

Subregional RTEP Committee – Western FirstEnergy Supplemental Projects ATSI Transmission Zone

July 17, 2026

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

Need Number: ATSI-2026-027
Process Stage: Need Meeting 07/17/2026
Project Driver: Operational Flexibility and Efficiency

Specific Assumption Reference:

System Performance Projects

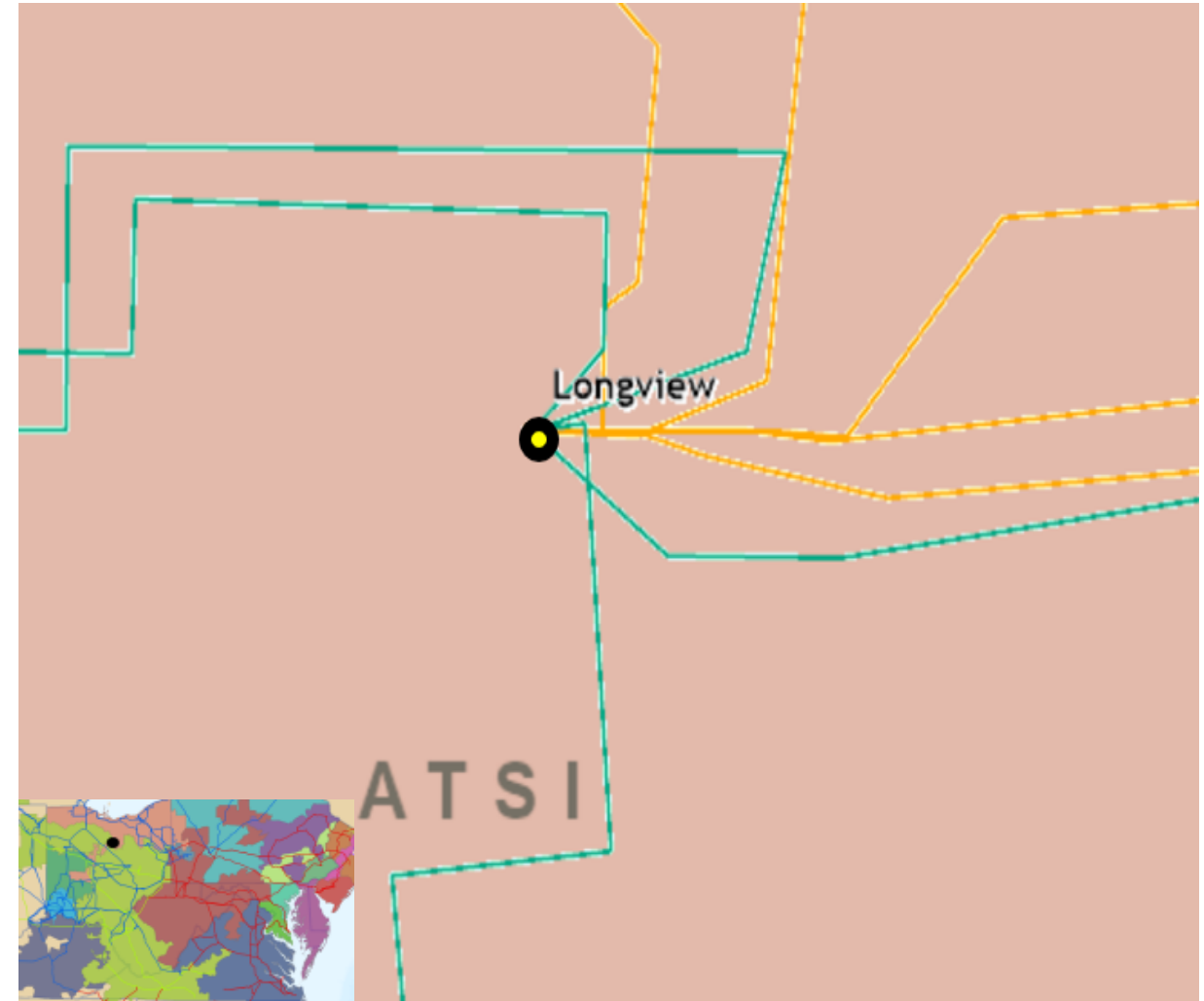
- Add/Expand Bus Configuration
- Load at risk in planning and operational scenarios
- Reduce the amount of exposed potential local load loss during contingency conditions
- Eliminate simultaneous outages to multiple networked elements
- Substation and line equipment limits

Problem Statement:

Longview Substation consists of a 138 kV yard with five line terminals, one capacitor bank, one 138-12.5 kV transformer, and two 138/69 kV transformers, a 69 kV yard with five line terminals and two capacitor banks, and a 12.5 kV yard with three line terminals.

The 138 kV and 69 kV yards are arranged in straight bus configurations. A bus fault or stuck breaker in either yard results in the loss of that entire yard.

Under normal operating conditions Longview Substation serves approximately 80 MW of load from the 138 kV bus to a large industrial customer, 47 MW of load to the 69 kV system, and 11 MW of load to the 12.5 kV system.



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Need Number: ATSI-2026-027
Process Stage: Need Meeting 07/17/2026

Problem Statement (CONT'):

Transmission line ratings are limited by terminal equipment:

Longview-Ontario 138 kV Line:

- Existing Line rating: 224 / 294 / 316 / 365 MVA (SN/SE/WN/WE)
- Existing Conductor rating: 317 / 365 / 316 / 384 MVA (SN/SE/WN/WE)

Longview-Nottingham 138 kV Line:

- Existing Line rating: 141 / 182 / 202 / 227 MVA (SN/SE/WN/WE)
- Existing Conductor rating: 233 / 282 / 263 / 333 MVA (SN/SE/WN/WE)

Cook-Longview 69 kV Line:

- Existing Line rating: 72 / 72 / 72 / 72 MVA (SN/SE/WN/WE)
- Existing Conductor rating: 76 / 92 / 87 / 111 MVA (SN/SE/WN/WE)

