

# Western Sub Regional RTEP: AEP Supplemental Projects

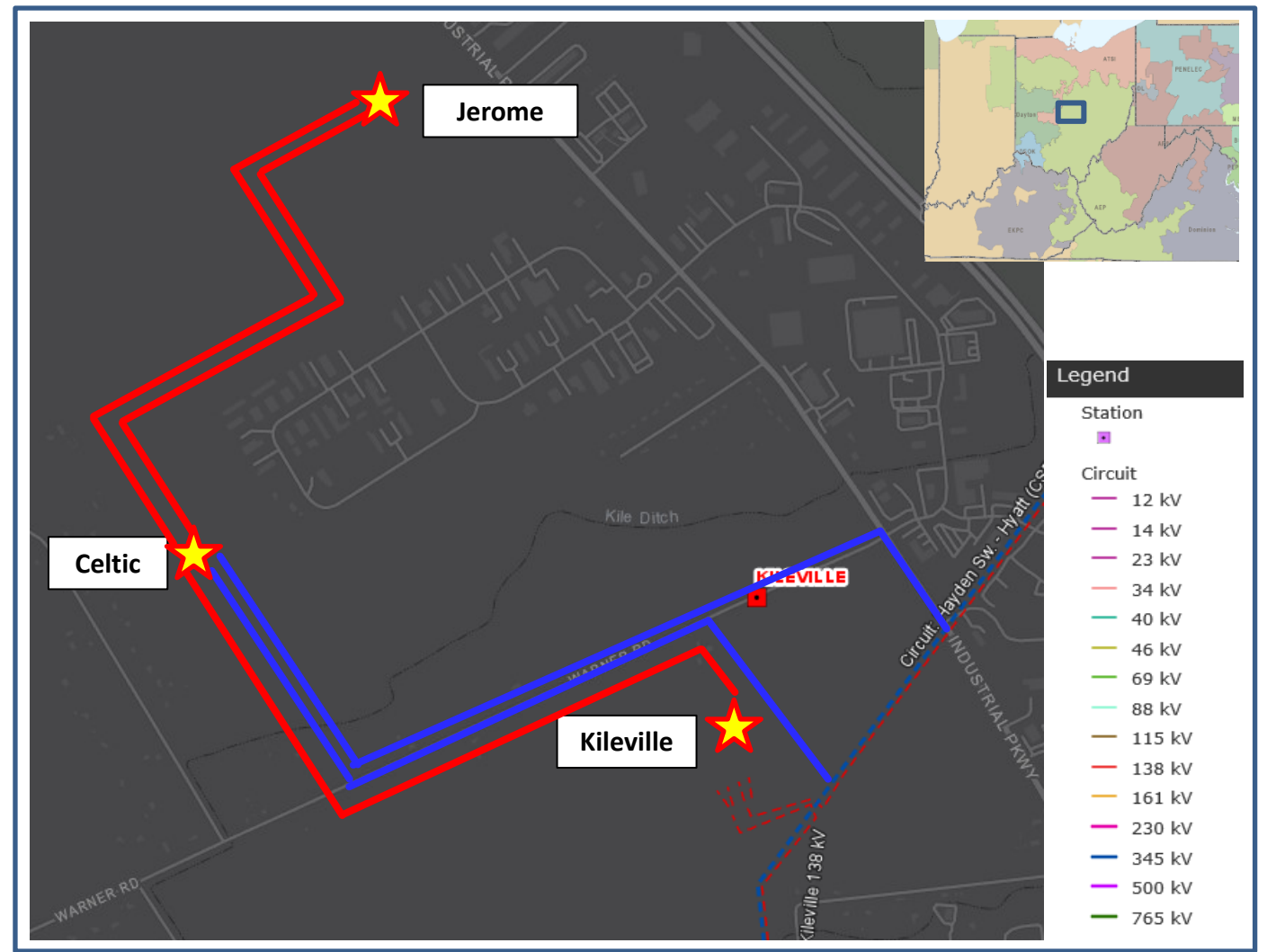
December 13, 2024

# Changes to the Existing Supplemental Projects

**S3441.1 and .4:** Posted in 2024 Local Plan. Need Number: AEP-2021-OH049 & AEP-2023-OH041, Solutions Meetings on 5/9/2023 and 12/5/2023

**Reason for changes:**

- After beginning project outreach and ROW activities it became apparent that given the amount of development in the area that building the initially proposed ~1.6 mile 138 kV line between Jerome and the existing Hyatt – Amlin circuit on a route NE of Kileville station was going to be extremely challenging from a property acquisition standpoint and would have a significant impact on initial conceptual cost estimates. Therefore, in working with the customer in the area, the decision was made to instead pivot to an alternative line route that involved ultimately serving the Jerome site out of a double circuit 138 kV line connected into Celtic station.



