# Submission of Supplemental Projects for Inclusion in the Local Plan

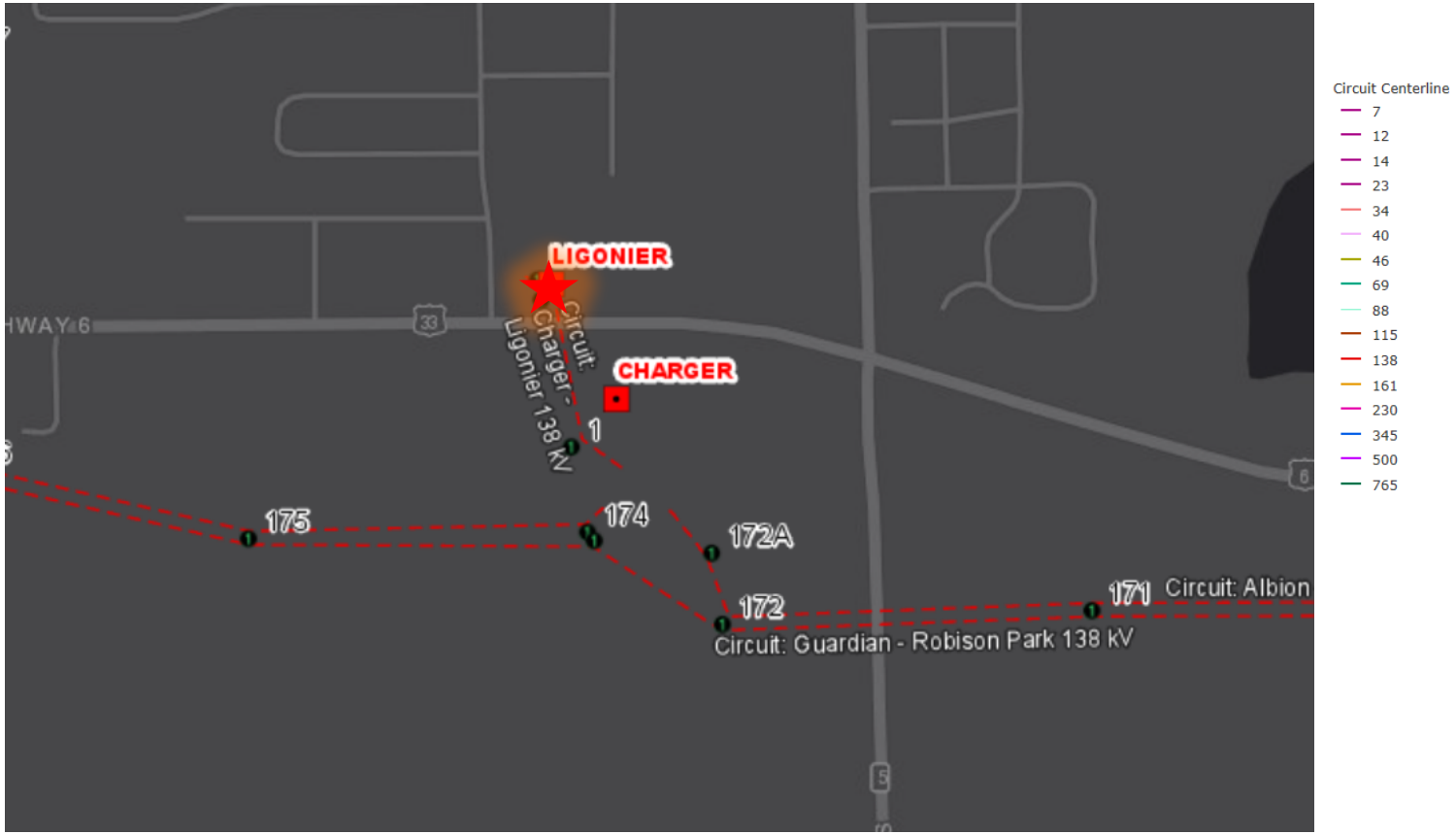
AEP Local Plan - 2025

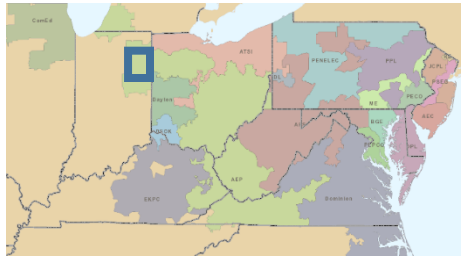
# AEP Transmission Zone M-3 Process
# Ligonier, Indiana

**Need Number:** AEP-2024-IM010
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025
**Previously Presented**: Need Meeting 04/19/2024, Solution Meeting SRRTEP-W - 10/18/2024
**Supplemental Project Driver:** Customer Need
**Specific Assumption Reference:** AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 12)

**Problem Statement:**
I&M Distribution has requested to retire Ligonier station and to relocate the delivery point to Charger Station.

**Requested ISD: 2026**



# AEP Transmission Zone M-3 Process
# Ligonier, Indiana

**Need Number:** AEP-2024-IM010
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025

**Proposed Solution:**

**Charger Station:** Install 1x 138kV circuit breaker at Charger Station. Install 2x 138/12kV distribution banks with feeders at Charger Station. Estimated Cost: $1.6 M **(s3591.1)**

**Charger - Ligonier 138kV:** Retire 138/12kV Ligonier station and remove ~0.25 miles of 138kV transmission line from Charger – Ligonier Station. Estimated Cost: $0.4 M **(s3591.2)**

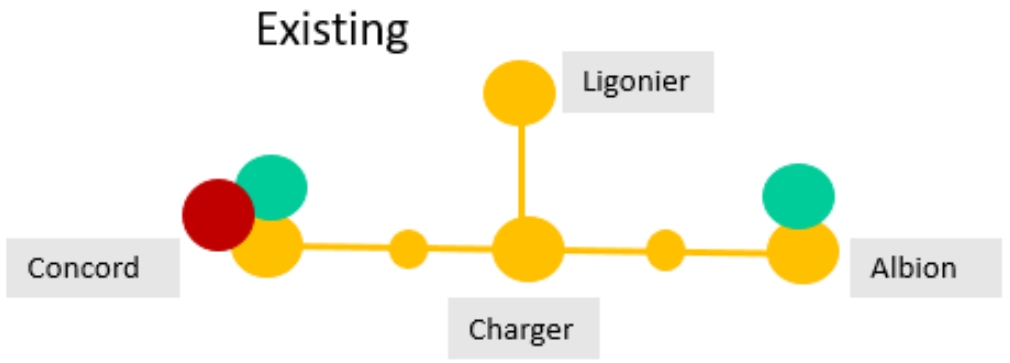
**Transmission Cost Estimate:** $2 M

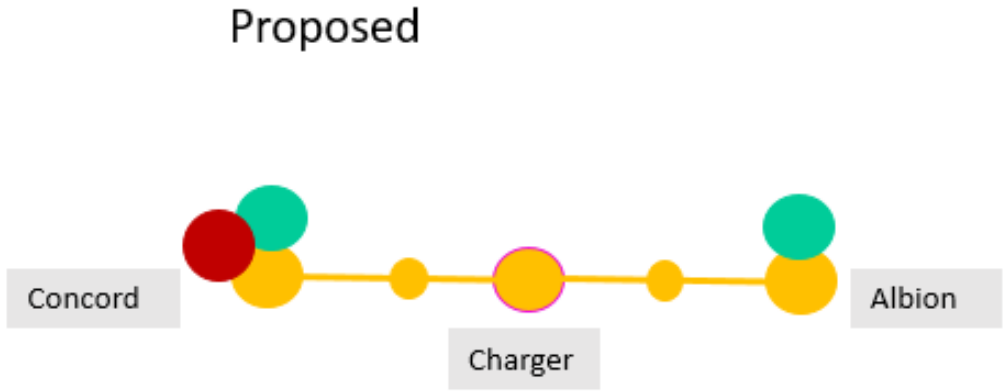
**Alternatives Considered:**

Considering the existing space at Charger and the request to retire the existing station, no other alternates were identified. Rebuilding Ligonier station is not needed with the capacity replaced at Charger. Charger was established under project s1615.

**Supplemental Project ID**: s3591.1-.2

**Projected In-Service:** 09/14/2027
**Project Status:** Scoping



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

**Need Number:** AEP-2023-OH004
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025

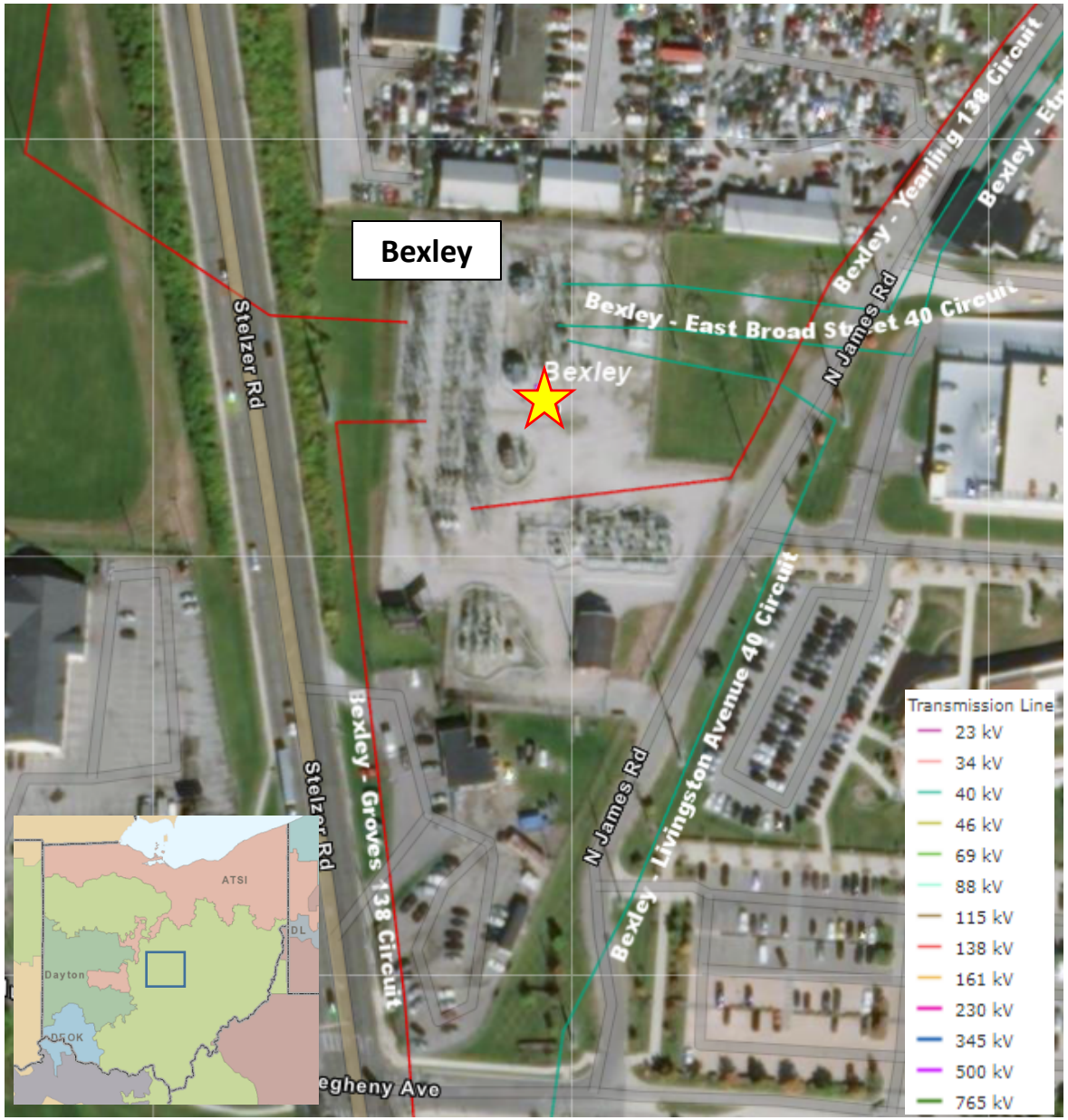
**Previously Presented:** Need Meeting 1/20/2023, Solution Meeting SRRTEP-W - 10/18/2024

**Project Driver:**
Equipment Condition/Performance, Operational Flexibility and Efficiency, & Customer Service

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

**Problem Statement:**
Bexley Station 138kV:

- AEP Ohio has indicated they have equipment rehabilitation needs at the station.
- 2 – 138/39.4/13.8kV: (TR 1 & 2) Westinghouse Vintage 1955 rated 41.66 MVA transformers.
  - TR 1 & 2 do not have arresters on the 40 kV or 13kV windings
  - Several small oil leaks and nitrogen leaks on TR1 and TR2
  - No oil containment on any of the transformers
  - Bus A, Phase A and B exit cable switches are hot on TR1
- 5 – 40kV: (CBs 41, 42, 43, 44, & 47) & 2 - 138kV: (CBs 105 & 106) are oil type breakers.
  - 2-138kV: (CBs 105 & 106) 1970s vintage FK & ALP oil breakers.
  - 5-40kV: (CBs 41, 42, 43, 44, & 47) 1960s & 1970s vintage GE & Westinghouse oil breakers.
  - 1-40kV: CB-42 has 14 Fault Operations (Manufacture recommended: 10)
- 1 – 40kV: (CB 45) is a SF6 type breaker has limited spare part availability, and poor historical reliability
- 1 – 40kV: CS-Bank 3 is an SF6 2030-69 model circuit switcher, which has been identified as needing replacement due lack of to spare part availability, historical reliability, and lack of vendor support.
- The 40kV system is an obsolete voltage class and as a result is difficult to obtain replacement parts.



**Need Number:** AEP-2023-OH004

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025

**Previously Presented:** Solution Meeting SRRTEP-W - 10/18/2024**,** Need Meeting 1/20/2023

**Project Driver:**

Equipment Condition/Performance, Operational Flexibility and Efficiency, & Customer Service

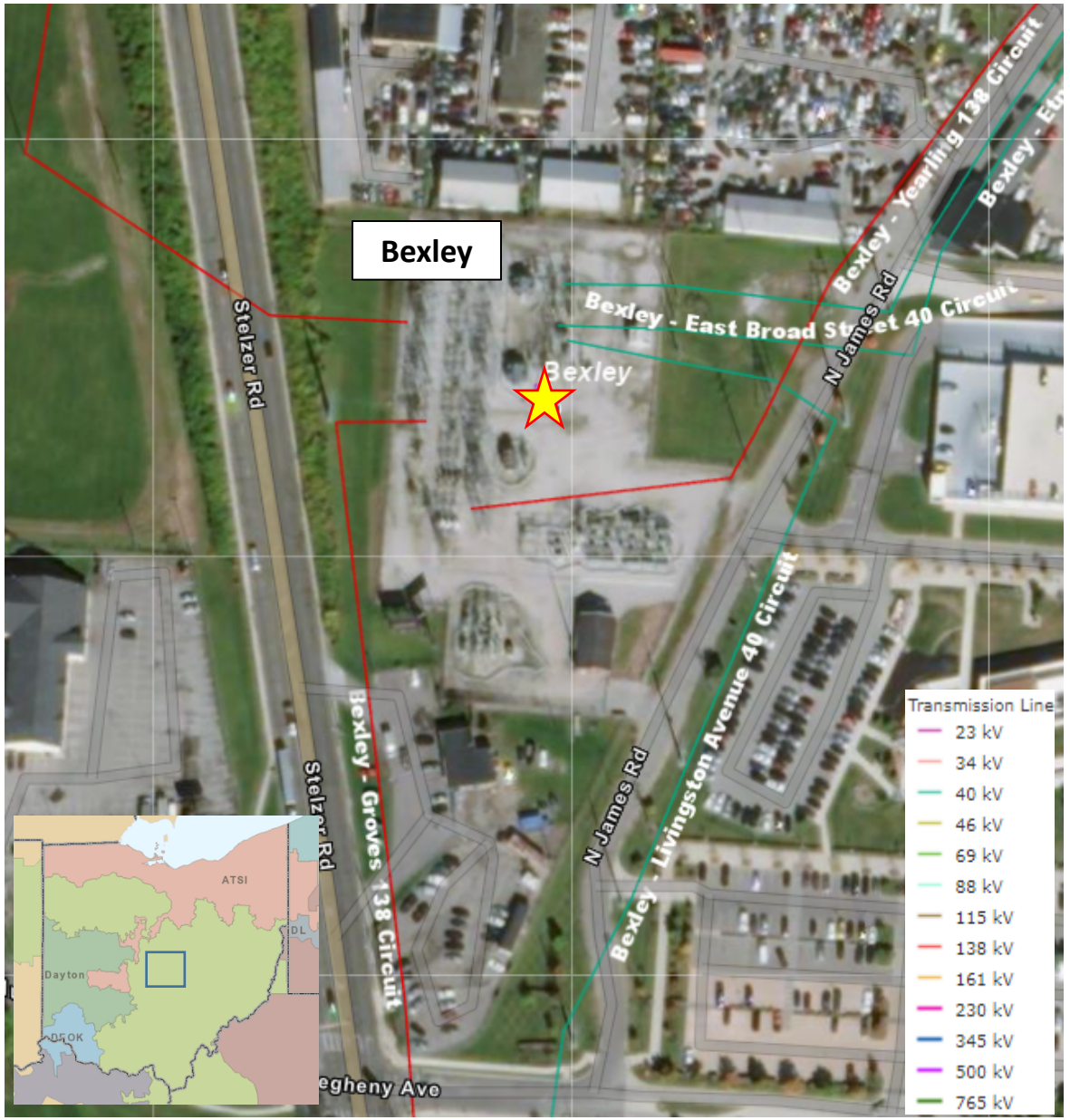
**Specific Assumption Reference:**

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

**Problem Statement:**

Bexley Station 138kV:

- 30 – Microprocessor relays: The identified relays are obsolete, no longer supported, or have been identified as high risk of failures.
- 124 – Electromechanical relays: EM relays have limited spare part availability, a lack vendor support, no SCADA functionality, and no fault data collection ability.
- 1 – Static relay: this type of relay has significant limitations with regard to fault data collection and retention.
- The station has experienced 6 outages between 2017 – 2022 with a CMI of 2,595,064.



**Need Number:** AEP-2023-OH004

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025

**Proposed Solution:**

**Bexley Station Work:** At Bexley, work will be performed to address asset renewal concerns associated with the site and transmission equipment including work to allow for the retirement of the existing 40 kV yard at the station. This includes replacing 138 kV circuit breaker '106' with a 138 kV 63 kA 3000 A circuit breaker. Note that 138 kV breaker '105' that was identified in the original need statement failed in the field and has been subsequently replaced. Estimated Cost: $4.423 M **(s3577.1)**

**Bexley Station 40 kV Bypass:** Transmission line work will be completed outside Bexley to allow 40 kV circuits to bypass the station to accommodate the retirement of the 40 kV yard. Estimated Cost: $2.192 M **(s3577.2)**

**Etna Road Station 40 kV Bypass:** Transmission line work will be completed to allow 40 kV circuits to bypass Etna Road station to accommodate the 40 kV equipment retirement at Etna Road. Poth station (s2639) replaced the distribution function of Etna Road. The proposed work will disconnect the station from the 40 kV transmission grid and retire the remaining equipment in the station. Estimated Cost: $0.618 M **(s3577.3)**

**Transmission Cost Estimate:** $7.233 M

**Alternatives Considered:**

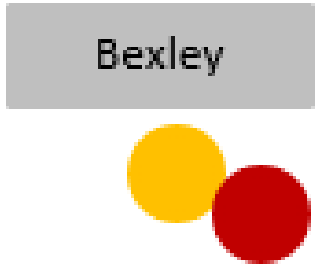
Considering the needs can be addressed by retirement only with other capacity already installed at other locations to replace the obsolete 40 kV equipment, no other alternatives were identified. Replacing the 40 kV equipment would not be practical or necessary.

**Supplemental Project ID**: s3577.1-.3

**Projected In-Service:** 09/30/2026

**Project Status:** Scoping

## Existing:




## Proposed:


# AEP Transmission Zone M-3 Process
# Scioto County, Ohio

**Need Number:** AEP-2022-OH068
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025

**Previously Presented:** Solutions Meeting SRRTEP-W - 10/18/2024, Need Meeting 09/16/2022

**Project Driver:**

Equipment Material/Condition/Performance/Risk

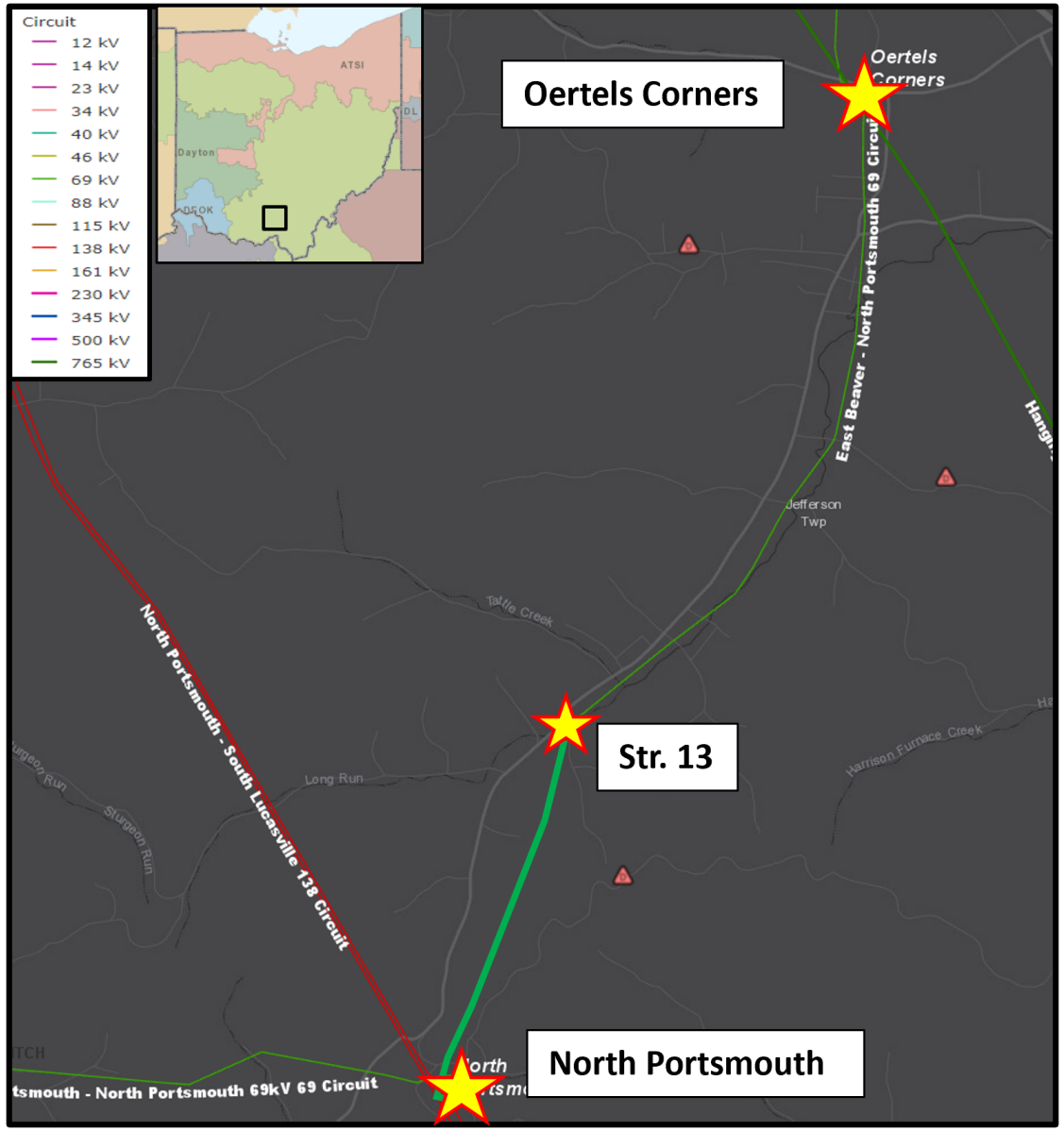
**Specific Assumption Reference:**

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

**Problem Statement:**

<u>Oertels – North Portsmouth 69 kV:</u>

- Original Install: 1947
- Total Length: ~4.7 Miles
- Conductor Types:
  - ~3.05 miles of 1/0 ACSR 6/1 (Raven) from 1947
  - ~1.65 miles of 3/0 ACSR 6/1 (Pigeon) from 1947
- Outage History:
  - 13 momentary & 10 permanent outages
  - Total CMI of 4,619,162
- Total Structure Count: 80 Wooden
  - 32 from 1940's, 7 from 1960s, 1 from 1970's 32 from 1980's 4 from 1990's 4 from 2010s
- Open Conditions: There are 36 structures with at least one open condition which relates to 45% of the structures on this line. There are 41 structure related open conditions dealing with broken and split crossarms, burnt crossarm, rot on crossarms, woodpecker holes, and rot top on poles. 3 hardware related open conditions dealing with missing ground lead wires & broken or burnt insulators. 9 forestry related open conditions.
- Additional Information: 3.1 miles of the line is already being rebuilt under b3362.