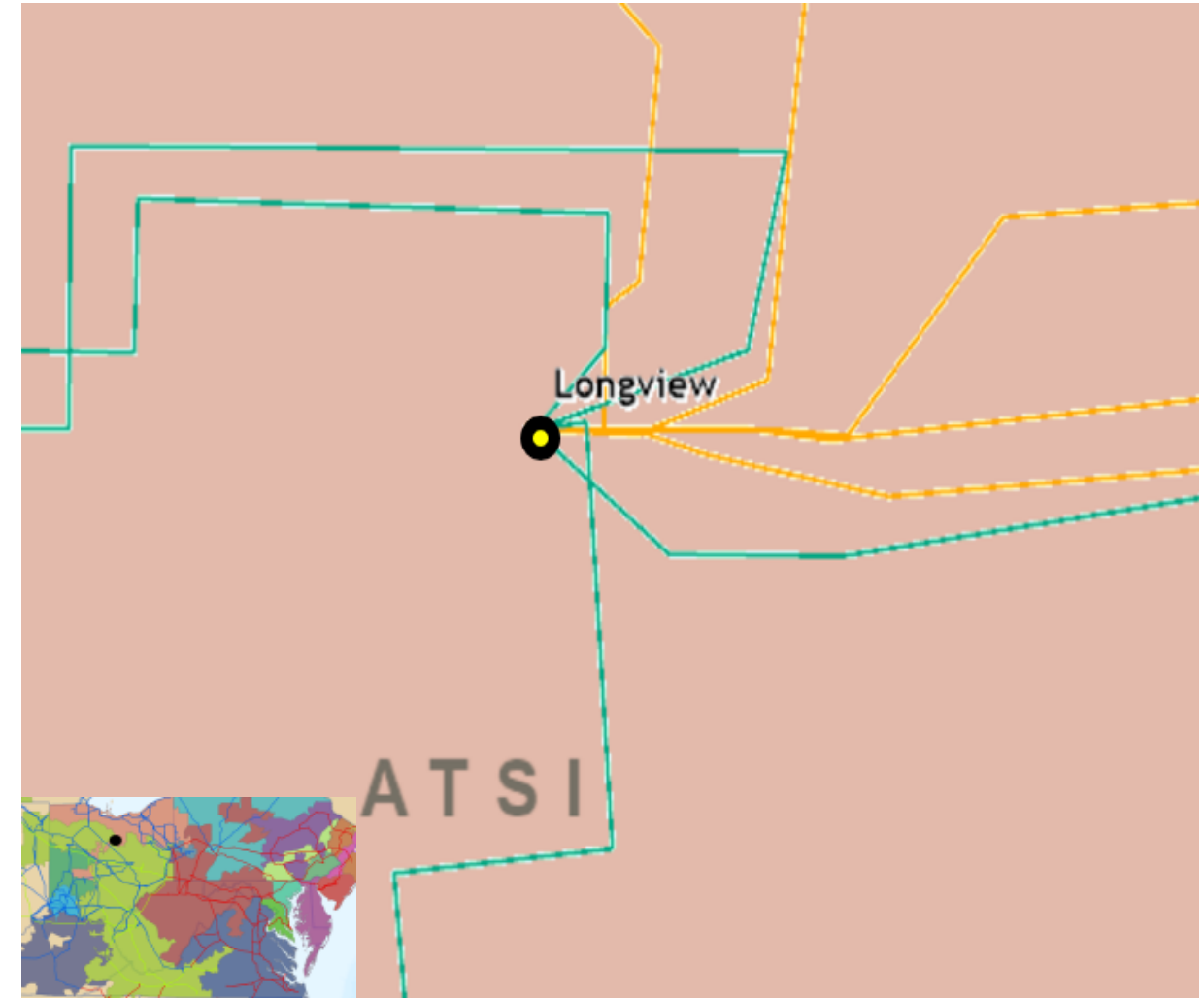
Transformer circuit ratings are limited by terminal equipment:

Longview No. 4 138/69 kV Transformer:

- Existing Circuit rating: 113 / 148 / 163 / 184 MVA (SN/SE/WN/WE)
- Existing Transformer rating: 157 / 157 / 197 / 197 MVA (SN/SE/WN/WE)

Longview No. 5 138/69 kV Transformer:

- Existing Circuit rating: 113 / 148 / 163 / 184 MVA (SN/SE/WN/WE)
- Existing Transformer rating: 157 / 157 / 198 / 198 MVA (SN/SE/WN/WE)



Need Number: ATSI-2026-047
Process Stage: Need Meeting 07/17/2026
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Projects Global Factors

- System reliability and performance
- Substation/line equipment limits

Problem Statement:

The Greenfield Substation control house is congested. There is not sufficient space for additional panel upgrades.

Transmission Line Ratings:

Covert-Greenfield 69 kV Line:

- Existing Line and Conductor ratings: 76 / 92 / 87 / 111 MVA (SN/SE/WN/WE)

Greenfield-Wilmer Tap 69 kV Line:

- Existing Line and Conductor ratings: 76 / 92 / 87 / 111 MVA (SN/SE/WN/WE)

