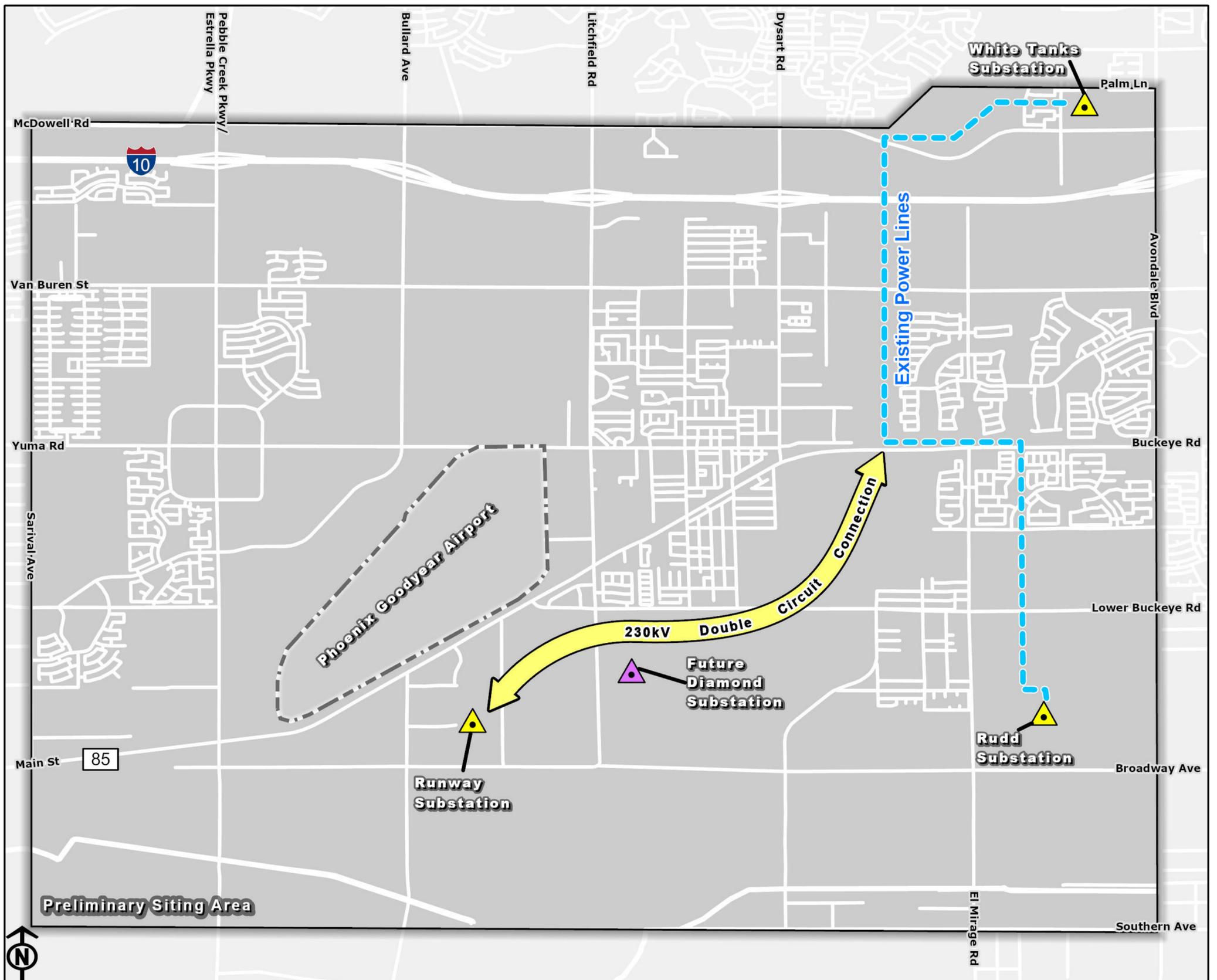
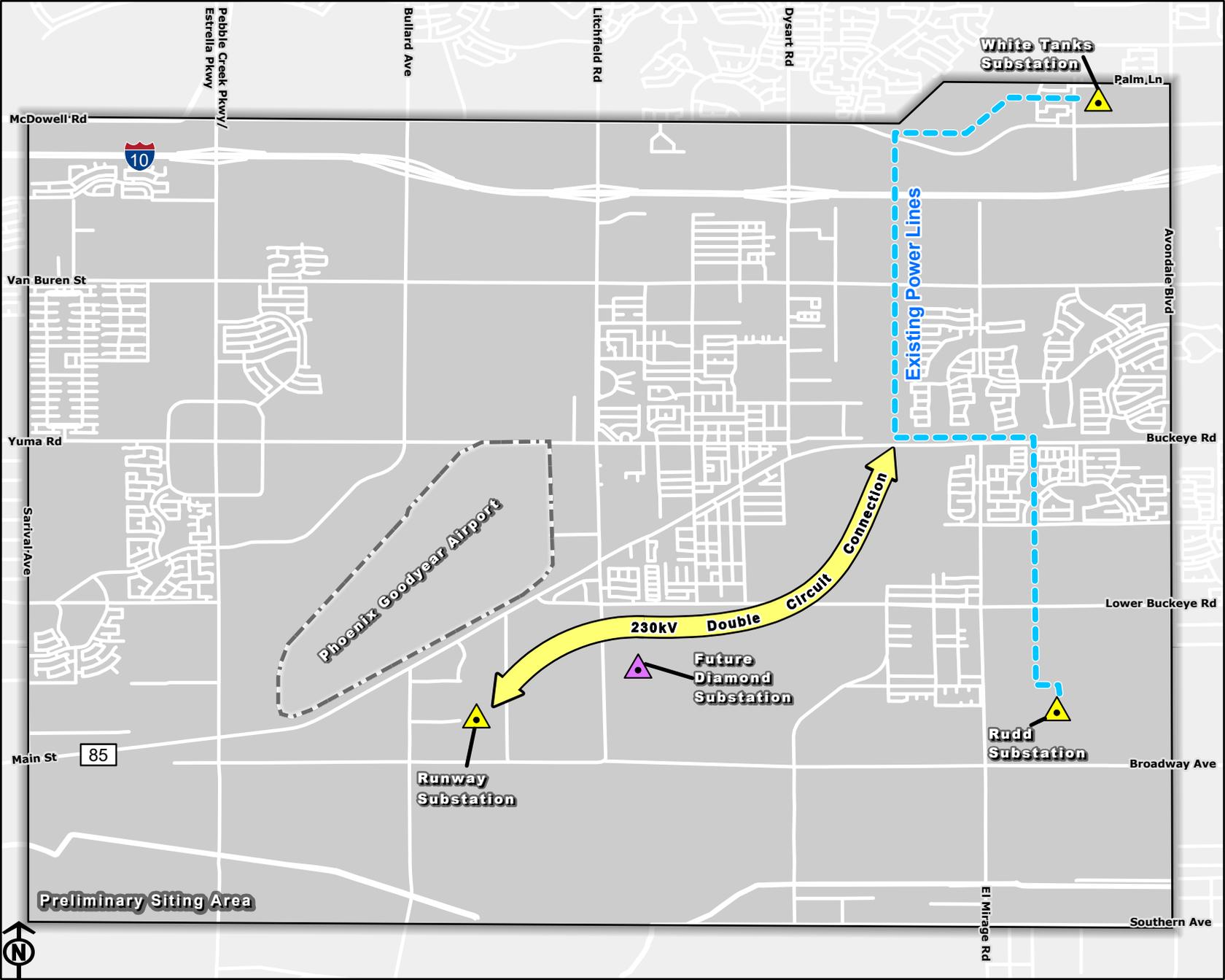


