

Welcome

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Bienvenidos

(Hablamos Español)

Por Favor Regístrese

Presentation Schedule (Salons D & E)
6:15 pm - 7:15 pm

For more information - Para más información:



Midtown Reliability Project

Meeting everyday energy needs in the heart of Tucson for a lifetime



SHORTER, LESS FREQUENT OUTAGES

- **36,936 households**
- **62 neighborhoods**
- **6,834 businesses**

All will benefit from a new 138-kilovolt (kV) "loop" around central Tucson supplying energy from more than one direction.

ENERGY FOR A GENERATION OF TUCSONANS

The project would provide over 3x the capacity of the current systems



212% increase

In Tucson's peak energy demand since 1975

STRONG, HEALTHY COMMUNITY

Supports growing economy, population



Improves reliability in extreme weather

Provides midtown residents with same reliability benefits enjoyed in other areas



100,000+ newsletters

55,000+ emails

Sent to midtown homes, businesses and others about the project

COST SAVINGS, GREATER EFFICIENCY



19 miles

46-kV lines removed, avoiding need to install 138-kV scale poles

8 46-kV substations retired

\$52 million

saved over 15 years by avoiding replacement of older equipment



268 miles

4-kV distribution circuits upgraded to 14-kV with new poles, wires, switchgear and more

\$52 million investment

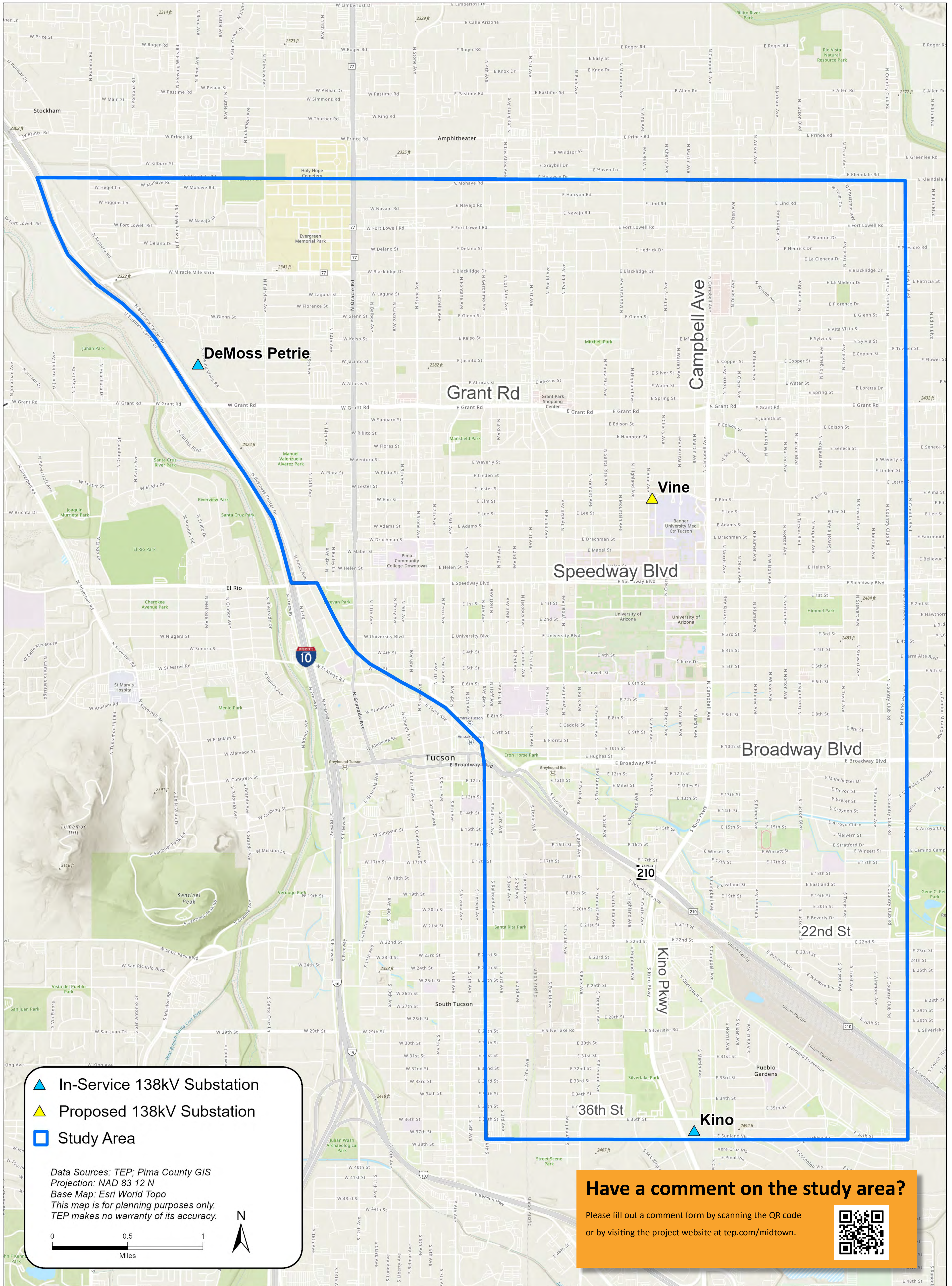
in our local energy grid

- 7-8 miles of new 138-kV lines
- A new 138-kV substation



Learn more at tep.com/midtown-reliability-project

Midtown Reliability Project



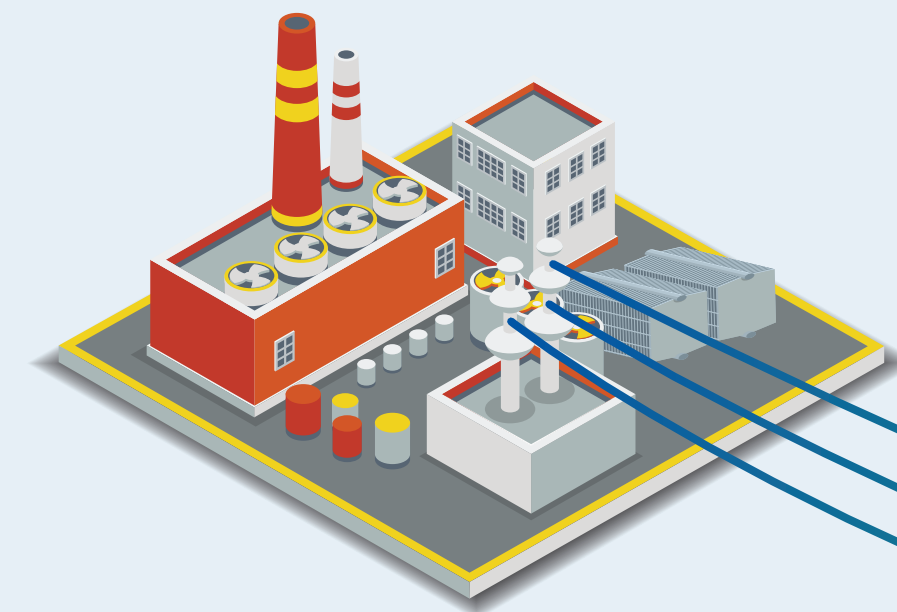
Have a comment on the study area?

Please fill out a comment form by scanning the QR code or by visiting the project website at tep.com/midtown.