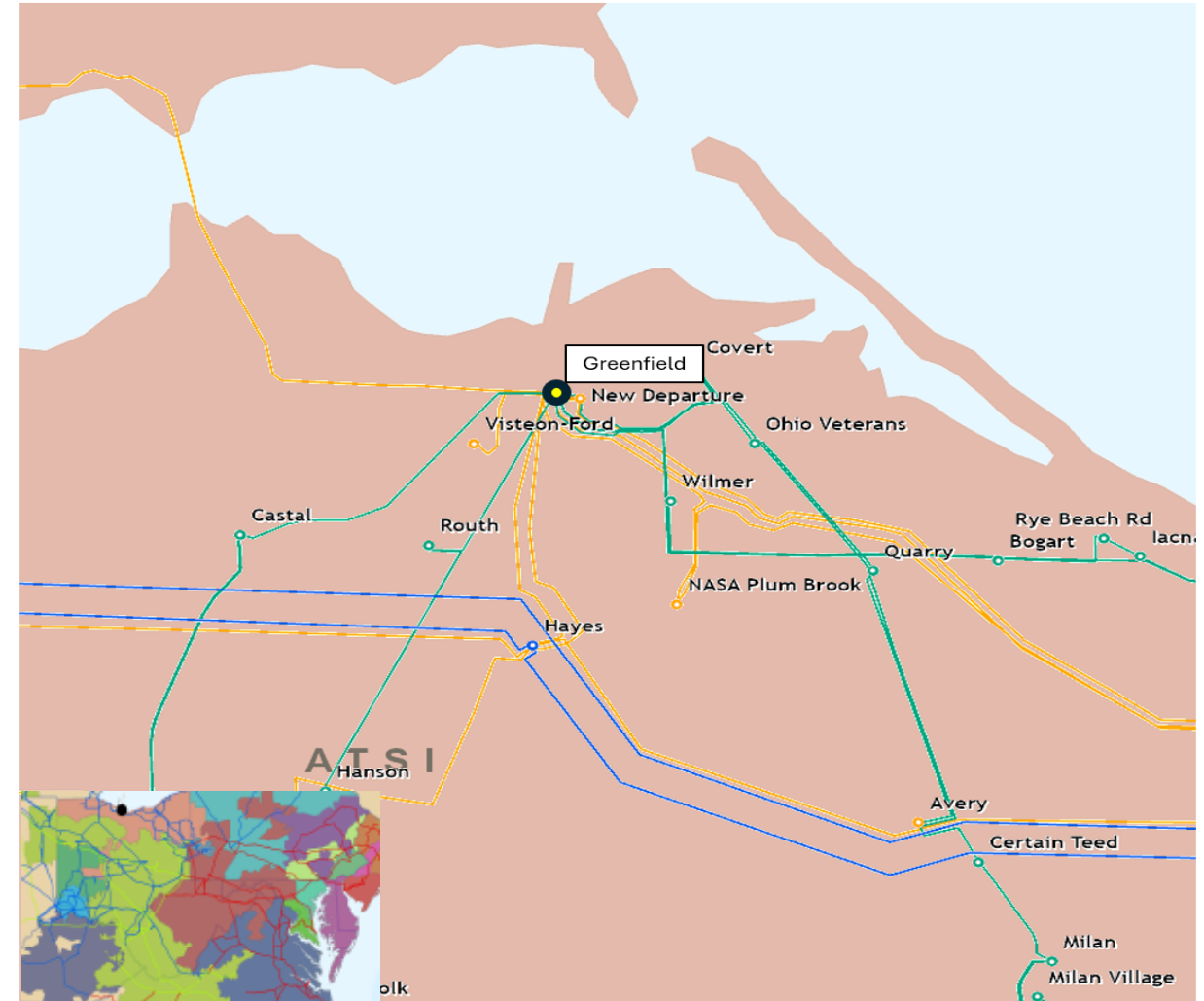
Castalia-Greenfield 69 kV Line:

- Existing Line and Conductor ratings: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)

Greenfield-New Departure 138 kV Line:

- Existing Line and Conductor ratings: 200 / 242 / 226 / 286 MVA (SN/SE/WN/WE)

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Need Number: ATSI-2026-047
Process Stage: Need Meeting 07/17/2026

Problem Statement (CONT'):

Greenfield-Hayes No. 1 138 kV Line:

- Existing Line and Conductor ratings: 278 / 339 / 315 / 401 MVA (SN/SE/WN/WE)

Greenfield-Lakeview 138 kV Line:

- Existing Line ratings: 267 / 352 / 387 / 438 MVA (SN/SE/WN/WE)
- Existing Conductor ratings: 320 / 385 / 360 / 456 MVA (SN/SE/WN/WE)

Greenfield-Greenfield Tap 138 kV Line:

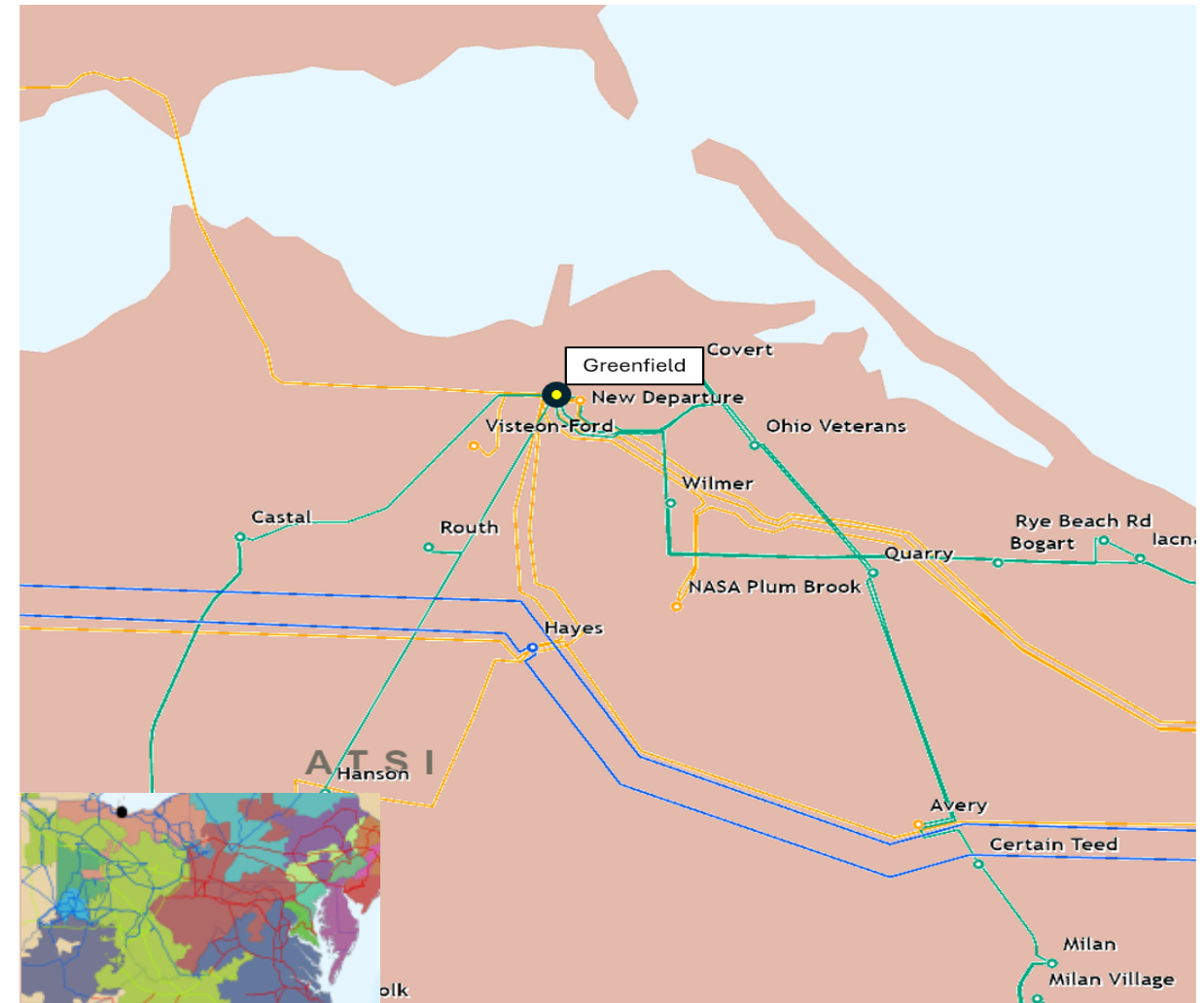
- Existing Line ratings: 96 / 96 / 96 / 96 MVA (SN/SE/WN/WE)
- Existing Conductor ratings: 160 / 192 / 180 / 228 MVA (SN/SE/WN/WE)