## AEP Transmission Zone: Supplemental S3441.1 and .4 Scope Change

### Original Scope/New Scope (in Red Text):

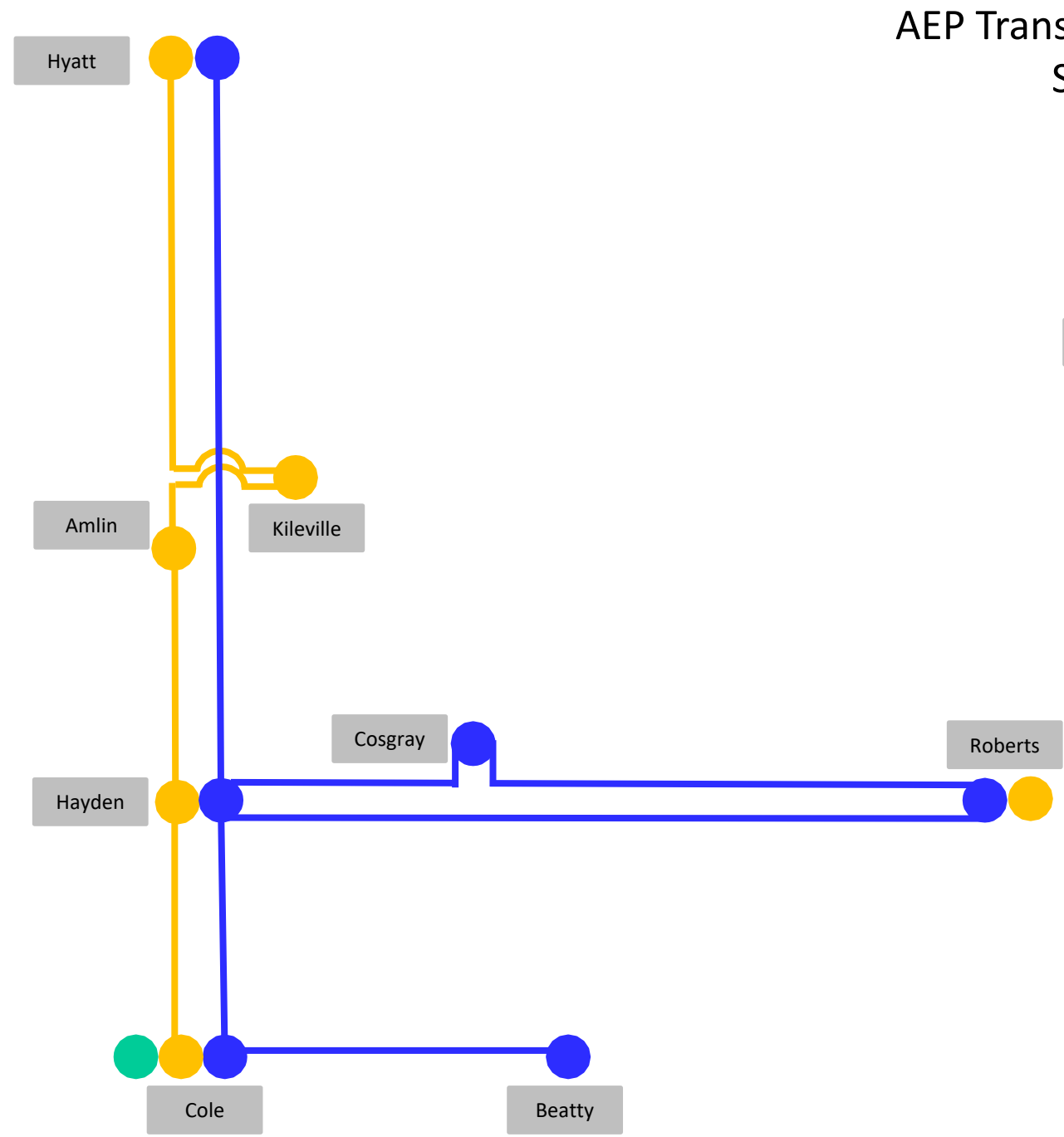
- Jerome 138 kV:** Construct a greenfield Jerome station with (~~10 11~~) 138kV 63kA 4000A circuit breakers in breaker and half bus configuration. Construct ~ 2.5 miles of double circuit 138kV transmission line extending from ~~Celtic &~~ Kileville station **to Jerome** utilizing 2-bundled ACSS Cardinal 954 (45/7) conductor, SE rating 1061 MVA. ~~Construct ~1.6 miles of double circuit 138kV transmission line extending from Jerome to cut in back to Hyatt – Amlin line utilizing 2-bundled ACSS Cardinal 954 (45/7) conductor, SE rating 1061 MVA.~~ Construct (4) 138 kV tie lines to the customers dead end structures ~0.05 miles utilizing ACSR Dove 556.5 (26/7) conductor SE 284 MVA. Customers will be directly connected at this station. Cost: **\$29.78 30 M (s3441.1)**
- Celtic 345/138 kV:** Originally, Kileville is the station that was envisioned (s2855) to serve 461 MW of demand with room for 345 kV expansion based on LOAs with the customer. However, land in the area of the proposed Kileville station was not available for expansion to install 345/138 kV transformation. Therefore, a new station site called Celtic is being proposed to serve as the 345 kV source for the 461 MW of load to be served in this area. Cut into the Hayden – Hyatt 345 kV circuit, reroute ~0.8 miles of the circuit and extend ~1.1 miles of new double circuit line, utilizing 2-bundled ACSR Pheasant 1272 (54/19) conductor, SE rating 2413 MVA, to the greenfield Celtic 345/138 kV station with (4) 345 kV, 63 kA, 5000 A breakers laid out as ring bus configuration on high side. Install two 675MVA-345/138 kV power transformers. Install (~~8 6~~) 138kV, 63 kA, 4000 A breakers & (2) 69.1 MVAR 138 kV Cap bank on low side configured as **breaker-and-a-half ring** bus with provisions for future expansion ~~breaker-and-half configuration~~. The proposed Kileville – Jerome 138 kV line will be brought in and out of the station **creating two 138 kV Celtic – Jerome circuits and a single Celtic – Kileville 138 kV circuit.** Cost: **\$70.31 60 M (s3441.4)**

**Projected In-Service:** Jerome (~~1/30/2025, partially~~), Celtic (~~11/13/2025~~)

**Project Status:** Engineering



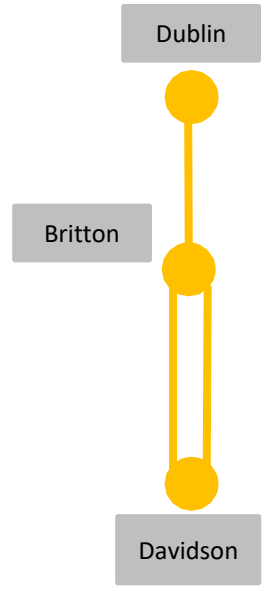
Existing:



# AEP Transmission Zone: Supplemental S3441.1 and .4 Scope Change

Legend	
765 kV	
345 kV	
138 kV	
69 kV	
34.5 kV	
23 kV	
New	

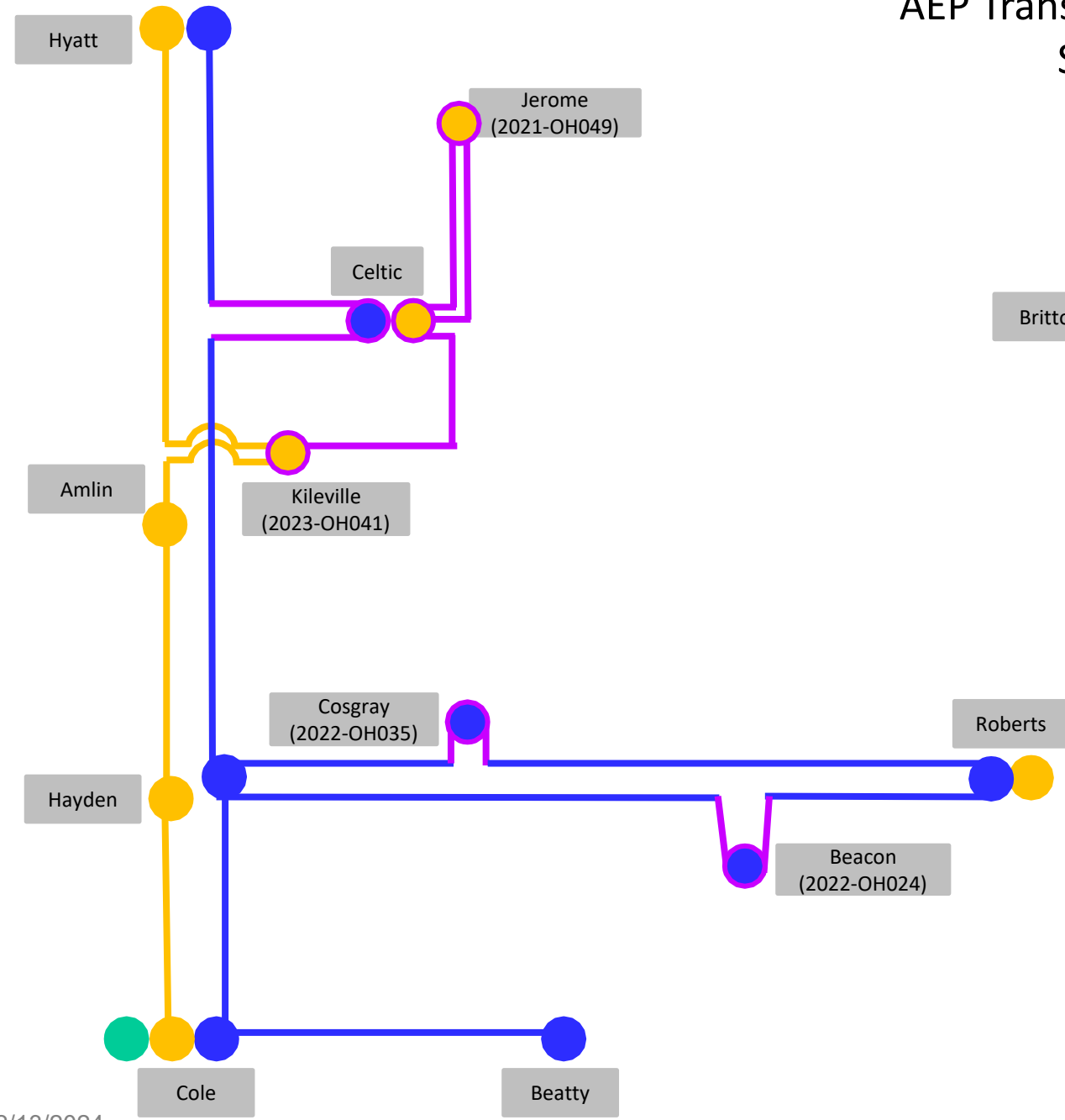
Existing:





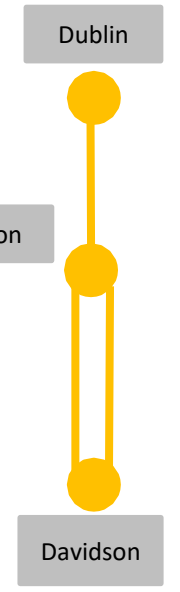
# AEP Transmission Zone: Supplemental S3441.1 and .4 Scope Change

Proposed:



Legend	
765 kV	
345 kV	
138 kV	
69 kV	
34.5 kV	
23 kV	
New	

Proposed:



# Needs

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

# AEP Transmission Zone M-3 Process Hamilton, IN

**Need Number:** AEP-2024-IM023

**Process Stage:** Need Meeting 12/13/2024

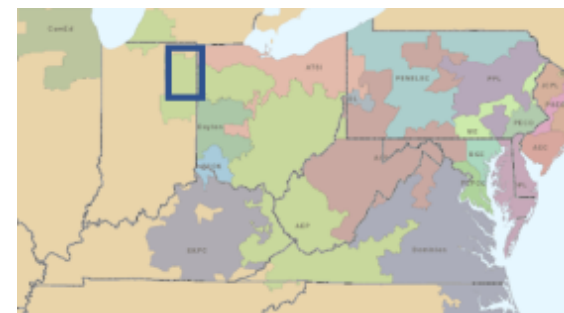
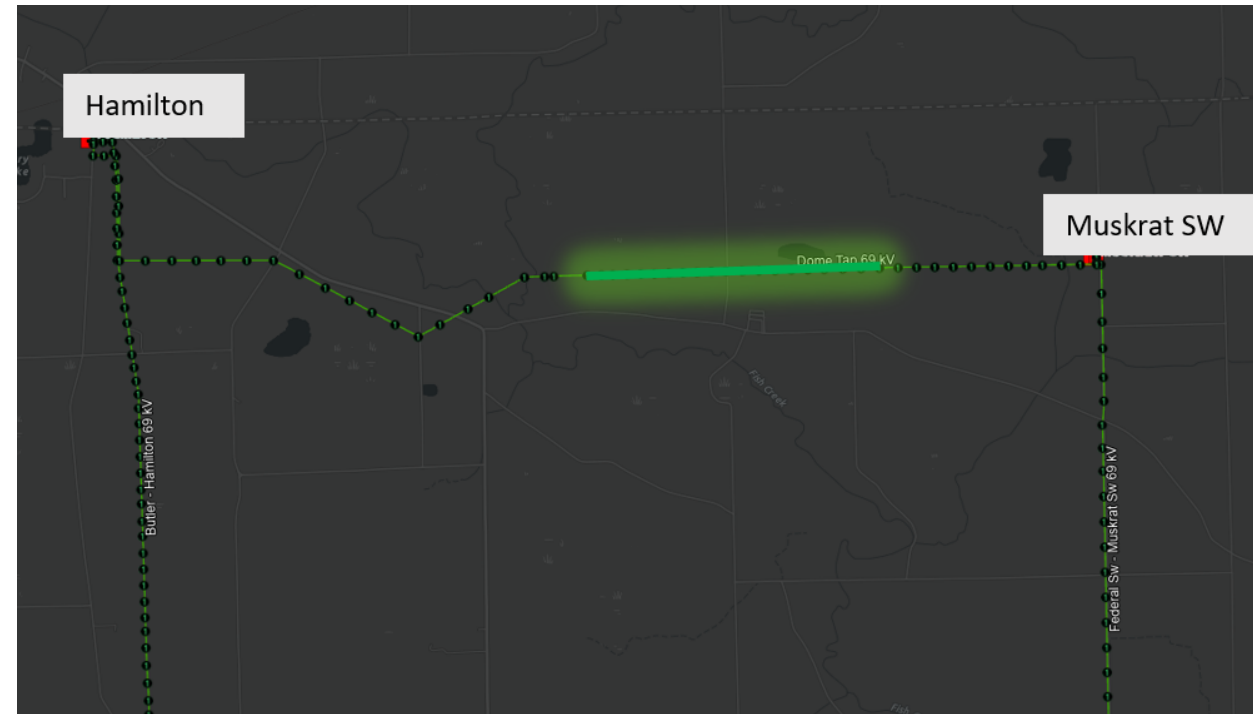
**Project Driver:** Equipment Condition/Performance/Risk

**Specific Assumption References:** AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

**Problem Statement:**

Dome Tap 69kV

- The Dome Tap 69kV line is 1.18 miles long constructed in 1978 and is part of the Auburn – Butler 69kV circuit. The line consists primarily of original single circuit wood pole structures with legacy porcelain horizontal post insulators.
- From January 1, 2019 to December 31, 2023, there have been 7 direct momentary, 2 direct permanent, 1 indirect momentary outages on the Auburn – Butler 69kV circuit. Some of the outage causes include lightning, ice/sleet, failed insulators, failed crossarms, and lightning.
- There are currently 12 structures with at least one open structural condition, which relates to 60% of the structures on the line.
- There are 24 open conditions on the line, including woodpecker damage, rot top, insect damage, rot heart, rot pocket, and burnt poles.