PROJECT DESCRIPTION

PROJECT OVERVIEW

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





White Tanks Substation

Palm Ln

Existing Power Lines

Avondale Blvd

Buckeye Rd

Lower Buckeye Rd

Broadway Ave

Southern Ave

Pebble Creek Pkwy/
Estrella Pkwy

Bullard Ave

Litchfield Rd

Dysart Rd

McDowell Rd

Van Buren St

Yuma Rd

Sanival Ave

Main St

El Mirage Rd



Phoenix Goodyear Airport

Runway Substation

Future Diamond Substation

Rudd Substation

Connection

230kV Double

Preliminary Siting Area



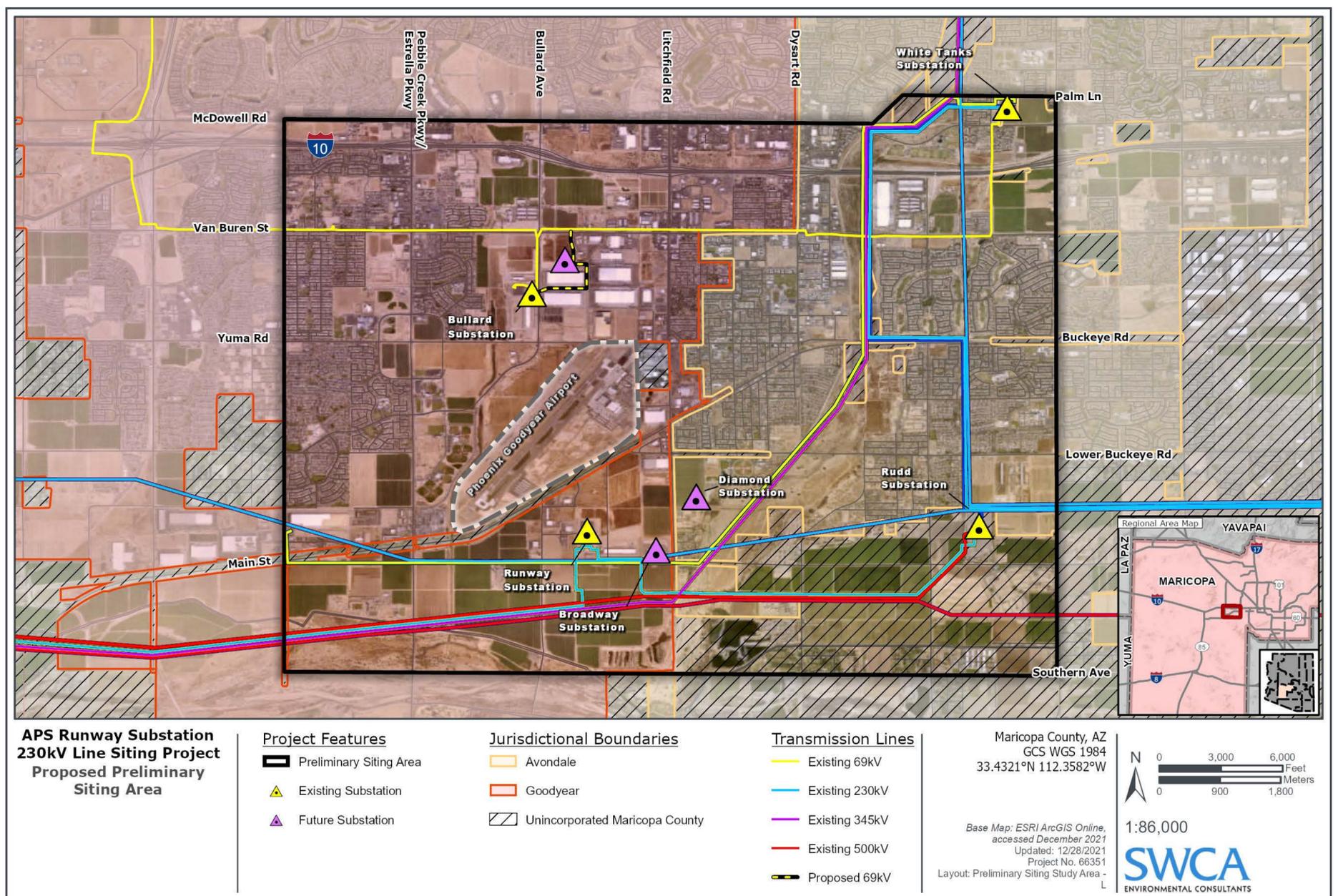
PROJECT NEED & DETAILS

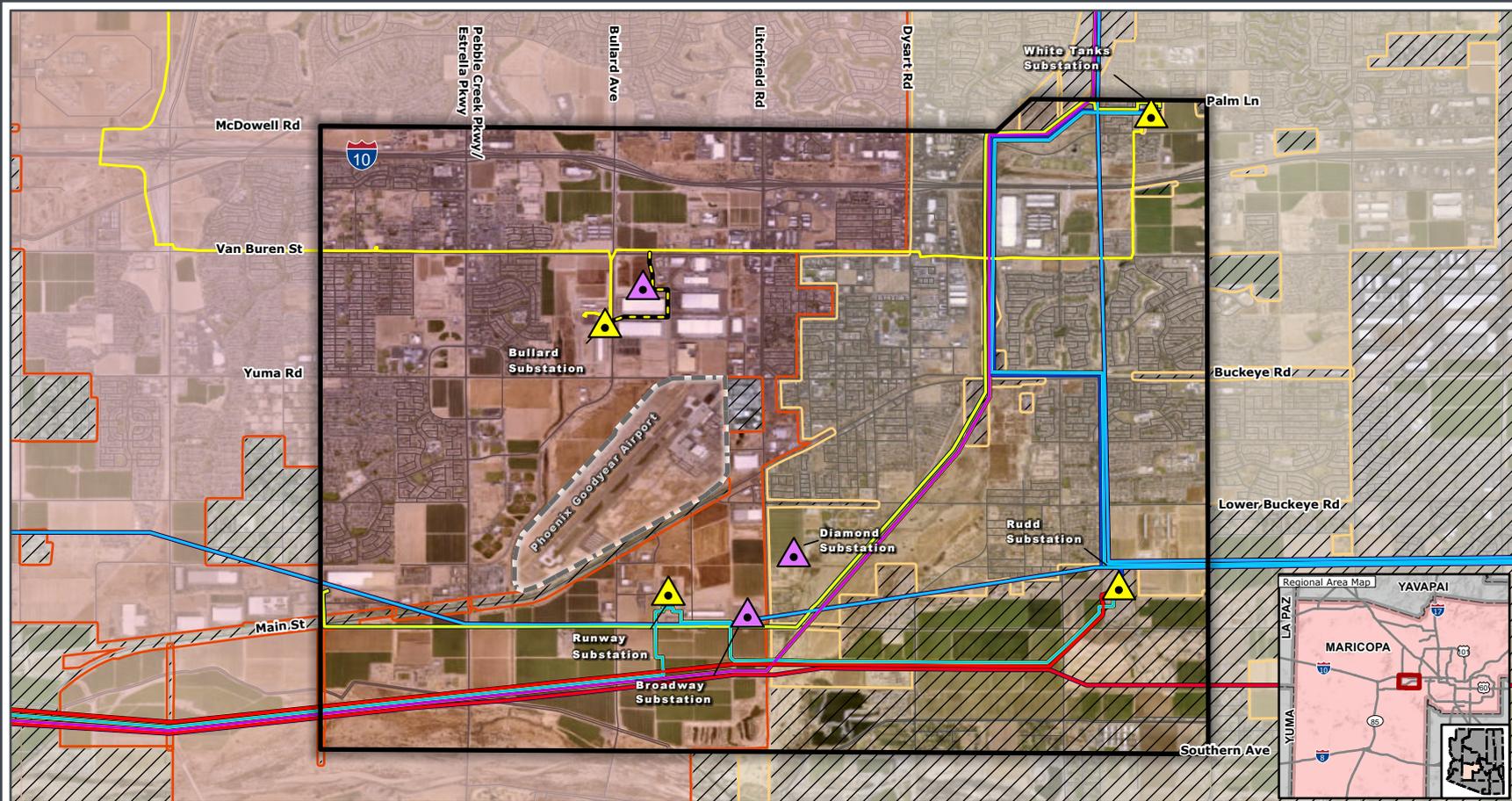
- The **APS Runway Substation 230kV Line Siting Project** is needed to provide a redundant power source to the APS Runway Substation and to connect the future Diamond Substation to the existing electrical transmission and distribution system in order to meet the energy needs of local data center customers.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

PROJECT LOCATION

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

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





**APS Runway Substation
230kV Line Siting Project
Proposed Preliminary
Siting Area**

Project Features

-  Preliminary Siting Area
-  Existing Substation
-  Future Substation

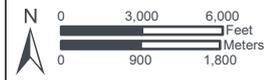
Jurisdictional Boundaries

-  Avondale
-  Goodyear
-  Litchfield Park
-  Unincorporated Maricopa County

Transmission Lines

-  Existing 69kV
-  Existing 230kV
-  Existing 345kV
-  Existing 500kV
-  Proposed 69kV

Maricopa County, AZ
GCS WGS 1984
33.4321°N 112.3582°W



Base Map: ESRI ArcGIS Online,
accessed December 2021
Updated: 12/22/2021
Project No. 66351
Layout: Siting Study Area - L
Aprx: 66351_apsRunway

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PROJECT SCHEDULE AND STATUS

PROJECT SCHEDULE



- Collect Data
- Announce Project
- Begin development of Preliminary Alternatives



- First Open House
- Continue Public Outreach
- Second Open House
- Identify Preferred Route



- Develop and File CEC Application
- Hold Public Hearings
- ACC Decision for CEC Request

Current Status

- We are in the early stages of the planning process and are conducting agency and public outreach. Following initial outreach efforts, we will identify potential alternative routes and will conduct an environmental review to help identify a preferred route for the new power line.
- At the conclusion of the environmental studies and the outreach processes, we will apply for a Certificate of Environmental Compatibility (CEC) with the Arizona Corporation Commission (ACC) for a power line route corridor.