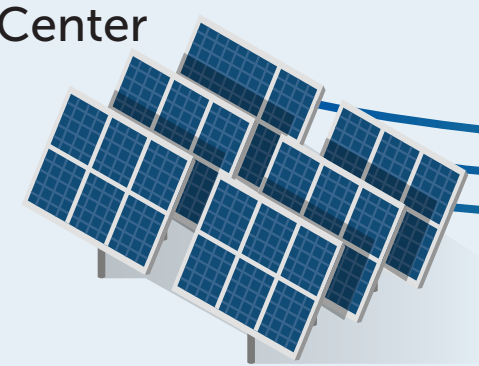
Our Energy Grid

How we deliver electric service to you

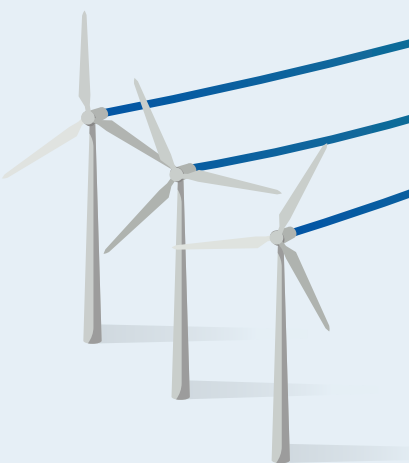
Natural Gas
Sundt Generating Station
in Tucson and others



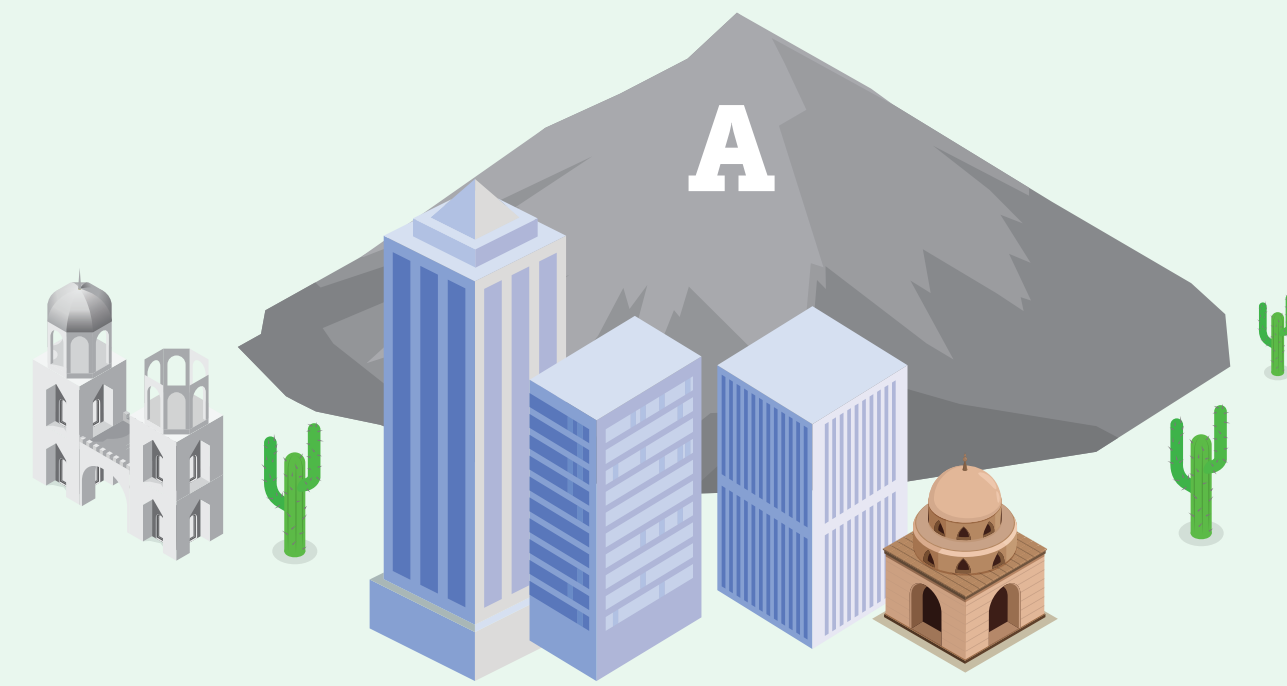
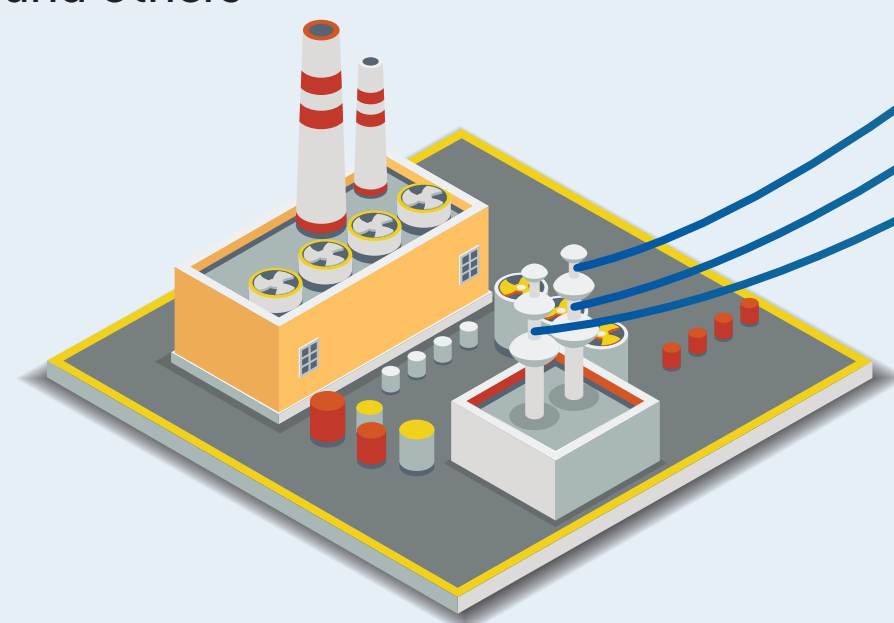
Community Scale Solar
Wilnot Energy Center
and others



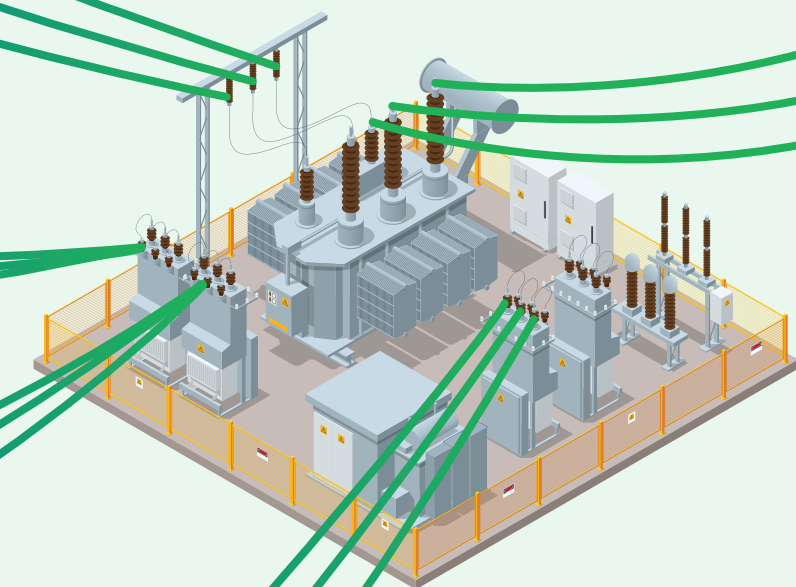
Wind Resources
Oso Grande Wind
and others



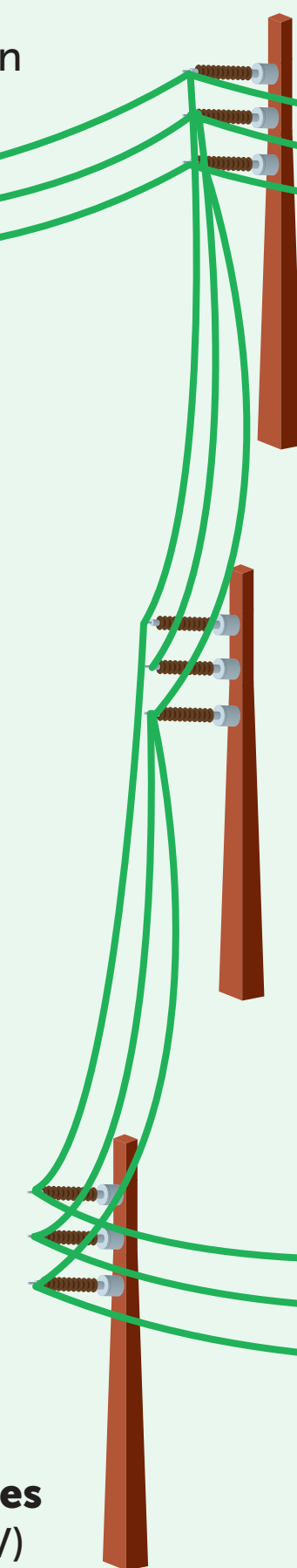
Coal
Springerville Generating Station
and others



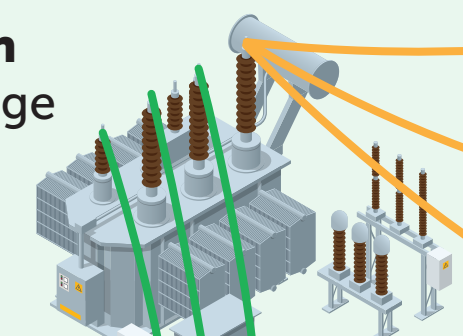
High Voltage Substation
Steps up voltage for transmission