Greenfield-Nasa 138 kV Line:

- Existing Line and Conductor ratings: 160 / 192 / 180 / 228 MVA (SN/SE/WN/WE)

Greenfield-Hayes No. 2 138 kV Line:

- Existing Line and Conductor ratings: 233 / 282 / 263 / 333 MVA (SN/SE/WN/WE)



Need Number: ATSI-2026-049
Process Stage: Need Meeting 07/17/2026
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Global Factors

- System reliability/performance
- Substation/Line equipment limits

Problem Statement:

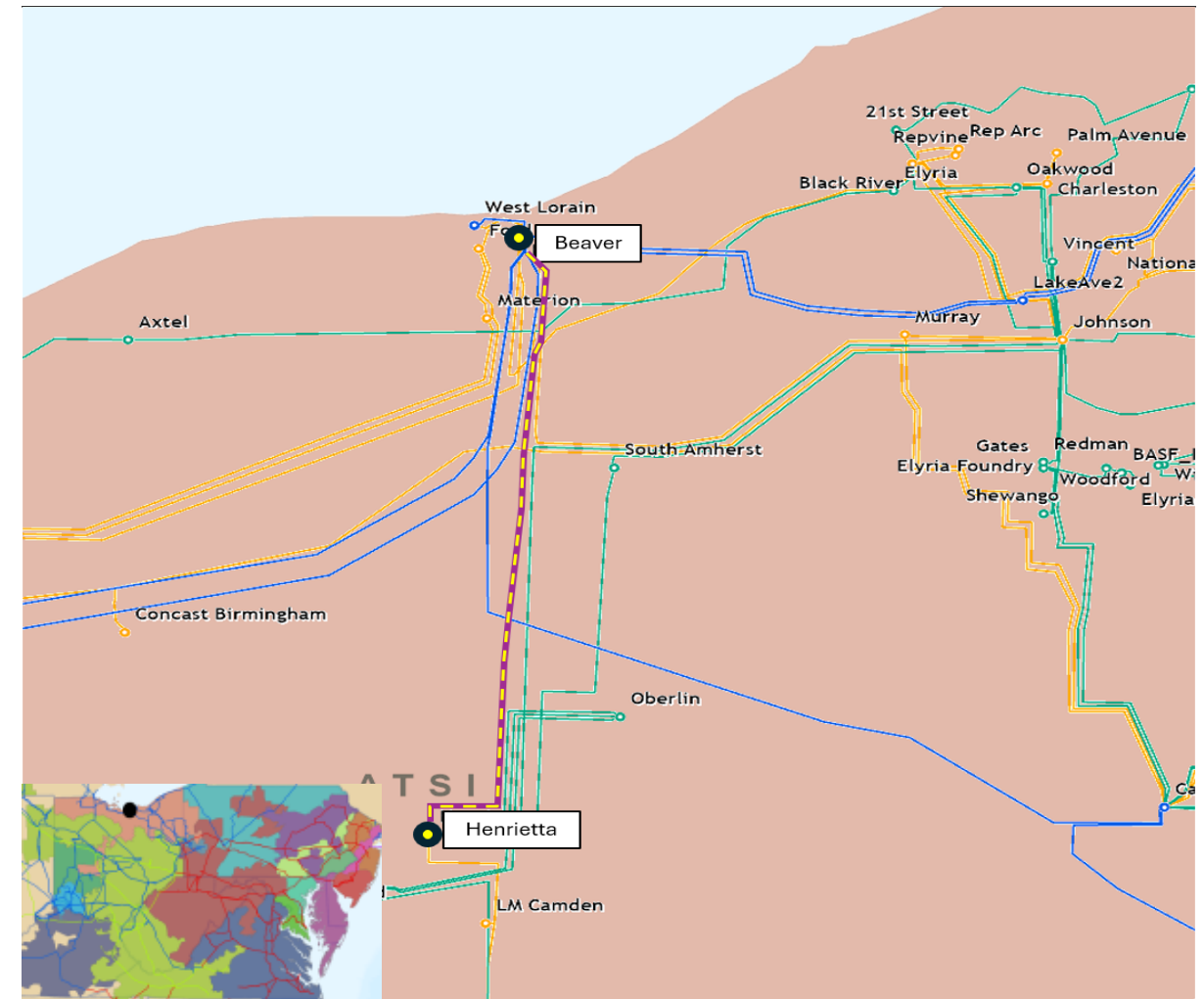
The Beaver-Henrietta 138 kV Line was constructed approximately 58 years ago and is approaching end of life. It is approximately eight miles long.

Per recent inspections, the line is exhibiting deterioration resulting in increased maintenance costs. Inspection findings include:

- A section of the transmission line conductor failed in 2025 due to a burnt splice in a tower jumper loop. During replacement, more deteriorated conductor was identified. Additional inspection and testing confirmed the conductor is in poor condition.

Existing Transmission Line Ratings:

- 153 / 185 / 176 / 223 MVA (SN/SE/WN/WE)



Need Number: ATSI-2026-051
Process Stage: Need Meeting 07/17/2026
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Global Factors

- System reliability/performance
- Substation/Line equipment limits

Problem Statement:

Under normal operating conditions, power flows from generation in the ATSI region (west) toward load in the Penelec region (east). This west-to-east transfer increases significantly when the Seneca Pump Storage facility is operating in pumping mode. Following an N-1 contingency, the loading on the Ashtabula-Leroy Center 138 kV Q2 and Q4 lines exceeds their emergency ratings. To mitigate these overloads, Ashtabula Substation is operated in an abnormal configuration by removing transmission facilities from service. While this pre-contingency switching effectively reduces the overload risk, it significantly decreases overall system reliability.

