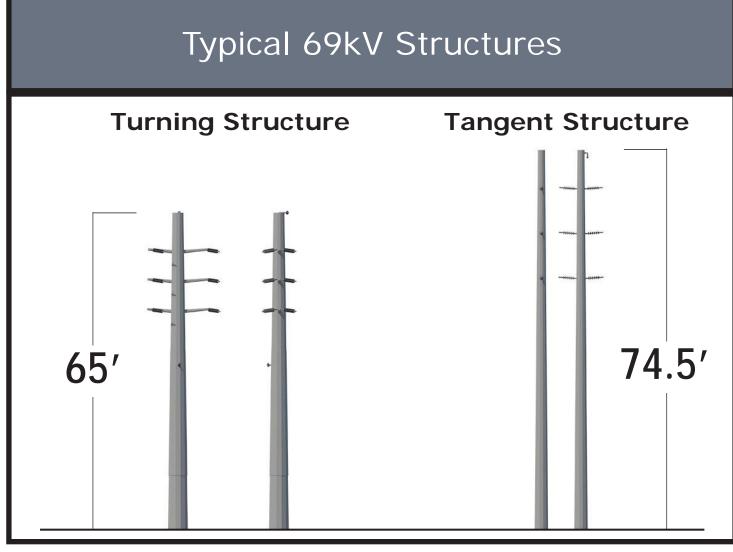


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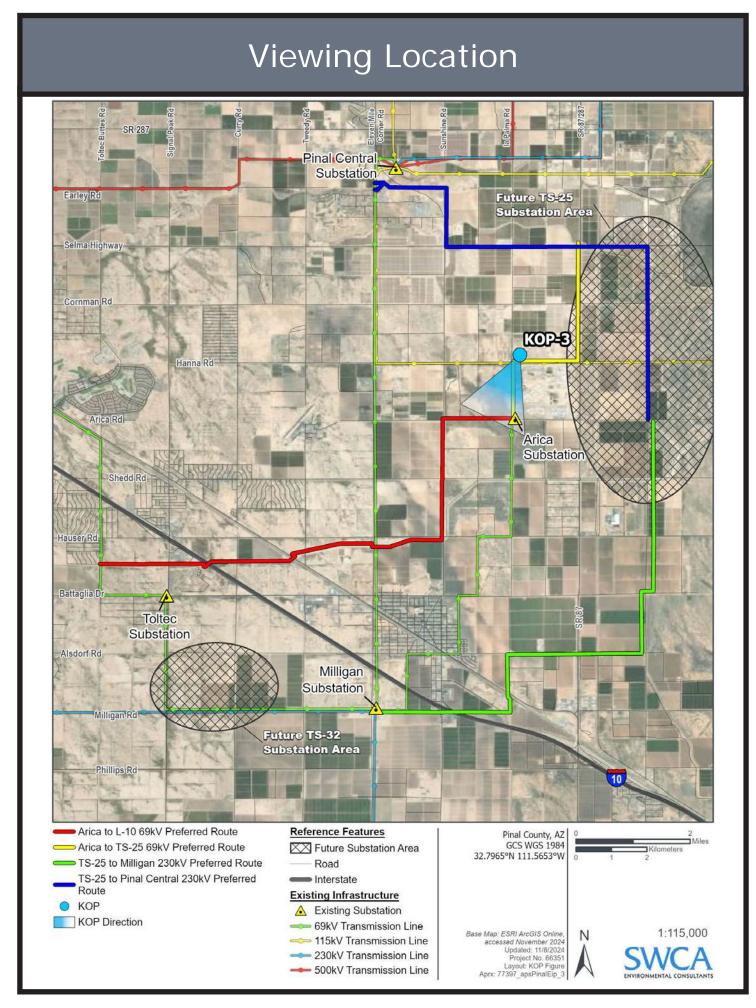
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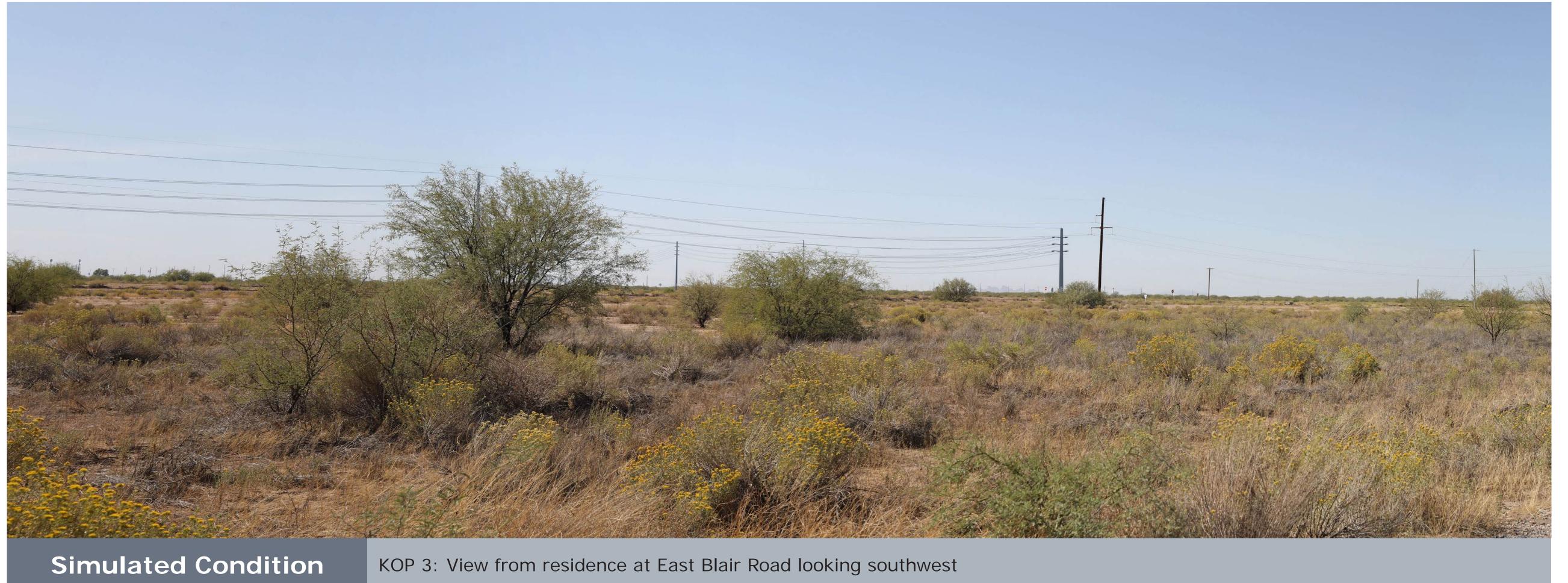
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APS Pinal County Electrical Improvement Project | Arica to L10 69kV | Preferred Route Simulation from KOP 2: View 11 Mile Corner