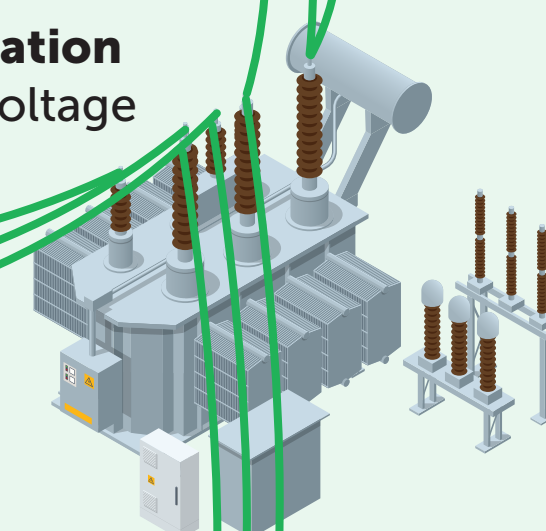
High Voltage Transmission Lines
(500 kV / 345 kV / 230 kV 138 kV)



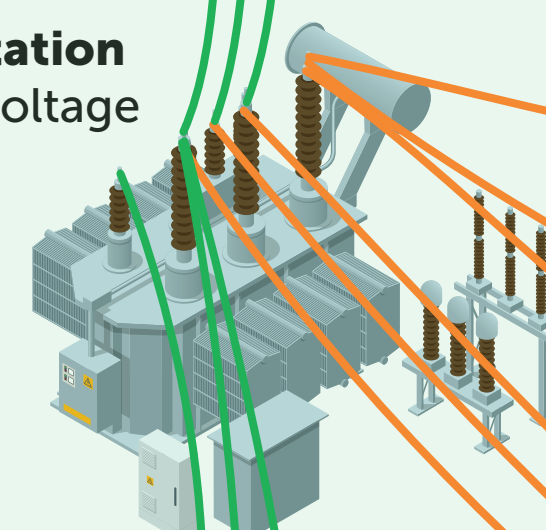
46 kV Substation
Steps down voltage



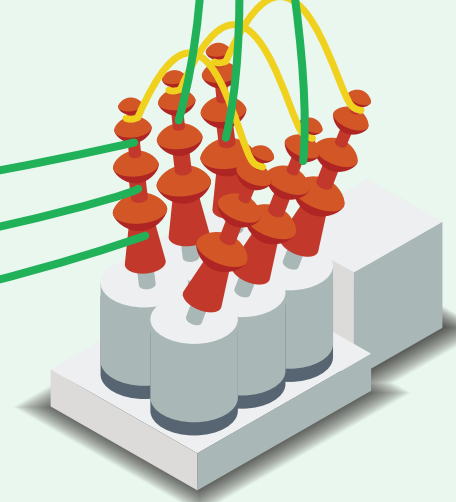
138 kV Substation
Steps down voltage



138 kV Substation
Steps down voltage



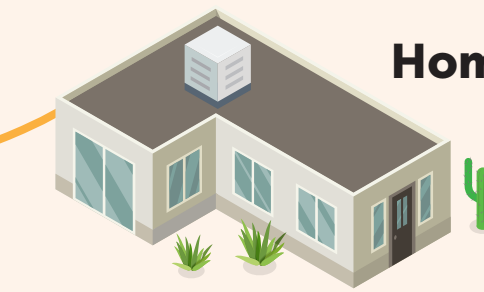
Switchyard



4 kV Distribution Lines

14 kV Distribution Lines

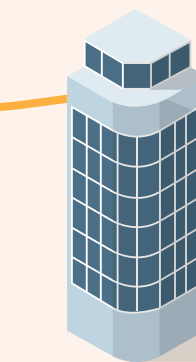
Homes



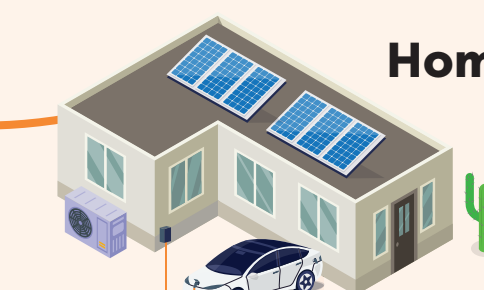
Businesses



Commercial Facilities



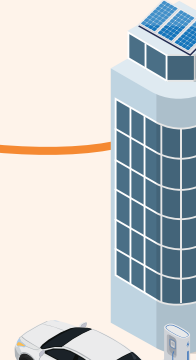
Homes



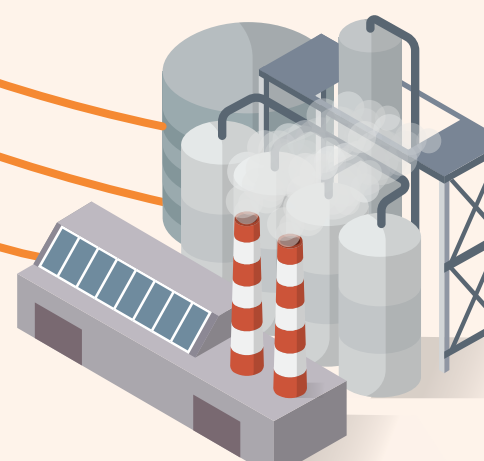
Businesses



Commercial Facilities



Industrial Facilities



Generation

Transmission and Sub-Transmission

Distribution

Vine Substation

- Gas Insulated Substation (GIS)
- Located on a 1.6-acre site
- The substation will contain:
 - Three - 75 MVA transformers
 - Switchgear
 - Static Masts
 - Structural Canopy
- 12-foot decorative masonry block wall
- Perimeter landscaping



EXISTING CONDITION



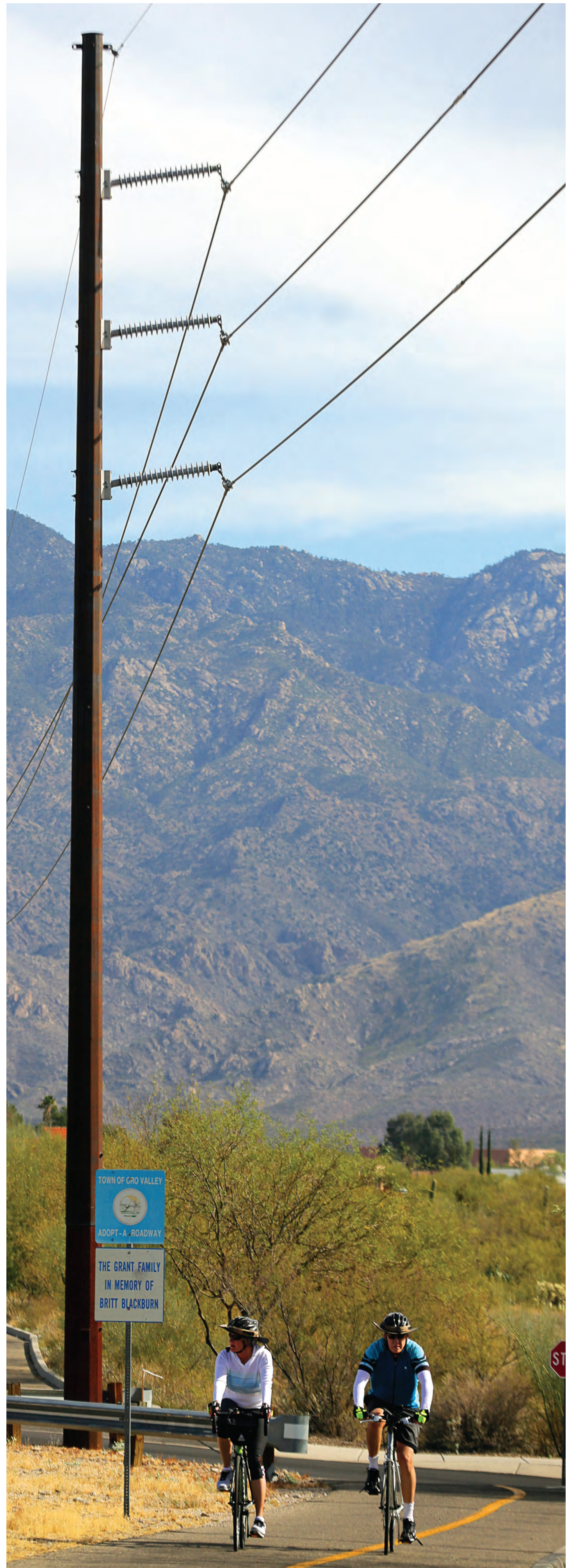
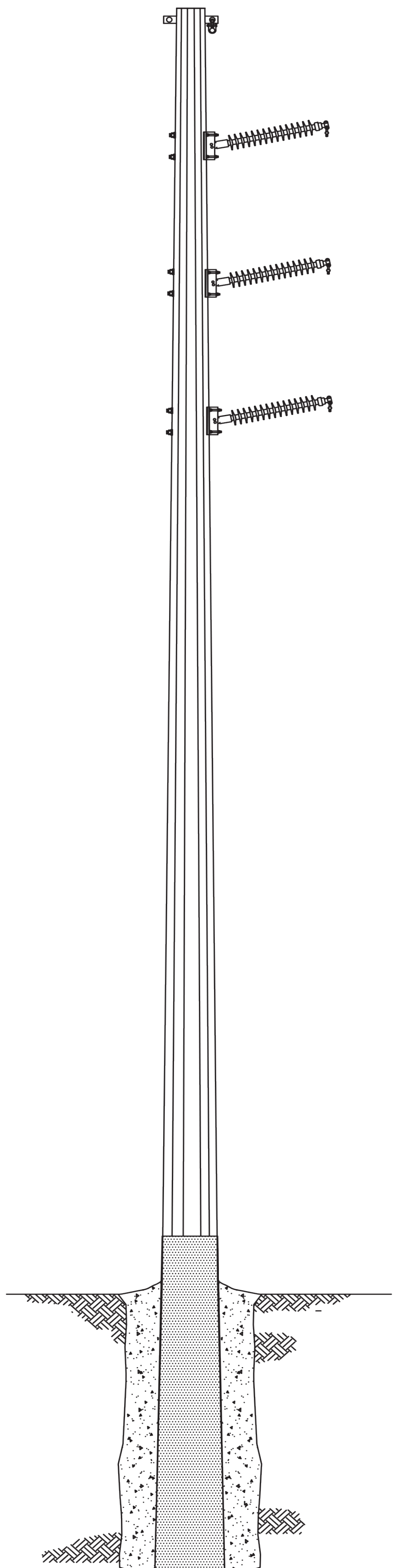
PHOTO SIMULATION