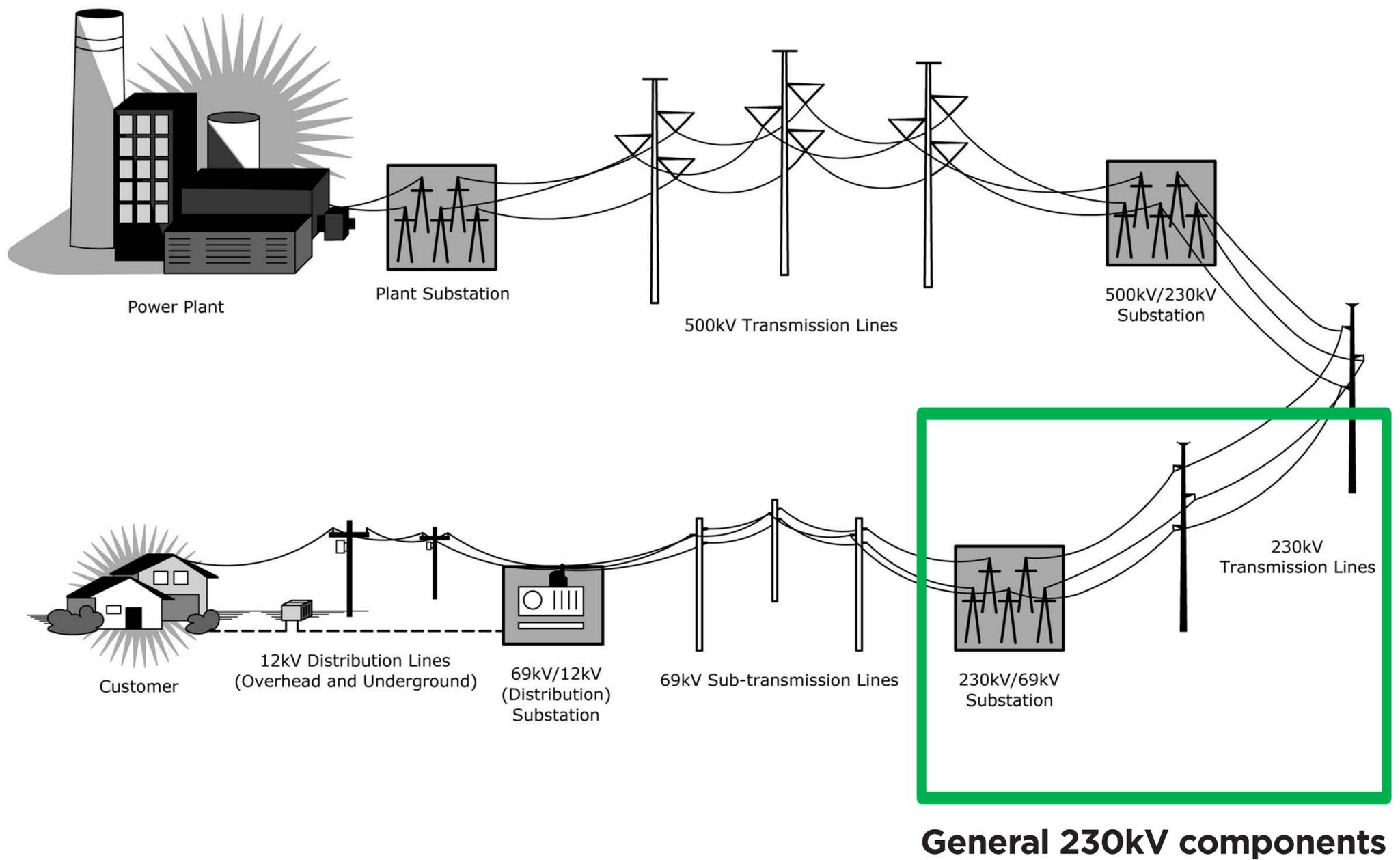
NEXT STEPS IN SITING PROCESS

- Collect, respond to, and document public and agency comments (anticipated January/February 2022)
- Identify and refine preferred route alternatives (anticipated February/March 2022)
- Submit CEC Application and Public Notice of CEC Hearing (anticipated May/June 2022)
- Arizona Power Plant and Transmission Line Siting Committee holds Evidentiary Hearing on CEC Application (anticipated July 2022)
- ACC makes decision on CEC Application at an ACC Open Meeting (anticipated August/September 2022)

TYPICAL INFRASTRUCTURE

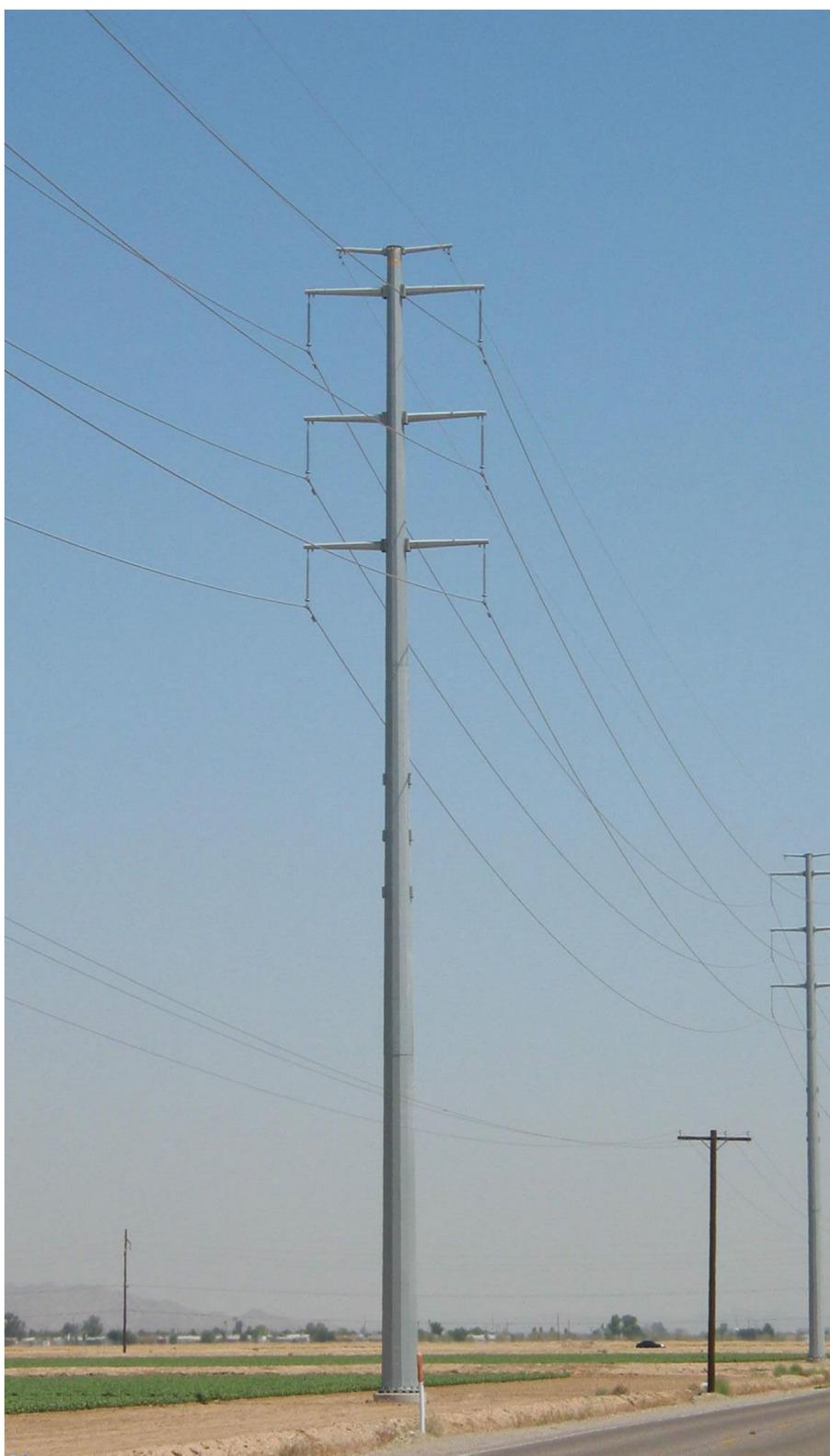
ELECTRICITY OVERVIEW

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



TYPICAL STRUCTURES

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



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. the value calculated for this project is less than 0.5kV/m.