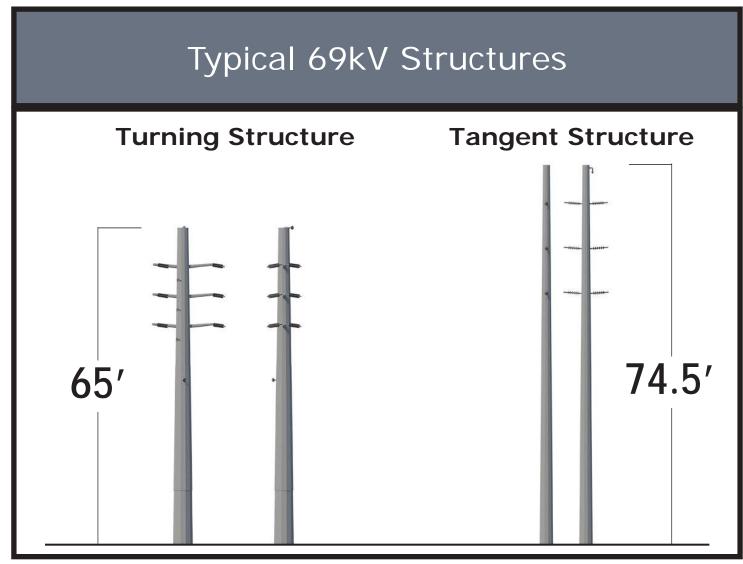


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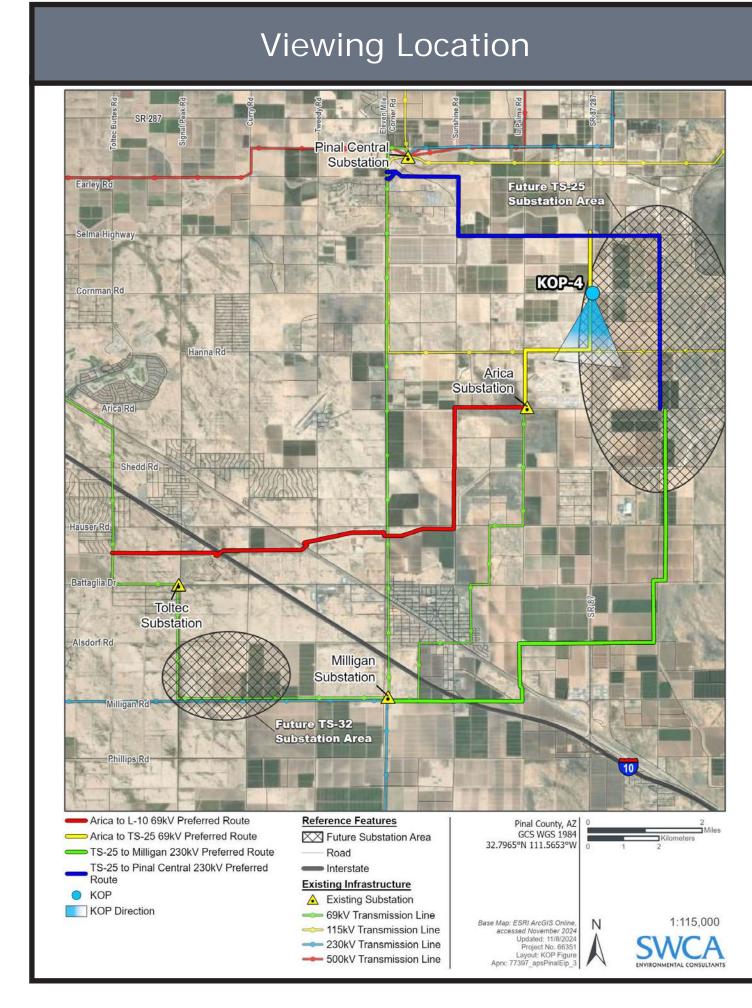
View Location: Approximate distance to nearest new structure from photo location is 820 feet.

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



APS Pinal County Electrical Improvement Project | Arica to TS25 69kV | Preferred Route Simulation from KOP 3: View from residence at East Blair Road