Transmission line is not depicted because the final route is not known at this time.

Transmission Line Characteristics

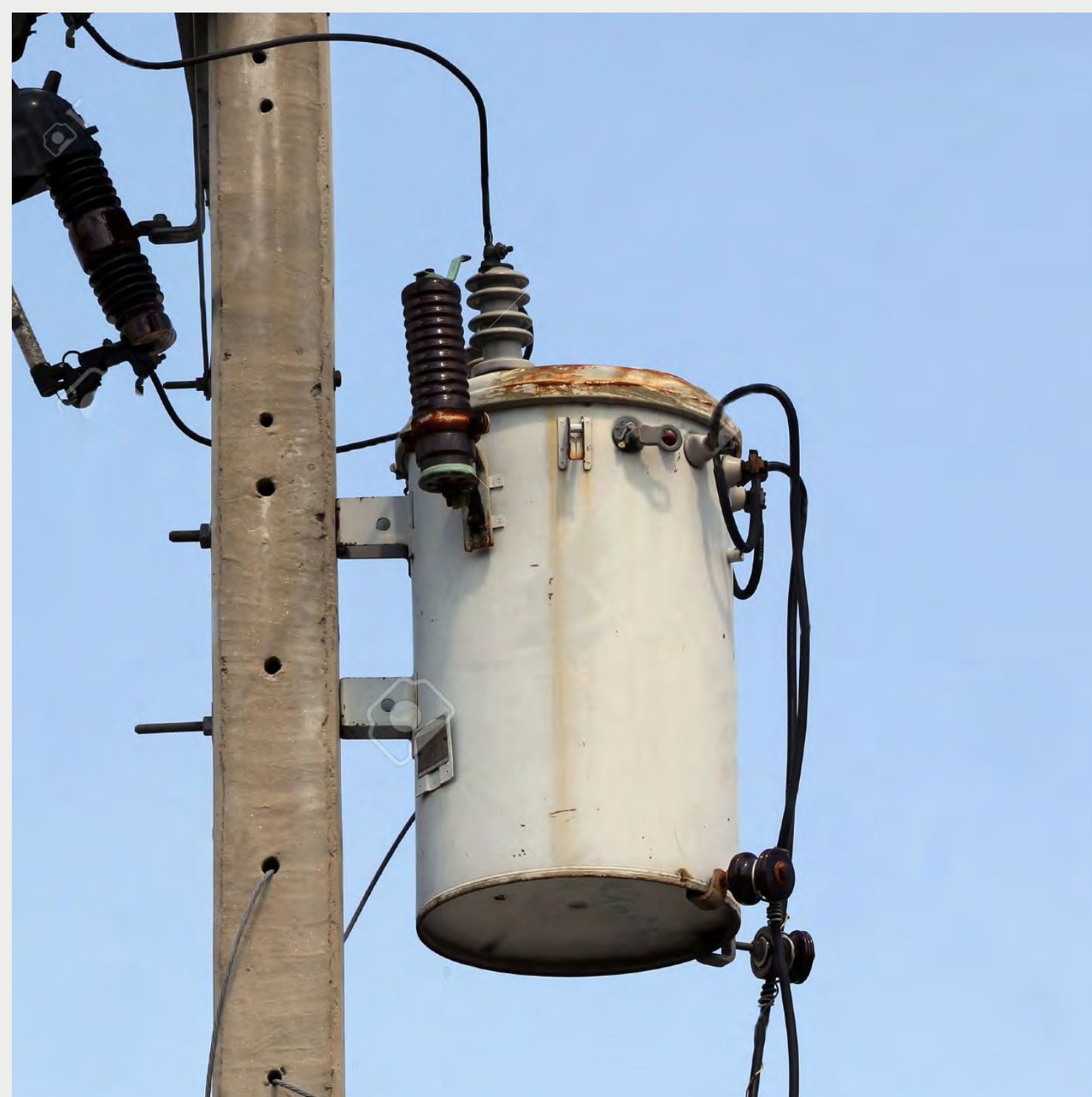
- Single-circuit 138-kV transmission line
- Tubular, weathering steel monopoles
- Typical structure heights of around 75 feet
- Around 600-foot span between poles
- Non-specular, aluminum conductor wire



A typical weathering steel monopole supporting a 138 kilovolt transmission line

UPGRADING THE DISTRIBUTION SYSTEM

Providing additional capacity and improving reliability of service in support of growth, electrical vehicle charging and rooftop solar installations.



SYSTEM UPGRADES INCLUDE:

Convert distribution circuits from 4-kV to 13.8-kV

Replace transformers

Replace conductors (wires), where merited

Replace poles, where needed

Midtown Reliability Project

Fewer Power Lines, Better Service



Aging Assets in Project Study Area



On average, major 46-kV substation equipment is **47 years old**.

Some equipment is in 'poor' or 'very poor' condition.

It would cost **\$41 million** to replace this equipment over the next 5 years.