# AEP Transmission Zone M-3 Process
# Scioto County, Ohio

**Need Number:** AEP-2022-OH068
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025

**Proposed Solution:**

**North Portsmouth-Oertels Corner 69 kV Line:** Rebuild ~1.7 miles of 69 kV line from North Portsmouth to str. 13 on the North Portsmouth-Oertels Corner 69 kV lie using ACSR 556 Dove. The remaining ~3.05 miles of the line is to be rebuilt under b3362. Estimated Cost: $3.873 M **(s3589.1)**

**Transmission Cost Estimate:** $3.873 M

**Alternatives Considered:**

No viable transmission alternative identified given the nature of the remaining needs left on the asset after the proposed baseline rebuild (b3362).

**Supplemental Project ID**: s3589.1

**Projected In-Service:** 05/01/2026

**Project Status:** Scoping

**Existing:**



**Proposed:**

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

**Need Number:** AEP-2023-OH070
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025

**Previously Presented:** Solutions Meeting SRRTEP-W - 10/18/2024, Need Meeting 5/19/2023

**Project Driver:** Customer Service

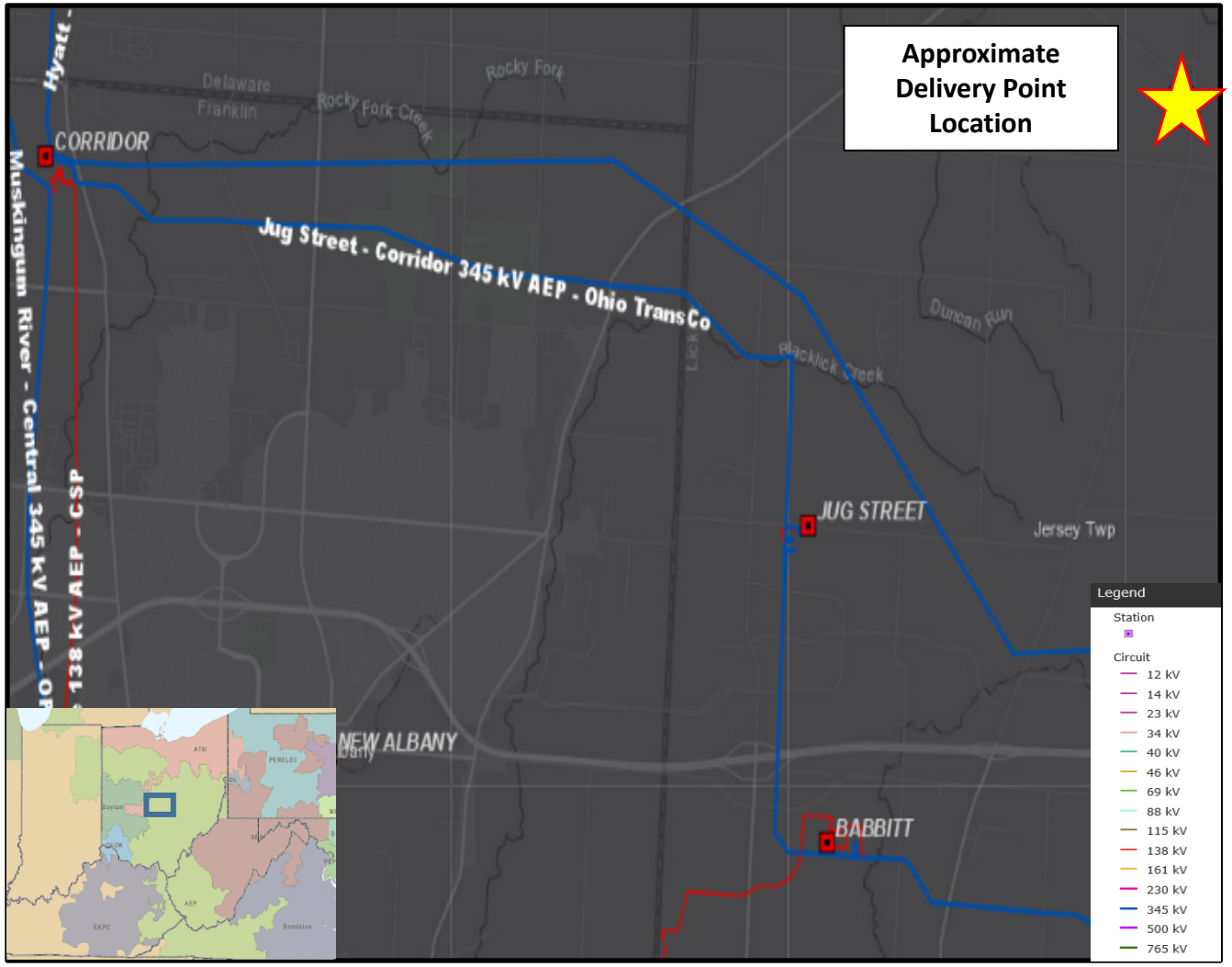
**Specific Assumption Reference:**

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

**Problem Statement:**

Customer Service:

- Buckeye Power, Inc. (Buckeye), on behalf of The Energy Cooperative (Licking REC) has requested a new 138 kV delivery point in New Albany Ohio.
- The projected demand at this delivery point is 24 MW in 2025 with an expected ultimate load of 43 MW by 2033.
- The customer has requested an ISD of June 2025



**Need Number:** AEP-2023-OH070
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025

**Proposed Solution:**

**Kiber Station 138 kV:** Install 4 - 90kA 4000A 138 kV circuit breakers at the proposed Kiber station (s3442.17) to accommodate the 138 kV line extensions to LRE's Groves Corner station.. Estimated Cost: $11.5 M **(s3590.1)**

**Groves Corner Station (LRE):** Install 12 kV customer metering.. Estimated Cost: $0.097 M **(s3590.2)**

**Kiber - Groves Corner 138 kV Line:** Construct a ~2.0-mile 138kV double circuit transmission line utilizing 2-bundled ACSS 1033.5 MCM Curlew conductor SE rating (561 MVA) between Kiber and Licking REC's greenfield delivery point Groves Corner.. Estimated Cost: $20.691 M **(s3590.3)**

**Transmission Cost Estimate:** $32.288 M

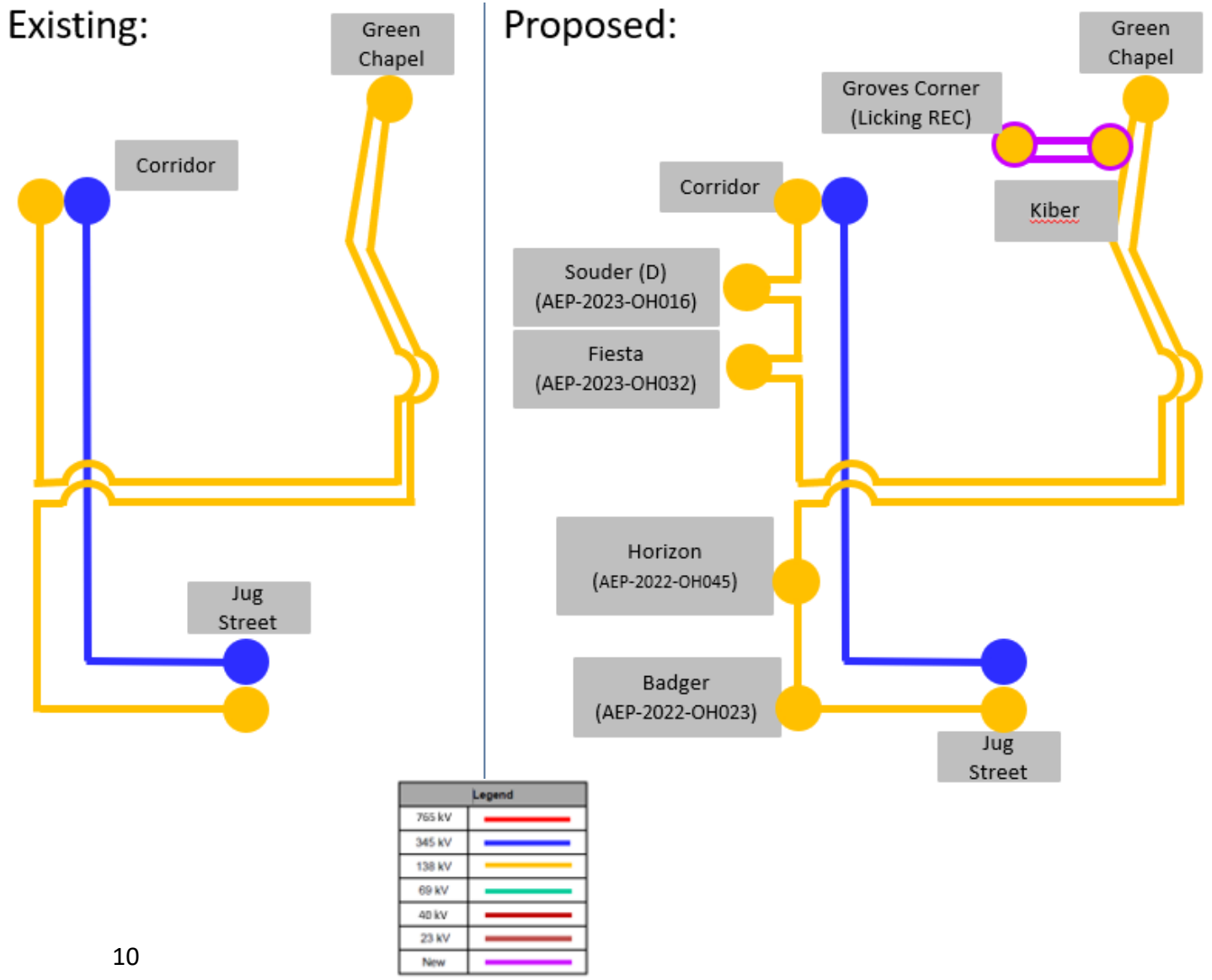
**Alternatives Considered:**

Consideration was given to serving the site out of the proposed Green Chapel station (s2857), but lack of physical space available at the station made the alternative infeasible.

**Supplemental Project ID**: s3590.1-.3

**Projected In-Service:** 01/02/2026

**Project Status:** Engineering

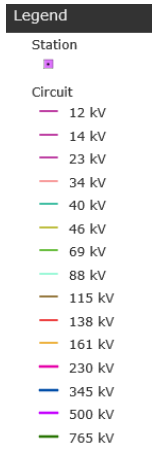


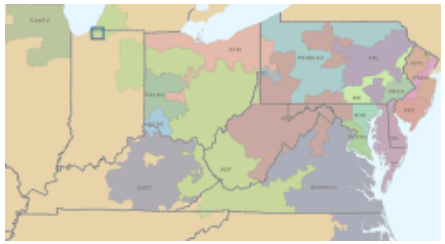
# AEP Transmission Zone M-3 Process Project Amazing Sites 100 and 201

**Need Number:** AEP-2023-IM023
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025
**Previously Presented:** Solution Meetings: 10/8/2024, 6/4/2024;
Needs Meeting 10/31/2023
**Supplemental Project Driver:** Customer Service
**Specific Assumptions Reference:** AEP Interconnection Guidelines (AEP Assumptions Slide 12)

**Problem Statement:**

- A customer has requested new service for 1100MW of load in New Carlisle, IN area. Initial service is requested by 12/15/2026.

**Need number(s):** AEP-2023-IM023
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 3/26/2025

**Proposed Solution:**
**Larrison Drive 345 kV Station:** Construct a new station in a breaker and a half configuration consisting of sixteen (16) 345kV 5000A 63kA breakers, six (6) 345kV meters, and station fiber cable to serve 550MW of new load. Construct six (6) 345kV bus ties from AEP's Larrison Drive 345kV station to the customer station. Cut in the Elderberry-Dumont and Dumont-Olive Bypass 345 kV line into the new station. Estimated Cost: $70.38 M **(s3588.1)**
**New Prairie 345 kV Station:** New station to be constructed in a breaker and a half configuration consisting of sixteen (16) 345kV 5000A 63kA breakers, six (6) 345kV meters, and station fiber cable. Construct six (6) bus ties from AEP's New Prairie 345kV station to the customer station. Cut in the Elderberry-Dumont and Dumont-Olive Bypass 345 kV line into the new station. Estimated Cost: $79.53 M **(s3588.2)**
**Sorenson Remote End Work:** Remote end work at Sorenson station to facilitate the construction of Larrision Drive and New Prairie 345kV st. Estimated Cost: $1.72 M **(s3588.3)**
**Elderberry Remote End Work:** Remote end settings work at Elderberry station to facilitate the construction of Larrision Drive and New Prairie 345kV stations. Estimated Cost: $1.72 M **(s3588.4)**
**Dumont Remote End Work:** Remote end work at Dumont station to facilitate the construction of Larrision Drive and New Prairie 345kV stations. Estimated Cost: $1.72 M **(s3588.5)**
**Kenzie Creek-Thomson 345 kV Sag Study:** Complete sag study and mitigation on the Kenzie Creek-Thomson 345 kV line. Estimated Cost: $0.62 M **(s3588.6)**
**Olive 345kV Station:** Replace overdutied 345kV circuit breakers B, B1, B2, D1, and D2. Bring in the Olive Bypass (Dumont - Sorenson 345kV circuit) and install 3 new 345kV circuit breakers for new 'C' string. Estimated Cost: $29.287 M **(s3588.7)**

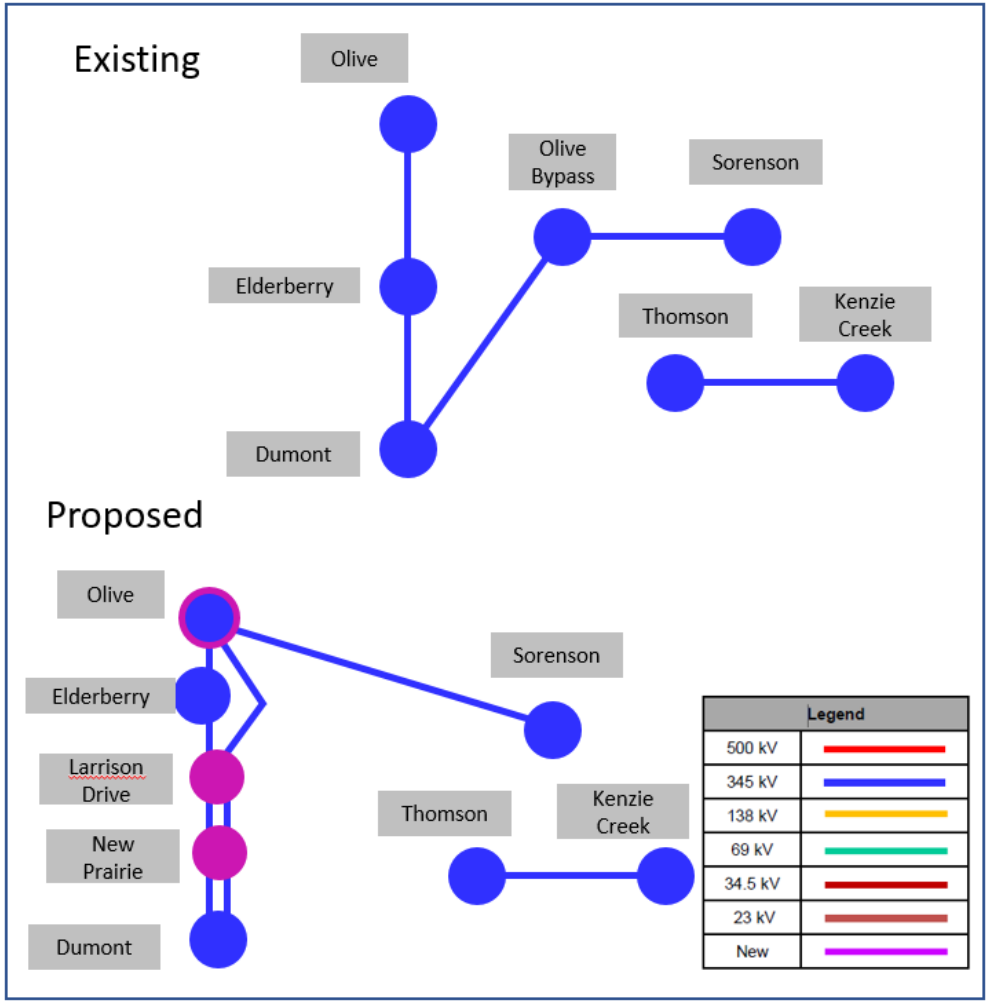
**Transmission Cost Estimate:** $184.977M

**Alternatives Considered:** Considering the location of the requested load and availability of land on the customer sites, no other alternatives were viable.

**Supplemental Project ID**: s3588.1-.7

**Projected In-Service:** 12/15/2026

**Project Status:** Scoping



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

**Need Number:** AEP-2024-OH033

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025

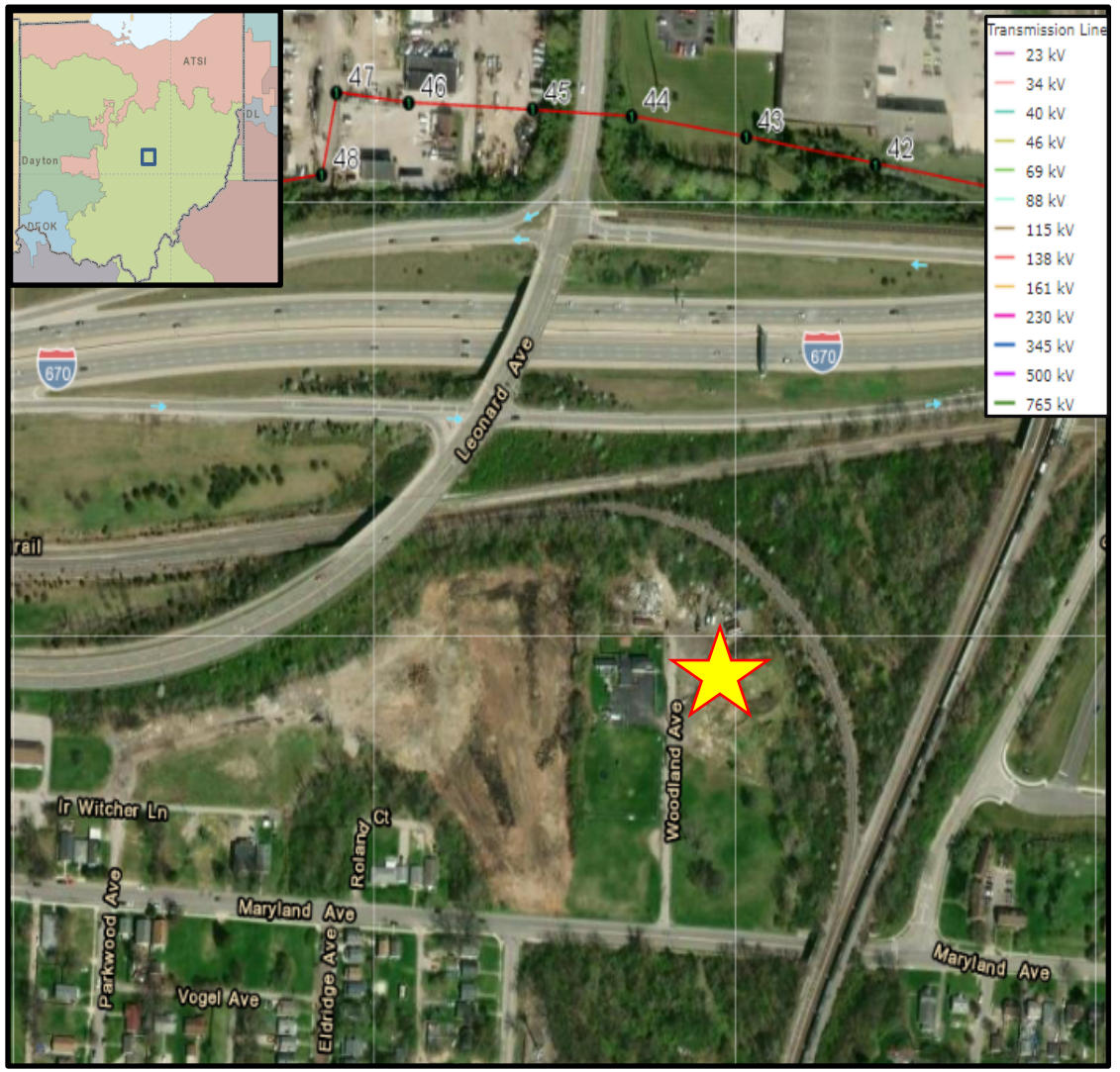
**Previously Presented**: Solution Meeting SRRTEP-W - 11/15/2024; Need Meeting 04/19/2024

**Project Driver:** Customer Service

**Specific Assumption Reference:** AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 12)

**Problem Statement:**

- AEP Ohio is requesting a new 138 kV delivery point in Franklin County Ohio, just southeast of St. Clair and west of Bexley Station to support growth in the area. Initial load is anticipated to be approximately 18 MVA with a future projected load of approximately 23 MVA.
- The requested in-service date is November 2026.