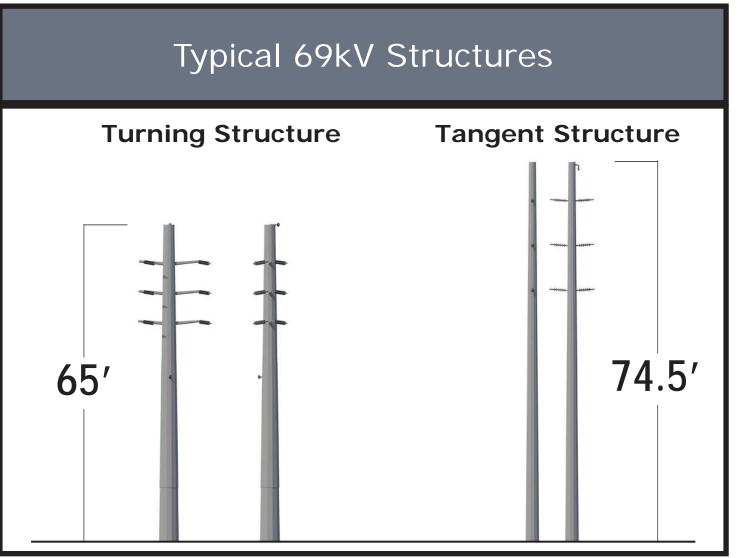


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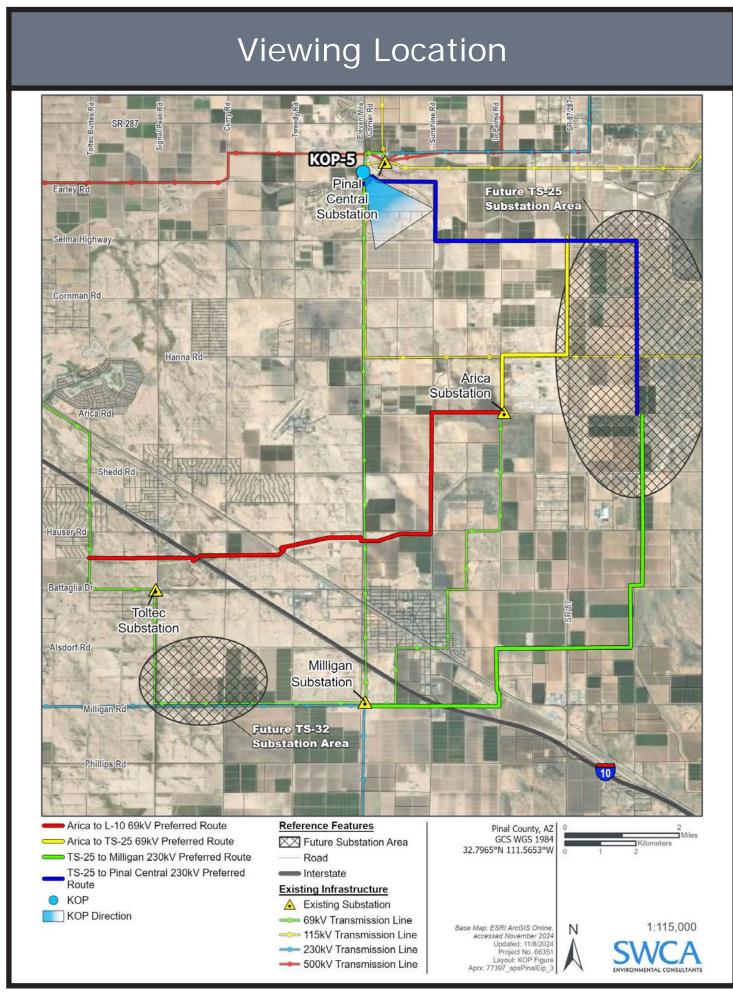
View Location: Approximate distance to nearest new structure from photo location is 160 feet.