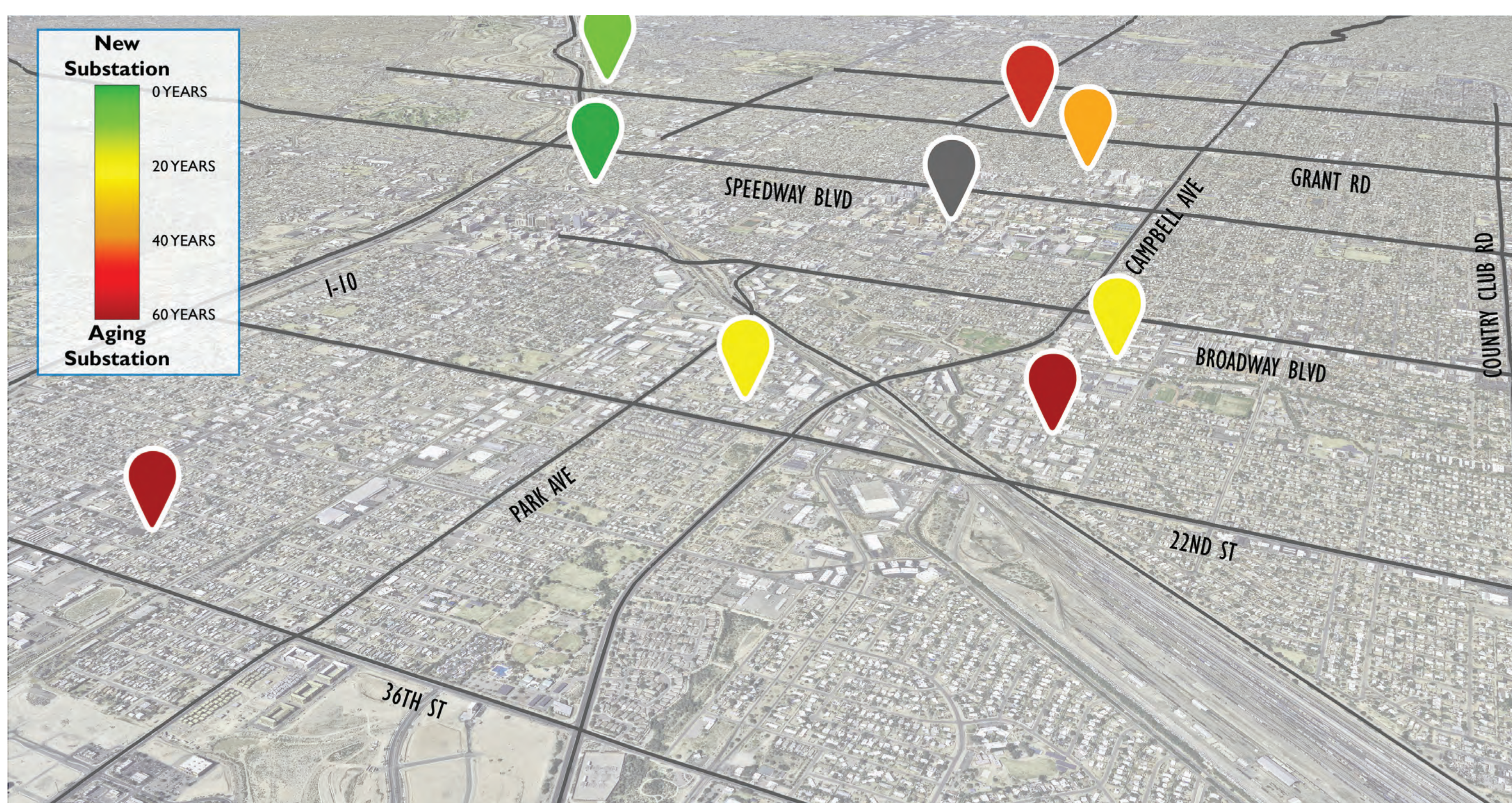
On average, 46-kV power poles in the study area are **61 years old**.

Some equipment is in 'poor' or 'very poor' condition.

More than 430 poles need to be replaced within 15 years at a cost of **\$11 million**.

Options

	Maintain existing 46-kV System	Upgrade to new 138-kV System
Built for:	Late 20th Century	21st Century
Substations:	<ul style="list-style-type: none"> • 8 46-kV substations • Cost: \$41 million • Additional substations may be required 	<ul style="list-style-type: none"> • 1 138-kV substation added • 8 46 kV substations removed • Cost: \$34 million
Power lines:	<ul style="list-style-type: none"> • 19 miles of 46-kV lines • Poles in poor condition replaced with larger metal poles (similar to 138-kV poles) • Cost: \$11 million 	<ul style="list-style-type: none"> • 7-8 miles 138-kV lines added • 19 miles 46-kV power lines removed • Cost: \$18 million
Added Capacity:	None	3X
Total:	\$52 million investment in 46 kV system	\$52 million investment in new 138-kV facilities



Why won't TEP install this transmission line underground?



COST

- Underground transmission lines cost significantly more to build and maintain.
 - The difference escalates with voltage. Higher voltages = higher underground costs.
 - 5-10x more expensive – or more. Costs vary for each project.
- Higher costs lead to higher electric rates.
- Arizona Corporation Commission has not allowed rate recovery of unnecessary costs.
- Voters rejected proposal to pay for underground construction in a new franchise agreement.
- Stakeholders can create improvement district to fund undergrounding in their area.



EFFICIENCY, CONSISTENCY

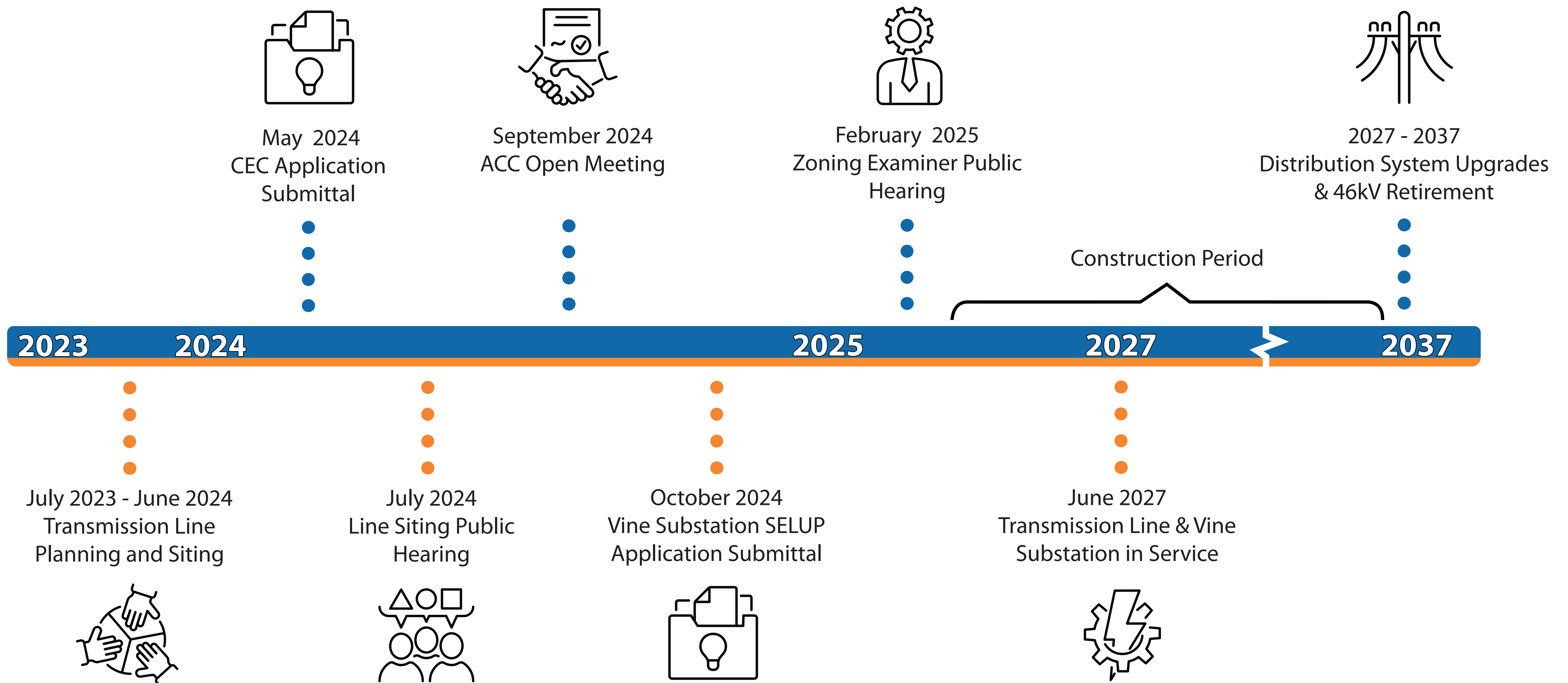
- No engineering or safety justification.
- Every other TEP transmission line is installed overhead.
- Majority of transmission lines in the United States are installed overhead.
- Underground construction disturbs more land, existing facilities and archaeological resources.