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

**Need Number:** AEP-2024-OH033

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025

**Proposed Solution:**

**Drew Station Transmission Line Cut in and Extension work.:** A greenfield double circuit 138kV T-line (~0.2 miles) will be constructed from the existing Bexley - St. Clair Ave 138 kV line cut in the new distribution delivery at the proposed Drew station. Estimated Cost: $5.302 M. (s3593.1)

**Drew Station:** To accommodate the new distribution deliveries requested a new 138/13.8 kV station called Drew will be constructed. The station will be configured as a four breaker ring utilizing 138 kV 3000A 63 kA breakers to provide service to two new 138/13.8 kV distribution transformers. Estimated Cost: $4.746 M. (s3593.2)

**Relay Upgrades at Bexley and St. Clair Avenue:** Remote end work will be performed at Bexley and St. Clair Ave stations in or to coordinate with the newly proposed Drew station. Estimated Cost: $0.746 M. (s3593.3)

**Transmission Cost Estimate:** $10.793 M

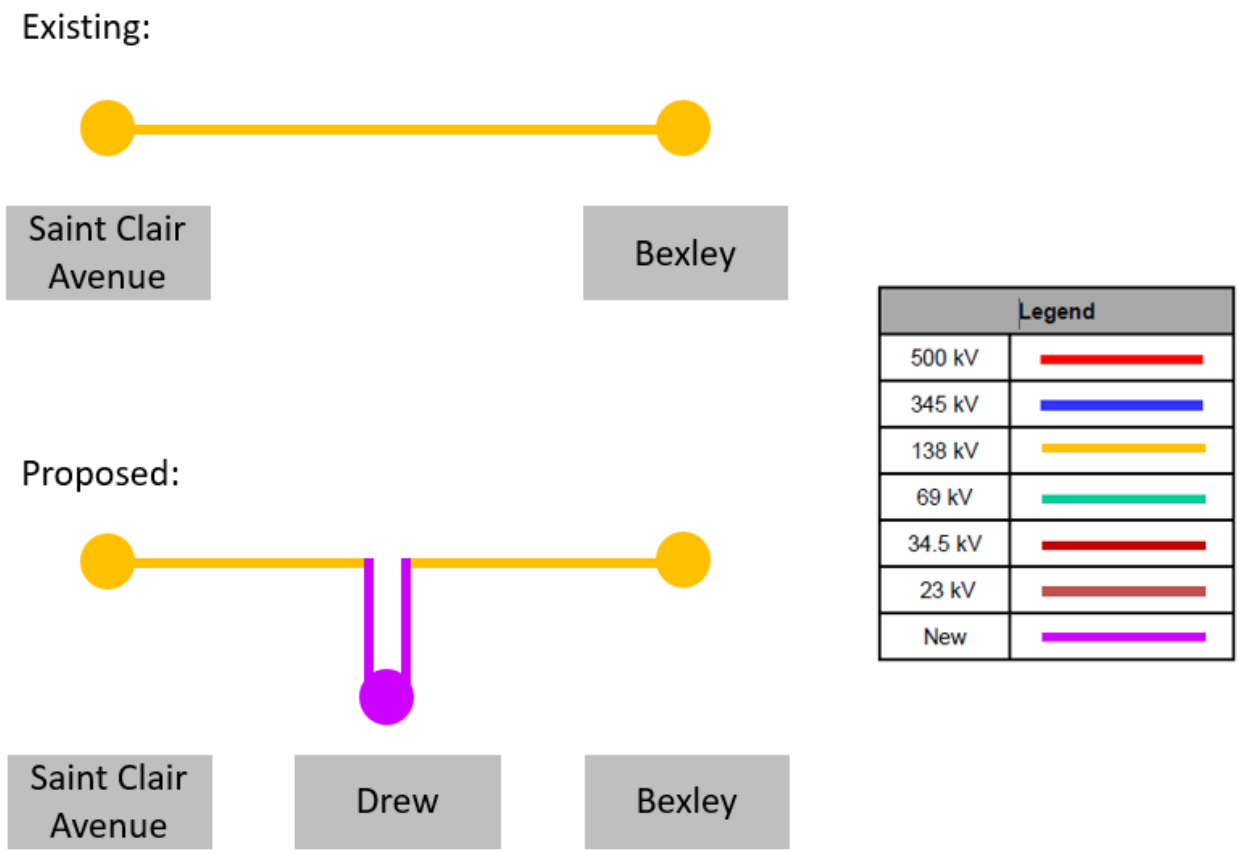
**Alternatives Considered:**

• Transfers to other area distribution feeders and stations (St. Clair & Bexley ) were considered, but capacity on these feeders is already very limited. This would only buy a year or two before overloading would again be an issue and would eliminate contingency transfer options. Reliability on the existing distribution feeder is poor and an ongoing issue with high profile customers.
• Constructing a new distribution feeder out of Bexley was considered, but a new duct and manhole system would have to be utilized for the entire length. This new feeder was estimated to cost around $10M. Additionally, this would not address the lack of contingency transferability between feeders in the area.

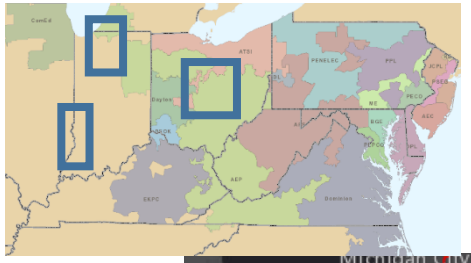
**Supplemental Project ID**: s3593.1-.3

**Projected In-Service:** 11/30/2026

**Project Status:** Scoping



# AEP Transmission Zone M-3 Process
# Western Indiana and Central Ohio



**Need Number:** AEP-2023-IM015

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025

**Previously Presented**: Solutions Meeting 12/03/2024; Needs Meeting 5/9/2023

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

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

**Problem Statement:**

**Paper Expanded/Air Expanded (PE/AE) Lines in AEP**

- The specific conductors of concern are as follows:
    - 1,275,000 CM ACSR/PE 54/19
    - 1,414,000 CM ACSR/AE 62/19
    - 1,414,000 CM ACSR/PE 62/19 (Falbo)
    - 1,708,000 CM ACSR/AE 66/19
    - 1.75 ACSR AE
- There are approximately 570 miles of PE/AE lines throughout AEP's 345kV footprint. Many of the PE/AE lines are built on double circuit towers making the conductor miles approximately 1,114 miles on the AEP system
- The Centre for Energy Advancement through Technological Innovation (CEATI) Report No. T144700-3257: Statistical Data and Methodology for Estimating the Expected Life of Transmission Line Components provides a timeframe of anticipated useful life of the various transmission line equipment as guided by industry experience. The CEATI estimated expected life of conductor is 40-80 years. AEP focuses on evaluating the condition and performance of each asset and the risk that the failure of each poses to the system, connected customers, personnel, and the public.
- The PE/AE conductor types are no longer standard conductor types used by AEP and the general utility industry.
    - Vendors do not have this conductor type readily available for purchase. This conductor type requires specialized splices and assemblies, which are not readily available for purchase from vendors. Special orders are required to obtain this equipment, causing long lead times for materials.
- AEP has concerns of increased core corrosion on the PE/AE conductor fleet. These concerns are based on the review of conductor samples following recovery events.

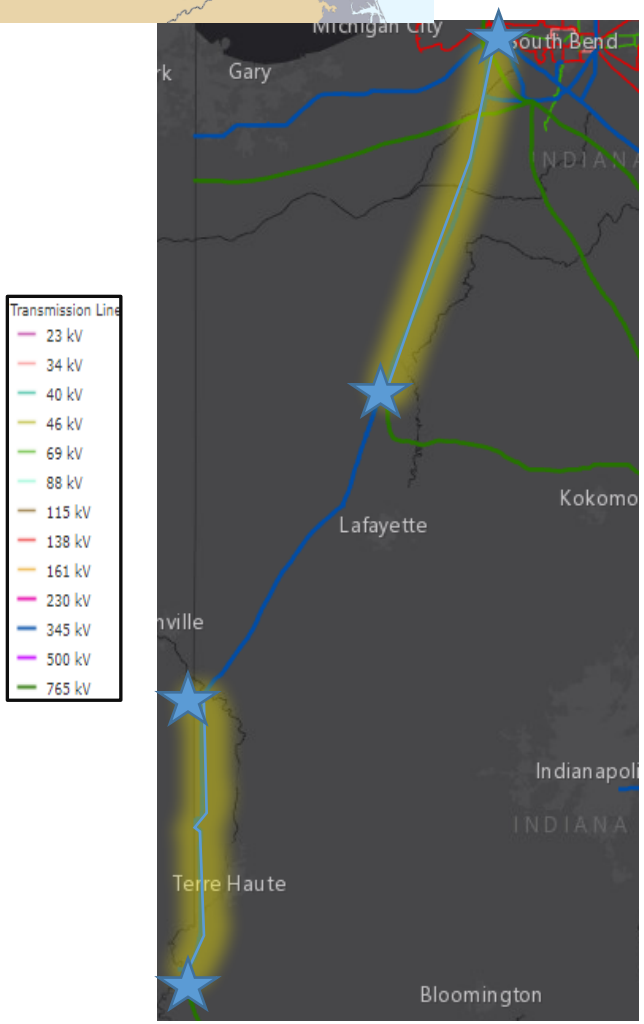



Figure 1: Western Indiana

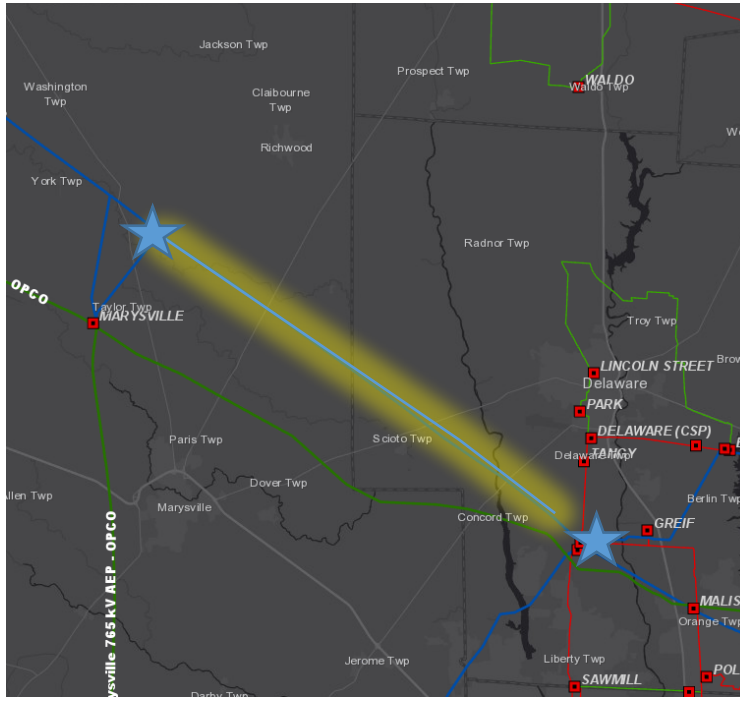
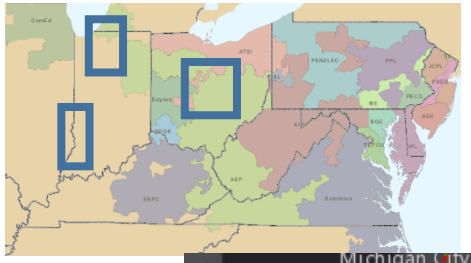



Figure 2: Central Ohio

# AEP Transmission Zone M-3 Process
# Western Indiana and Central Ohio



**Need Number:** AEP-2023-IM015

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025

**Previously Presented**: Solutions Meeting 12/03/2024; Needs Meeting 5/9/2023

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

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

**Problem Statement:**

**Paper Expanded/Air Expanded (PE/AE) Lines in AEP**

- Corrosion related conditions are an indicator of the elevated risk of conductor or equipment failure.
- The degraded state of corroded conductor cores result in significant loss of tensile strength and potential risk to the public if the conductor were to fail and fall to the ground. This can also lead to unplanned outages on the 345kV circuits.
- Due to the lack of conductor availability, standard conductor is spliced in when needed. Each conductor type has different weights, which can affect ratings and structure overloads. When the weight of the wire is increased, the existing structures can be overloaded.
- AEP anticipates a timeline of over 20 years to address the imminent needs of the 570 line miles of 345kV. This timeline was created assuming best scenario and could be impacted if there are any ROW concerns, material acquisition concerns or operational limitations. Limitations of 345kV outages in the summers are expected
    - If AEP addresses 2 of these lines at a time this could impact 4x 345kV circuits. Taking several outages on the 345kV system at once could have operational challenges
- In order to address these needs within the next 20+ years, AEP needs to begin planning solutions for PE/AE lines today
- Even though the conductor needs to be evaluated for each line, it is possible that we will be able to use existing structures where feasible. Each of these circuits will need to be evaluated individually and recommended solutions will be shared with stakeholders in accordance with M-3 provisions

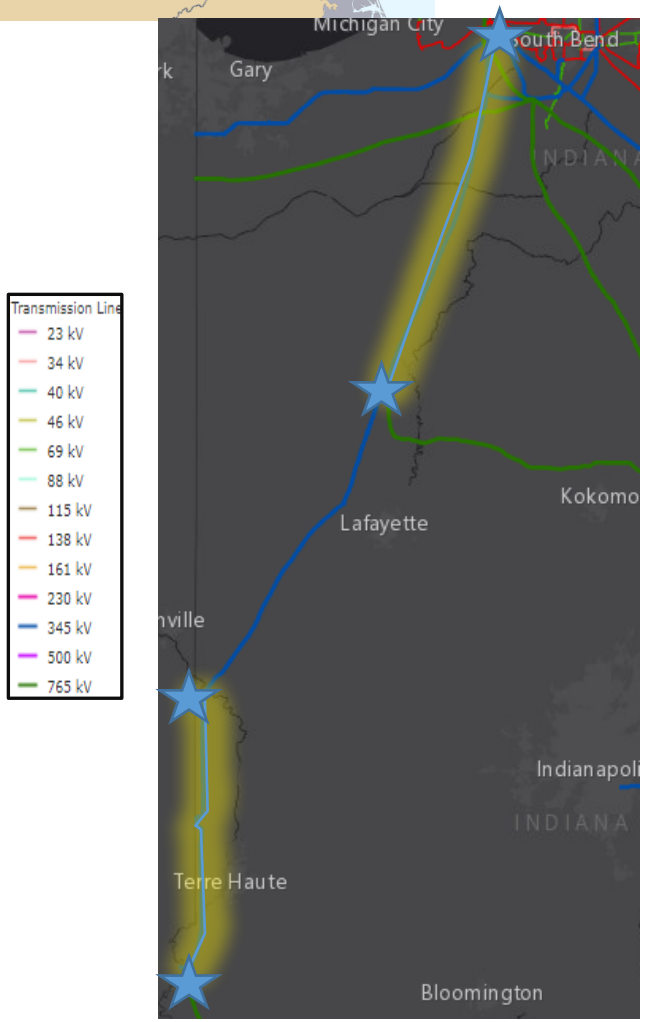



Figure 1: Western Indiana

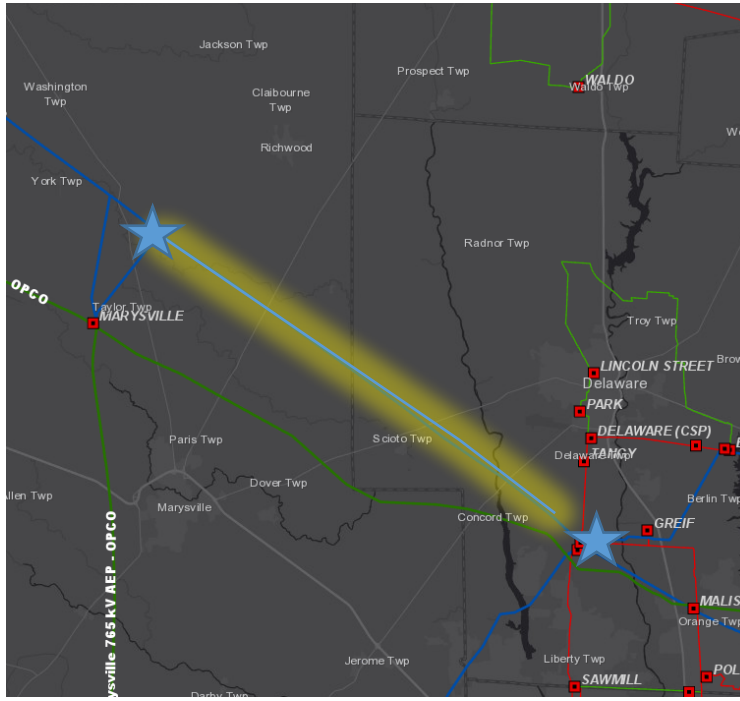
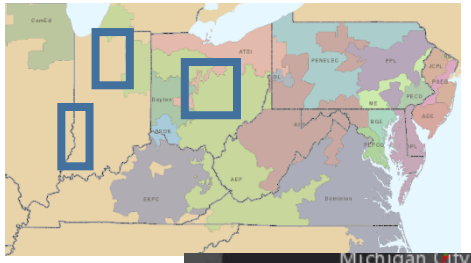



Figure 2: Central Ohio

Paper Expanded conductor samples were observed following the 2019 Memorial Day Tornados in the Indiana and Michigan footprint. Corrosion of the cores can be seen in the pictures below.

# AEP Transmission Zone M-3 Process
# Western Indiana and Central Ohio



**Need Number:** AEP-2023-IM015

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025

**Previously Presented**: Solutions Meeting 12/03/2024; Needs Meeting 5/9/2023

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

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

**Problem Statement:**

**Paper Expanded/Air Expanded (PE/AE) Lines in AEP**

<u>Olive Reynolds 345kV Line Need</u>

- Majority of the 68.1 miles long (299/306 structures) is constructed from 1957 double circuit steel lattice towers
- On the Olive-Reynolds #1 and #2 Circuits:
    - 135 miles of the 136 miles of conductor is 1,414,000 CM ACSR/PE Conductor
- There were at least 30 structures throughout the line that were assessed Every assessed structure was showing signs of corrosion. Several of the assessed structures were showing hardware needs such as a bent conductor damper rubbing on the wire and flashed or broken insulators.
- Currently, there are 168 structures with at least one open condition (excluding forestry concerns), which relates to 55% of the structures on the line segment. These open conditions include, but are not limited to the following:
    - Galvanizing loss, loose, or missing lacing, broken conductor or shield wire strands, broken or loose conductor hardware, broken burnt or chipped insulators, damaged insulator assembly hardware, and broken shield sire hardware.

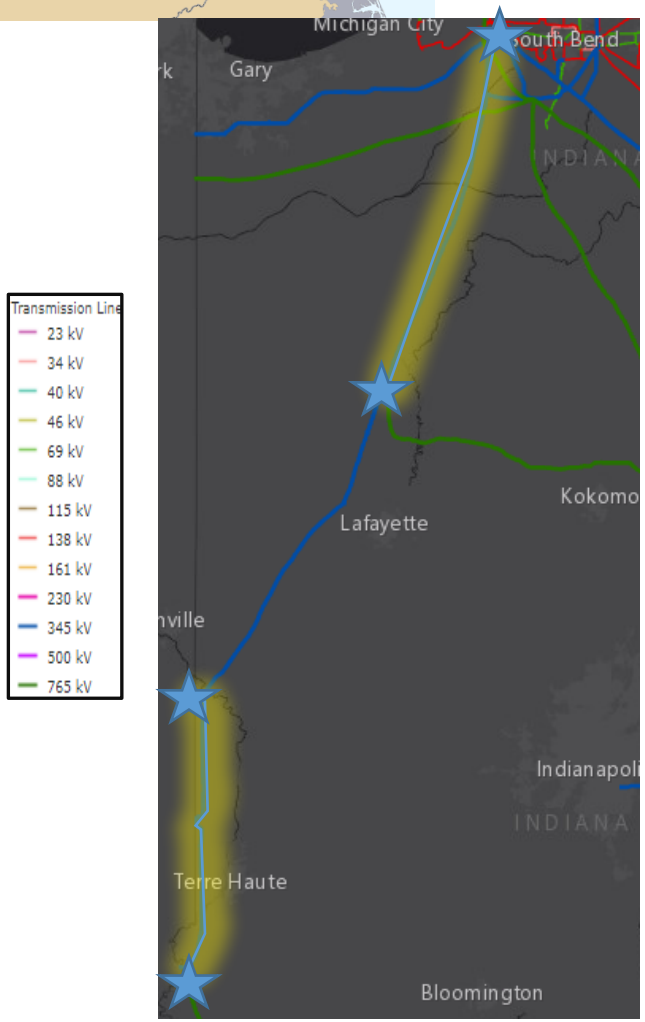



Figure 1: Western Indiana

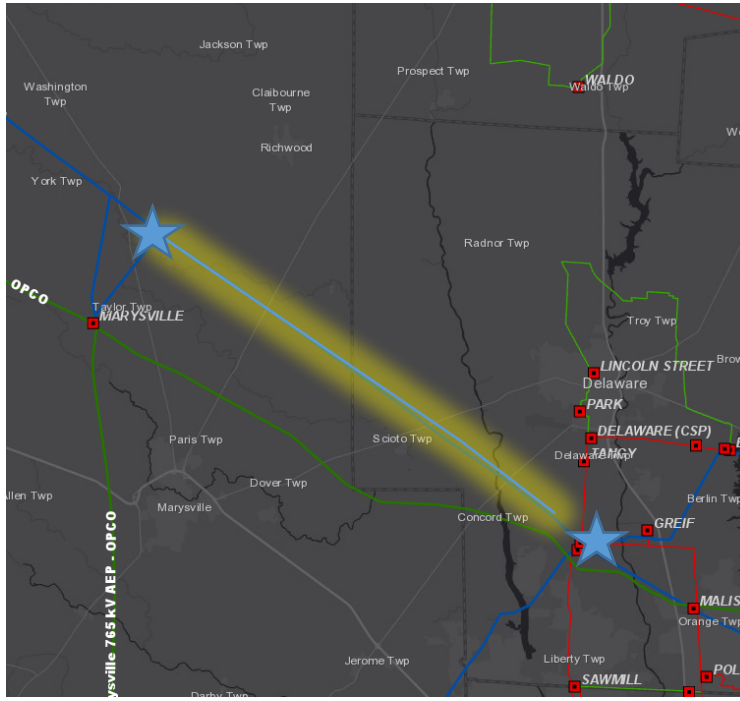



Figure 2: Central Ohio

# AEP Transmission Zone M-3 Process
# Western Indiana and Central Ohio

**Need Number:** AEP-2023-IM015

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025

**Proposed Solution:**

**Olive - Reynolds 345kV:** Rebuild ~68.1 miles of double circuit 345kV on centerline. Costs include transmission line removal, OPGW, and Right of Way. Estimated Cost: $452.64. (s3594.1)

**Transmission Cost Estimate**: $452.64 M

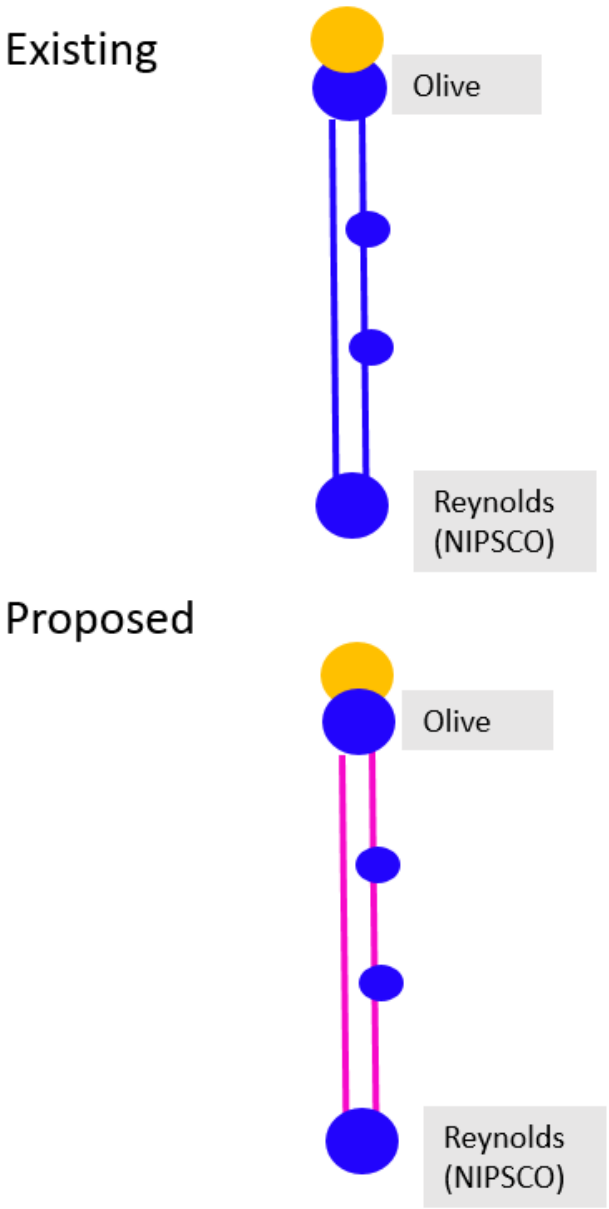
**Alternatives Considered**:

Due to the large amount of IPP connections on both sides of the circuit (~28x projects in queue) on this line, no alternative to retire the Olive-Reynolds 345kV double circuit is a viable option.