**Need Number:** AEP-2024-OH045

**Process Stage:** Need Meeting 12/13/2024

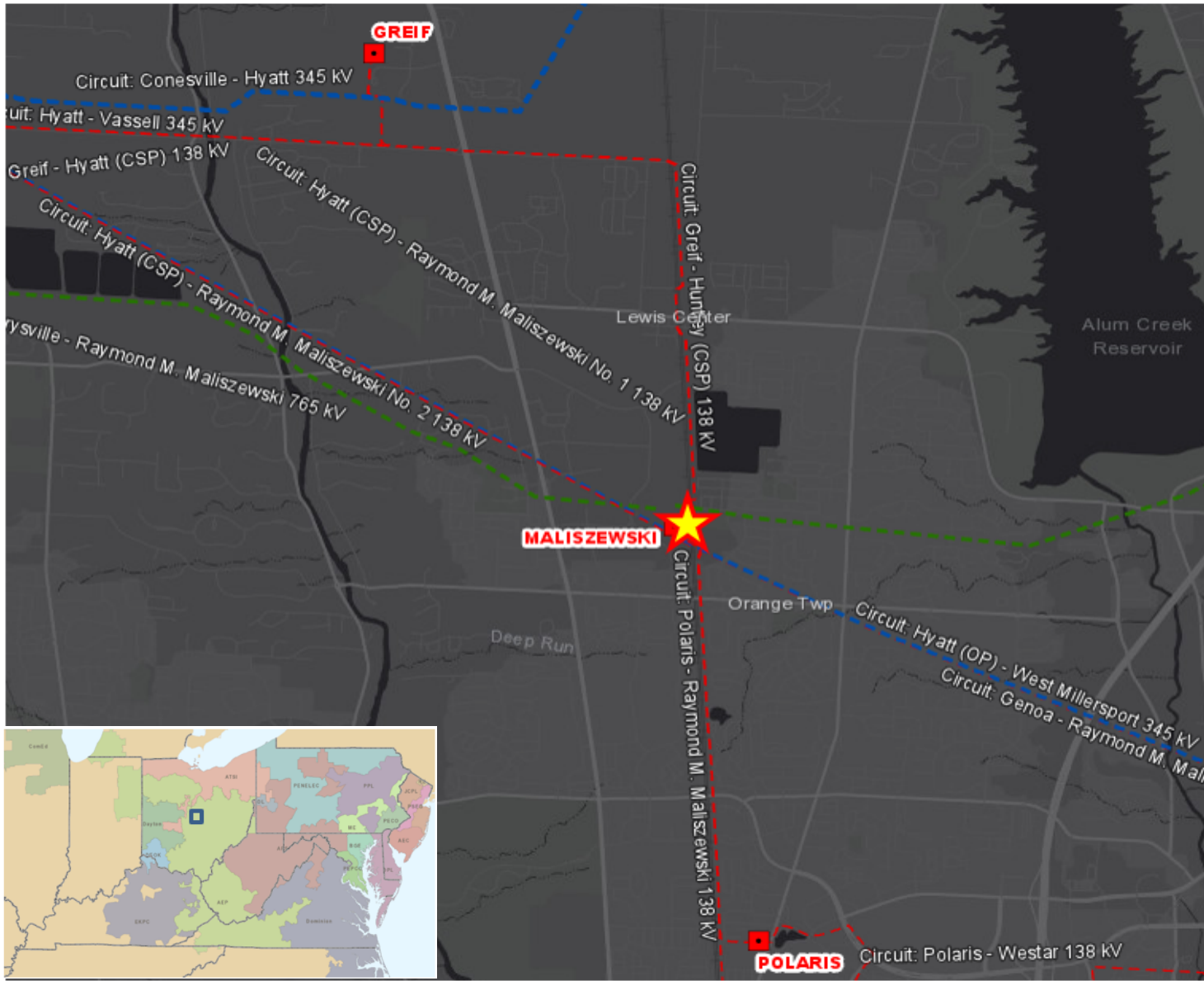
**Project Driver:** Customer Service

**Specific Assumption References:**

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12)

**Problem Statement:**

AEP Ohio has requested a new Distribution delivery at Maliszewski station to serve additional customers in the area. The anticipated peak load is approximately 25 MW. The requested in-service date is 6/1/2026.