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



APS Pinal County Electrical Improvement Project | Arica to TS25 69kV | Preferred Route Simulation from KOP 4: View from intersection of East Cornman Road and AZ highway 87







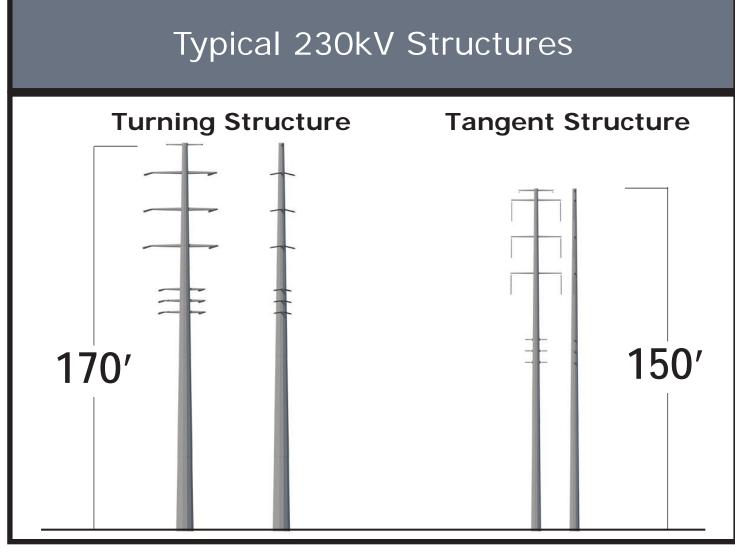


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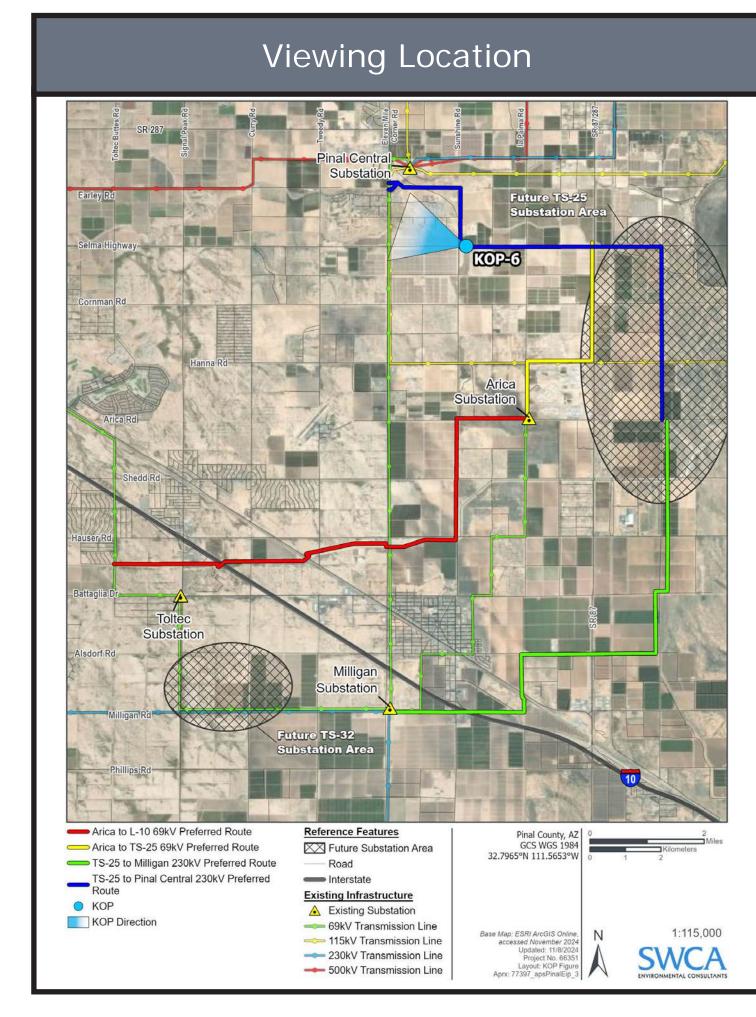
View Location: Approximate distance to nearest new structure from photo location is 850 feet.