Alternate to reconductor the 68.1 miles of 345kV line was considered. Due to tower conditions noted in needs slide, this alternate was not selected.

**Supplemental Project ID**: s3594.1

**Projected In-Service**: 05/30/2031



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

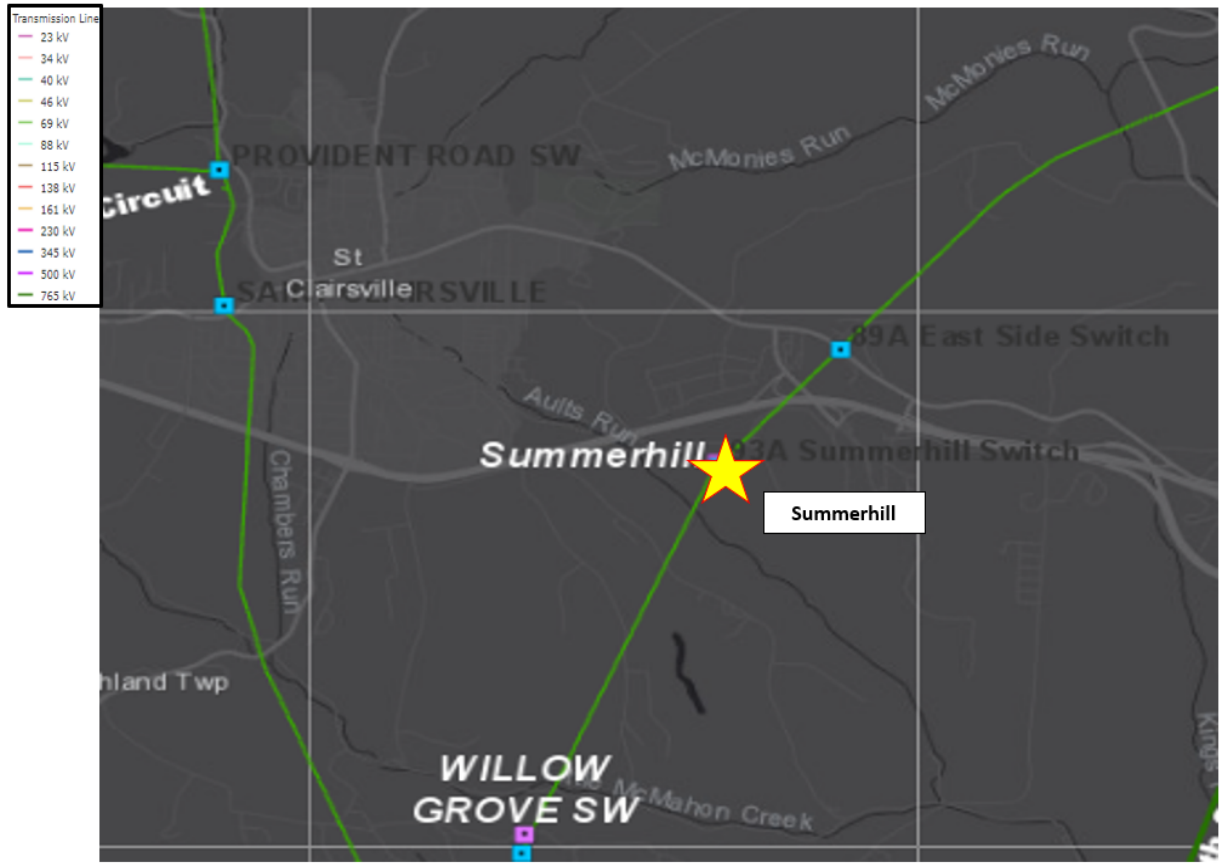
**Need Number:** AEP-2024-OH015
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025
**Previous Meetings:** Solution Meeting SRRTEP-W - 12/13/2024; Need Meeting SRRTEP-W - 10/18/2024
**Supplemental Project Driver:** Equipment Condition/Performance/Risk
**Specific 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:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025

**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. (s3596.1)

**Transmission Cost Estimate:** $2.03 M

**Alternatives Considered:**

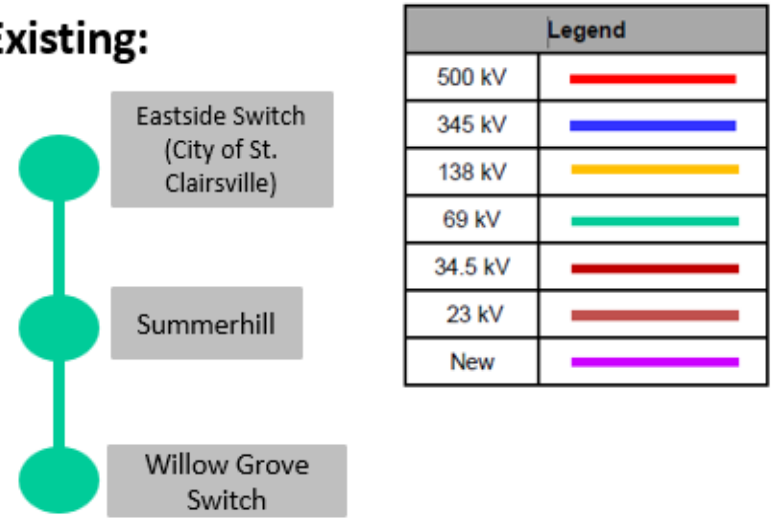
Install a 69kV box bay structure with switches inside the station fence. (~$4.5 Million). This would have required relocating most of the distribution equipment at the station and expanding the fence, which is not necessary at this time.

**Supplemental Project ID**: s3596.1

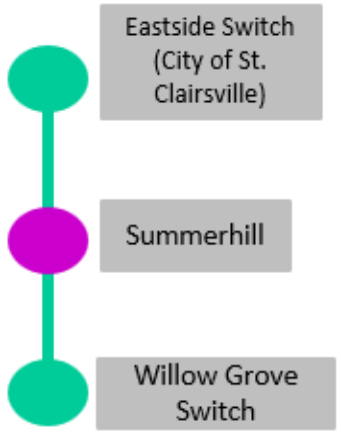
**Projected In-Service:** 02/01/2027

**Project Status:** Scoping

**Existing:**




**Proposed:**



# AEP Transmission Zone M-3 Process
# Fort Wayne, IN

**Need Number:** AEP-2023-IM018

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025

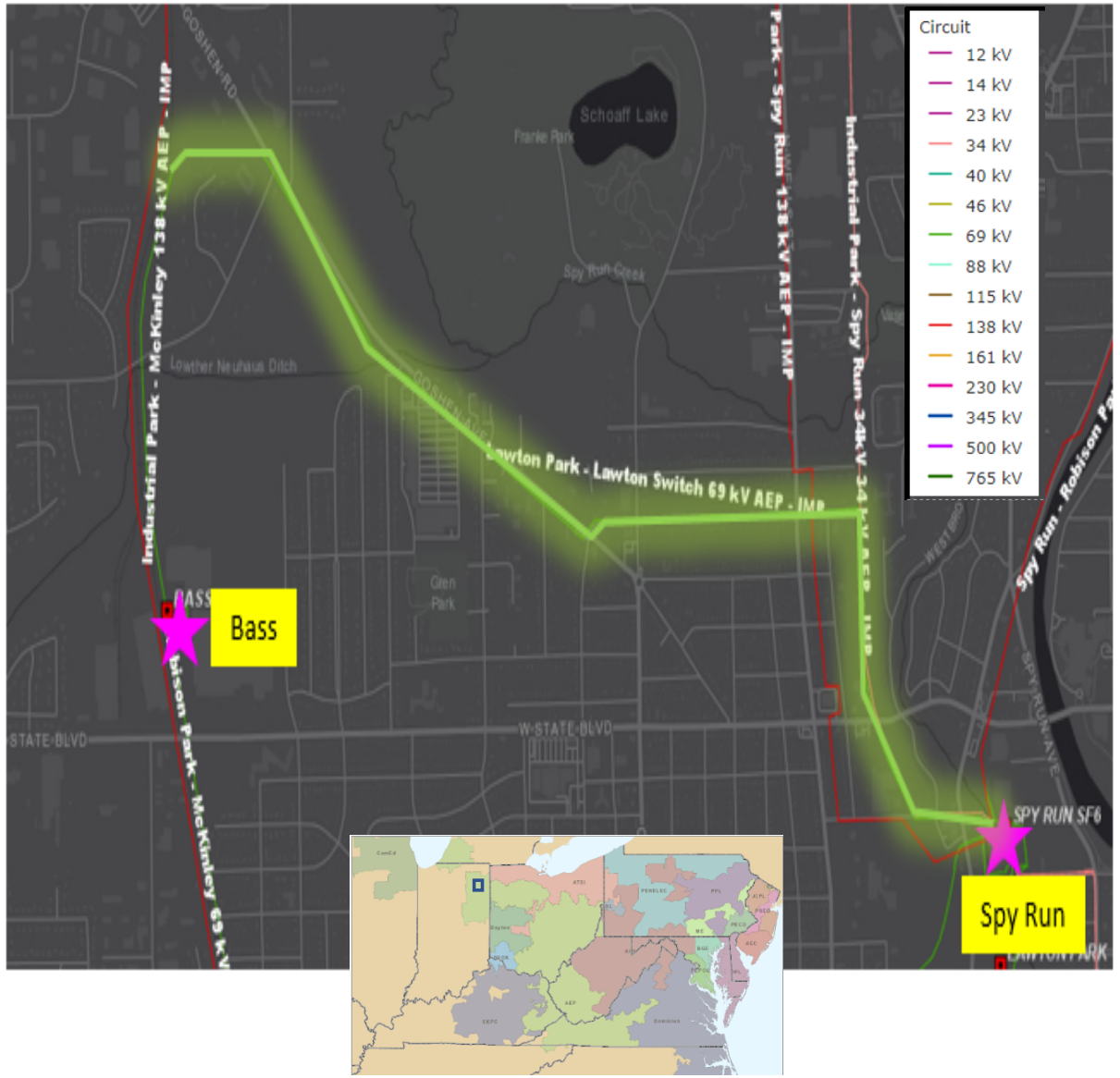
**Previously Presented**: Solution Meeting SRRTEP-W - 1/17/2025; Need Meeting 07/21/2023

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

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

**Problem Statement:**
**Lawton Park-Lawton Switch:**

- Lawton Park- Lawton Switch 34.5kV line is 2.59 miles long that was originally installed in 1956 and mostly consists of single wood poles
- Structures fail to meet NESC Grade B and AEP structural strength requirements
- The grounding method utilizes butt wraps on every other structure, which is inadequate for current AEP Standards.
- The shield angle on a typical tangent structure is measured at 45 degrees, which is inadequate for current AEP shield angle requirements and can lead to poor lightening performance
- There are 63 structures with that have at least one (1) open condition (82% of line). These conditions specifically affecting the pole include woodpecker damage, insect damage, split, cracked, damaged, rot heart, broken, leaning transverse and rot shell conditions
- Out of 32 structures assessed (22 by aerial drone and 10 by ground crew), the following conditions were found:
    - Greater than 50% of wood poles assessed have moderate to advanced decay of the shell or ground line heart
    - Most poles have decayed tops, crossarms have light to moderate decay, crossarm braces have advanced decay and insect damage



**Need Number:** AEP-2023-IM018

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/7/2025

**Proposed Solution:**

**Spy Run - Bass 34.5kV line:** Rebuild ~2.4 miles of 34.5kV line (built to 69kV line standards) between Spy Run and Bass. Costs include removal and ROW. This line rebuild is in an urban area with distribution underbuilds. Additionally, there is an existing 138kV/34.5kV line crossing with the Industrial Park-Spy Run 138kV transmission line, to accommodate the 69kV line rebuild 2x 138kV towers will need to be raised for the crossing. Estimated Cost: $6.758 M. (s3595.1)

**Transmission Cost Estimate:** $6.758 M

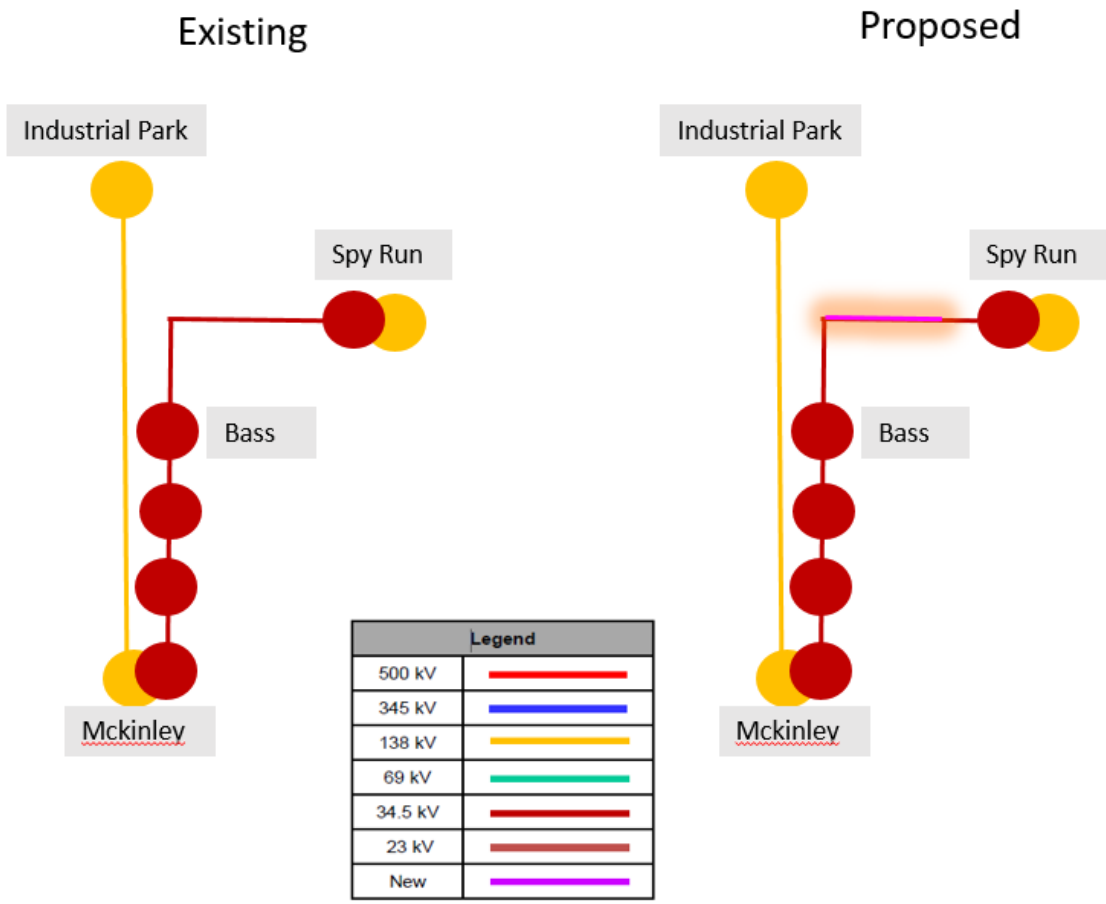
**Alternatives Considered:**

Retire the Spy Run-Bass 34.5kV lines and convert customer stations Bass and Spring St to 138kV and customer station Slater Steel to 69kV. Estimated cost: $10M

**Supplemental Project ID**: s3595.1

**Projected In-Service:** 3/17/2028

**Project Status:** Scoping



# AEP Transmission Zone M-3 Process
# Kanawha County, WV

**Need Number:** AEP-2023-AP022

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 7/1/2025

**Previously Presented**: Need Meeting 09/15/2023, Solution Meeting 03/14/2025

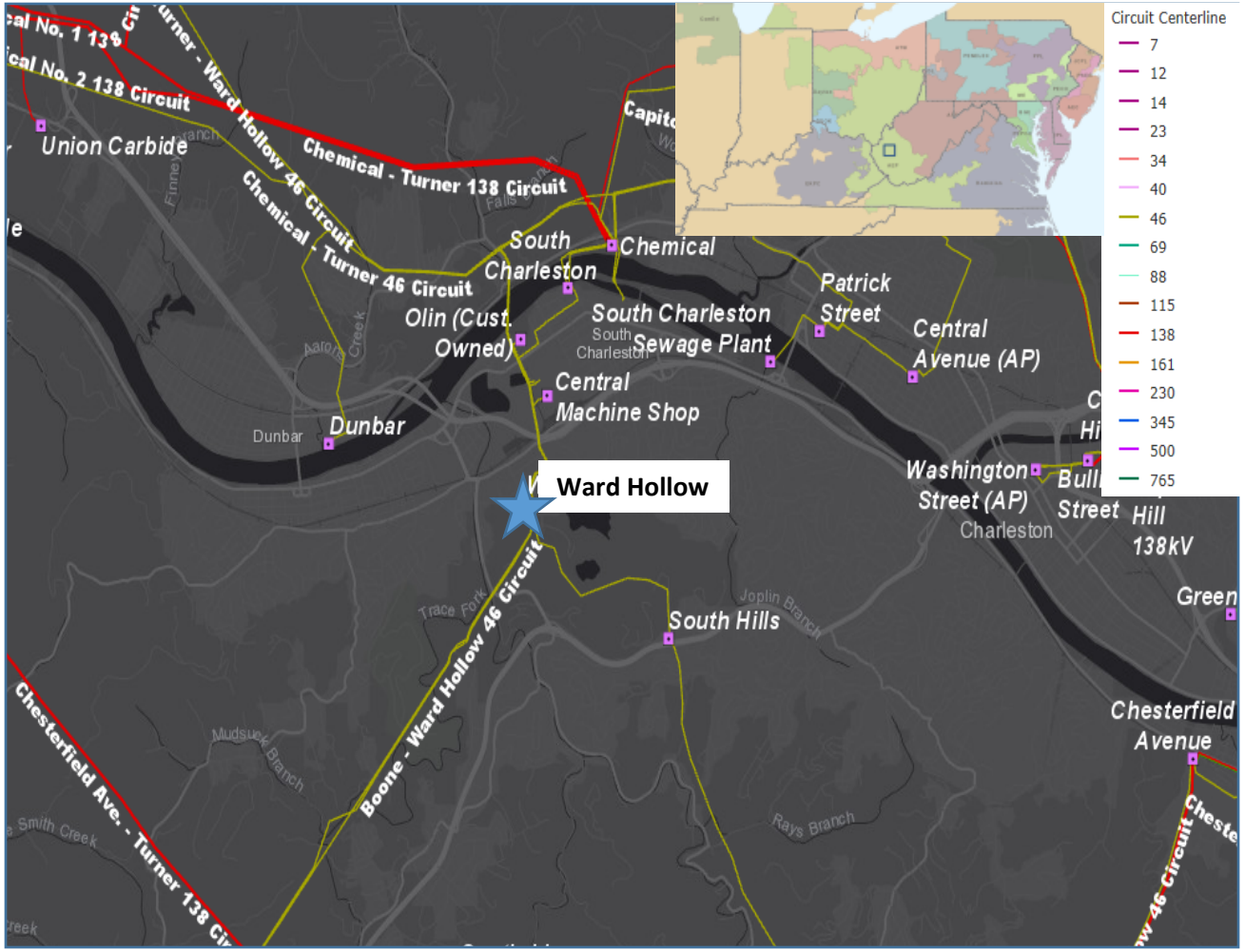
**Project Driver:** Equipment Condition/Performance/Risk

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

**Problem Statement:**

Ward Hollow 46 kV Station

- The four 46kV transmission owned circuit breakers CB-D, CB-E, CB-B, and Bus Tie C are 72PM31-20 type, SF6 filled breakers. These breakers are of 1998 vintage. Circuit breakers of this type across the AEP system have had reports of moisture ingress into the breaker tank. This moisture ingress leads to increased maintenance requirements and a higher risk of failure. These breakers have documented issues with failures to close due to burned up coils. There have been five catastrophic failures involving this model type on the AEP system. There are also 98 malfunction records related to SF6 gas leaks across the AEP fleet. SF6 leaks impact the environment.



# AEP Transmission Zone M-3 Process
# Kanawha County, WV

**Need Number:** AEP-2022-AP031
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 7/1/2025
**Previously Presented**: Need Meeting 05/19/2022, Solution Meeting 03/14/2025.