**Need Number:** AEP-2024-OH046

**Process Stage:** Need Meeting 12/13/2024

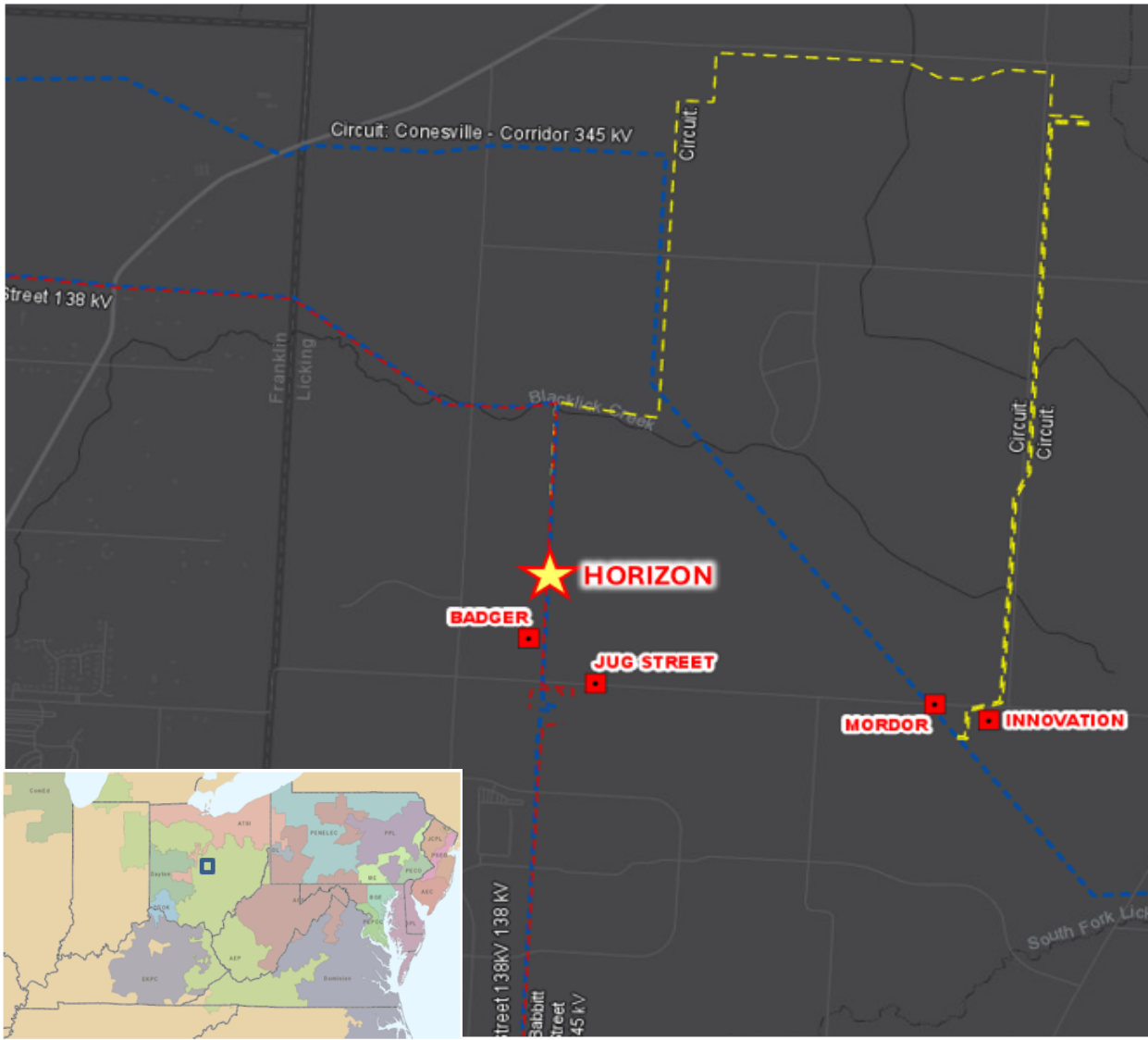
**Project Driver:** Customer Service

**Specific Assumption References:**

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12)

**Problem Statement:**

AEP Ohio has requested additional distribution deliveries at the proposed Horizon station (s3442.4) to complete the build out for the signed load connected to the station. The total anticipated peak load at Horizon station is approximately 300 MW. The requested in-service date for the distribution facilities is 7/15/2026.



# Solutions

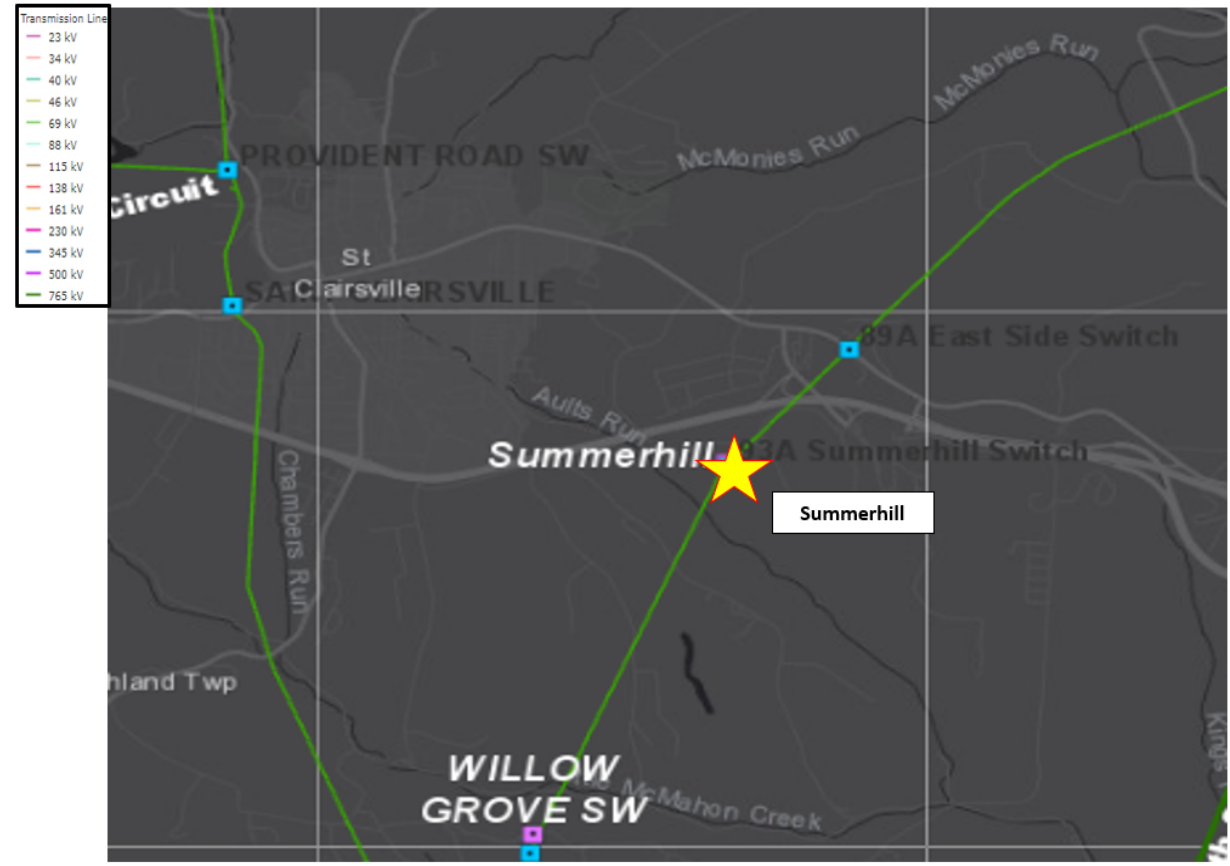
Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

**Need Number:** AEP-2024-OH015  
**Process Stage:** Solution Meeting SRRTEP-W - 12/13/2024  
**Previous Meetings:** Need Meeting SRRTEP-W - 10/18/2024  
**Supplemental Project Driver:** Equipment Condition/Performance/Risk  
**Specific Assumption Reference:** AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

**Problem Statement:**

**Summerhill Station Switch:**

- The 69kV phase-over-phase switch pole outside Summerhill station was originally installed in 1977. It is a wood pole structure which has warped since installation, placing the switch attachments out of alignment and causing increased maintenance to keep operational. It also has increasing levels of rot and woodpecker damage.
- In addition, the legacy sectionalizing controls on the switch have been unreliable. The switch lacks an RTU and SCADA functionality, limiting the capabilities of AEP’s control center. Local field employees must be sent to the station to troubleshoot or operate the switches.
- The switch is a 2-way switch, rather than a standard 3-way switch, resulting in the need to interrupt the 69kV transmission through-path when scheduling an outage at the station.



## AEP Transmission Zone M-3 Process Summerhill, OH

**Need number(s):** AEP-2024-OH015

**Process Stage:** Solution Meeting SRRTEP-W - 12/13/2024

**Proposed Solution:**

**Summerhill:** At Summerhill station, replace the wood pole 2-way 69kV line switch with a new steel pole 3-way switch with motor operators and SCADA functionality. Reconfigure the 69kV transmission lines connected to the switch, based on the new switch location. Estimated Cost: \$2.03 M

**Transmission Cost Estimate:** \$2.03 M

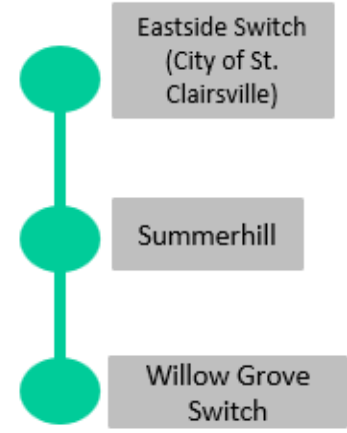
**Alternatives Considered:**

Install a 69kV box bay structure with switches inside the station fence. (~\$4.5 Million). This would have required relocating most of the distribution equipment at the station and expanding the fence, which is not necessary at this time.