Ashtabula-Leroy Center 138 kV Q2 Line:

Ashtabula-Sanborn 138 kV Q2 Line Existing Transmission Line and Conductor Ratings:

- 118 / 121 / 133 / 133 MVA (SN/SE/WN/WE)

Sanborn-Austinburg 138 kV Q2 Line Existing Transmission Line and Conductor Ratings:

- 148 / 151 / 166 / 166 MVA (SN/SE/WN/WE)

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Need Number: ATSI-2026-051
Process Stage: Need Meeting 07/17/2026

Problem Statement (CONT'):

Austinburg-Spruce 138 kV Q2 Line Existing Transmission Line and Conductor Ratings:

- 148 / 151 / 166 / 166 MVA (SN/SE/WN/WE)

Spruce-Leroy Center 138 kV Q2 Line Existing Transmission Line and Conductor Ratings:

- 148 / 151 / 166 / 166 MVA (SN/SE/WN/WE)

Ashtabula-Stacy-Leroy Center 138 kV Q4 Line:

Ashtabula-Sanborn 138 kV Q4 Line Existing Transmission Line and Conductor Ratings:

- 118 / 121 / 133 / 133 MVA (SN/SE/WN/WE)

Sanborn-Spruce 138 kV Q4 Line Existing Transmission Line and Conductor Ratings:

- 148 / 151 / 166 / 166 MVA (SN/SE/WN/WE)

Spruce-Leroy Center 138 kV Q4 Line Existing Transmission Line and Conductor Ratings:

- 148 / 151 / 166 / 166 MVA (SN/SE/WN/WE)



Need Number: ATSI-2026-053
Process Stage: Need Meeting 07/17/2026
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Global Factors

- System reliability/performance
- Substation/Line equipment limits

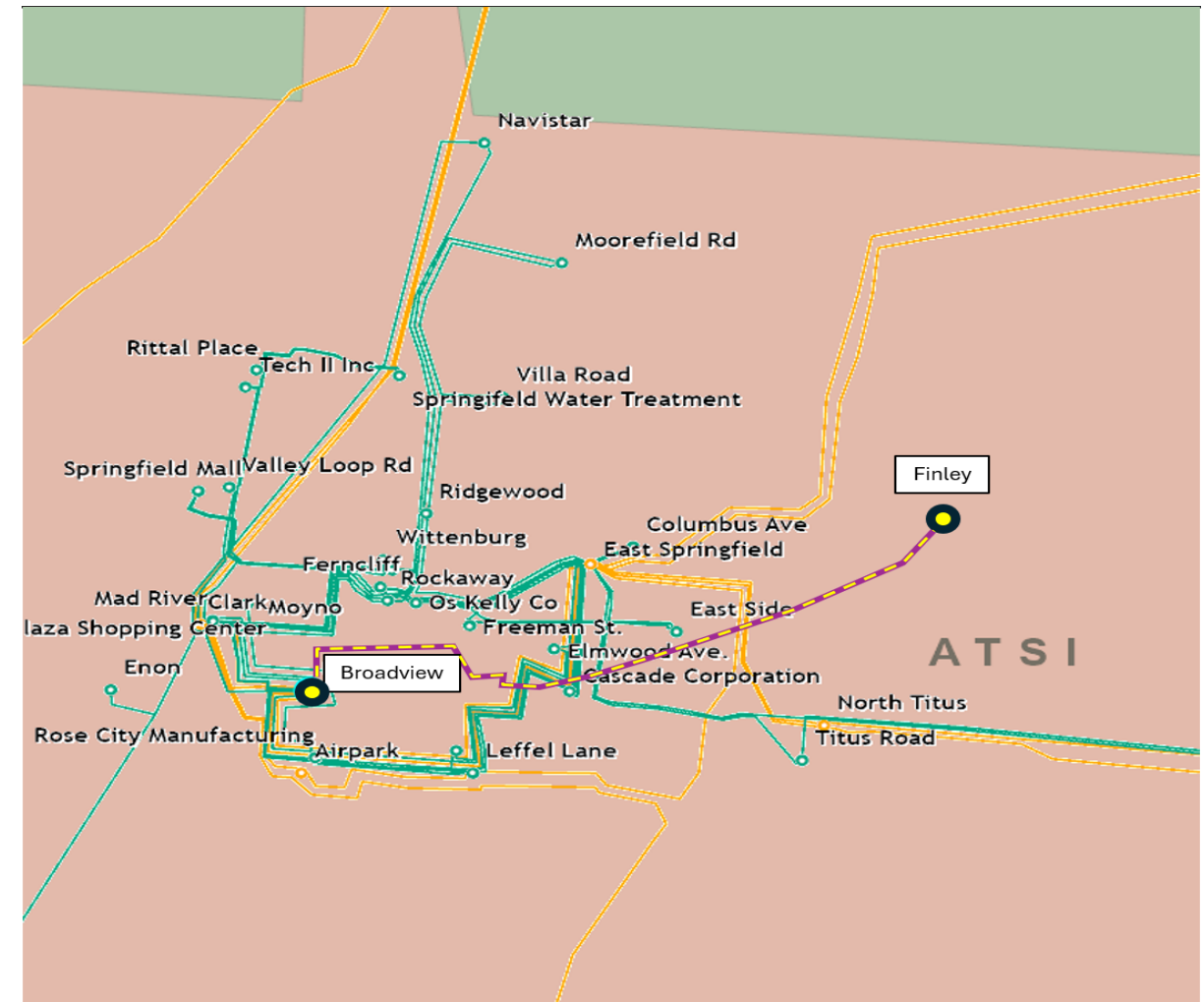
Problem Statement:

The Broadview-Finley 138 kV Line has experienced real-time overloads during high-load conditions, particularly when solar generation output is elevated. These overloads exceed the normal ratings of the line and require operational intervention. PJM has curtailed generation to mitigate the overload.

The line is currently limited by the transmission line conductor.