RELIABILITY

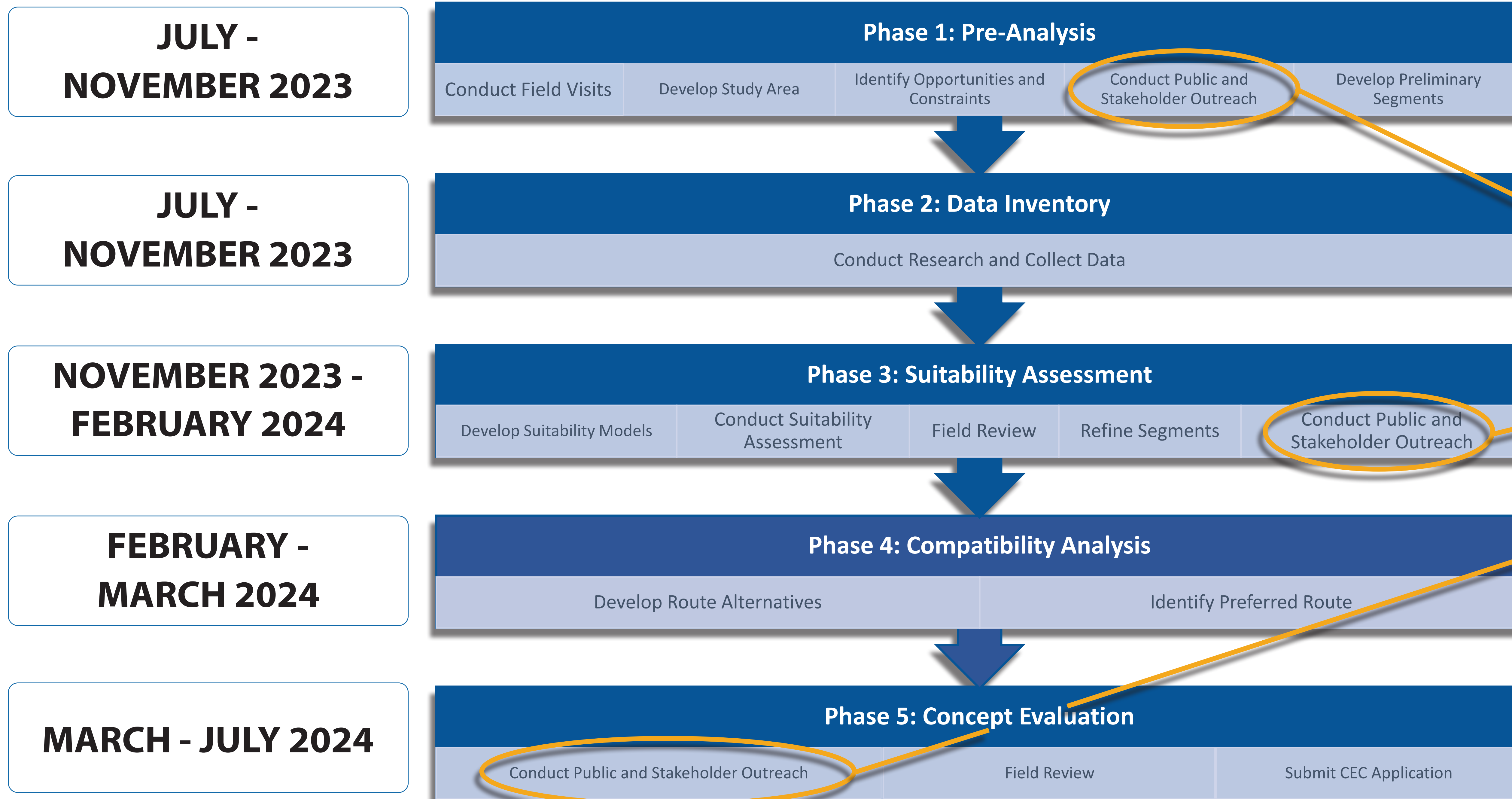
- Comparable to overhead construction, with higher maintenance costs.
- Fewer outages but longer repair times.
- Life expectancy of underground equipment is lower.
- 138-kV transmission poles withstand extreme weather, traffic impacts.

Midtown Reliability Project



Target schedule, subject to change.

PLANNING AND SITING PROCESS



- OUTREACH EFFORTS**
- Neighborhood Listening Sessions
 - Neighborhood Advisory Group
 - Public Open House
 - Elected Official Briefings
 - Agency Briefings

Want to influence how transmission line routes are evaluated?

In your opinion, which criteria are most important in considering the route of the proposed transmission line for the Midtown Reliability Project?

(Place a star in the box next to the criteria you feel is most important to consider.)

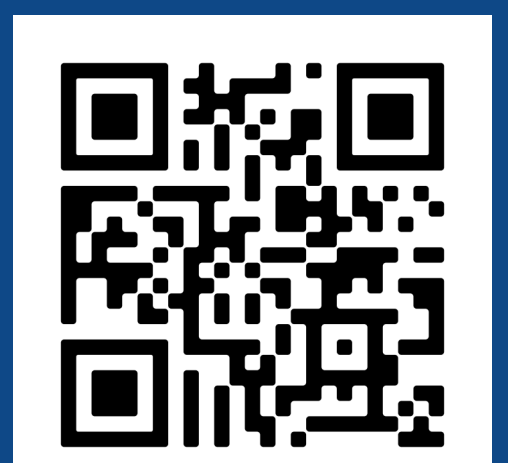
Historic properties and neighborhoods adjacent to the transmission line.	
Sensitive plant and wildlife species and/or habitat within the transmission line corridor.	
Cost of transmission line construction, which will be recovered through electric bills.	
Impact on low-income and/or disadvantaged communities.	
Residential properties adjacent to transmission lines.	
Impact on views near transmission lines.	

In addition to the criteria listed above, TEP will consider additional factors when evaluating potential transmission line routes, as prescribed by Arizona State Law (A.R.S. 40-360.06).

- ◆ Public and stakeholder input
- ◆ Existing development plans
- ◆ Engineering feasibility and challenges
- ◆ Potential public recreational uses
- ◆ Noise emission levels
- ◆ Total environment
- ◆ Interference with communication signals

Provide your thoughts by taking a quick survey.