**Projected In-Service:** 02/01/2027

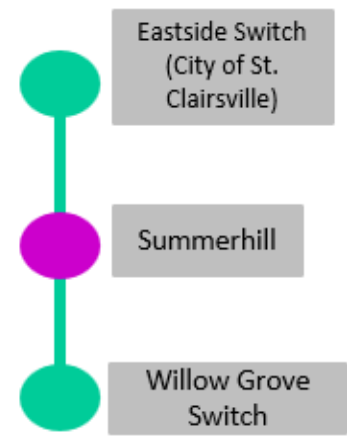
**Project Status:** Scoping

**Existing:**



Legend	
500 kV	
345 kV	
138 kV	
69 kV	
34.5 kV	
23 kV	
New	

**Proposed:**



# AEP Transmission Zone M-3 Process New Albany, OH

**Need Number:** AEP-2024-OH030

**Process Stage:** Solution Meeting SRRTEP-W - 12/13/2024

**Previous Meetings:** Needs Meeting 4/19/2024

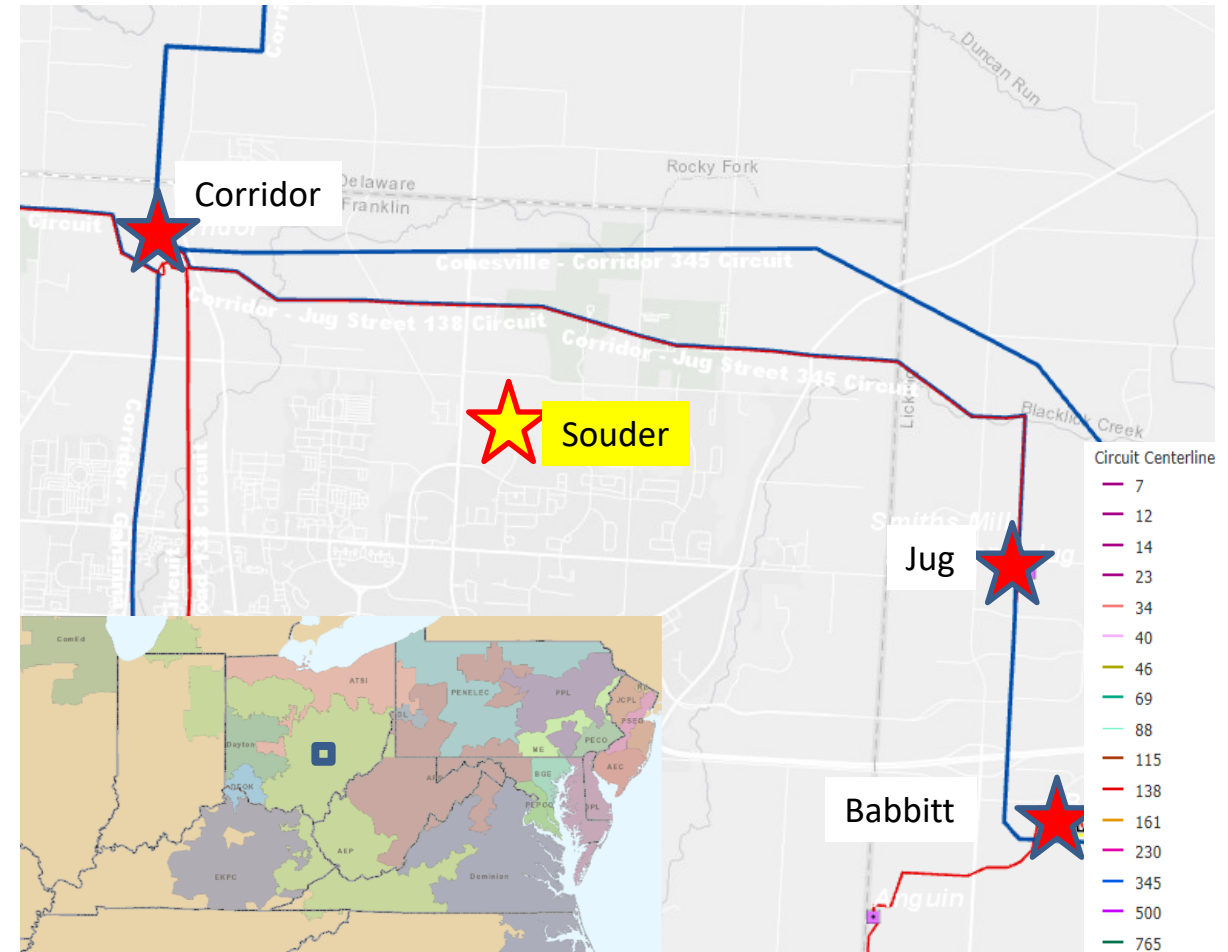
**Supplemental Project Driver:** Customer Service

**Specific Assumption Reference:** AEP Guidelines for Transmission  
Owner Identified Needs (AEP Assumptions Slide 8)

**Problem Statement:**

AEP Ohio is requesting additional distribution capacity at the proposed Souder station, with a total initial load expected to be at 51 MVA by June 2027 to ultimate load of 111 MVA by year 2030.

**Model:** N/A





**Need number(s):** AEP-2024-OH030

**Process Stage:** Solution Meeting SRRTEP-W - 12/13/2024

**Proposed Solution:**

**Souder Station Distribution Capacity Addition:** To accommodate the request for additional distribution sources at Souder station (an additional two 138/34.5 kV transformers for a total of five at the station), the proposed 5-breaker ring bus, submitted under PJM s3442.9, will be converted into a 11-breaker, breaker-and-a-half layout station by adding (6) 80 kA, 4000 A 138 kV circuit breakers. Estimated Cost: \$9.1 M