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 will include those considerations in the design of this project. The magnetic fields at the edge of 230kV rights-of-way vary depending on final routing and design, but typically range from 5 - 20mG.

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

Typical magnetic fields measured at various distances from common electrical appliances

All measurements are in milligauss (mG)

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

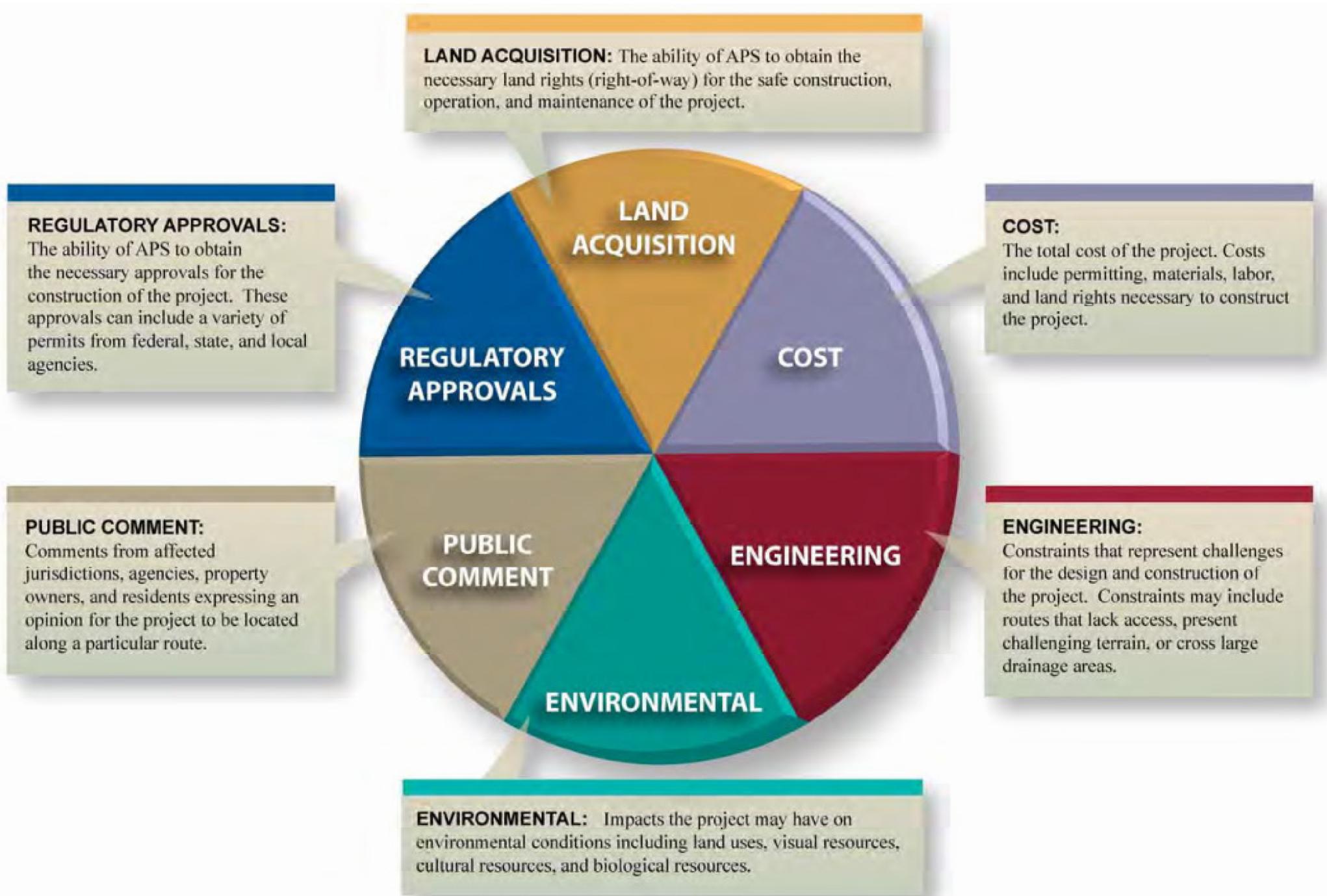
Source: EMF In Your environment, epa.com

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

SITING CONSIDERATIONS

Factors Considered in Route Identification

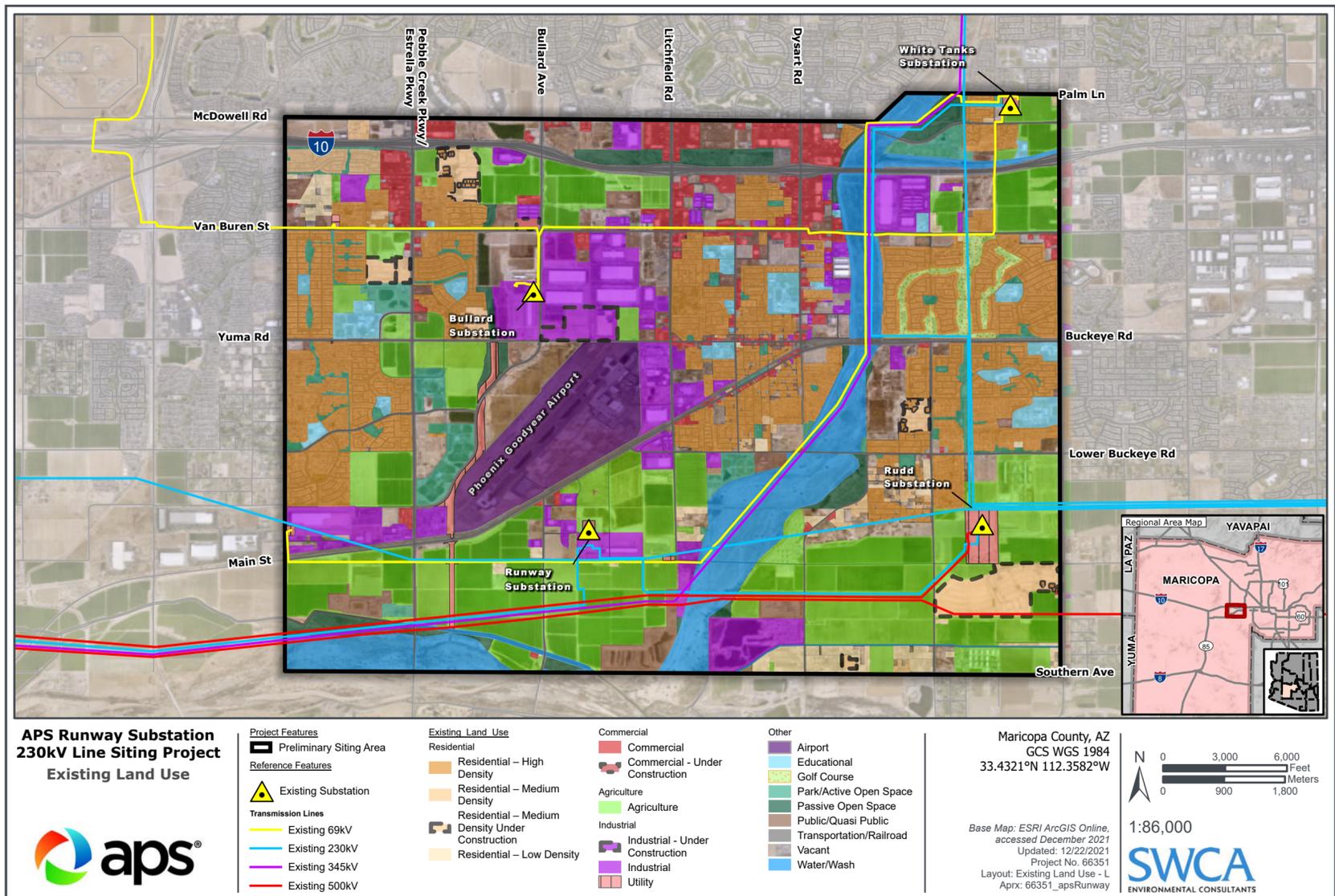
When siting new electrical facilities, we strive to **minimize impacts** to sensitive resource areas (i.e., residential developments, airports, etc.) and **maximize use of siting opportunities**, including locating near existing linear features and/or compatible land uses (i.e., transmission lines, power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