Broadview-Finley 138 kV Line Existing Transmission Line and Conductor Ratings:

- 160 / 192 / 180 / 228 MVA (SN/SE/WN/WE)



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: ATSI-2021-021
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026
Previously Presented: Need Meeting 10/15/2021
Project Driver: Equipment Condition/Performance/Risk, Operational Flexibility and Efficiency

Specific Assumption Reference:

Global Considerations

- System Reliability and Performance
- Substation/line equipment limits
- Reliability of Non-BES Facilities
- Load at risk in planning and operational scenarios.
- Load and/or customers at risk on single transmission lines

Add/Expand Bus Configuration

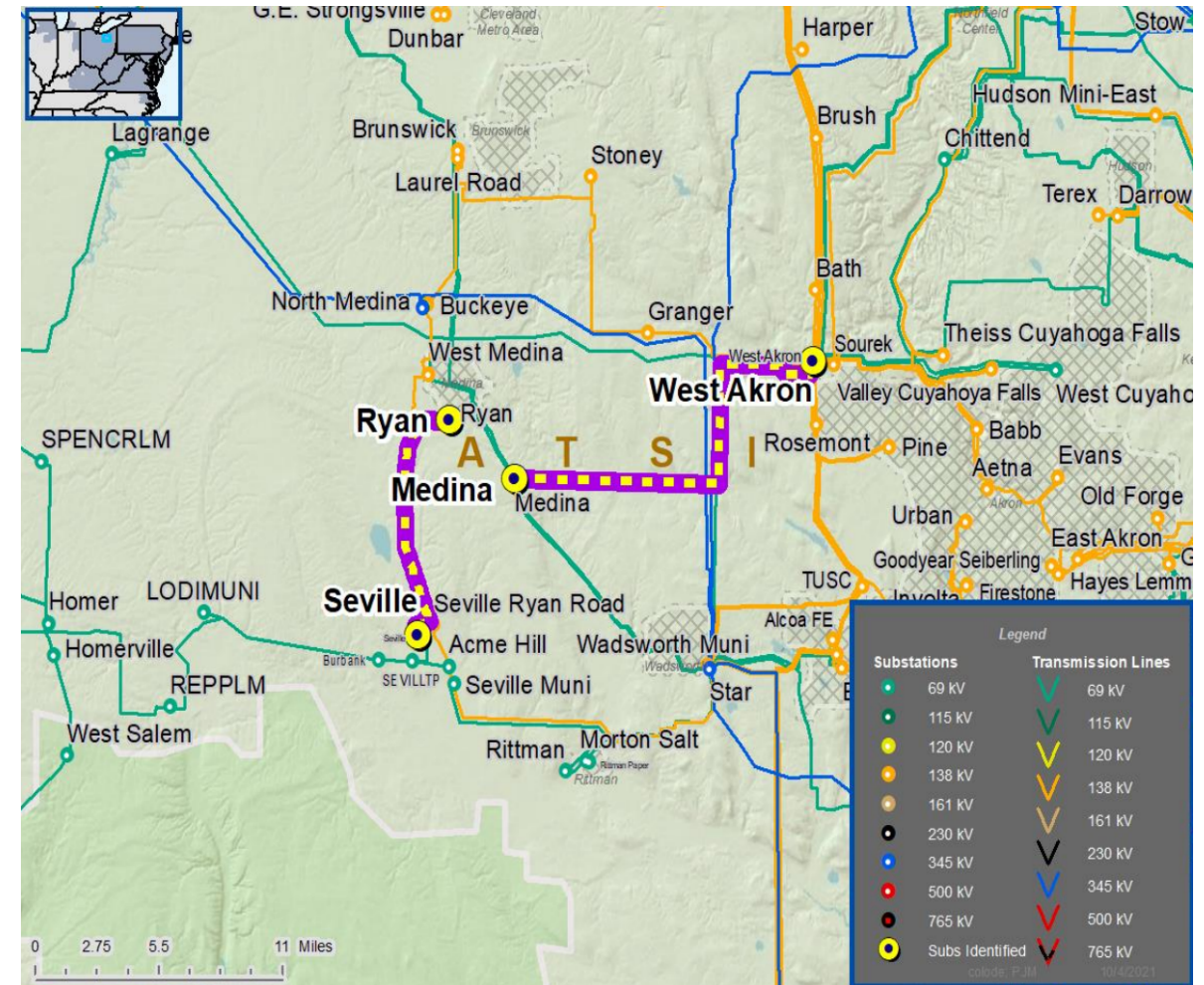
- Loss of substation bus adversely impacts transmission system performance
- Eliminate simultaneous outages to multiple networked elements under N-1 analysis

Network Radial line

- Network Radial Line

Problem Statement:

An n-1 at Medina Substation results in the loss of approximately 59 MW and 8,451 customers. An N-1-1 outage causes low voltage (88% of nominal 69 kV voltage) and a total loss of load combined with a N-1 causes outage of approximately 59 MW and 8,451 customers.



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Need Number: ATSI-2021-021
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Problem Statement (CONT'):

An N-1-1 outage results in a total load loss affecting approximately 46 MW and 11,971 customers. The Medina Industries (Medina) 69 kV Line is a radial line. The line serves eight delivery points, approximately 27 MW of load and 1,057 customers.

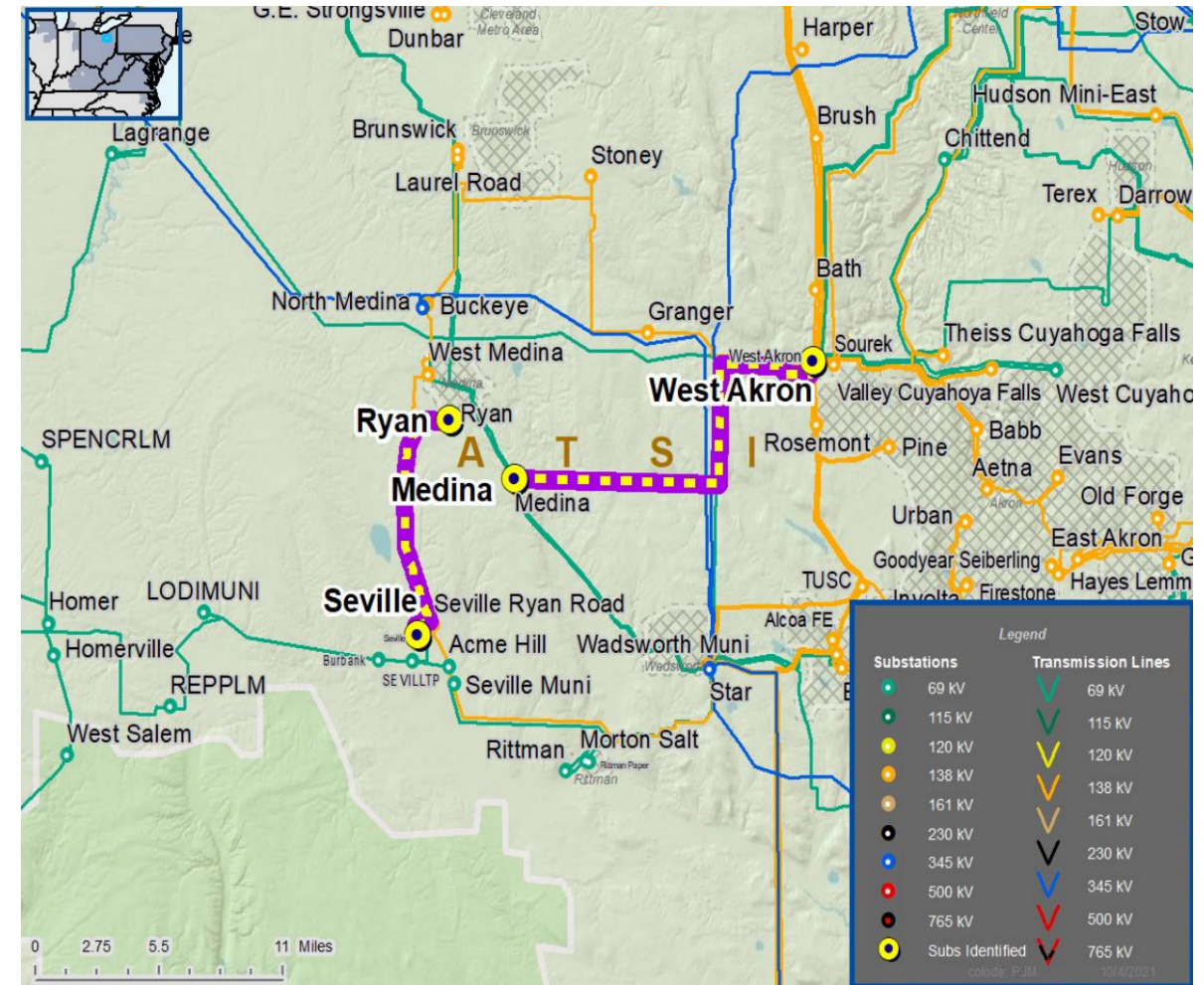
Lack of operational flexibility during maintenance outages.