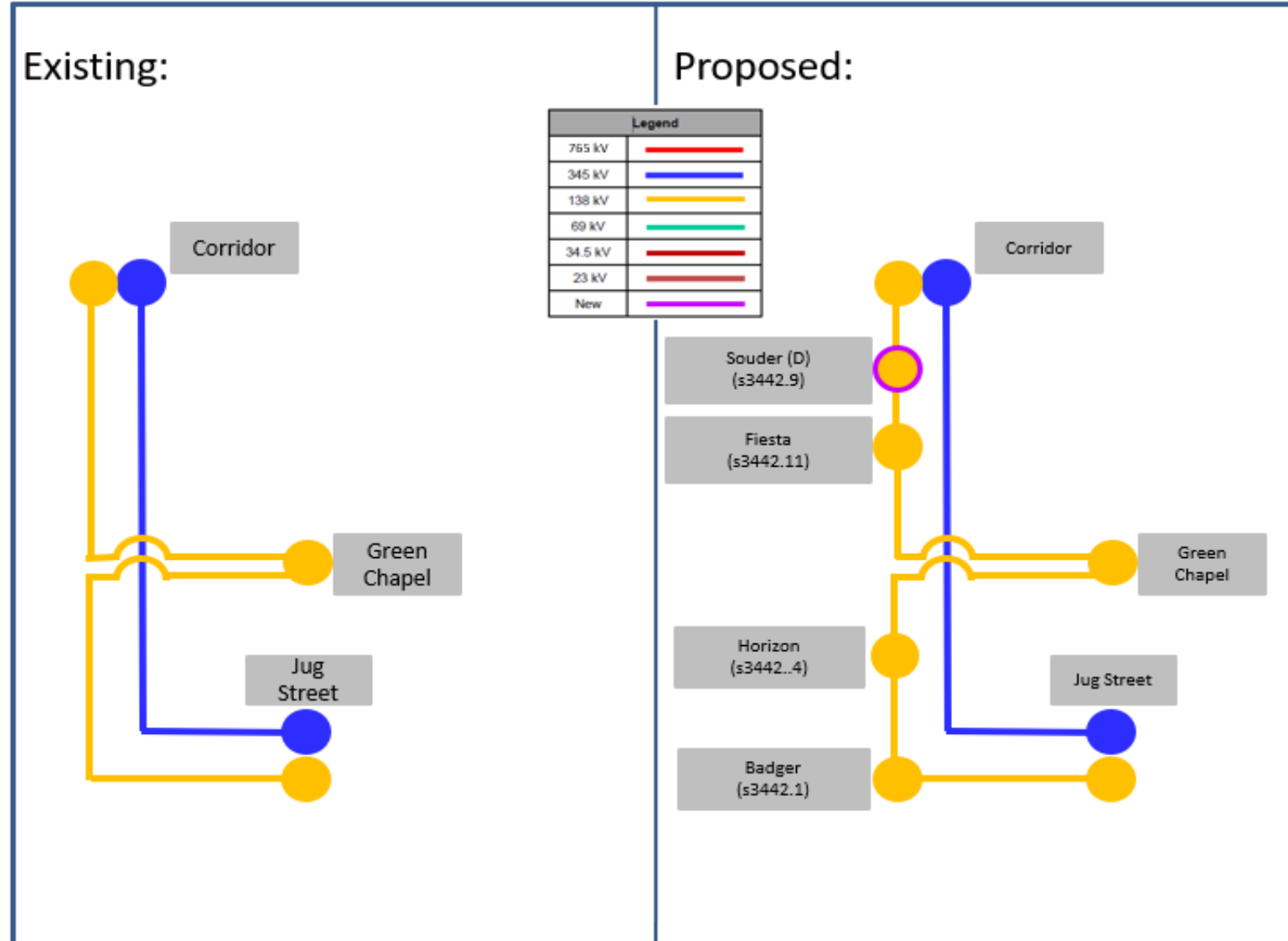
**Transmission Cost Estimate:** \$9.1 M

**Alternatives Considered:**

A new delivery point was considered but not needed due to the availability of space at Souder station to accommodate the request.

**Projected In-Service:** 12/24/2025

**Project Status:** Engineering



**Need Number:** AEP-2023-OH089

**Process Stage:** Solution Meeting SRRTEP-W 12/13/2024

**Previous Meetings:** Need Meeting 11/17/2023

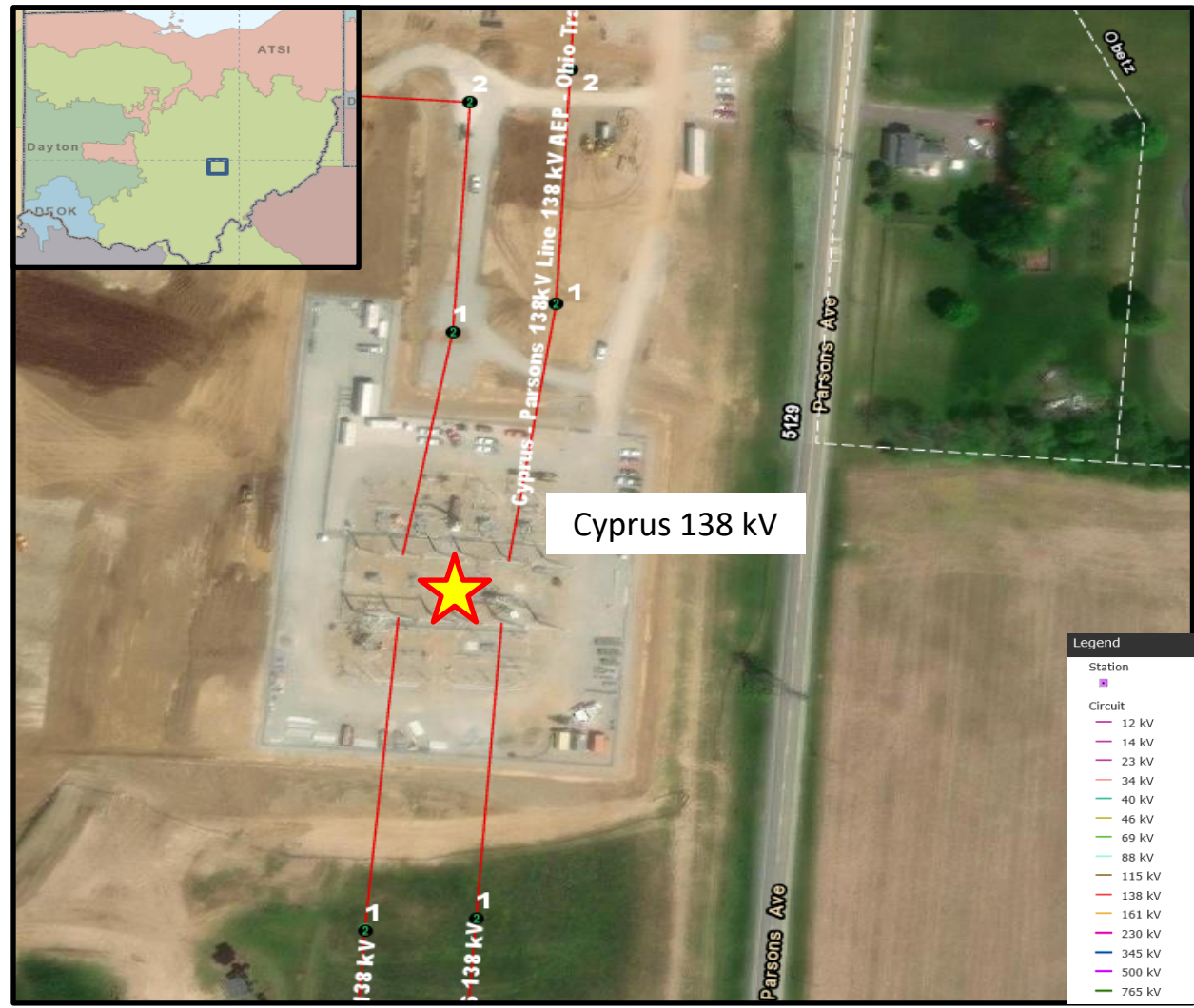
**Project Driver:** Customer Service

**Specific Assumption Reference:**

AEP Connection Requirements for the AEP Transmission System  
(AEP Assumptions Slide 12)

**Problem Statement:**

- A customer has requested additional 138 kV delivery points to their site in Columbus Ohio, just south of AEP’s Cyprus station.
- The projected peak demand of the new delivery points will be approximately 96 MW, bringing the total load at the site to approximately 388 MW. The ultimate capacity of the customer remains the same at 675 MW.
- Customer requested in-service date of 04/30/2025.