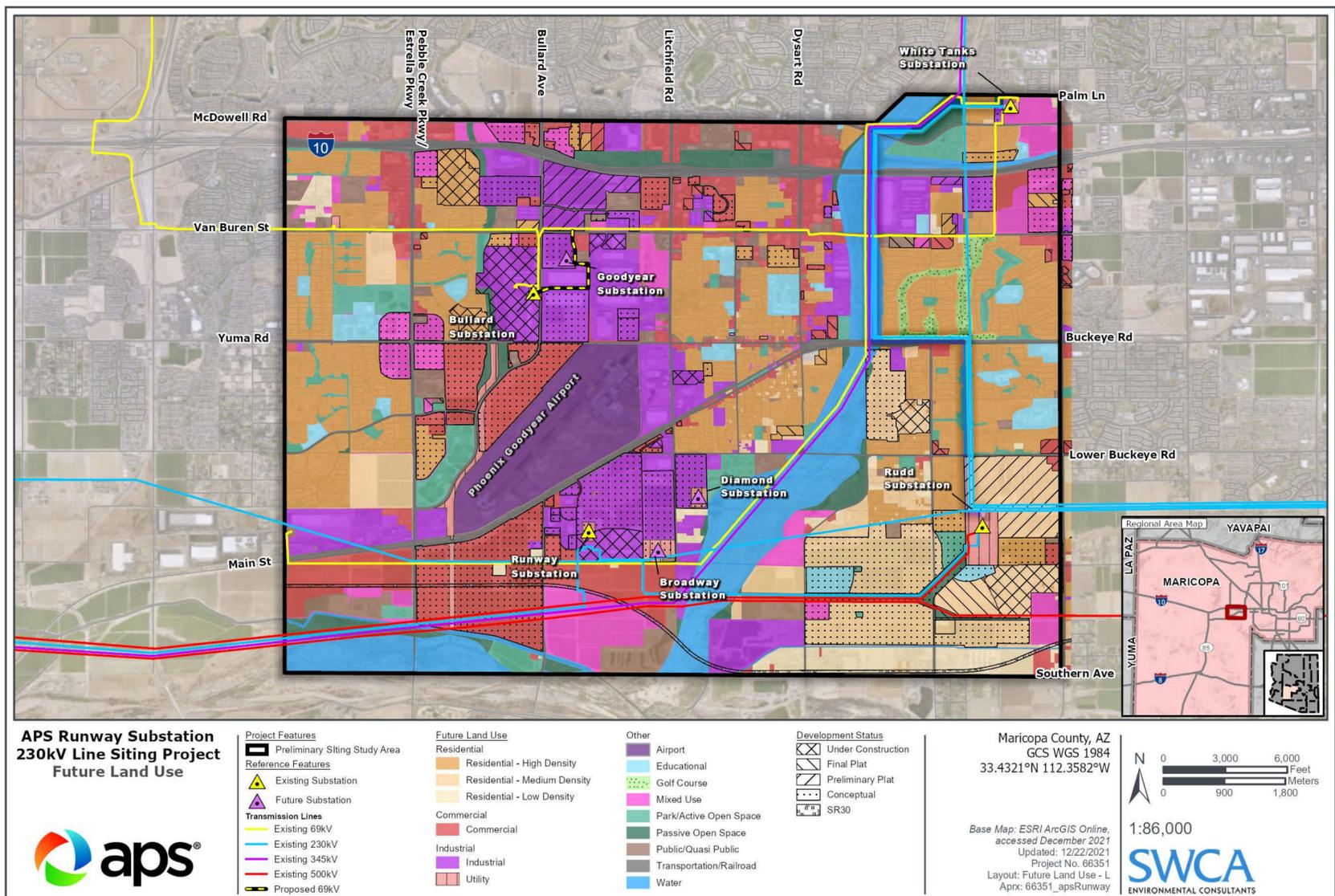
ENVIRONMENTAL CONSIDERATIONS

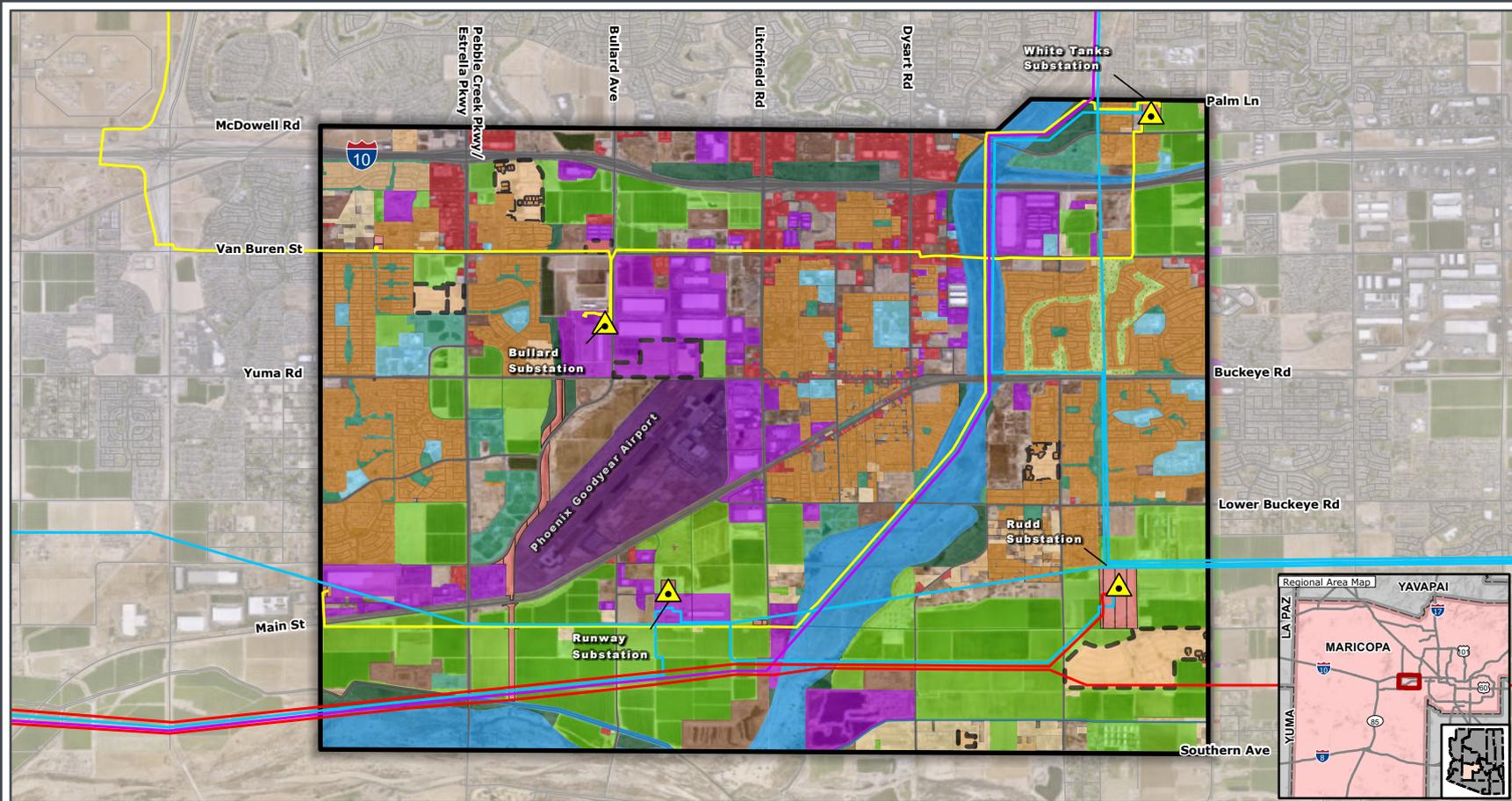
- **Land Use** - compatibility with existing and future land uses, transportation facilities (roadway and aviation), and jurisdictional planning guidelines. Existing and future land uses are mapped on the following page.
- **Visual** - minimization of impacts to sensitive viewers (residences, parks,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

Existing Land Uses



Future Land Uses





**APS Runway Substation
230kV Line Siting Project
Existing Land Use**

- Project Features**
- Preliminary Siting Area
- Reference Features**
- Existing Substation
- Transmission Lines**
- Existing 69kV
 - Existing 230kV
 - Existing 345kV
 - Existing 500kV

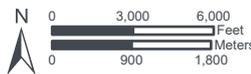
- Existing Land Use**
- Residential**
- Residential - High Density
 - Residential - Medium Density
 - Residential - Medium Density Under Construction
 - Residential - Low Density