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



APS Pinal County Electrical Improvement Project | TS25 to Pinal Central 230kV | Preferred Route Simulation from KOP 5: View from 11 Mile Corner near Alexis Lane







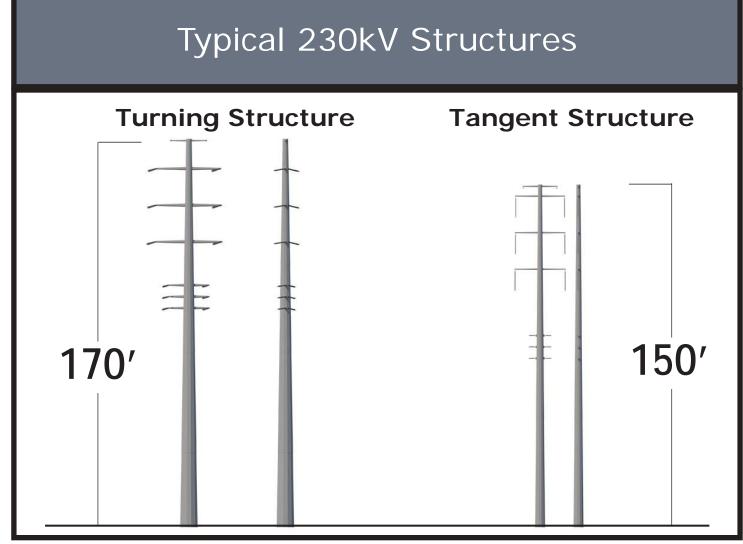


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View Location: Approximate distance to nearest new structure from photo location is 500 feet.

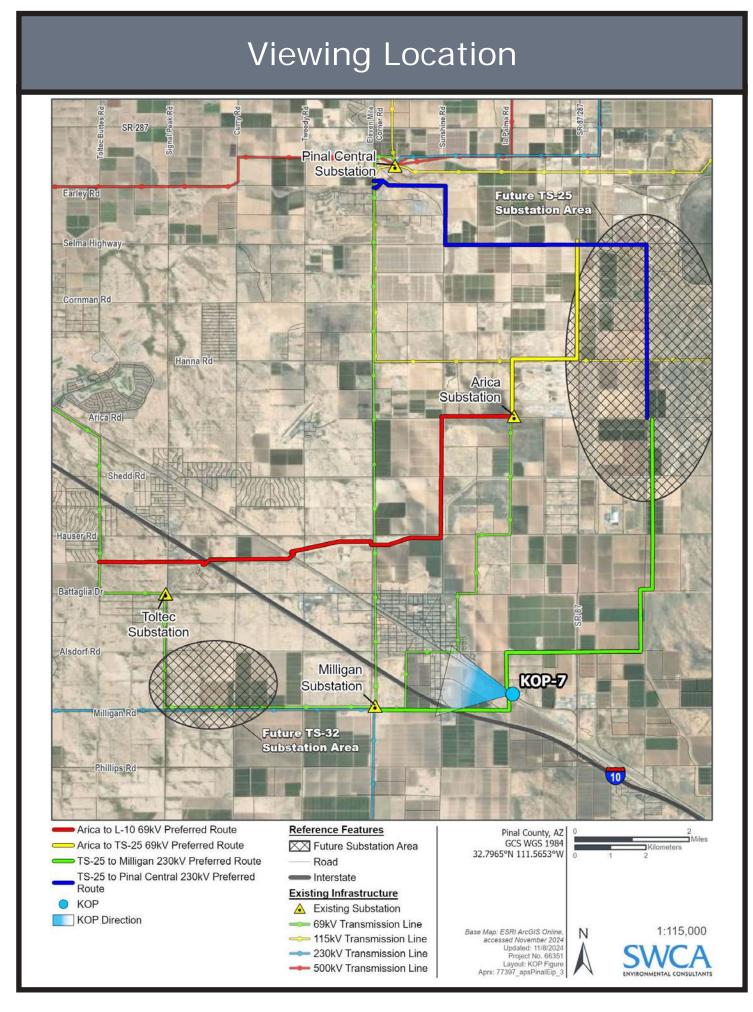
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APS Pinal County Electrical Improvement Project | TS25 to Pinal Central 230kV | Preferred Route Simulation from KOP 6: View from East Selma Highway