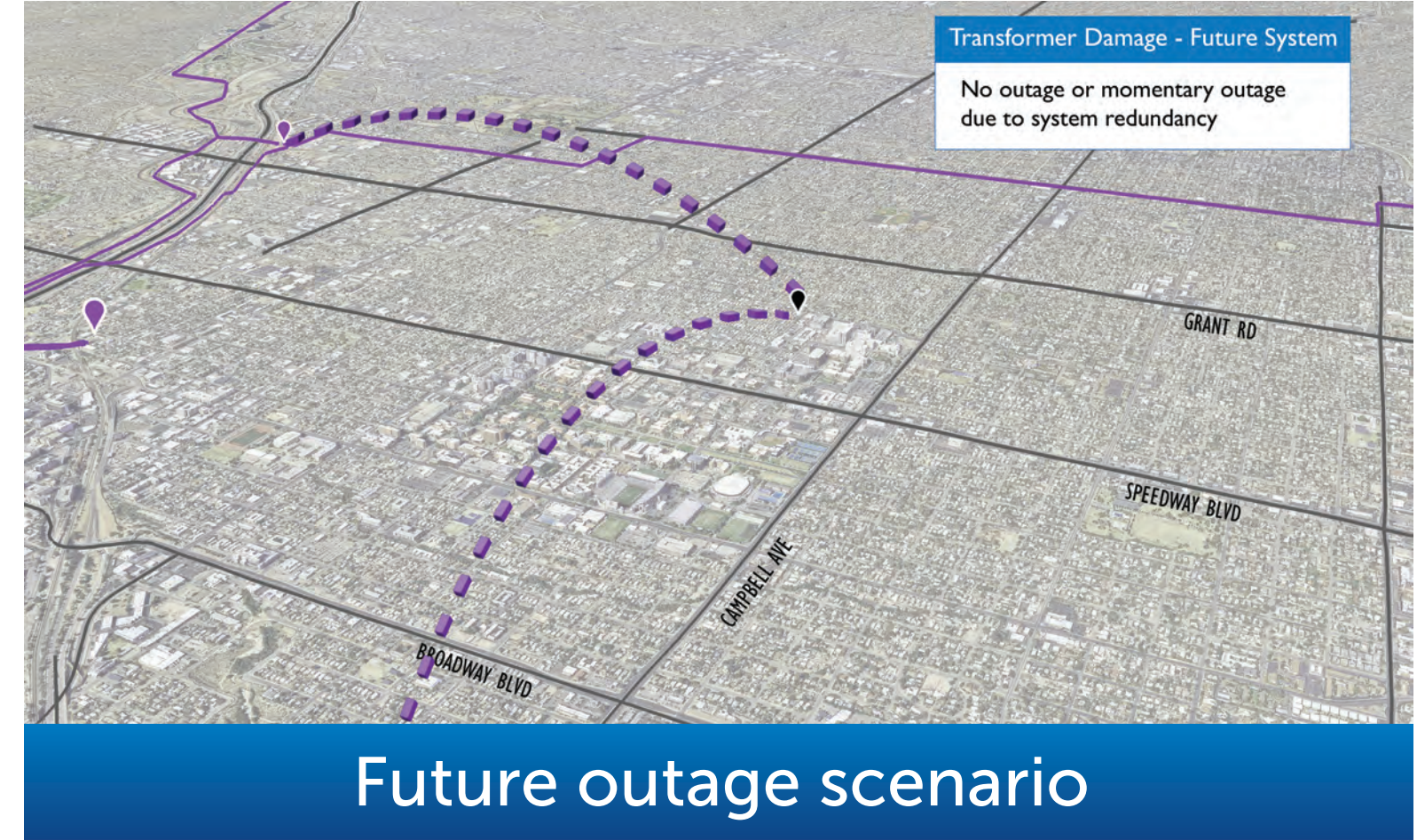
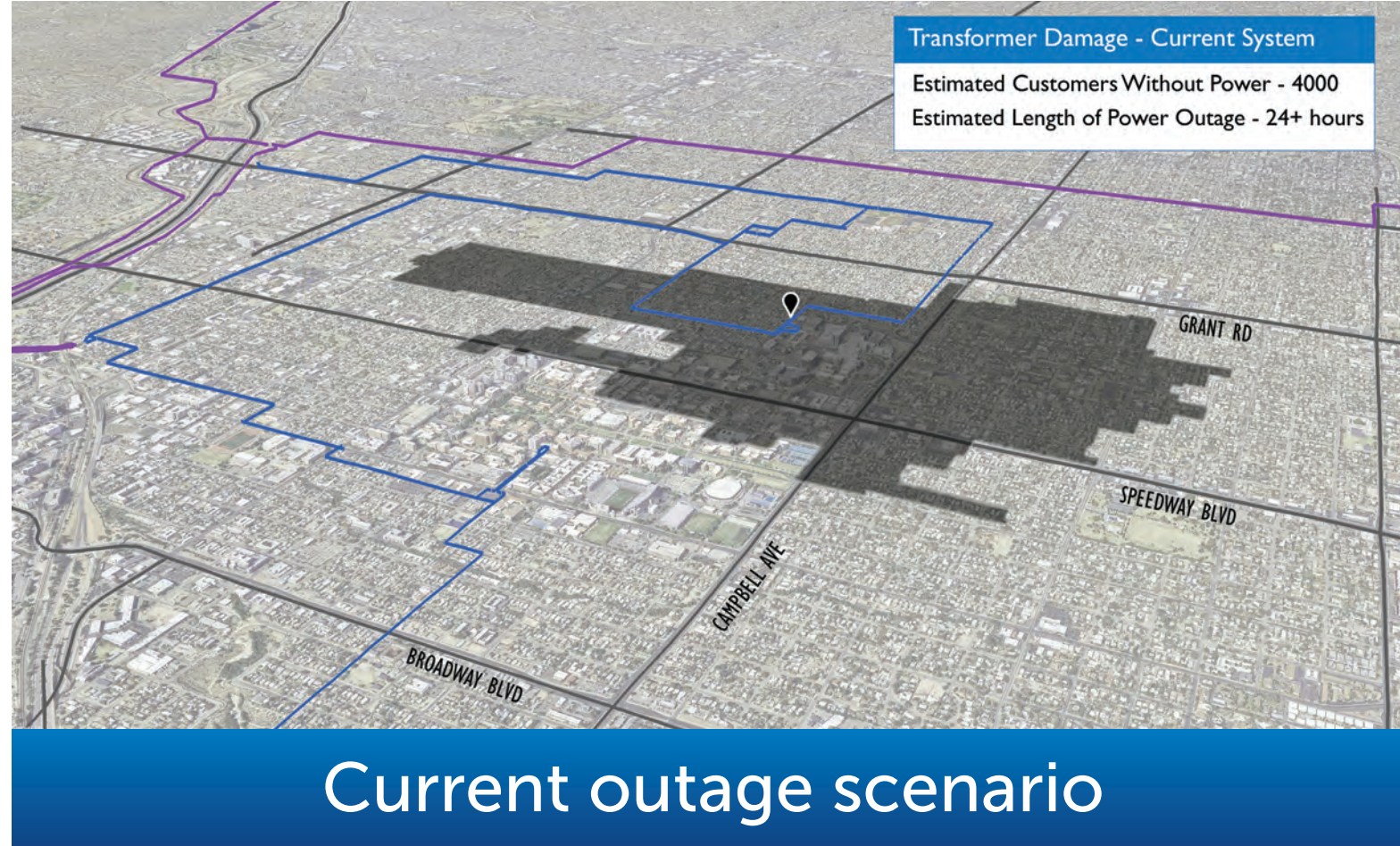
Please complete the survey by scanning the QR code or by visiting the project website at tep.com/midtown.