- Commercial**
- Commercial
 - Commercial - Under Construction
- Agriculture**
- Agriculture
- Industrial**
- Industrial - Under Construction
 - Utility

- Other**
- Airport
 - Educational
 - Golf Course
 - Park/Active Open Space
 - Passive Open Space
 - Public/Quasi Public
 - Transportation/Railroad
 - Vacant
 - Water/Wash

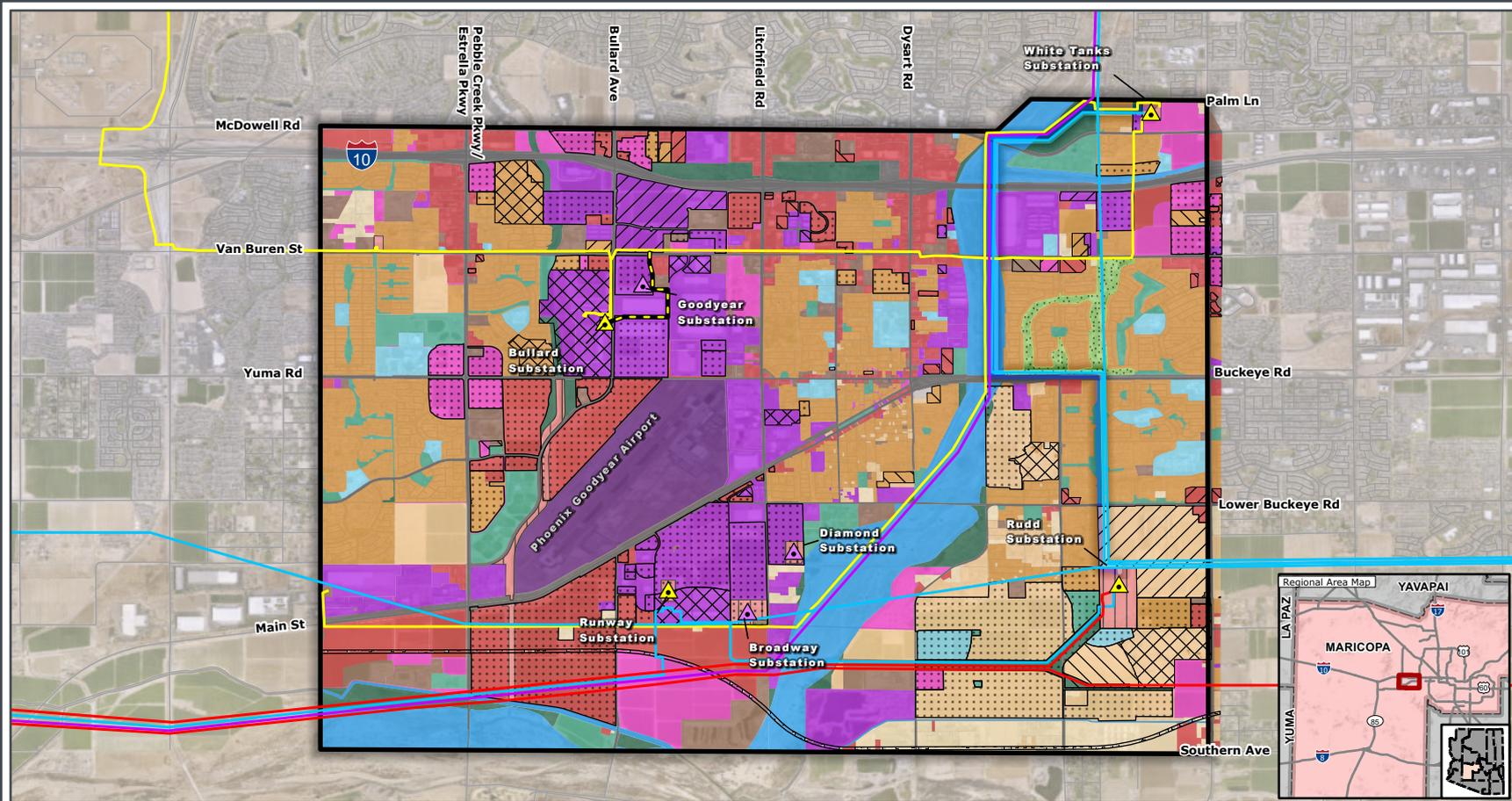


Maricopa County, AZ
GCS WGS 1984
33.4321°N 112.3582°W



Base Map: ESRI ArcGIS Online,
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Project No. 66351
Layout: Existing Land Use - L
Aprx: 66351_apsRunway

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**APS Runway Substation
230kV Line Siting Project
Future Land Use**

Project Features

▭ Preliminary Siting Study Area

Reference Features

▲ Existing Substation

▲ Future Substation

Transmission Lines

— Existing 69kV

— Existing 230kV

— Existing 345kV

— Existing 500kV

— Proposed 69kV

Future Land Use

Residential

Residential - High Density

Residential - Medium Density

Residential - Low Density

Commercial

Commercial

Industrial

Industrial

Utility

Other

Airport

Educational

Golf Course

Mixed Use

Park/Active Open Space

Passive Open Space

Public/Quasi Public

Transportation/Railroad

Water

Development Status

▭ Under Construction

▭ Final Plat

▭ Preliminary Plat

▭ Conceptual

▭ SR30



Maricopa County, AZ
GCS WGS 1984
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Base Map: ESRI ArcGIS Online,
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Project No. 66351
Layout: Future Land Use - L
Aprx: 66351_apsRunway



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OPPORTUNITIES AND CONSTRAINTS ANALYSIS

IDENTIFYING OPPORTUNITIES AND CONSTRAINTS

An evaluation of land uses and visual resources was conducted to identify areas that better lend themselves to accommodate this transmission line (opportunities), and locations that would be less accommodating for the transmission line (constraints).

The criteria shown in the Opportunities and Constraints chart helps us identify route opportunities for the construction, operation and maintenance of the new 230kV power line, and minimize impacts of the line to residences or other sensitive areas. For example, an arterial roadway would be considered a high-ranking opportunity to locate the new power line. However, that same arterial road would rank lower in a residential community (an area of high constraint) than it would within a commercial zone (an area of moderate constraint).

The criteria used in identifying locations of opportunity and constraints include the following:

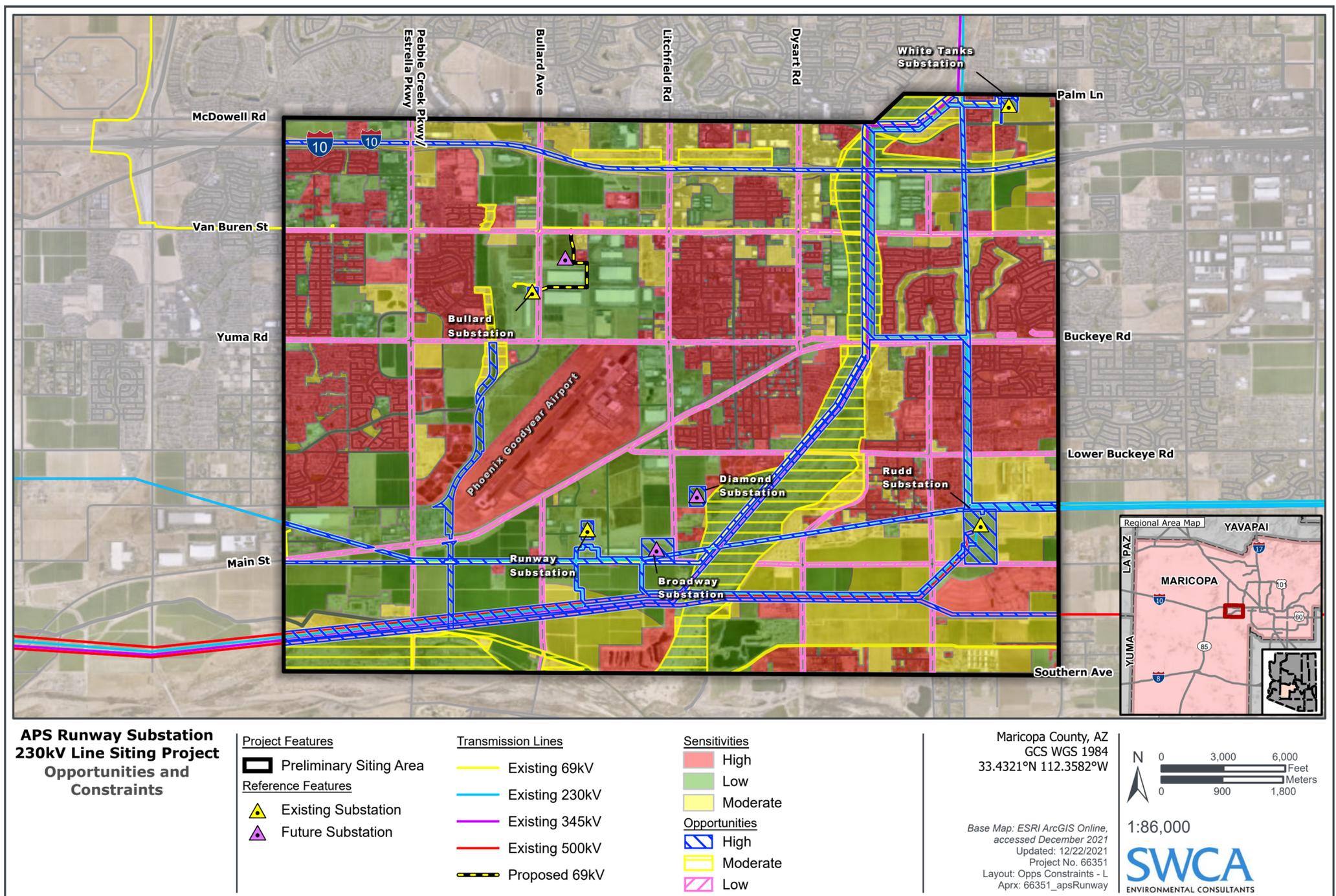
Existing Land Use Constraints	Sensitivity Level
Residential - High Density	High
Residential - High Density Under Development	High
Residential - Medium Density	High
Residential - Medium Density Under Development	High
Residential - Low Density	High
Residential - Low Density Under Development	High
Commercial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