**Need number(s):** AEP-2023-OH089

**Process Stage:** Solution Meeting SRRTEP-W - 12/13/2024

**Proposed Solution:**

**Cyprus Station Work:** At Cyprus 138kV station, 2-138kV 4000A 63 kA circuit breakers will be installed to terminate the additional customer feeds being requested from the station. Estimated Cost: \$2.132 M

**Cyprus - Customer 138 kV 4G Feed:** Cyprus – Customer 138 kV 4G: Build (1) 138 kV single circuit, ~0.4 miles, tie line to the customer's dead-end structure utilizing ACSR Drake 795 (26/7) conductor SE 360 MVA. Extend fiber cable & install redundant fiber cable for relaying and communication to customer station. (Partially Reimbursable). Estimated Cost: \$0.503 M

**Cyprus - Customer 138 kV 4H Feed:** Cyprus – Customer 138 kV 4H: Build (1) 138 kV single circuit, ~0.4 miles, tie line to the customer's dead-end structure utilizing ACSR Drake 795 (26/7) conductor SE 360 MVA. Extend fiber cable & install redundant fiber cable for relaying and communication to customer station. (Fully reimbursed). Estimated Cost: \$0 M

**Transmission Cost Estimate:** \$2.635 M

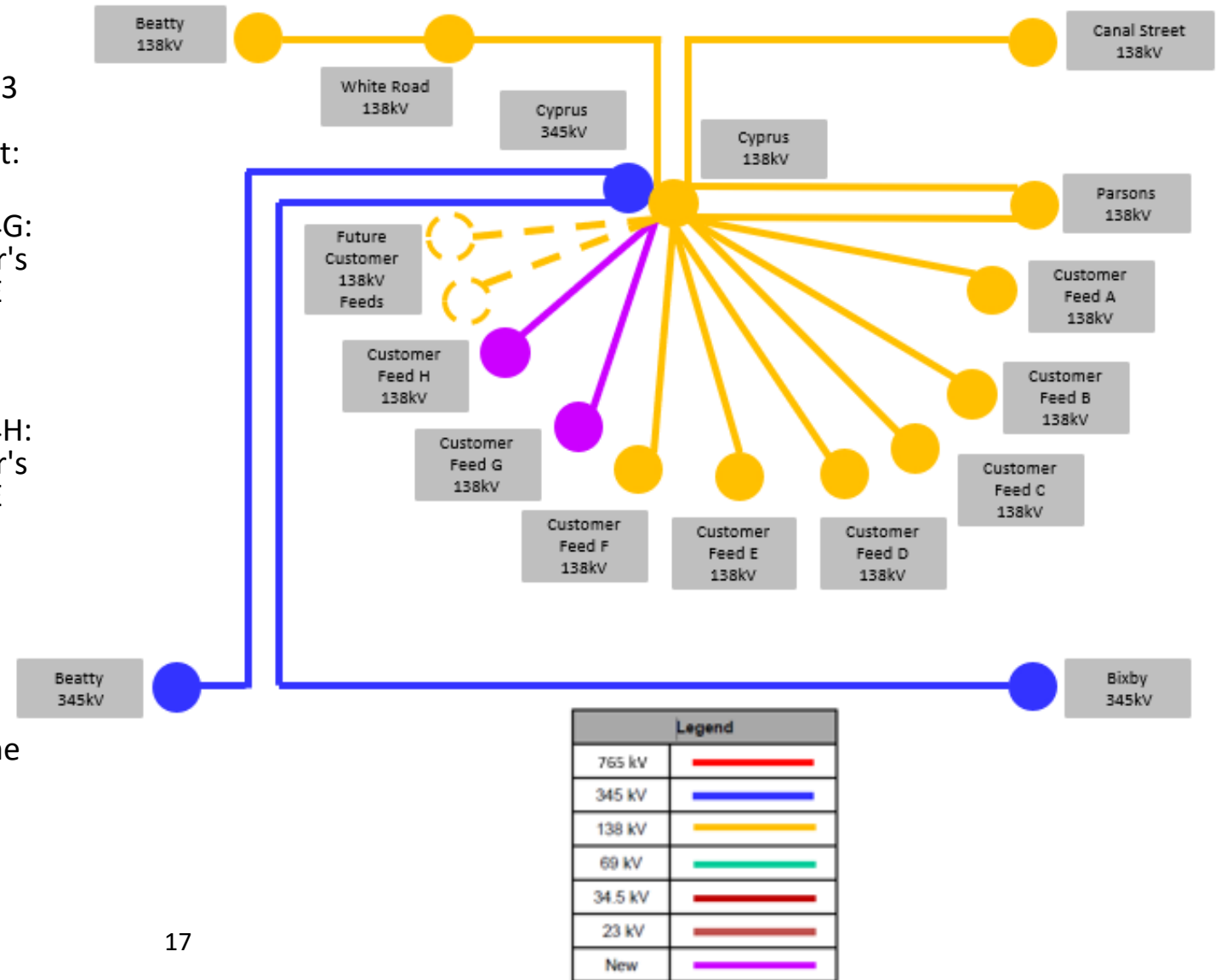
**Alternatives Considered:**

Given the location and nature of the request no viable transmission alternatives were identified. Space is available at the existing Cyprus location to accommodate the load and a new delivery point is not needed.

**Projected In-Service:** 10/01/2025

**Project Status:** Scoping

**Proposed:**



# Appendix

# High Level M-3 Meeting Schedule

Assumptions	Activity	Timing
	Posting of TO Assumptions Meeting information	20 days before Assumptions Meeting
	Stakeholder comments	10 days after Assumptions Meeting
Needs	Activity	Timing
	TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
	Stakeholder comments	10 days after Needs Meeting
Solutions	Activity	Timing
	TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
	Stakeholder comments	10 days after Solutions Meeting
Submission of Supplemental Projects & Local Plan	Activity	Timing
	Do No Harm (DNH) analysis for selected solution	Prior to posting selected solution
	Post selected solution(s)	Following completion of DNH analysis
	Stakeholder comments	10 days prior to Local Plan Submission for integration into RTEP
	Local Plan submitted to PJM for integration into RTEP	Following review and consideration of comments received after posting of selected solutions

# Revision History

12/3/2024– V1 – Original version posted to pjm.com