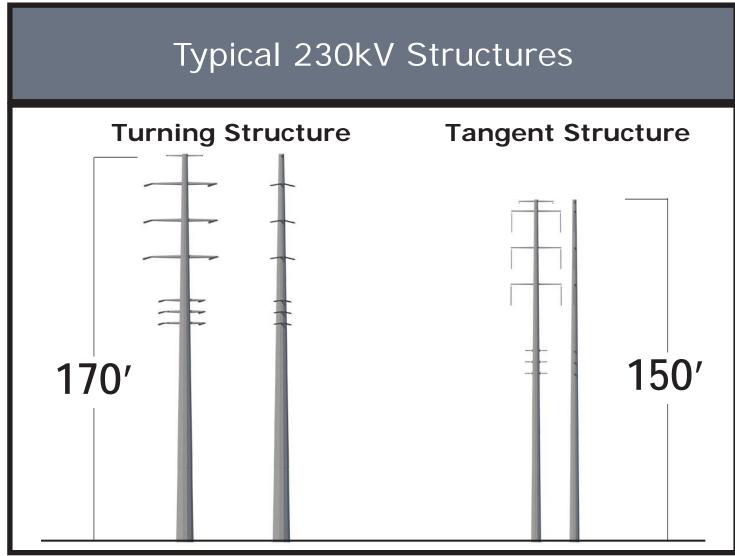


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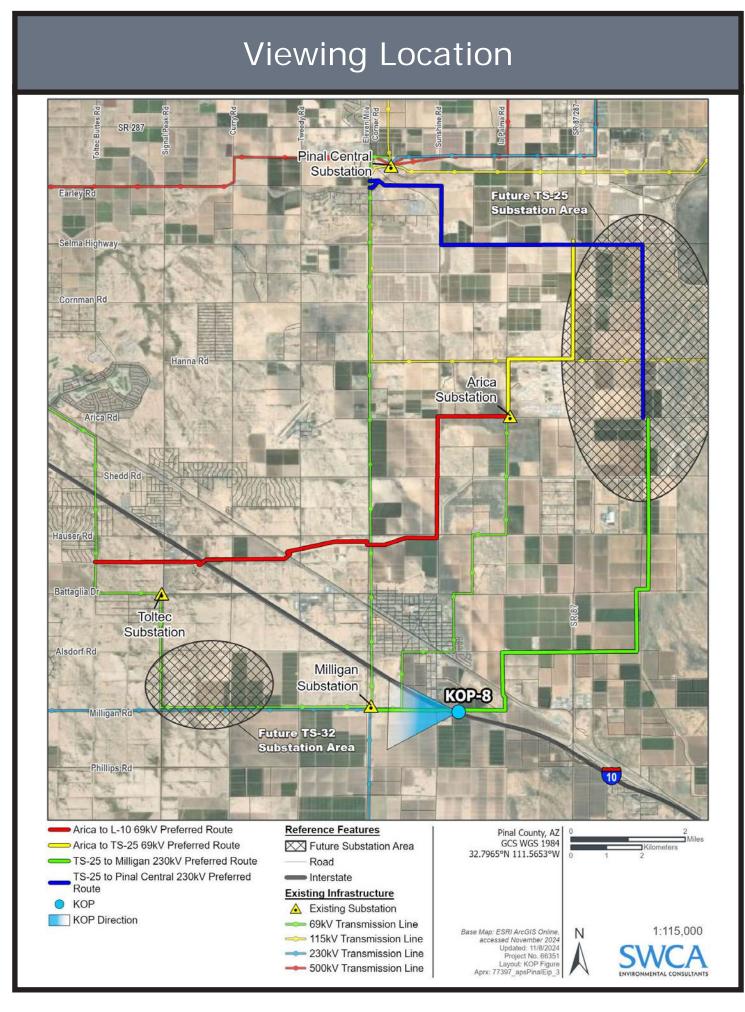
View Location: Approximate distance to nearest new structure from photo location is 500 feet.