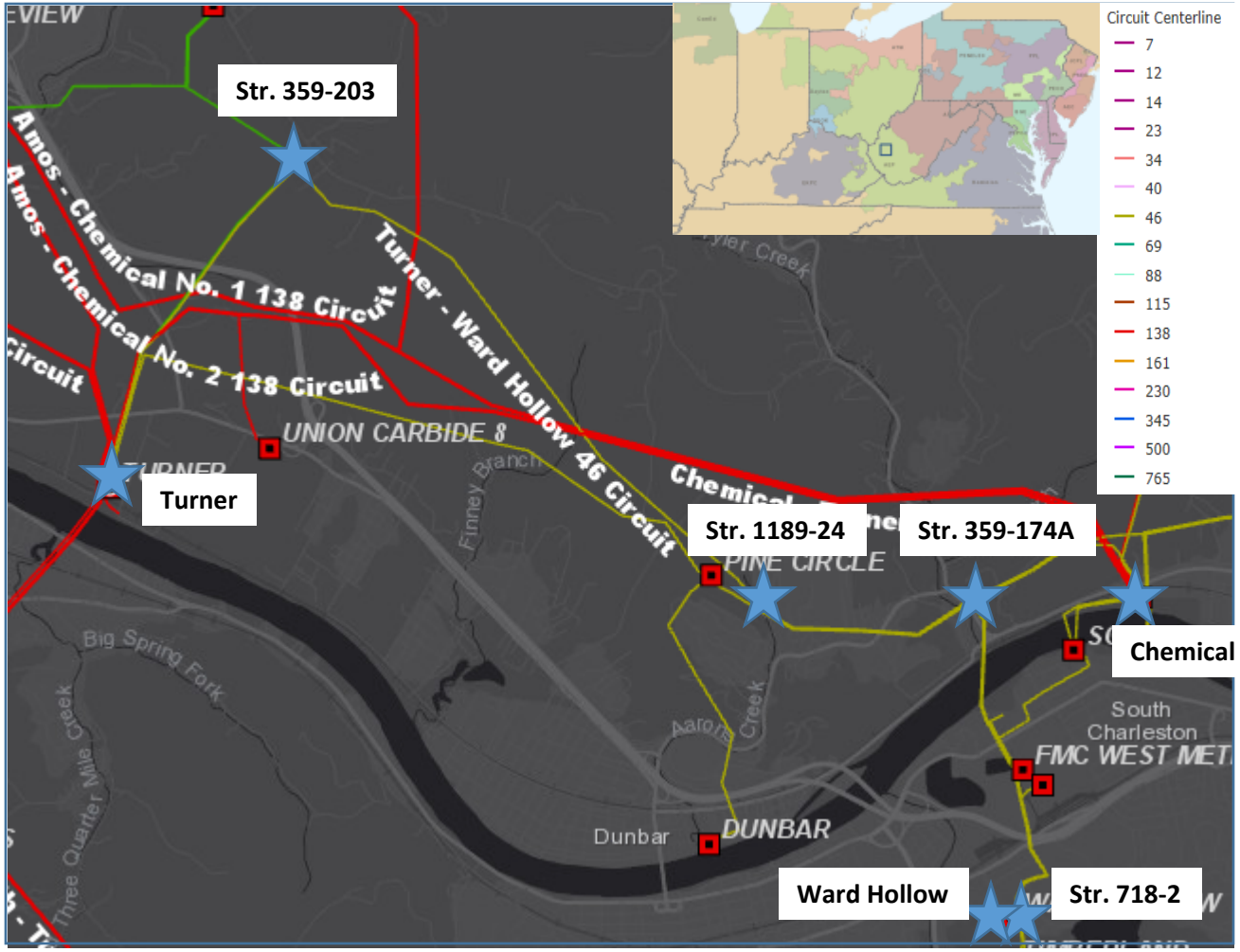
**Project Driver:** Equipment Condition/Performance/Risk

**Specific Assumption Reference:** AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 8), AEP Presentation on Pre-1930s Lines

**Problem Statement:**

Turner – Ward Hollow 46 kV Line (~5 miles). Line segments included in the need are from Str. 359-203 to Str. 1189-24 and from Str. 359-174A to Str. 718-2.

- The sections described above were constructed in 1920 and consist of lattice type structures and wood pole structures, 4/0 CU conductor and 336 ACSR conductor
    - Specific to this pre 1930s line lattice structures on the line are displaying the following:
        - Galvanized coating mostly worn off
        - Lattice steel rusting
        - Visible corrosion of shield wire
        - Ovalization at wire attachment points
        - Hardware & Insulator end fittings moderate deterioration
        - Significant below grade section loss & corrosion
    - Wood poles display the following:
        - Woodpecker holes
        - Pole top weathering
        - Moderate deterioration & rusting of hardware
        - Crossarm & Crossarm block splitting
        - Pole cracking and weathering
    - Circuit fails to meet 2017 NESC Grade B loading criteria, AEP structural strength requirements and fails to meet the current ASCE structural strength requirements.
    - Legacy butt wrap grounding on the wood poles is inadequate for current AEP standards
- Since 2017 there have been 5 momentary outages and 8 permanent outage on the Turner/Chemical – Ward Hollow 46 kV line
    - Momentary outages were due to wind, and lightning
    - Permanent outages were due to vegetation fall-in outside AEP ROW, lightning, and wind



# AEP Transmission Zone M-3 Process
# Kanawha County, WV

**Need Number:** AEP-2022-AP031
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 7/1/2025
**Previously Presented**: Need Meeting 05/19/2022, Solution Meeting 03/14/2025

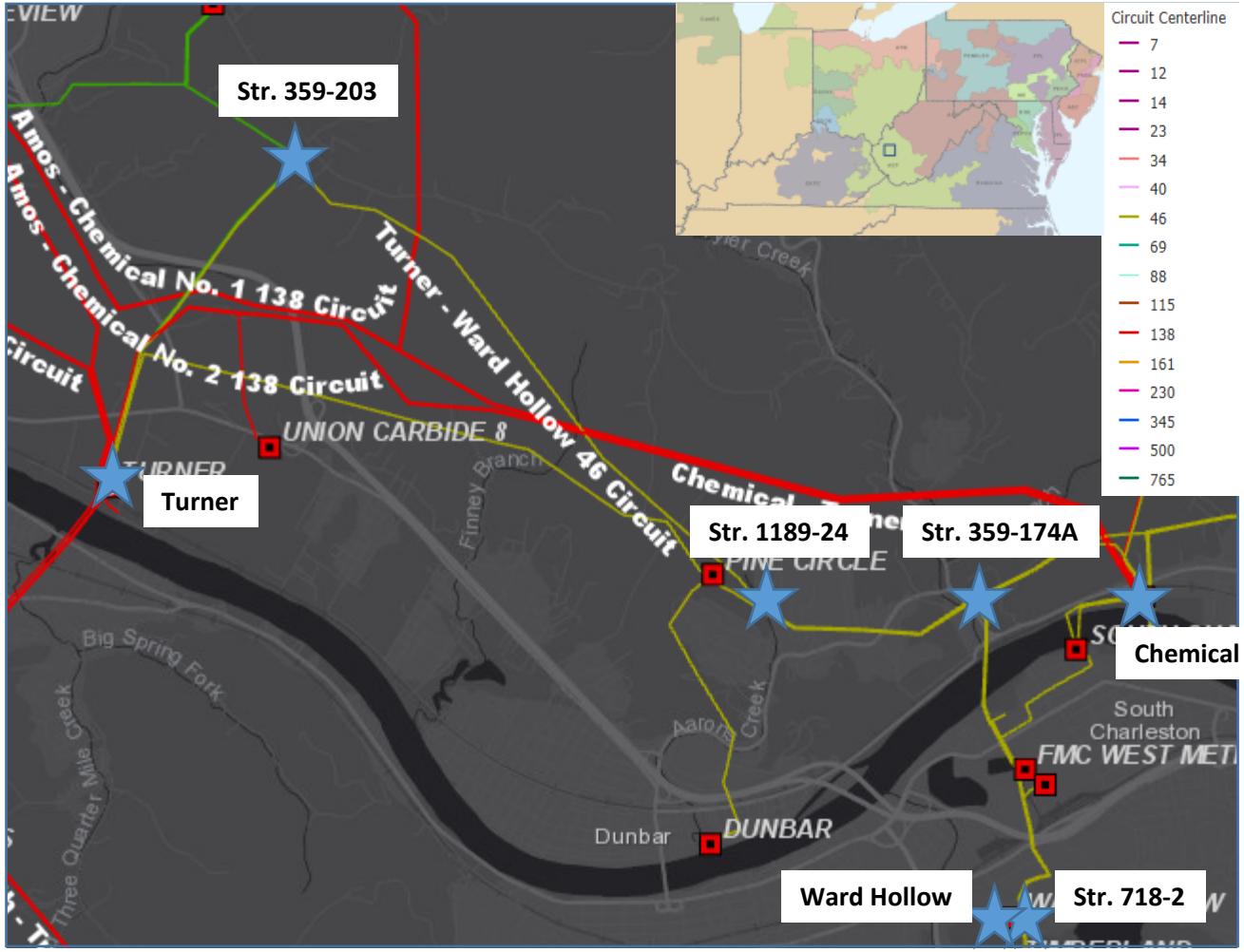
**Project Driver:** Equipment Condition/Performance/Risk

**Specific Assumption Reference:** AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 8), AEP Presentation on Pre-1930s Lines

**Problem Statement:**

Turner – Ward Hollow 46 kV Line (~5 miles). Line segments included in the need are from Str. 359-203 to Str. 1189-24 and from Str. 359-174A to Str. 718-2.

- Condition & Impacts of the Degraded pre-1930s Era System
  - These transmission line assets are clearly in the accelerated deterioration phase of their life.
  - Significant deterioration results in loss of strength and performance posing a significant risk of failure under conditions the assets should be able to withstand.
    - May cause frequent and extended outages
    - May create significant economic losses
    - May endanger public safety
- Conditions of System
  - Towers: Typical life of galvanizing is 70 years. The towers are all supported by steel grillage foundations buried in the ground. The tower leg is subject to significant risk of corrosion where it enters the ground. Lattice tower structures have little structural redundancy. A failure of one member of the structure will impact the integrity of the structure and may cause the entire tower to collapse.
  - Insulator & Hardware Corrosion: The connecting elements including the tower attachment hole and the insulator hook have experienced serious section loss due to corrosion and wear. This loss of metal cross-section significantly reduces the capacity of the connection. The insulator caps and connecting hardware have experienced heavy to complete loss of galvanizing. When the protective galvanized coating is gone or is significantly compromised, the bare steel corrodes at an accelerated rate.
  - Broken Insulators: Broken, cracked and otherwise damaged insulators lead to premature flashover causing permanent outages. When the insulator assembly breaks, the wire falls to the ground potentially damaging other conductors, and presents an increased public safety concern.
  - Conductor: Aluminum Conductor Steel Reinforced (ACSR) conductor consists of aluminum strands wrapped around a core of galvanized steel strands. The steel provides the structural strength. Like other steel elements, the strands of the core have also lost the galvanized coating and steel section. The degraded state results in significant loss of tensile strength and potential risk to the public if the conductor was to fail and fall to the ground. Conductor damage is usually not visible in a field inspection. Specific conductor samples, from the belly of the sag (lowest point) and/or inside the clamps at the insulators, have confirmed significant corrosion. During the restoration or construction activities, conductors often break at adjacent locations due to handling, introducing a potential safety risk and increase public safety concern.



# AEP Transmission Zone M-3 Process
# Kanawha County, WV

**Need Number:** AEP-2022-AP031, AEP-2023-AP022

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 7/1/2025

**Proposed Solution:**

**Turner - Ward Hollow 46 kV Rebuild:** Rebuild existing Turner – Ward Hollow 46 kV line sections from Turner Station to Str. 359-213 (0.8 mi) and from Str. 359-203 to Str. 1189-24 (3.3 mi) and from Str. 359-174 to Str. 718-2 (1.8 mi double circuit). Higher than normal costs are driven by a river crossing and limited route options in a heavily congested industrial corridor on the double circuit section. Estimated Cost: $30.4 M.(s3606.1)

**Ward Hollow Station:** Replace existing 46 kV circuit breakers B, C and D with new 40 kA 3000 A circuit breakers. Estimated Cost: $2.7 M.(s3606.2)

**Transmission Cost Estimate:** $33.1 M

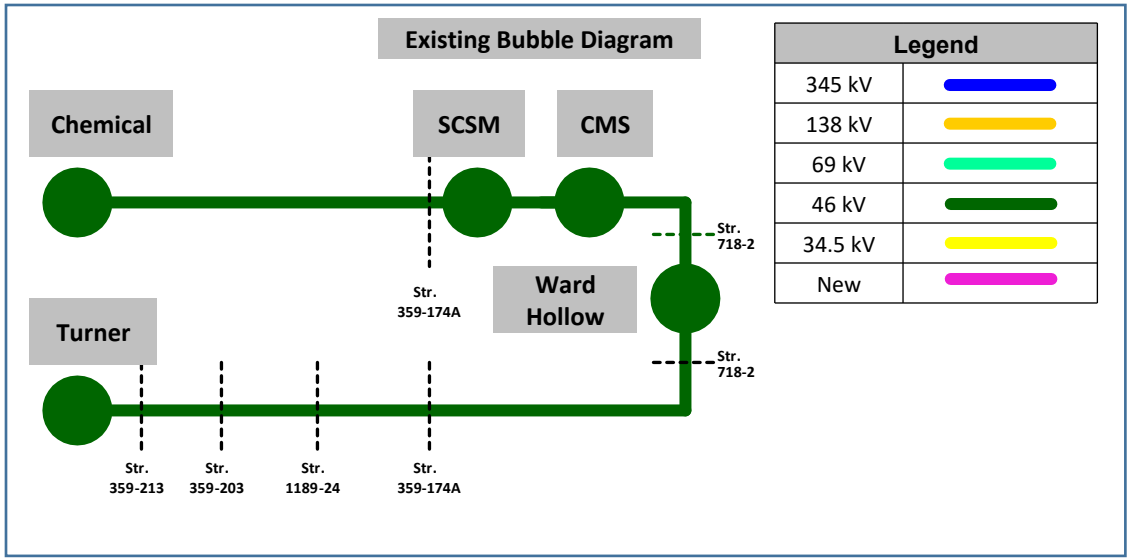
**Alternatives Considered:**

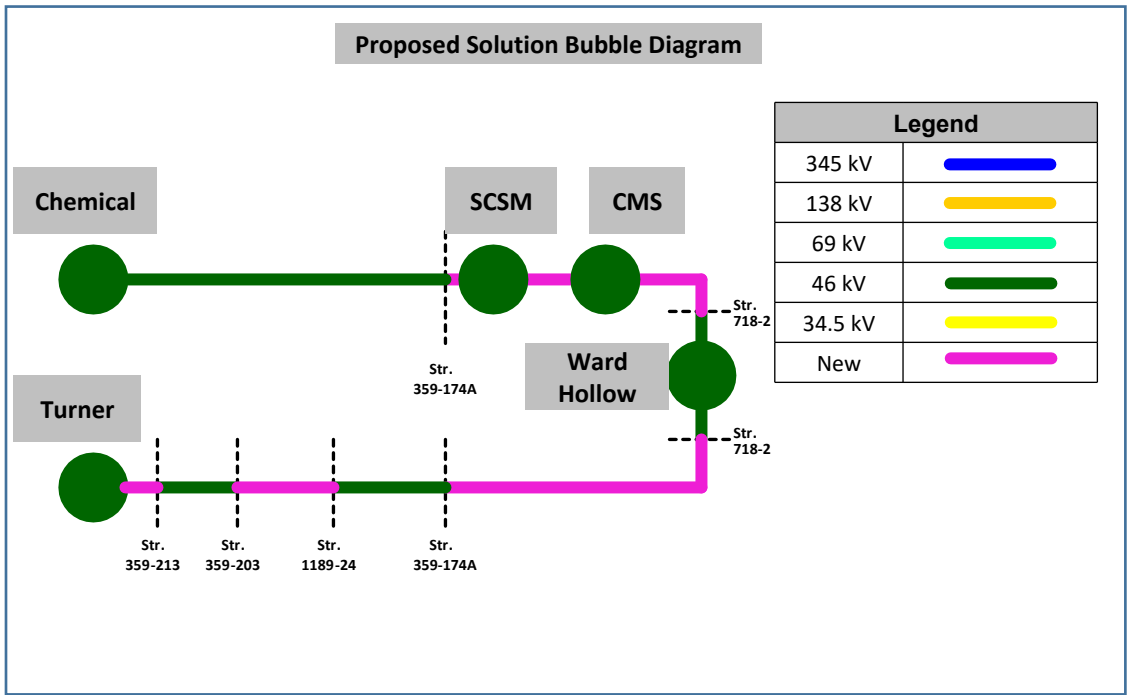
Approximately 2.2 miles of the total 8.1 miles on the Turner - Ward Hollow 46 kV line have previously been rebuilt. No viable alternative to address the remaining 5.9 miles to be rebuilt on the proposed project. Retirement of the line is not an option as multiple customer stations are served from the line and cannot be relocated to a different delivery point.

**Projected In-Service:** 08/01/2027

**Supplemental Project ID**: s3606.1-2

**Project Status:** Scoping



# AEP Transmission Zone M-3 Process
# Greenbrier County, WV

**Need Number:** AEP-2023-AP017

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 7/1/2025

**Previously Presented**: Need Meeting 07/21/2023, Solution Meeting 03/14/2025.

**Project Driver:**

Equipment Material/Condition/Performance/Risk

**Specific Assumption Reference:**

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

**Problem Statement:**

Hinton Station

- 138 kV circuit breakers A, B, C
  - HVB145-4000 type, SF6 filled breakers
  - The HVB145 model family has the propensity to mechanically pump closed instead of locking open as it awaits an electrical close command from the relaying. This presents a high mis-operation risk on the system. The HVB breakers have had some failures due to slow tripping with the breakers not reclosing faster than 20 cycles. Also, this model family has a high occurrence of SF6 gas leaks with 215 recorded malfunction records. This is an environmental concern since SF6 is a potent greenhouse gas with a high global warming potential, and its concentration in the earth's atmosphere is rapidly increasing. In addition, low SF6 causes operational issues with the breaker which can lead to excessive maintenance of closing contacts or failure. CBs A and C have active SF6 leaks.
- 37 of the 40 relays (93% of all station relays) at the station are in need of rehabilitation
  - 28 relays are electromechanical type which have significant limitations with regards to fault data collection and retention.
  - 4 static relays which have significant limitations with regards to spare part availability and fault data collection and retention.
  - 5 legacy MP relays with significant limitations regarding spare part availability and no vendor support and obsolete firmware.
- Hinton Station ties with Allegheny Power Services (APS), which is connected to the 138kV Bus at Hinton with no circuit breaker. This lack of sectionalizing creates a scenario where a fault on this tie outages the entire bus at Hinton and contains more than two zones of overlapping protection.

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

**Need Number:** AEP-2023-AP017

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 7/1/2025.

**Proposed Solution:**

**Hinton Station:** Replace existing 138 kV CBs A, B, C, with three new 3000 A, 40 kA 138 kV CBs. Replace switch "W" on the FE tie line with a new 3000 A, 40 kA 138 kV CB. 37 of the 40 relays are in need of replacement (28 EM, 4 static and 5 MP) Replace existing RTU. Install a new DICM. Upgrade existing metering on tie with First Energy.. Estimated Cost: $6.3 M.(s3607.1)

**Grandview Remote End:** Remote end work at Grandview Station to accommodate the new breakers at Hinton Station. Estimated Cost: $0.6 M. (s3607.2)

**Glen Lyn Remote End:** Remote end work at Glen Lyn Station to accommodate new breakers at Hinton Station.. Estimated Cost: $0.9 M. (s3607.3)

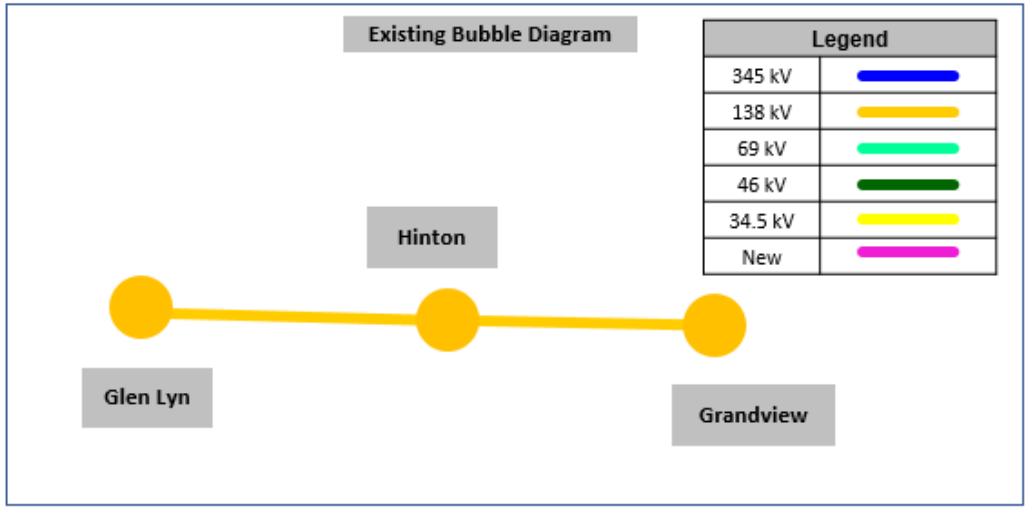
**Transmission Cost Estimate:** $7.8 M

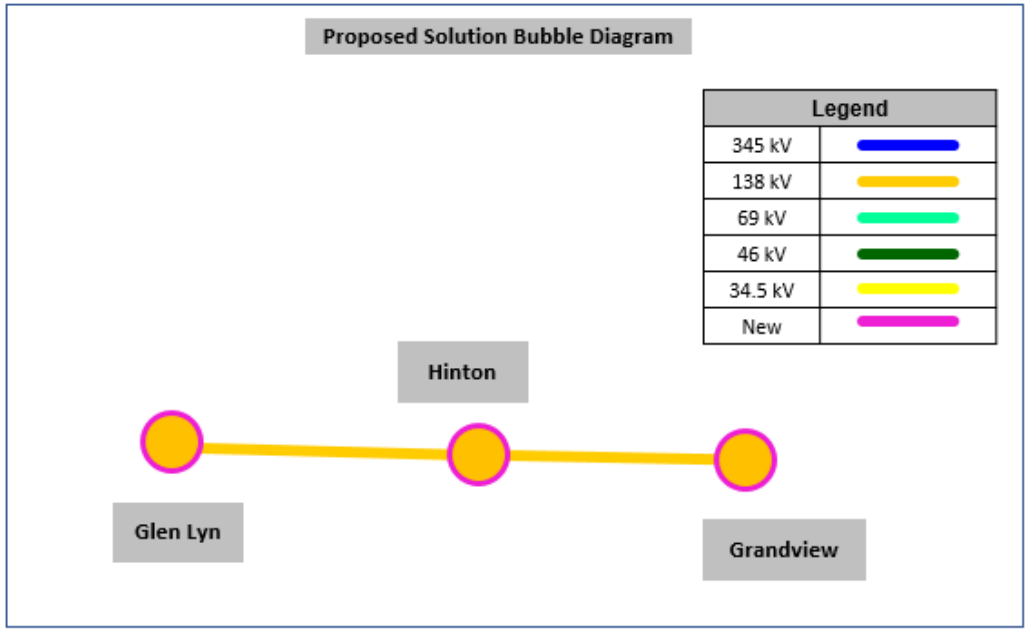
**Alternatives Considered:**

Rebuild the station in a 4 breaker ring configuration. This configuration is not preferred by PCE or EDOPS. The existing capacitor bank would also need to share a breaker position with one of the 138 kV lines in the ring which is not ideal from a PCE coordination perspective. Additionally this would require a station expansion as well as extended outages and would likely be more expensive than the proposed. Estimated cost: $10M