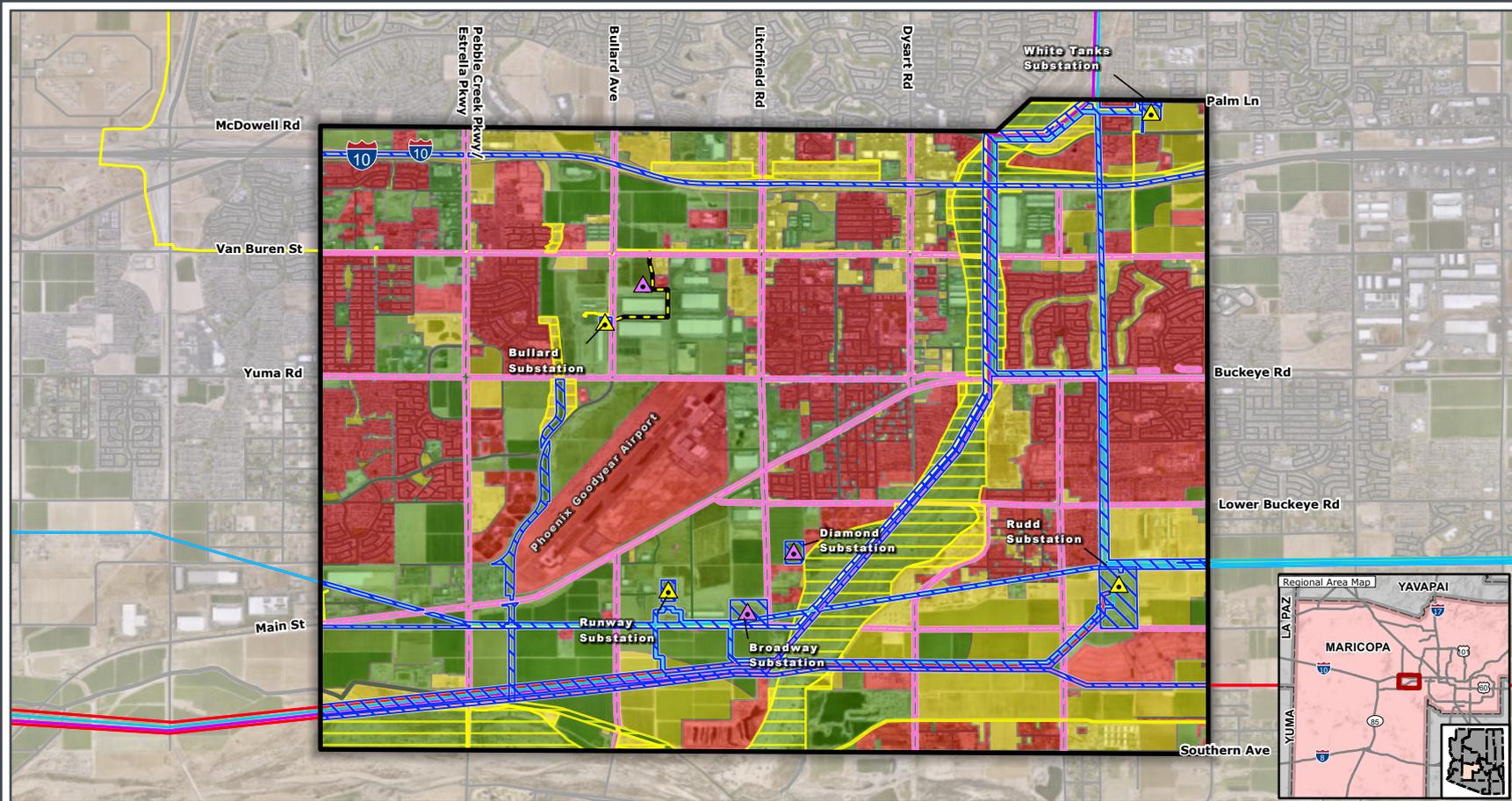
Future Land Use Constraints	Sensitivity Level
Mixed Use - Conceptual	Moderate
Mixed Use - Preliminary Plat	Moderate
Mixed Use - Final Plat	High
Mixed Use - General Plan	Moderate
Residential - Conceptual	Moderate
Residential - Preliminary Plat	Moderate
Residential - Final Plat	High
Residential - Under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

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

OPPORTUNITIES AND CONSTRAINTS MAP

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





APS Runway Substation 230kV Line Siting Project Opportunities and Constraints

- Project Features**
- Preliminary Siting Area
- Reference Features**
- ▲ Existing Substation
 - ▲ Future Substation

- Transmission Lines**
- Existing 69kV
 - Existing 230kV
 - Existing 345kV
 - Existing 500kV
 - Proposed 69kV

- Sensitivities**
- High
 - Low
 - Moderate
- Opportunities**
- High
 - Moderate
 - Low

Maricopa County, AZ
 GCS WGS 1984
 33.4321°N 112.3582°W



Base Map: ESRI ArcGIS Online, accessed December 2021
 Updated: 12/22/2021
 Project No. 66351
 Layout: Opps Constraints - L
 Aprx: 66351_apsRunway