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



APS Pinal County Electrical Improvement Project | TS25 Milligan 230kV | Preferred Route Simulation from KOP 7: View from Casa Grande-Picacho Highway







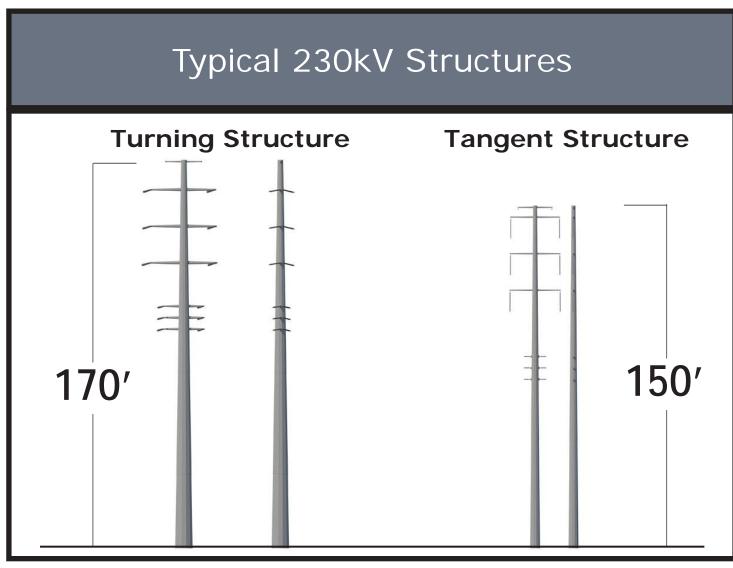


Photo Date and Time: October 8, 2024, 1:14 pm Sim Completed: November 2024

View Location: Approximate distance to nearest new structure from photo location is 420 feet.

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



APS Pinal County Electrical Improvement Project | TS25 Milligan 230kV | Preferred Route Simulation from KOP 8: View from Interstate 10 near exit 206



Identification of Final Routes

Public review and input is encouraged to assist with the selection of final routes, some of which (TS25 – Pinal Central 230kV/69kV and TS25 – Milligan 230kV/69kV Transmission Lines) will require approval from the Arizona Corporation Commission.



Stakeholder Outreach



Stakeholder Outreach

Outreach To Date Includes

- Pinal County
- Casa Grande, Coolidge, and Eloy, AZ
- Arizona Department of Transportation
- Central Arizona Irrigation and Drainage District
- Hohokam Irrigation and Drainage District
- San Carlos Irrigation Drainage District
- Electrical District No 2
- Skydive Arizona
- Arizona Game and Fish Department
- Arizona Public Service Company
- Over 14,000 Project area residents, businesses and stakeholders via a Project newsletter, along with social media, email and newspaper ads (April 2024, November 2024).

Continuing Outreach

 Currently we are soliciting input and/or questions on the Preferred Routes and Alternative Routes. We will continue to keep you updated on Project progress via our various outreach methods, and we welcome your comments, questions, and input throughout the siting process.



Your Input Is Important!

Comments can be provided via:

- Virtual Open House: www.pinalopenhouse.com Click on the public comment form. To submit the form via email, download it, fill out your comments, then click the "Submit" button on the form.
- Scan to visit pinalopenhouse.com
- Website: The Project website www.aps.com/pinalproject includes the contact information and comment form that are also provided in the virtual open house. You can also check the website later for any Project updates.
- Email: Email Lupe Martinez and Stephen Eich, APS Siting Consultants at: PinalProject@aps.com
- Phone: Contact us at (520) 482-2818
- CEC Hearing: Public comments will also be heard at the CEC Hearing anticipated in September 2025, and the ACC Open Meeting anticipated in October 2025.