Customer complaints during outage on the radial line due to lack of alternate source to serve the customers.

High industrial customer growth area.

Past five-year outage history (2017-2021):

- Medina-Star 69 kV Line, one (1) momentary outage and two (2) sustained outages.
- Medina Industries (Medina) 69 kV Line, three (3) momentary and three (3) sustained outages.
- Medina-West Akron 69 kV Line, two (2) momentary and three (3) sustained outages.
- Abbe-Medina 69 kV Line, six (6) momentary outage and six (6) sustained outages.
- Ryan-Seville 138 kV Line, one (1) sustained outage. - North Medina-West Medina 138 kV Line, one (1) sustained outage.
- Ryan-West Medina 138 kV Line, one (1) sustained outage.
- Seville-Star 138 kV Line, one (1) momentary outage and one (1) sustained outages.



Need Number: ATSI-2021-021
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Proposed Solution:

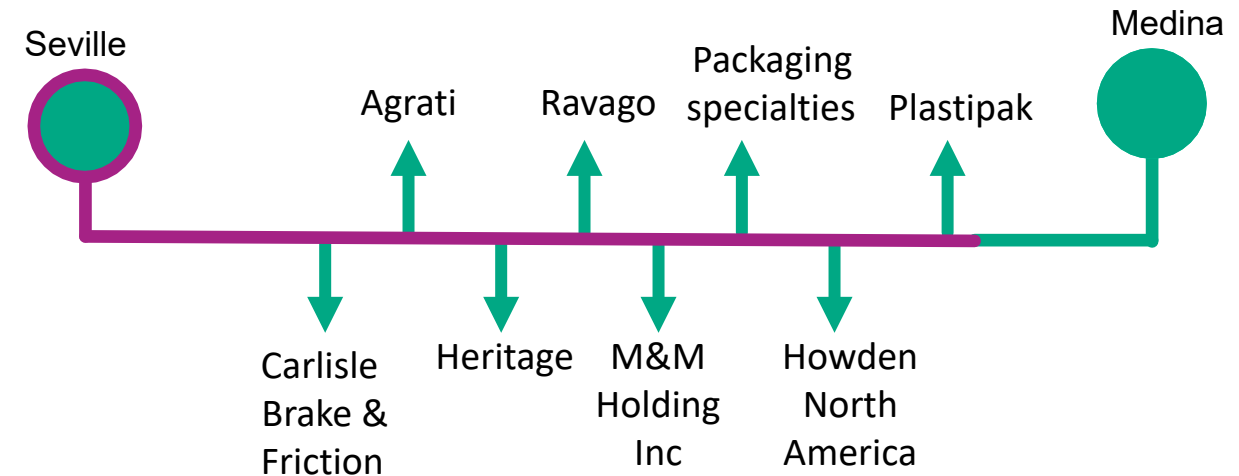
Phase I:

Medina-Medina Industries-Seville 69 kV Line Upgrade Project

- Build a new ~7.5 miles 69 kV line with new conductor to extend the Medina industries 69 kV line from/at Carlisle Brake & Friction to Seville Substation and terminate the line at Seville Substation. Line will be built in a separate ROW from Ryan-Seville 138 kV Line. This phase will create the Medina-Seville 69 kV Line. The new line construction will be from Seville Substation to Carlisle Brake & Friction Tap.
- Rebuild the existing Medina Industries radial 69 kV line (~3.3 miles) from str# 373 to 17D with new conductor. The rebuild construction will be from Carlisle Brake & Friction Tap to just east of Plastipak Tap.
- Convert the 69 kV yard at Seville Substation into a five-breaker ring bus.
- Add switches at all Medina-Seville 69 kV Line main line tap points.