**Supplemental Project ID**: s3607.1-3

**Projected In-Service:** 11/05/2029



# AEP Transmission Zone M-3 Process
# Wood County, Ohio

**Need Number:** AEP-2019-OH052

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 8/4/2025

**Previously Presented:** Solutions Meeting SRRTEP-W - 10/18/2024,

Need Meeting 9/25/2019

**Supplemental Project Driver:**

Equipment Material/Condition/Performance/Risk

**Specific Assumption Reference:**

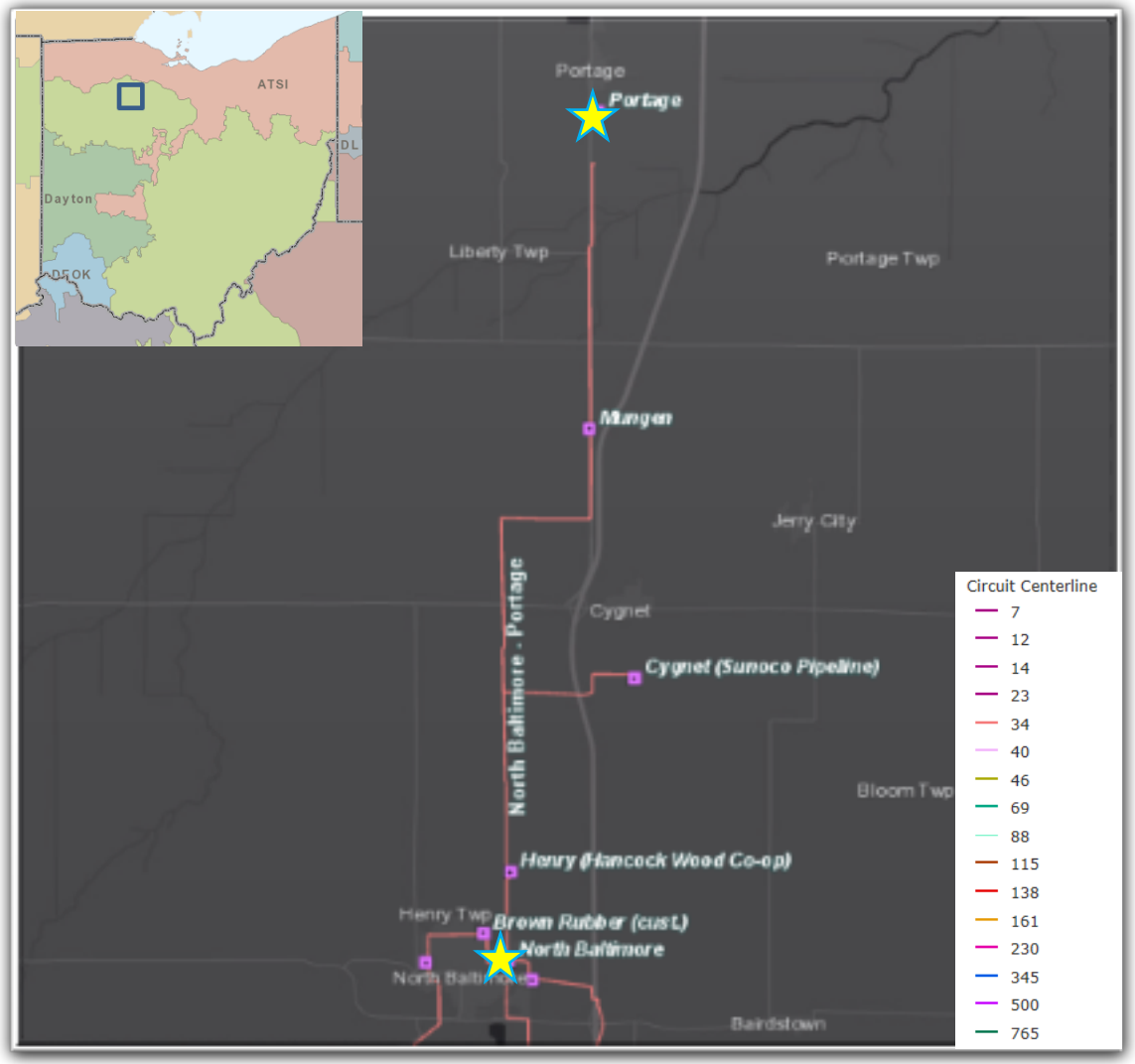
AEP Guidelines for Transmission Owner Identified Needs

**Problem Statement:**

North Baltimore – Portage 34.5kV (1921)

- Length:10.00 Miles
- Original Construction Type: Wood
- Conductor Types: 1/0 ACSR 6/1 (40%), 4/0 ACSR 6/1 (20%), 4/0 Copper 7 (30%), & 556,500 CM (10%)
- Momentary/Permanent Outages: 11 (last 5 years)
- CMI: 26,572 (AEP only)
- Total structure count: 325
- Number of open conditions: 24 “A” Conditions & 53 “B” Conditions
  - Open conditions include: (Damaged Insulators, Broken Shield Wires, Pole Rot, & Cracked Guys.)
- Unique structure count with open conditions: 55

Additional Info: Portage is radially fed from AEP’s North Baltimore station, Radial service severely restricts the ability to perform routine maintenance and restoration activities. The maintenance of radial transmission lines often requires costly temporary facilities or other labor-intensive measures involving energized work because a maintenance outage to such radial loads is generally not feasible.



# AEP Transmission Zone M-3 Process
# New Liberty – North Baltimore

**Need Number:** AEP-2022-OH027

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 8/4/2025

**Previously Presented:** Solutions Meeting SRRTEP-W - 10/18/2024,

Needs Meeting 04/22/2022

**Project Driver:**

Equipment Material/Condition/Performance/Risk

**Specific Assumption Reference:**

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

**Problem Statement:**

<u>New Liberty – North Baltimore 34kV Line (1940):</u>

- Length of Line: 10.28 Miles
- Total Structure Count: 274
    - Wooden Monopoles
- Conductor Types: 336.4 ACSR 18/1 (Merlin), 4/0 ACSR 6/1 (Penguin)
- Open Conditions: 45 open conditions on 42 unique structures

31 open conditions related to the ground lead wire including broken and stolen

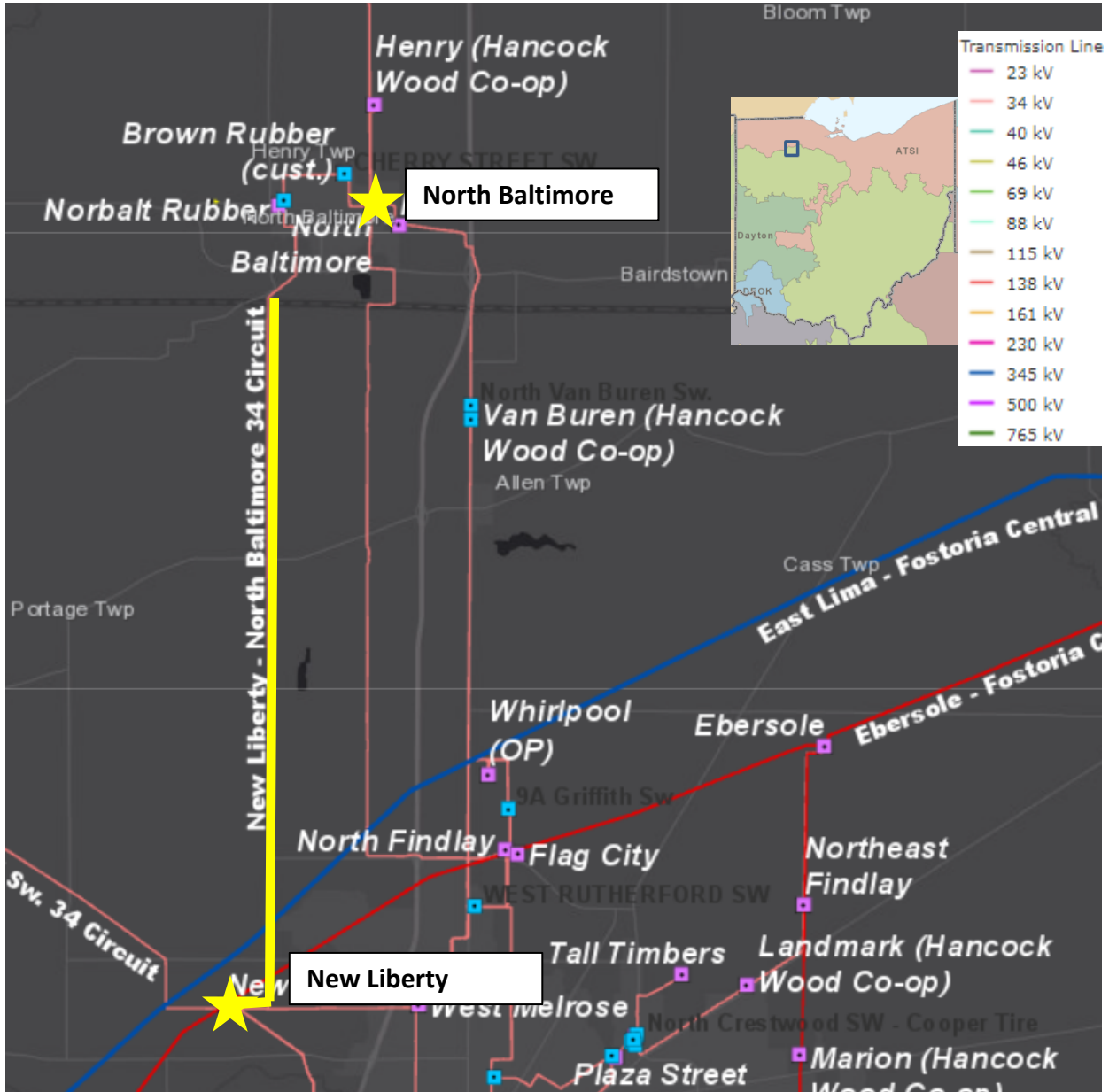
6 structure related open conditions specifically affecting the push pole, crossarm, or pole

7 open conditions related to the guys and insulator

1 conductor related open condition

The New Liberty – North Baltimore 34kV line does not meet 2017 NESC Grade B loading criteria, does not meet the current AEP structural strength requirements and does not meet the current ASCE structural strength requirements. The line is insulated with horizontal post insulators which do not meet current AEP standards for CIFO and minimum leakage distance requirements. The buttwrap grounding on the line does not meet current AEP standards.

Ten representative structures on the line were assessed by ground and drone. 40% had severe pole rot and decay requiring stub poles to be installed to support the existing structures, ground line heart and/or shell rot.



# AEP Transmission Zone M-3 Process
# Wood County, Ohio

**Need Numbers:** AEP-2019-OH052, AEP-2022-OH027

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 8/4/2025

**Proposed Solution:**

**North Baltimore - Portage 34kV Rebuild:** Rebuild the existing North Baltimore - Portage 34.5 kV line (~10 miles).There will be approximately 0.3 miles of greenfield line to support ROW efforts and outage constraints. Estimated Cost: $23.166 M. (s3641.1)

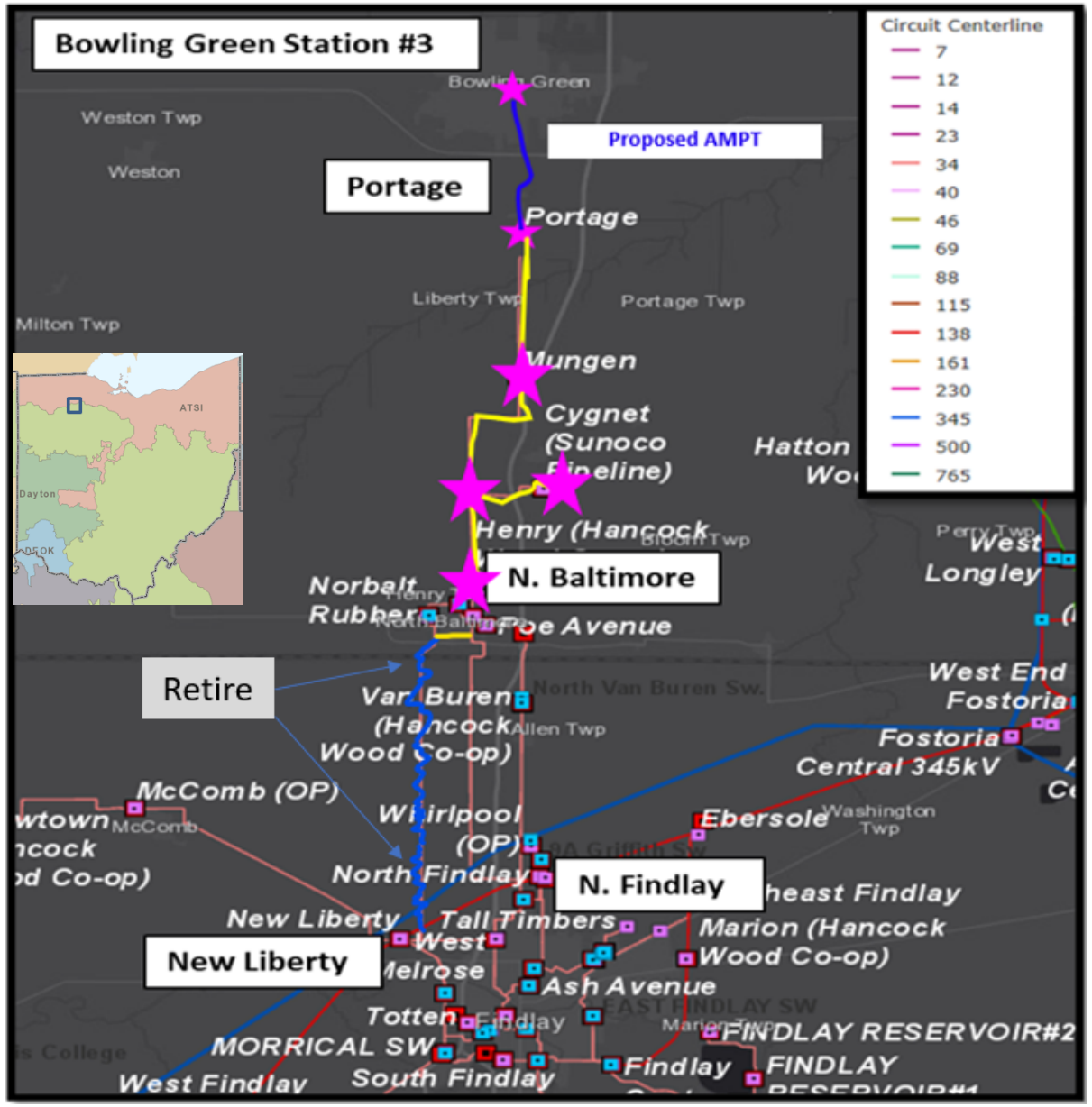
**Hammansburg – Buckeye Pipe 34.5kV:** Rebuild the ~1.7 mile 34.5kV extension from Hammansburg Tap to Hoiles Switch (Buckeye Pipeline & Cynet Pipeline). Estimated Cost: $4.365 M. (s3641.2)

**North Baltimore - Henry Co-Op Extension:** Several spans of the 34.5 kV extension to the Henry Co-Op delivery will be rebuilt as part of the project. The delivery is currently served via the double circuit section of the North Baltimore - Portage line directly out of North Baltimore. Estimated Cost: $0.311 M. (s3641.3)

**North Baltimore – New Liberty Retirement:** Retire N. Baltimore – New Liberty from structures 179 to 11 (~6.81 miles). Remove conductors for the N. Baltimore – New Liberty circuit on the New Liberty – W Melrose line from structure 11 to New Liberty (~0.43 miles). Estimated Cost: $1.72 M. (s3641.4)

**North Baltimore - North Findlay #2 Reconfiguration:** In order to accommodate the retirement of the ~6.81 miles of line on the North Baltimore - New Liberty 34.5 kV circuit, reconfiguration work will be performed to tie the remaining portion of the circuit into the nearby North Baltimore - North Findlay #2 34.5 kV circuit. This includes constructing ~1.1 miles of new transmission between the two existing lines and retiring ~1.85 miles of the North Baltimore - North Findlay #2 34.5 kV circuit north into North Baltimore. Estimated Cost: $4 M. (s3641.5)

**Portage SW - Greensburg (AMPT) 34.5 kV:** Install approximately ~0.2 miles of greenfield 34.5 kV line between the proposed Portage SW and AMPT's proposed Greensburg 69/34.5kV substation. Estimated Cost: $0.45 M. (s3641.6)



# AEP Transmission Zone M-3 Process
# Wood County, Ohio

**Need Numbers:** AEP-2019-OH052, AEP-2022-OH027

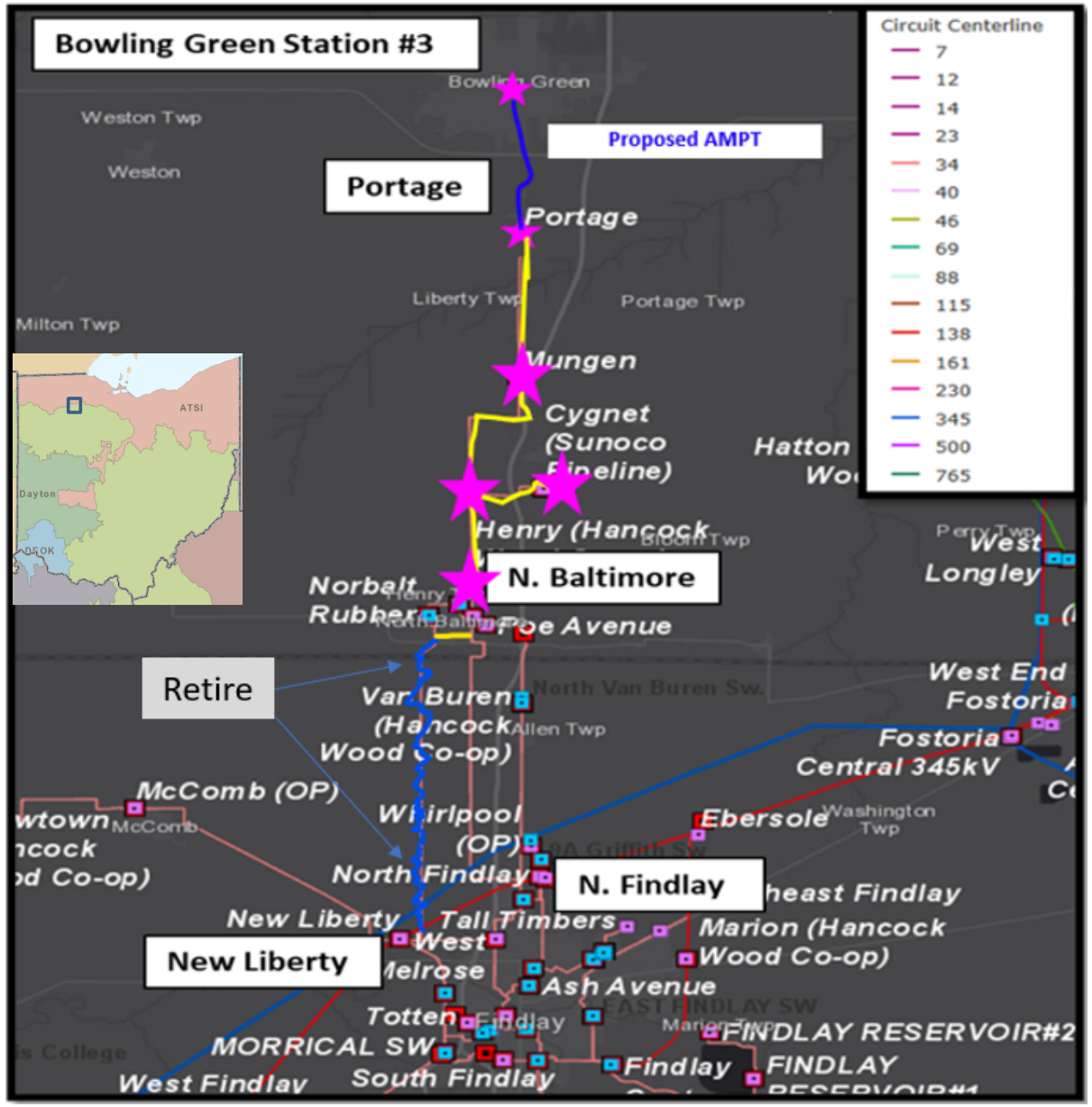
**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 8/4/2025

**Proposed Solution:**

**Poe Road - Greensburg (AMPT) 69 kV:** In order to provide a second source into the 34.5 kV network served from the North Baltimore - Portage 34.5 kV circuit. AMPT will be constructing approximately 7 miles of 69 kV circuit between Poe Rd and the proposed Greensburg station. 3.5 miles of the line will be greenfield single circuit extending from right outside their existing Gypsy Lane station to a newly proposed Greensburg AMPT substation near Portage SW. To get the new circuit back to Poe Rd station AMPT will be rebuilding the existing Gypsy Lane-Poe Road 69 kV line for approximately 3.5 miles from single circuit to double circuit tower arrangement utilizing the existing right-of-way. Estimated Cost: $20.1 M. (s3641.7)

**Poe Road Substation (AMPT):** AMPT will rebuild their Poe Road substation and reconfigure the 69 kV yard into a 6-breaker ring bus configuration. To accommodate the station work they will re-terminate the existing three (3) 69 kV circuits and two (2) 69/12 kV transformers at the station along with establishing a position to accommodate the new Greensburg-Poe Road 69 kV circuit. Estimated Cost: $13.3 M. (s3641.8)

**Greensburg (AMPT):** AMPT will build a greenfield 69/34.5 kV station tentatively called "Greensburg". The station will initially accommodate one (1) 69 kV breaker, one (1) 34.5 kV breaker, and one (1) 69/34.5 kV 50 MVA transformer. This station will terminate the new 69 kV circuit from Poe Road and connect to the end of the existing AEP 34.5 kV system near Portage SW. Estimated Cost: $9.8 M. (s3641.9)



# AEP Transmission Zone M-3 Process
# Wood County, Ohio

**Need Numbers:** AEP-2019-OH052, AEP-2022-OH027

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 8/4/2025

**Proposed Solution:**

**Remote End work Sandridge 69kV (FE):** FE will perform remote end relay work at Sandridge 69kV substation to accommodate the reconfiguration of AMPT's Poe Rd station. Estimated Cost: $0.1 M. (s3641.10)

**Portage PoP Switch:** At Portage 34.5 kV Tap, Install a new 69 kV, 1200A, 3-way POP switch to accommodate the new 34.5 kV connection to AMPT's Greensburg station. Estimated Cost: $0.784 M. (s3641.11)