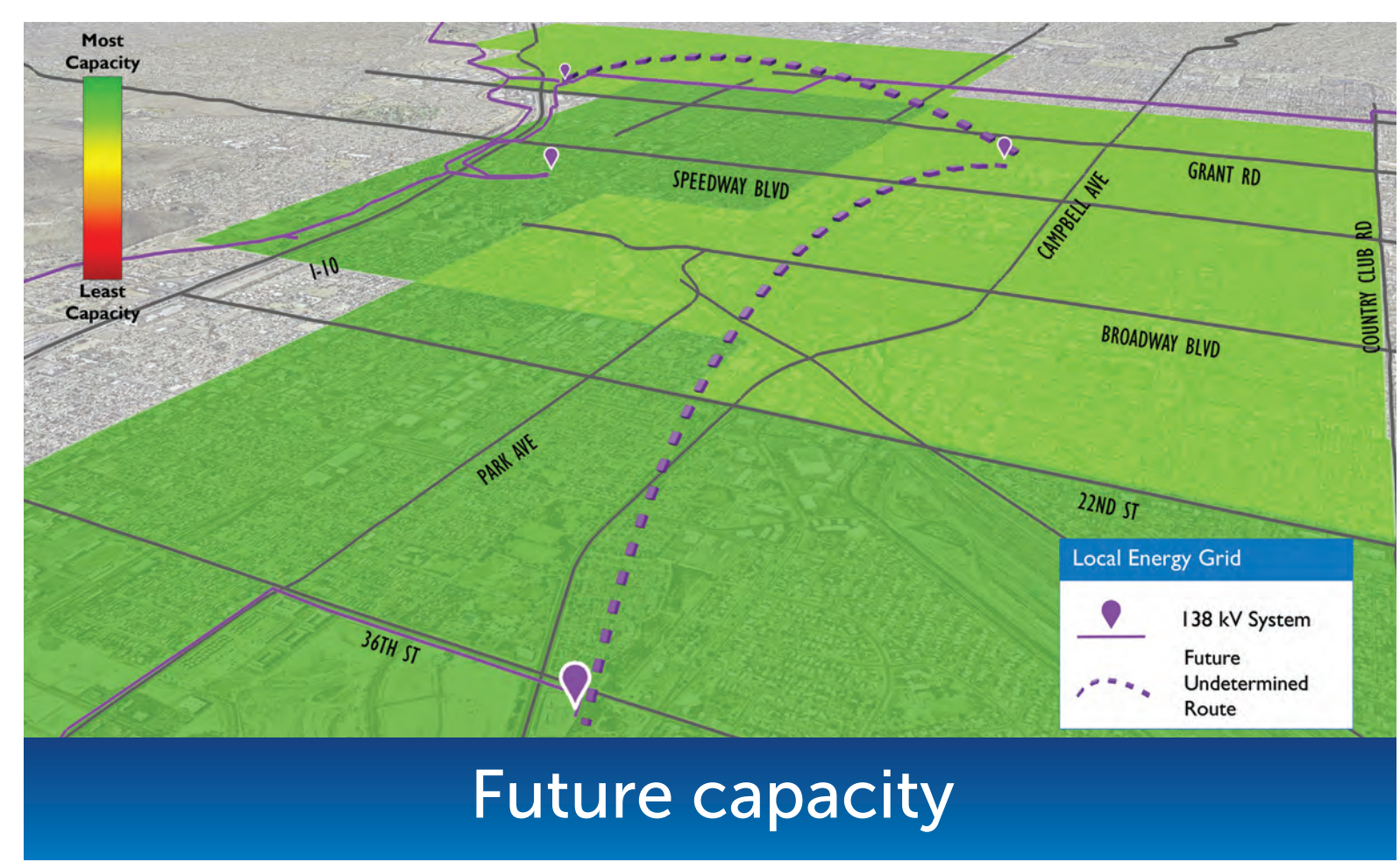
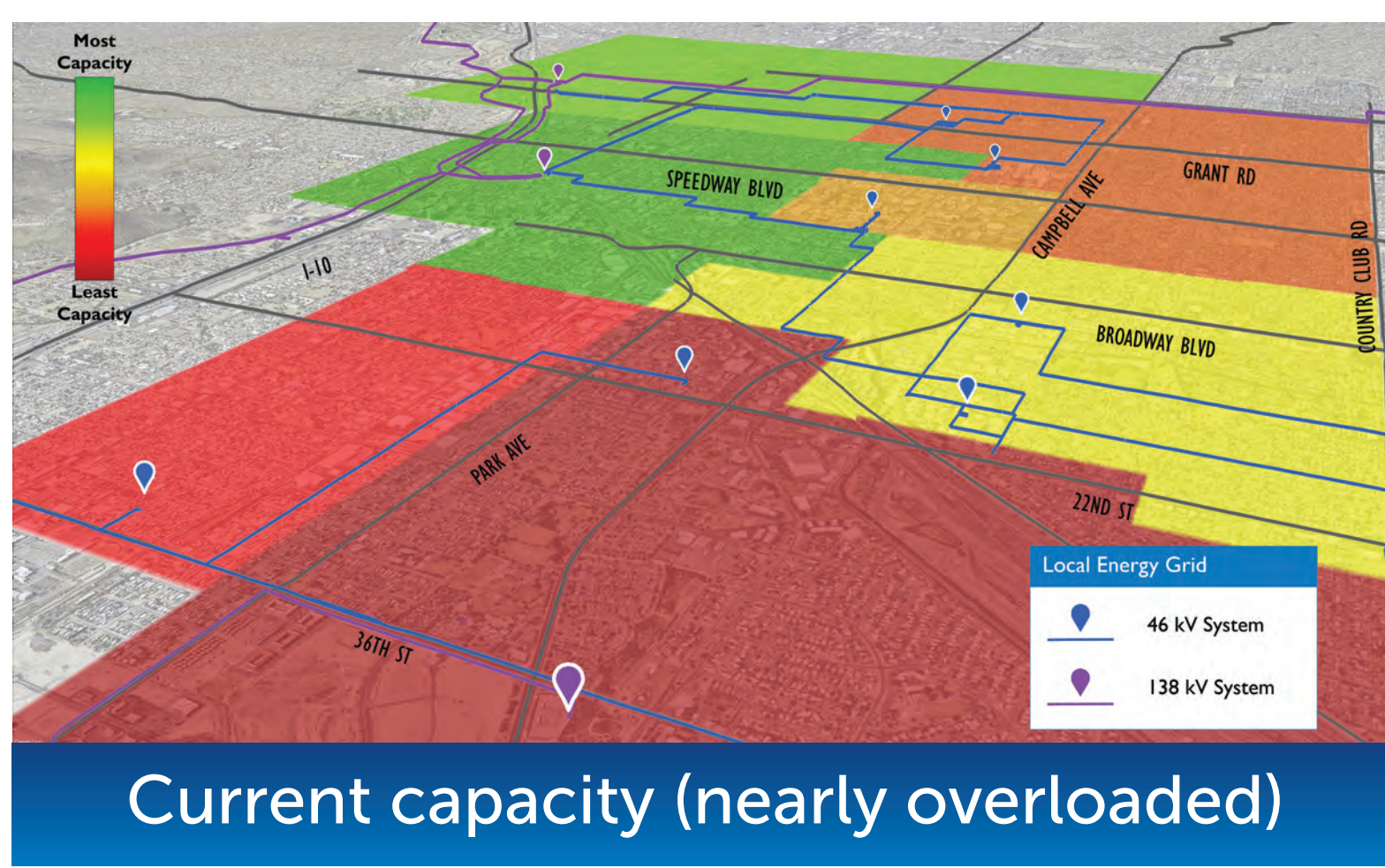
Midtown Reliability Project Benefits



Fewer, shorter power outages



Greater capacity for growing energy needs



More customer-owned solar, storage and EVs



Improved service citywide



Removal of aging substations, power lines



Support for economic growth and a healthy community

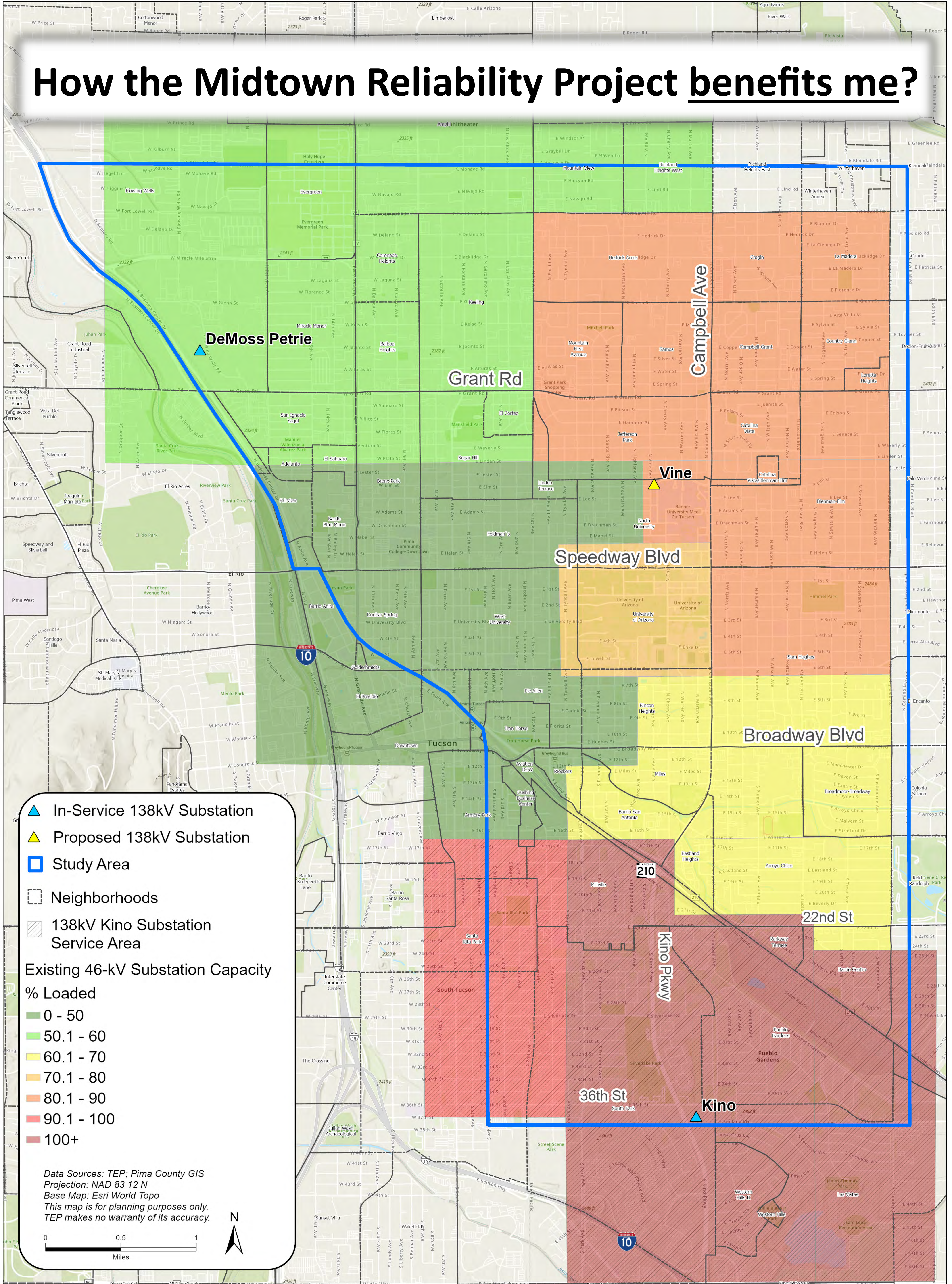


Learn more about these benefits at:
tep.com/midtown-reliability-project

Midtown Reliability Project



How the Midtown Reliability Project benefits me?



INTERACTIVE MAP STATION



**Provide your Spatial
Comments**