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PRELIMINARY LINK ANALYSIS

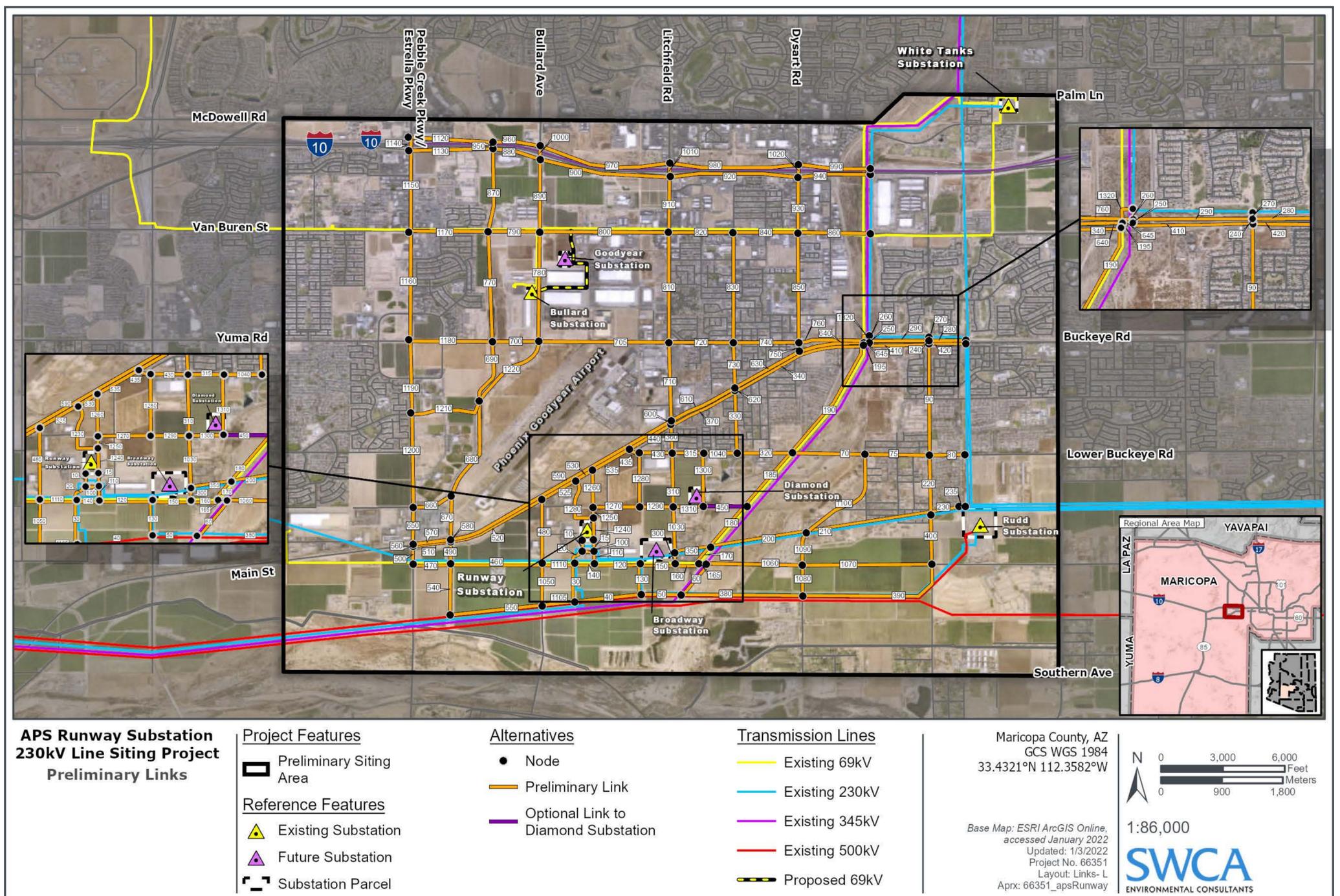
DEVELOPMENT OF PRELIMINARY LINKS

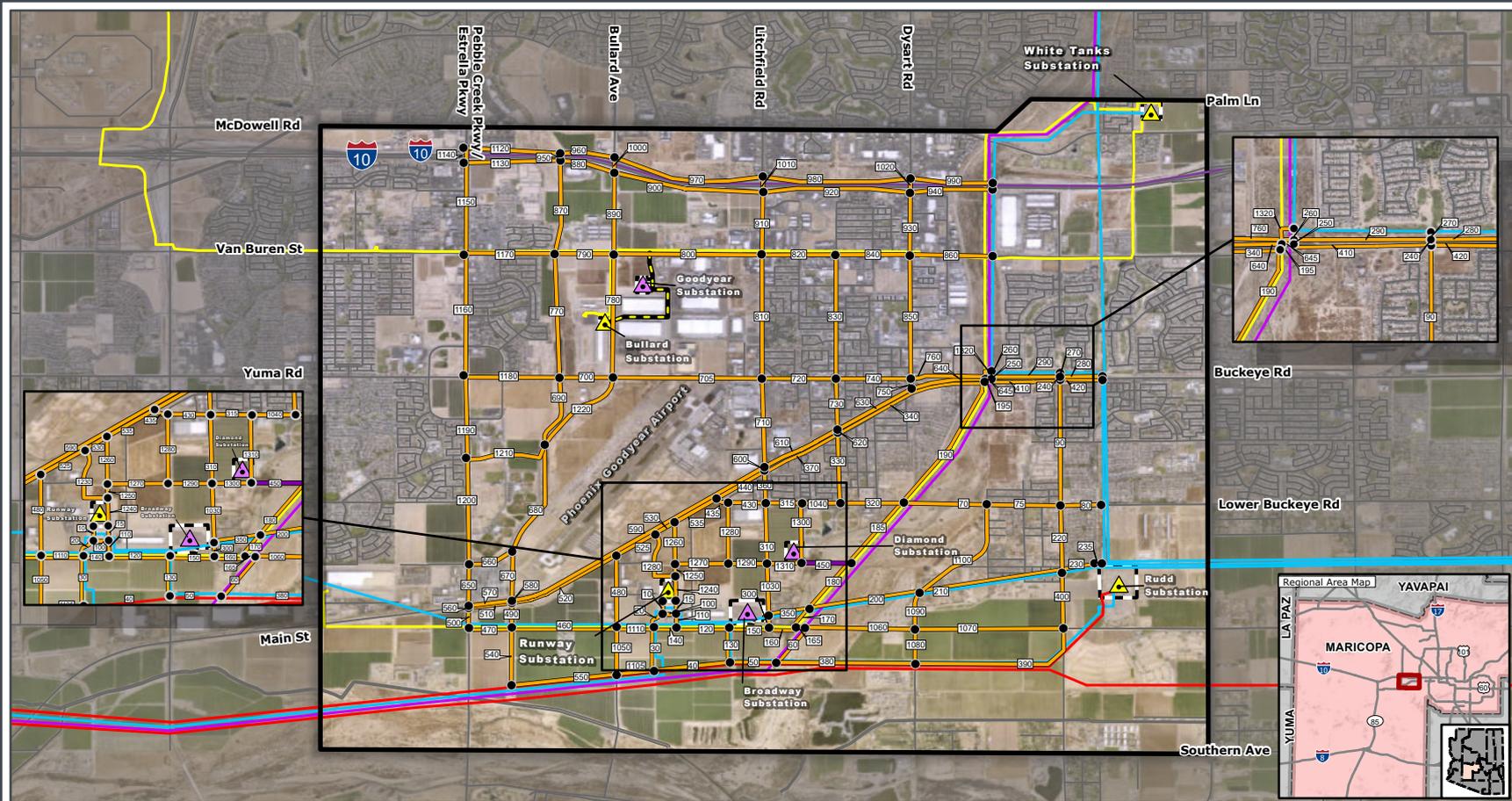
- The development of preliminary links begins after the opportunity and constraints analysis. Preliminary links are typically identified in areas of high opportunity and/or low constraint. However, other factors can also influence this process.
- Once these links are developed, they are individually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

PRELIMINARY LINKS MAP

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

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





**APS Runway Substation
230kV Line Siting Project
Preliminary Links**

- Project Features**
- Preliminary Siting Area
- Reference Features**
- Existing Substation
 - Future Substation
 - Substation Parcel

- Alternatives**
- Node
 - Preliminary Link
 - Optional Link to Diamond Substation

- Transmission Lines**
- Existing 69kV
 - Existing 230kV
 - Existing 345kV
 - Existing 500kV
 - Proposed 69kV

Maricopa County, AZ
GCS WGS 1984
33.4321°N 112.3582°W



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Updated: 1/3/2022
Project No. 66351
Layout: Links - L
Apr: 66351_apsRunway

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STAKEHOLDER OUTREACH

STAKEHOLDER OUTREACH

Current Outreach To Date

Stakeholder outreach is ongoing throughout the process, and to date has involved:

- The cities of Goodyear and Avondale, AZ
- Maricopa County
- Flood Control District of Maricopa County
- Arizona Department of Transportation
- City of Phoenix Aviation
- Over 18,000 Project area residents, businesses, and stakeholders, via a Project newsletter, social media, email, and newspaper ads (January 2022).

Continuing Outreach

We will continue to keep you apprised of Project progress via our various outreach methods, and we welcome your comments, questions, and input throughout the line siting process.

OPPORTUNITIES FOR PUBLIC COMMENT

Virtual Open House

A public comment form can be filled out at the end of this virtual open house.

Website

Website available with comment forms and Project updates at:

www.aps.com/runway

Email

Email Stephen Eich, APS Project Manager at:

RunwaySiting@aps.com

Phone

Comments and questions can be submitted by phone at:

(623) 267-1051

CEC Hearing

Public comments will also be heard at the CEC Hearing anticipated in July 2022, and the ACC Open Meeting anticipated in August 2022.

YOUR INPUT IS IMPORTANT!

Comments can be provided today via:

- **Virtual Open House:** Exit this screen and click on the public comment form located next to this screen. To submit the form via email, download it to your desktop, fill out your comments, then click the “Submit” button on the form.
- **Website:** The Project website www.aps.com/runway includes the contact information and comment form that are also provided in this virtual open house. You can also check the website later for any Project updates.
- **Email:** Email Stephen Eich, APS Project Manager at: RunwaySiting@aps.com
- **Phone:** Contact us at **(623) 267-1051**