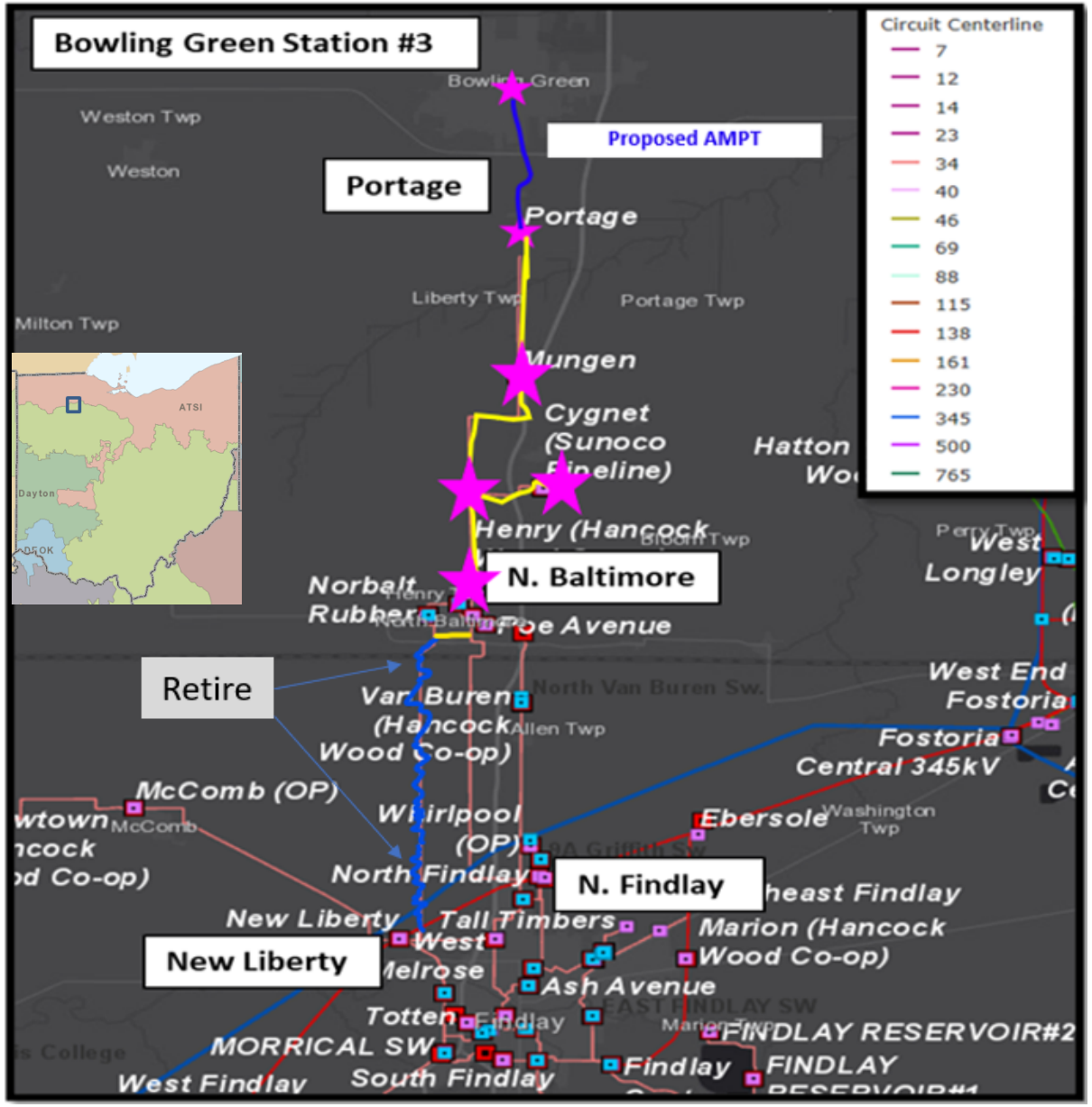
**Mungen PoP Switch:** Replace existing Mungen hard tap with a new 69 kV, 1200A, 3-way POP switch. Estimated Cost: $0.678 M. (s3641.12)

**Hammansburg PoP Switch:** Replace existing Hammansburg hard tap with a 69 kV, 1200A, 3-way POP switch. Remove existing one-way line switch. Estimated Cost: $0.866 M. (s3641.13)

**North Baltimore Station Work:** At North Baltimore 34.5 kV substation in order to accommodate the reconfiguration and retirements of the 34.5 kV circuits to New Liberty and North Findlay existing 34.5 kV circuit breaker 'M' towards New Liberty substation will be retired. Additional relaying work will be performed at the station to accommodate the proposed work in the area. Estimated Cost: $0.474 M. (s3641.14)

**New Liberty Station Removal Work:** Work will be performed at New Liberty to accommodate the retirement of the 34.5 kV circuit to North Baltimore. Estimated Cost: $0.09 M. (s3641.15)

**Transmission Cost Estimate:** $80.204 M



# AEP Transmission Zone M-3 Process
# Wood County, Ohio

**Need Numbers:** AEP-2019-OH052, AEP-2022-OH027

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 8/4/2025

**Alternatives Considered:**

• No viable cost-effective transmission alternatives were identified to address the radial nature of the North Baltimore – Portage line outside of connecting to the AMPT 69 kV system to the north due to lack of other existing infrastructure in the area.

• Constructing the new 69 kV connection from Gypsy Lane – Portage Co-op was considered instead of going to Poe Rd. This option was not chosen due to physical space constraints at the Gypsy Lane station that wouldn't allow the station to be expanded. In addition, the configuration would have resulted in N-1-1 violations that would need resolved increasing the scope of the project further.

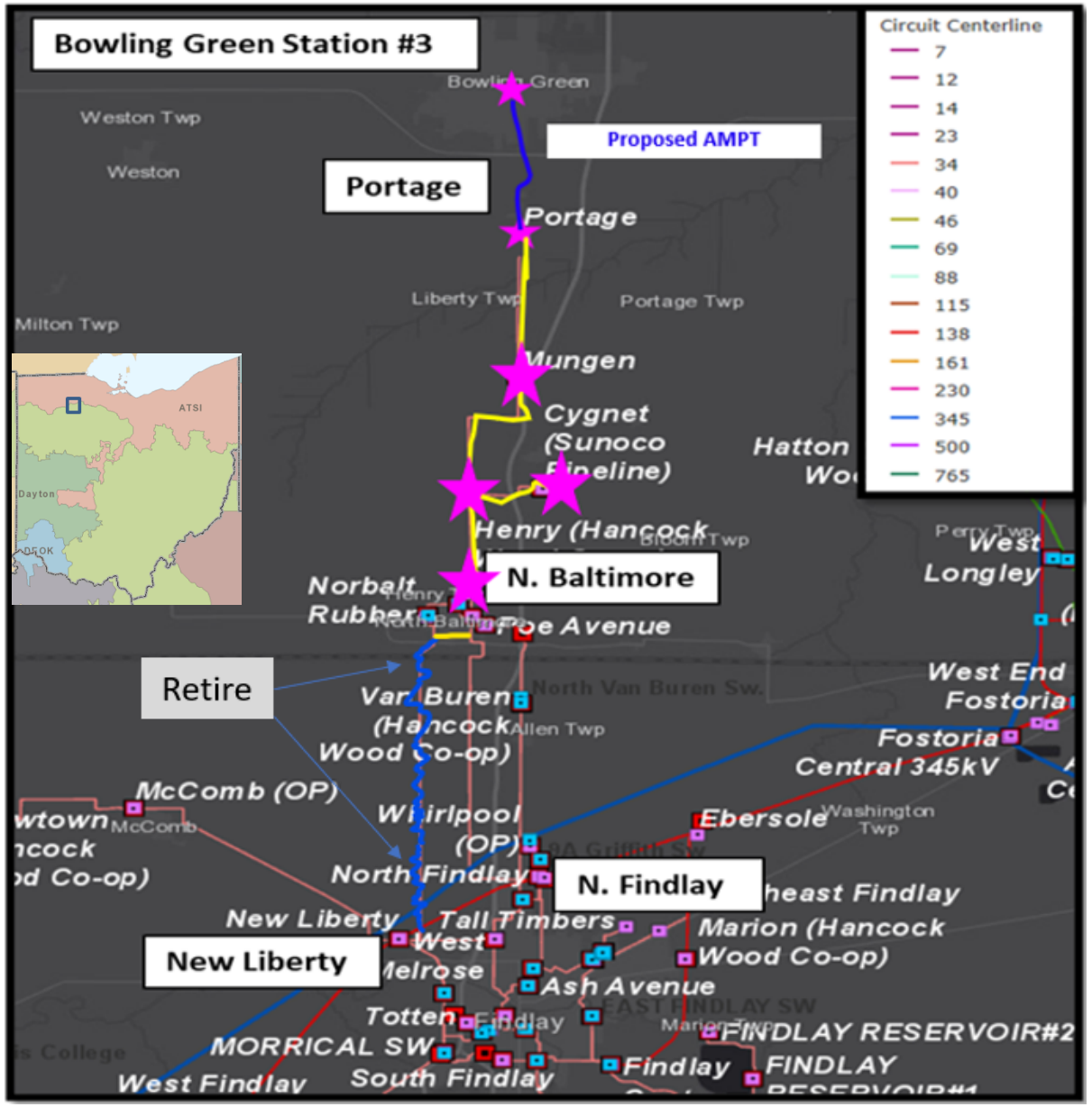
• Adding the new 69/34.5 kV transformer to the existing Poe Rd station was considered. This option was not chosen though as the station footprint could not accommodate the transformer and required 34.5 kV equipment.

• Constructing the 69 kV line to the existing Bellard station was considered. This option was not chosen as the station is further away from AEP than Poe Road and would have required additional new greenfield right of way to get a new line out of the station.

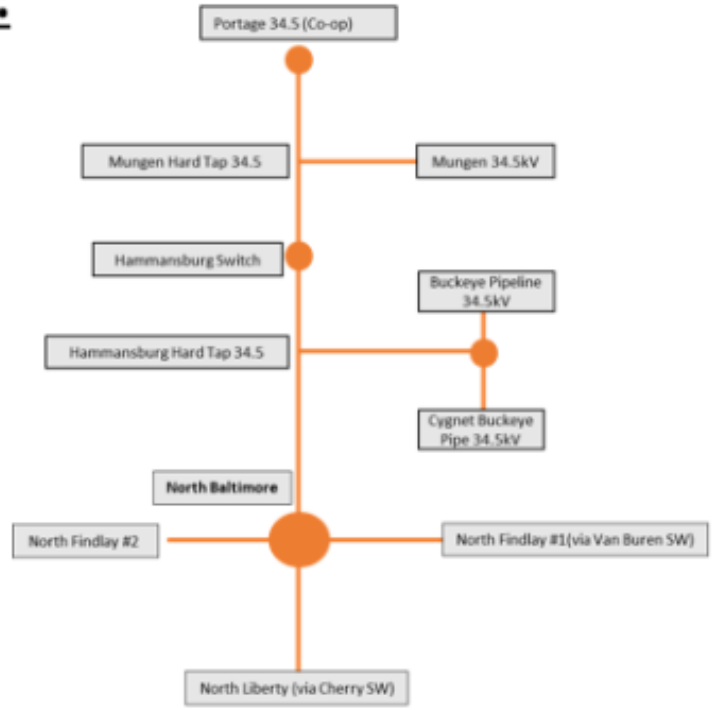
**Supplemental Project ID**: s3641.1-15

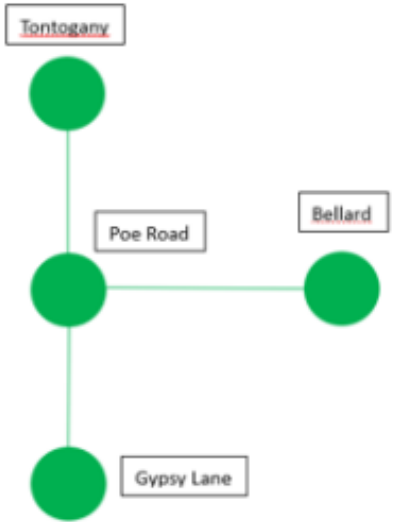
**Projected In-Service:** 11/30/2028

**Project Status:** Scoping



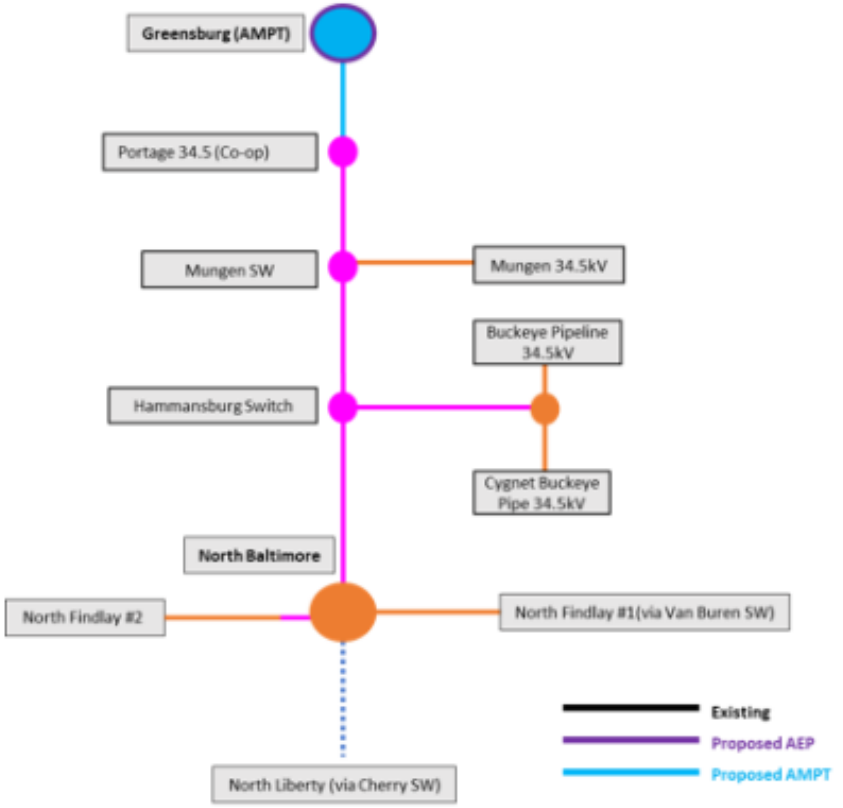
# Existing:

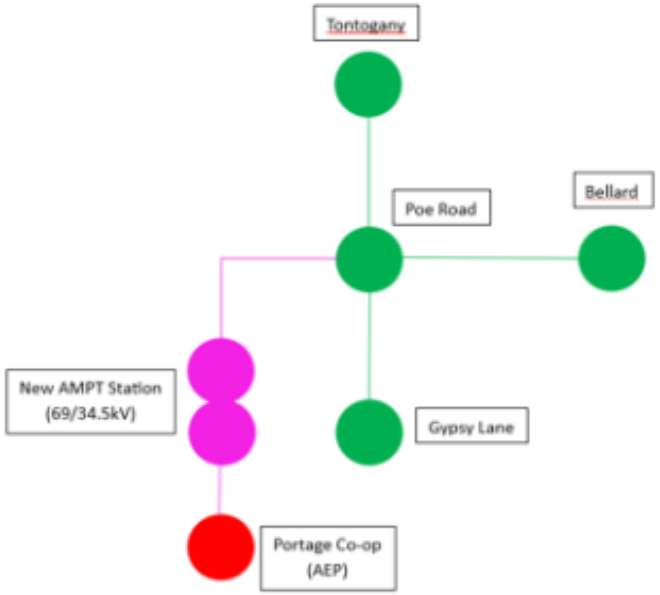



# Proposed:

| Legend | |
|---|---|
| 500 kV | |
| 345 kV | |
| 138 kV | |
| 69 kV | |
| 34.5 kV | |
| New | |
| Retire | |



# AEP Transmission Zone M-3 Process
# Jefferson County, Ohio

**Need Number:** AEP-2022-OH017

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/26/2025

**Previously Presented:** Need Meeting 01/21/2022, Solution Meeting 07/18/2025

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

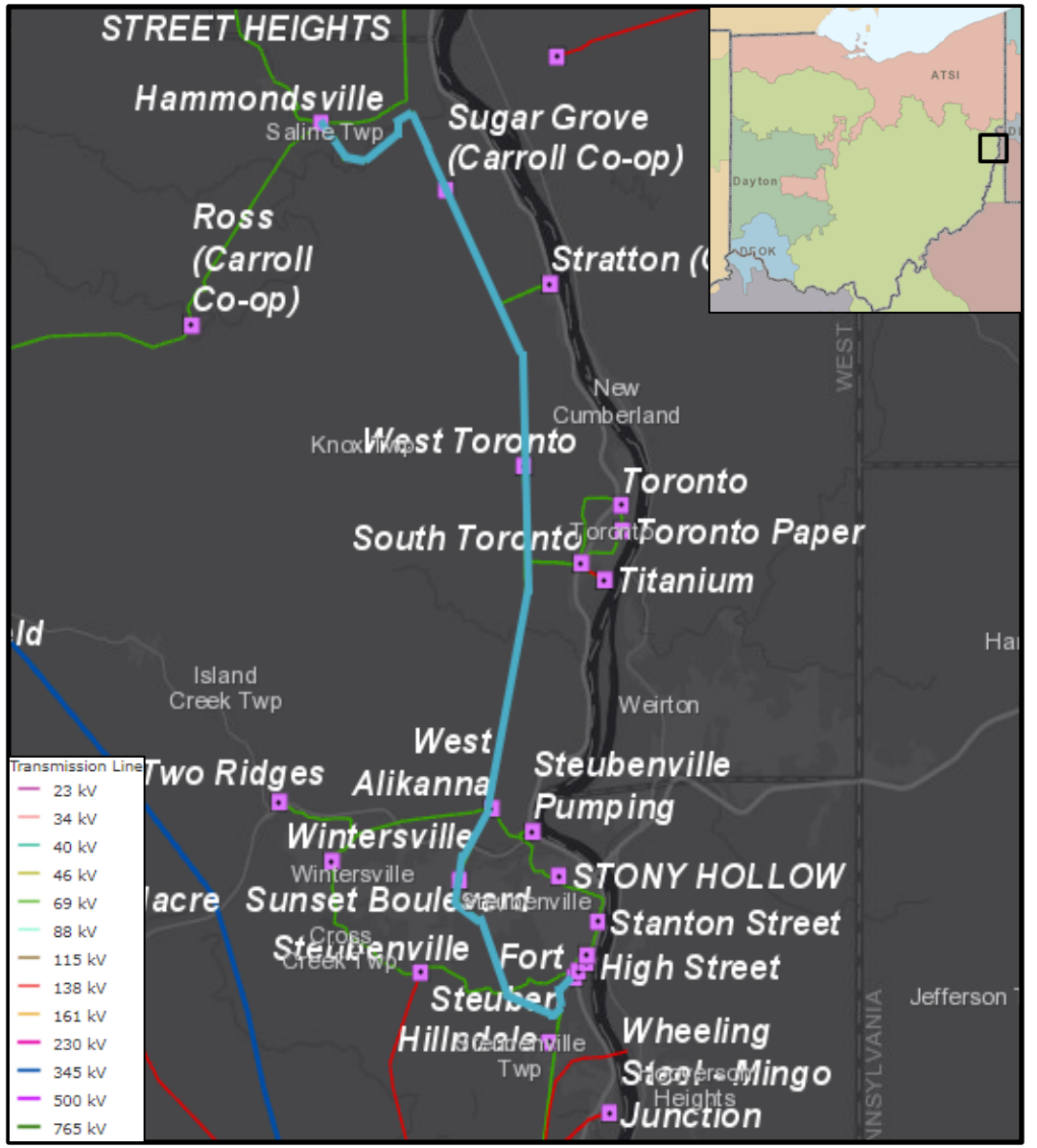
**Specific Assumption References:**

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13); AEP Presentation on Pre-1930s Lines

**Problem Statement:**

Fort Steuben – Hammondsville 69kV Transmission Line

- Length: 20.76 Miles
- Total Structure Count: 222
    - Structure Types: 71% 1928 Steel Lattice, 23% 1950-1969 Wood Pole, 6% 1970-2014 Wood Pole and 2 Steel Poles
    - Conductor Types: 45% 1964 #1 Copper 3, 44% 1964 1/0 Copperweld 7, 6% 1964 336 CM ACSR 18/1 Merlin, 2% 338,000 CM ACSR 29/7 (338AC) The remaining conductors make ~2% of the line 4/0 COPPER 7 (40COP), 795,000 CM ACSR 26/7 (Drake), 1/0 Copperweld 7 (10C), & #1 COPPER 3 (#1COP)
- Outage History (5-year)
    - Momentary Outages 29
    - Permanent Outages 11
    - Total CMI 3.89 Million (39.1 MVA of peak load impacted)
- Open Conditions: Currently, there are 99 structures with at least one open condition, which relates to 44.6% of the structures on the line. There are currently 9 structure based open conditions consisting of bent horizontal brace and lacing, insect damage, twisted leg, leaning traverse pole, rot top and woodpecker holes. There are currently 7 conductor based open conditions consisting of broken strands, damaged conductors and improper installation. There are currently 5 ground lead wire based open conditions consisting of broken wires, floating OPGW, corroded shield wire and disconnected structure ground. There are currently 74 hardware open conditions consisting of broken armor rod strands, looses guys, rusted hardware, broken/burnt/loose/rusty insulators, broken molding structure, bent step bolt and worn U-bolt.
- Pre 1930's Steel Lattice Conditions: design doesn't account for ice/wind loadings, conductor steel core strength has diminished, inadequate lightening protection, significant wear/corrosion of hardware and insulators, loss of galvanizing and corresponding strength of steel lattice members, and weakened foundations and tower legs.



# AEP Transmission Zone M-3 Process
# Jefferson County, Ohio

**Need number(s):** AEP-2022-OH017

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/26/2025

**Proposed Solution:**

**Ft Steuben - Hammondsville 69kV rebuild:** Rebuild ~0.95-mile section from structure #9 to structure #17 of the line asset as double circuit with 556 ACSR. Additionally, rebuild 18.5-mile section from structure #17 to Hammondsville as single circuit with 556 ACSR.. Estimated Cost: $82.743 M.(s3724.1)

**Croxton Switch:** Install Croxton Switch as a new 69 kV phase over phase switch to replace the existing switch as part of the line rebuild as the existing pole will be retired with the line work.. Estimated Cost: $1.418 M.(s3724.2)

**Transmission Cost Estimate:** $84.162 M

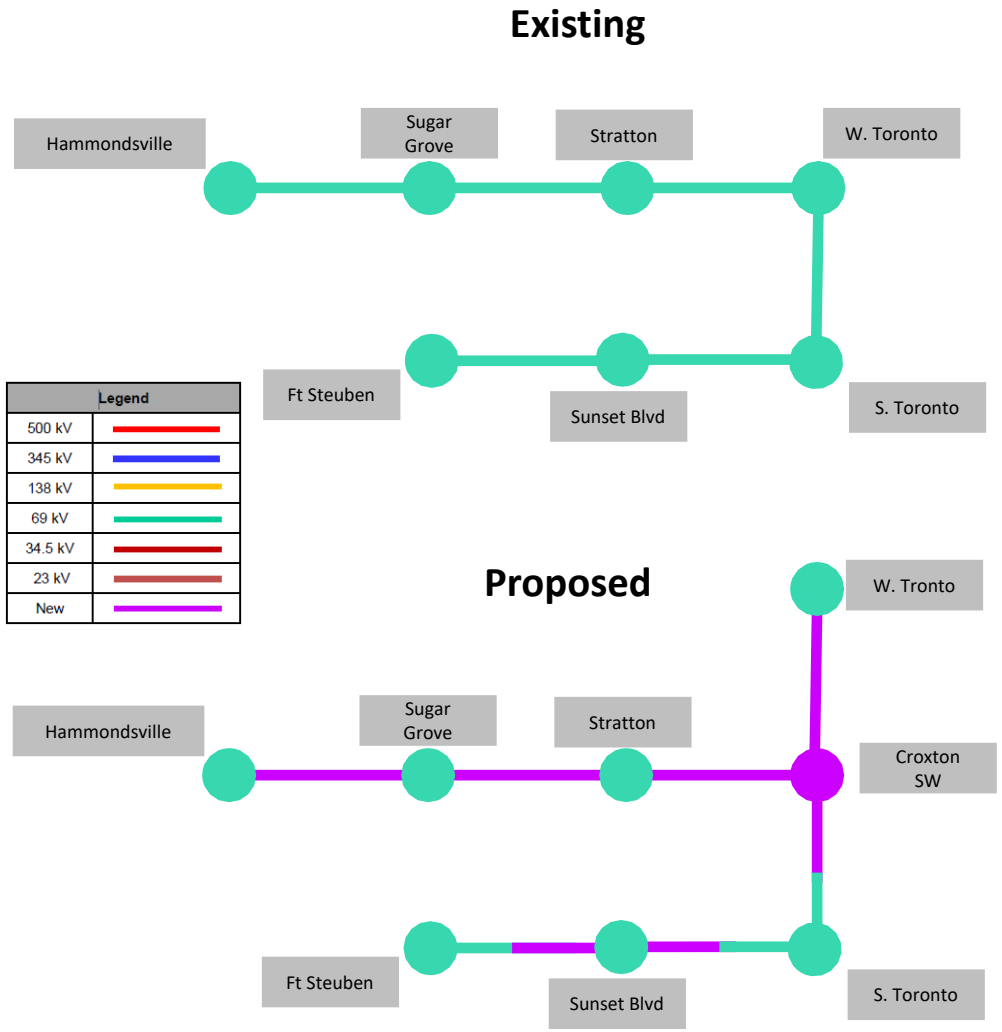
**Alternatives Considered:**

Consideration was given to rebuild the line as 138 kV up to Holt Sw but operated at 69 kV. This option could provide more 138 kV support to the sub transmission network in the future but would require multiple customer owned stations to be converted. A total of ~28.8 miles of new 138 kV transmission line would be required in addition to the necessary station work. Total estimated cost of 126.8M.

**Supplemental Project ID**: s3724.1-2

**Projected In-Service:** 03/16/2029

**Project Status:** Scoping



# AEP Transmission Zone: Supplemental S2167 Scope Change

**S2167:** Posted in 2020 Local Plan. Need Number: AEP-2018-IM002, AEP-2019-IM035, AEP-2019-IM025, AEP-2019-IM046. Solution Meetings all on 12/18/2019.

**Process Stage**: Submission of changed Supplemental Project for inclusion in the Local Plan 9/26/2025

**Reason For Change:**

During detailed engineering and design for the proposed work at Niles station, it was determined that the proposed station work could not be completed as proposed without the use of multiple mobiles or skids and would leave all customers served from the station on long radials for extended periods of time under the various required outages. The only vehicle access to the station is surrounded by water on both sides, is prone to flooding, and can be extremely dangerous in adverse weather conditions. At Swanson station, Distribution has requested the station be rebuilt in the clear to due to outage risks associated with aging asset conditions installed in the 1950s and 1970s. Swanson has 34.6MVA of load that is non-recoverable and non-transferrable to neighboring stations in the event of equipment loss or for outage recovery. This update is provided to change the scope of Niles station to rebuild in the clear as FourFlag station and to rebuild Swanson on existing property at the site in the clear.

**Selected Solution:**

At Kenzie Creek station, install a 138/69kV XFR, 3 138kV breakers, 5 69kV breakers and a 14.4Mvar cap bank to allow for the retirement of Pokagon's 69 kV transmission yard.

**Estimated Cost: $12M**

At Pokagon station, retire the 69kV voltage class and re-organize this station as a 138/12kV station only.

**Estimated Cost: $2M**

At Lake Street station, install a new 69/12kV load delivery point, replace XFR 1 with a 50MVA bank, and replace 34.5kV CB "H" and 69kV Breaker "A". Replace and take ownership of 34.5kV CB G.

**Estimated Cost: $7.8M**

~~At Niles station, replace 69kV breakers "B" and "A". Replace XFR 2 and the breaker toward the City of Niles~~ Retire Niles station.

**Estimated Cost: ~~$6.2M~~ $1.7M**

Build the new FourFlag station to replace Niles consisting of 5 69kV circuit breakers configured in a ring bus. Install a 14.4 MVAR cap bank. Install a new 69/34.5kV transformer with high side circuit switcher and 2 new 34.5kV breakers toward the City of Niles and Bertrand. Install distribution equipment.

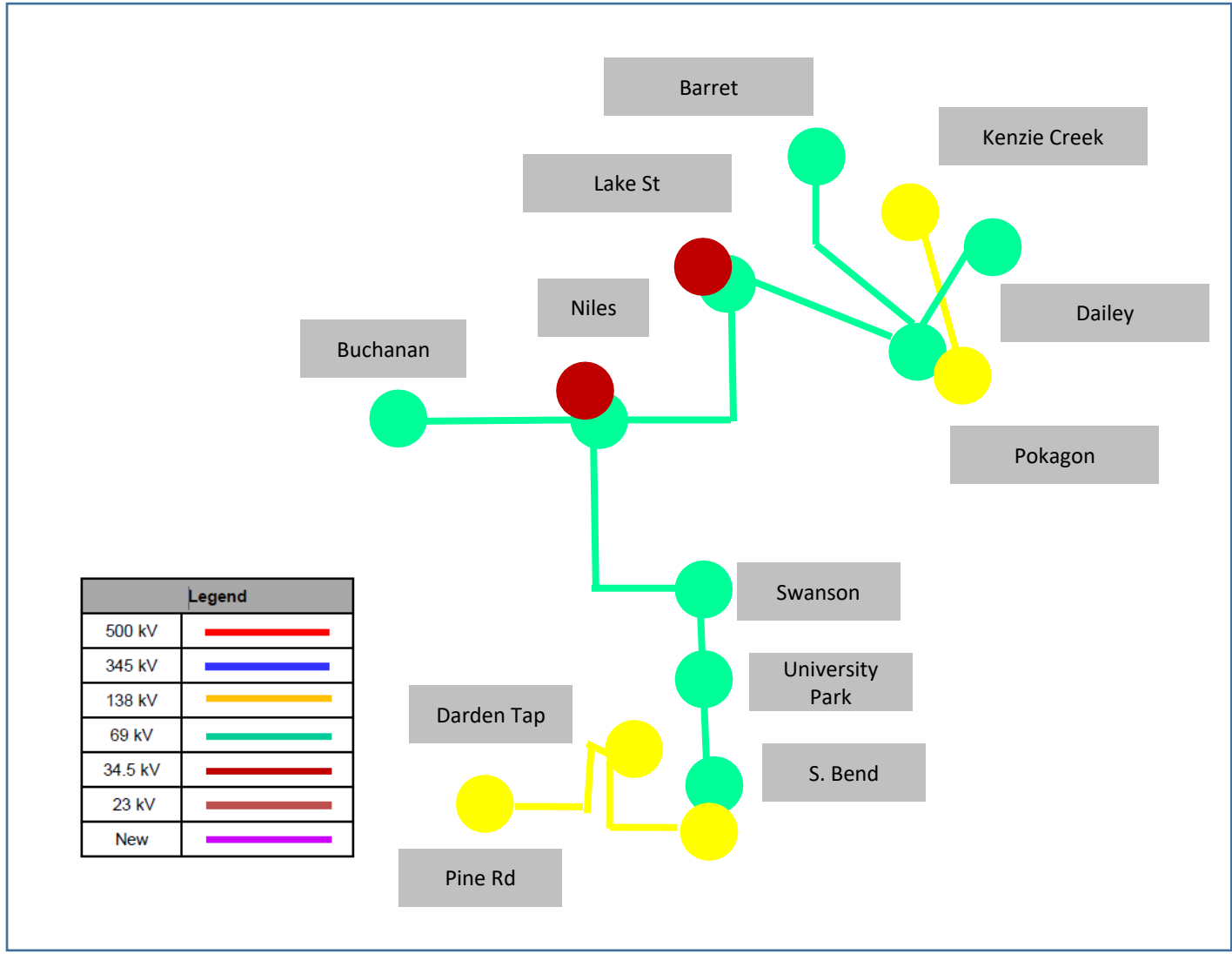
**Estimated Cost: $17.9M**

Route the Dailey, Barret and Lake St 69kV lines into Kenzie Creek station.

**Estimated Cost: $2.8**

Build the new 138/69/34kV Boundary station to serve the new 34.5kV distribution load and to separate the Swanson and University Park load form the network.

**Estimated Cost: $13.6M**



# AEP Transmission Zone: Supplemental S2167 Scope Change

**S2167:** Posted in 2020 Local Plan. Need Number: AEP-2018-IM002, AEP-2019-IM035, AEP-2019-IM025, AEP-2019-IM046. Solution Meetings all on 12/18/2019.

**Process Stage**: Submission of Supplemental Project for inclusion in the Local Plan 9/26/2025

**Selected Solution:**

Route the Mayflower 69kV, Lake Street 69kV, South Bend 69kV, and City of Niles 34.5kV lines into FourFlag station.

Estimated Cost: **$8.5M**

Build the ~2 mile 138kV double ckt Boundary Extension

**Cost: $4.4M**

Rebuild the Pokagon – Niles 69kV line as the ~9.3 mile Kenzie – ~~Niles~~ FourFlag 69kV line.

**Cost: $22.8M**

Rebuild the ~11.8 mile South Bend – Niles 69kV line as the South Bend – Boundary – ~~Niles~~ FourFlag 69kV line

**Cost: $26.6M**

~~Install a 69kV bus tie CB at Swanson station to separate the 4 Moabs in series.~~ Rebuild Swanson in the clear. **Cost: ~~$2.1M~~ $2.6M**

Replace the switch pole for University Park. The new PoP Switch pole will be called "Peppermint Switch".
**Cost: $1M**

Install a 34.5kV circuit breaker at South Side Station (owned by City of Niles) to coordinate with the new breakers at FourFlag.

**Estimated Cost: $2.1M**

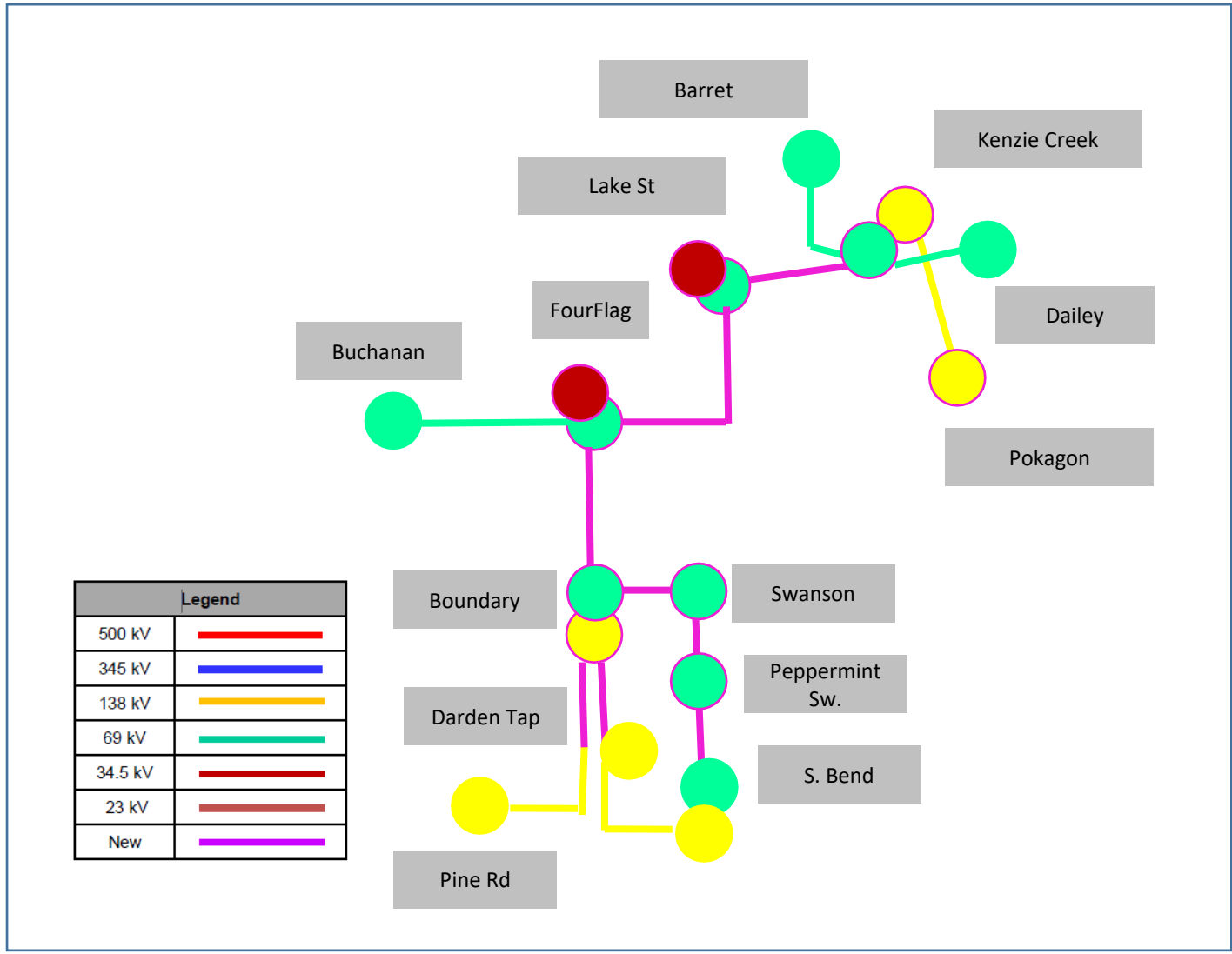
**Estimated Cost:** ~~$101.3M~~ $125.8M

**Projected In-Service:** ~~06/01/2022~~ 3/13/2026

**Supplemental Project ID:** S2167

**Project Status:** Scoping

**Model:** 2024 RTEP



# AEP Transmission Zone M-3 Process
# Fall Creek, IN

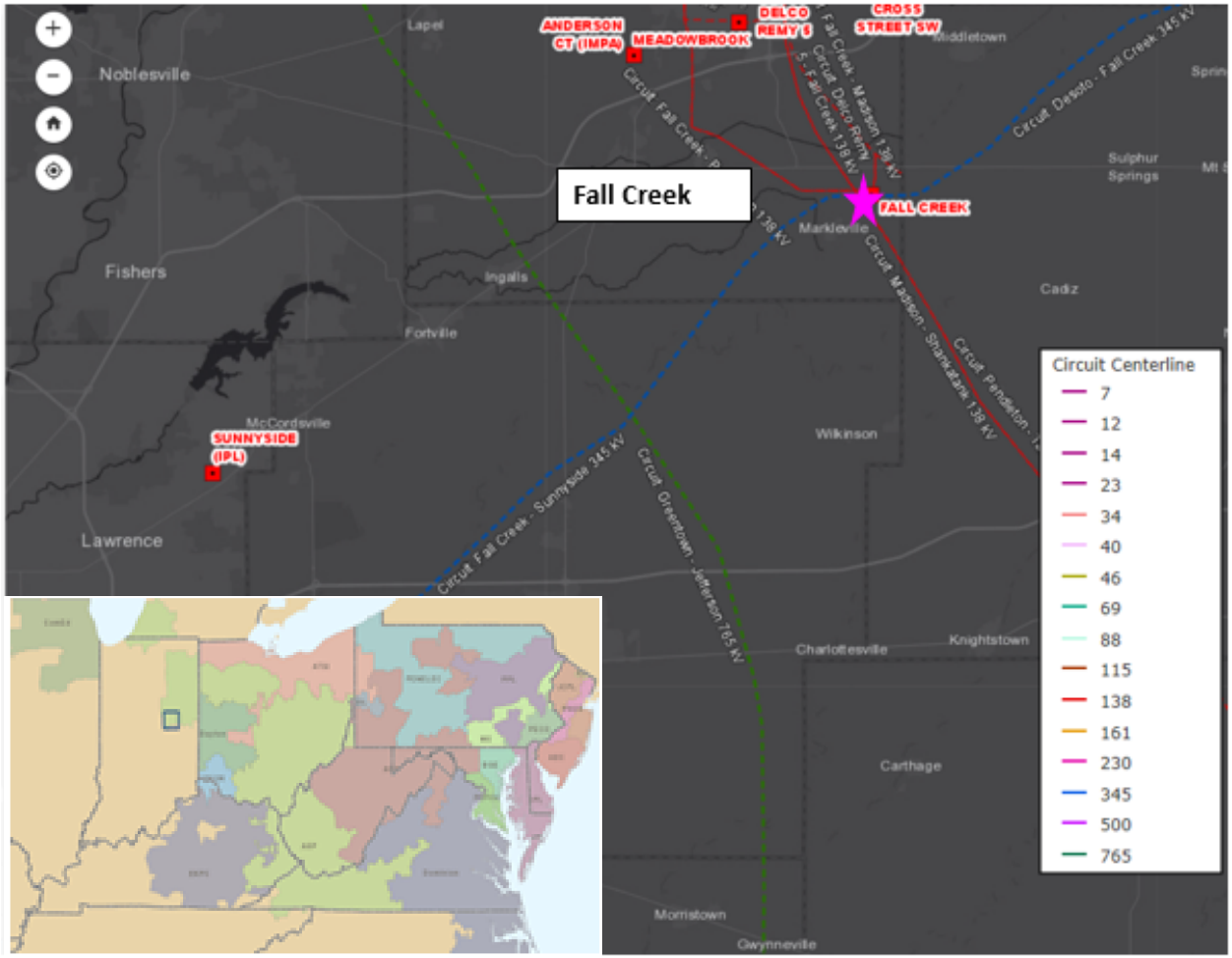
**Need Number:** AEP-2024-IM013

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/26/2025

**Previously Presented:** Need Meeting 12/03/2024, Solution Meeting 07/08/2025.

**Project Driver:** Operational Flexibility and Efficiency
**Specific Assumption Reference:** AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions slide 14)

**Problem Statement:**
AES-Indiana (a MISO member) will be removing and retiring their Fall Creek 345 kV circuit breakers “L” and “K2” which have reached their end of life. These are the only AES-Indiana owned assets at AEP’s Fall Creek 345 kV station. This removal will affect the operational reliability of the system by creating a three-terminal line, an operating configuration that presents protection challenges and could result in mis-operations or over-tripping of the remaining AEP breakers in the station.



# AEP Transmission Zone M-3 Process
# Desoto, IN/Aladdin, IN/Fall Creek, IN

**Need number(s):** AEP-2024-IM013

**Process Stage**: Submission of Supplemental Project for inclusion in the Local Plan 9/26/2025

**Proposed Solution:**

**Desoto relay upgrades:** 345 kV relay upgrades due to the Fall Creek station circuit breaker install.. Estimated Cost: $1.175 M.(s3723.1)

**Aladdin Telecom install:** Install Telecom at Aladdin station for the area.. Estimated Cost: $0.197 M. (s3723.2)

**Fall Creek install:** Install three 345 kV 63 kA breakers in the current "K" string. Extend 345 kV bus. 345 kV switch removal.. Estimated Cost: $7.954 M. (s3723.3)

**Transmission Cost Estimate:** $9.326 M

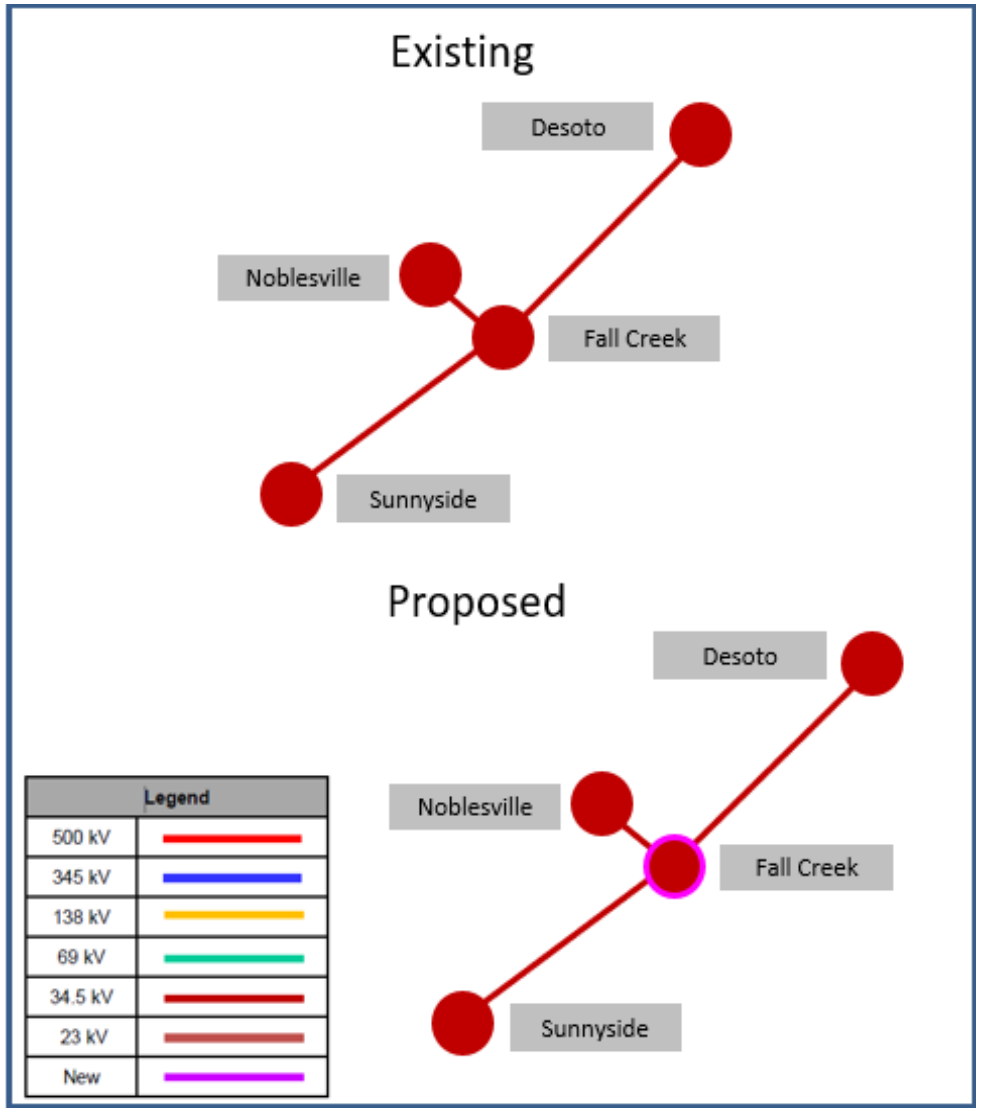
**Alternatives Considered:**

Considering the availability of space in the station, no other transmission alternates were viable. Retiring and not replacing the breakers would result in a three-terminal line at the station and would result in protection challenges with the remaining equipment.

**Supplemental Project ID**: 3723.1-3

**Projected In-Service:** 05/27/2026

**Project Status:** Scoping



# Revision History

3/26/2025 – V1 Added slides #1-12: s3589.1, s3577.1-3, s3588.1-7, s3590.1-.3, s3591.1-.2

4/07/2025 – V2 Added slides #13-23: s3593.1-3, s3594.1, s3595.1, s3596.1.

7/01/2025 – V3 Added slides #24-29: s3608.1-7, s3606.1-2, s3607.1-3.

8/04/2025 – V4 Added slides #30-36: s3641.1-15.

9/08/2025 – V5 removed slides of s3608 as potentially involving MISO T2 impact.

9/26/2025 – V6 Added slides #37-42: s3724.1-2, s2167(scope change), s3723.1-3.