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Phase 1: Medina-Seville 69 kV Line



Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

Need Number: ATSI-2021-021
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

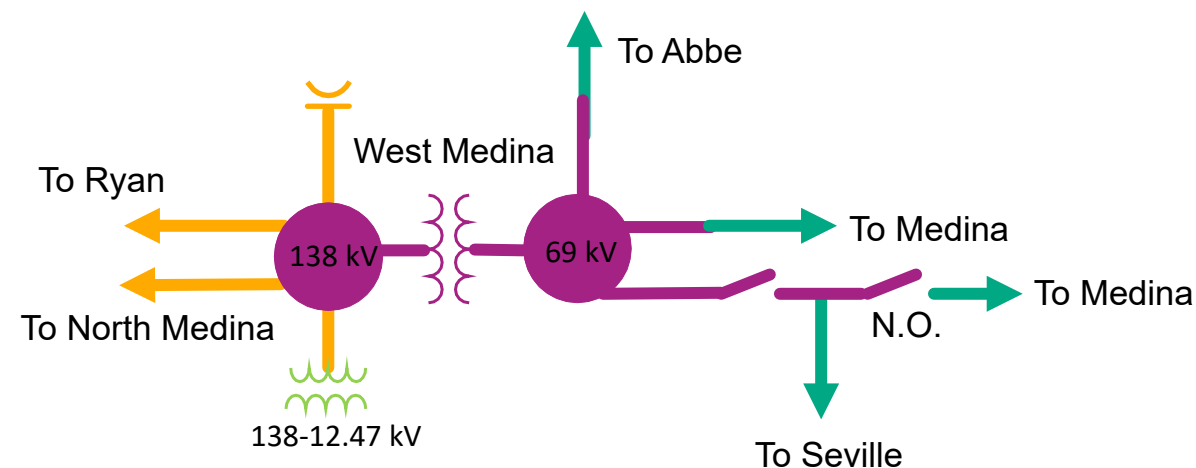
Proposed Solution (CONT'):

Phase 2:

West Medina Substation Project

- Convert 138 kV yard at West Medina Substation into a five-breaker ring bus.
- Add a new 69 kV four-breaker ring bus at West Medina Substation.
- Add a 138/69 kV Transformer at West Medina Substation.
- Add high side distribution transformer breaker at West Medina Substation.
- Loop the Abbe - Medina 69 kV Line into the 69 kV ring bus at West Medina Substation, creating the Abbe-West Medina 69 kV Line and Medina-West Medina 69 kV Line.
- Rebuild the Abbe-Medina 69 kV Line from str# 373 to str# 369/368 (~0.2 miles) as a double circuit 69 kV line with new conductor, to reroute the Medina - Seville 69 kV Line into the 69 kV yard at the West Medina Substation. This will create the Seville-West Medina 69 kV Line. (The Medina-Seville 69 kV line will be operated normally open at str#373A/374).
- Reroute the Medina-Seville 69 kV Line from the Medina Substation into the 69 kV ring bus into the West Medina Substation using the newly built line from str# 373 to str# 369/368.
- Add a 1200A switch at str# 373/372 on the Seville-West Medina 69 kV Line.
- Add a 1200A normally open switch at str# 373A/374 on the Medina-Seville 69 kV Line.

Phase 2: West Medina 138-69 kV Substation Project



Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

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ATSI Transmission Zone M-3 Process Medina/Seville Area

Need Number: ATSI-2021-021
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Proposed Solution (CONT’):

Phase 3:

Medina 69 kV Breaker-and-a-Half Project

- Convert the 69 kV yard at West Medina Substation into a breaker-and-a-half configuration.

Transmission Line Rating Changes:

Medina-Seville 69 kV Line:

Industry Tap-Medina 69 kV Branch:

- Before Proposed Solution: 45 / 46 / 51 / 51 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

Industry Tap-Plastipk Tap 69 kV Branch:

- Before Proposed Solution: 45 / 54 / 51 / 65 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

Plastipk Tap - TLT Babck Tap 69 kV Branch:

- Before Proposed Solution: 45 / 54 / 51 / 65 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

Par-Pkg Spec Tap-TLT Babck Tap 69 kV Branch:

- Before Proposed Solution: 45 / 54 / 51 / 65 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

Par-Pkg Spec Tap - Ravago Tap 69 kV Branch:

- Before Proposed Solution: 47 / 56 / 53 / 67 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

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Phase 3: Medina 69 kV Breaker and Half Project

Bubble Diagram is not needed for this project
since there is no topology change.

Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	



ATSI Transmission Zone M-3 Process Medina/Seville Area

Need Number: ATSI-2021-021
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Proposed Solution (CONT'):

Heritage Tap-Ravago Tap 69 kV Branch:

- Before Proposed Solution: 47 / 56 / 53 / 67 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

Carlisle Brake & Friction Tap-Heritage Tap 69 kV Branch:

- Before Proposed Solution: 47 / 56 / 53 / 67 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

Carlisle Brake & Friction Tap - Seville 69 kV Branch:

- Before Proposed Solution: N/A
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

West Medina 138/69 kV Transformer Circuit:

- Before Proposed Solution: N/A
- After Proposed Solution: 175 / 184 / 210 / 228 MVA (SN/SE/WN/WE)

Industry Tap-West Medina 69 kV Branch:

- Before Proposed Solution: N/A
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

Sun Oil Tap-West Medina 69 kV Branch:

- Before Proposed Solution: N/A
- After Proposed Solution: 100 / 121 / 113 / 143 MVA (SN/SE/WN/WE)

Medina Tap-West Medina 69 kV Branch:

- Before Proposed Solution: N/A
- After Proposed Solution: 100 / 121 / 113 / 143 MVA (SN/SE/WN/WE)

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SRRTEP Committee: Western – FirstEnergy Supplemental 07/17/2026

Phase 3: Medina 69 kV Breaker and Half Project

Bubble Diagram is not needed for this project
since there is no topology change.

Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	



ATSI Transmission Zone M-3 Process Medina/Seville Area

Need Number: ATSI-2021-021
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Alternatives Considered:

- Convert Medina Substation 69 kV yard into a breaker and half configuration
- At Medina Substation build a 138 kV four (4) breaker ring bus- Install 138/69 kV transformer at Medina Substation
- Convert Ryan Substation 138 kV yard into a four breaker ring bus- Build ~1.4 miles of 138 kV transmission line from Medina to Ryan substation
- Extend the Medina-Medina Industries 69 kV Line to Seville Substation by building ~ 7.5 miles of new 69 kV line.
- Convert the Seville Substation 69 kV proposed four breaker ring bus into a five (5) breaker ring bus
- Upgrade all 600 A switches on the Medina-Medina Industries 69 kV Line with 1200 A switches
- Add a new 1200 A switch at all main line tap points

Estimated Project Cost: Phase 1:\$41.43M
Phase 2:\$34.05M
Phase 3:\$22.35M

Projected In-Service: Phase 1: 12/31/2028
Phase 2: 5/31/2029
Phase 3: 9/30/2029

Project Status: Conceptual

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)

Phase 3: Medina 69 kV Breaker and Half Project

Bubble Diagram is not needed for this project
since there is no topology change.

Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

Need Number: ATSI-2026-041
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026
Previously Presented: Need Meeting 06/17/2026
Project Driver: Customer Service

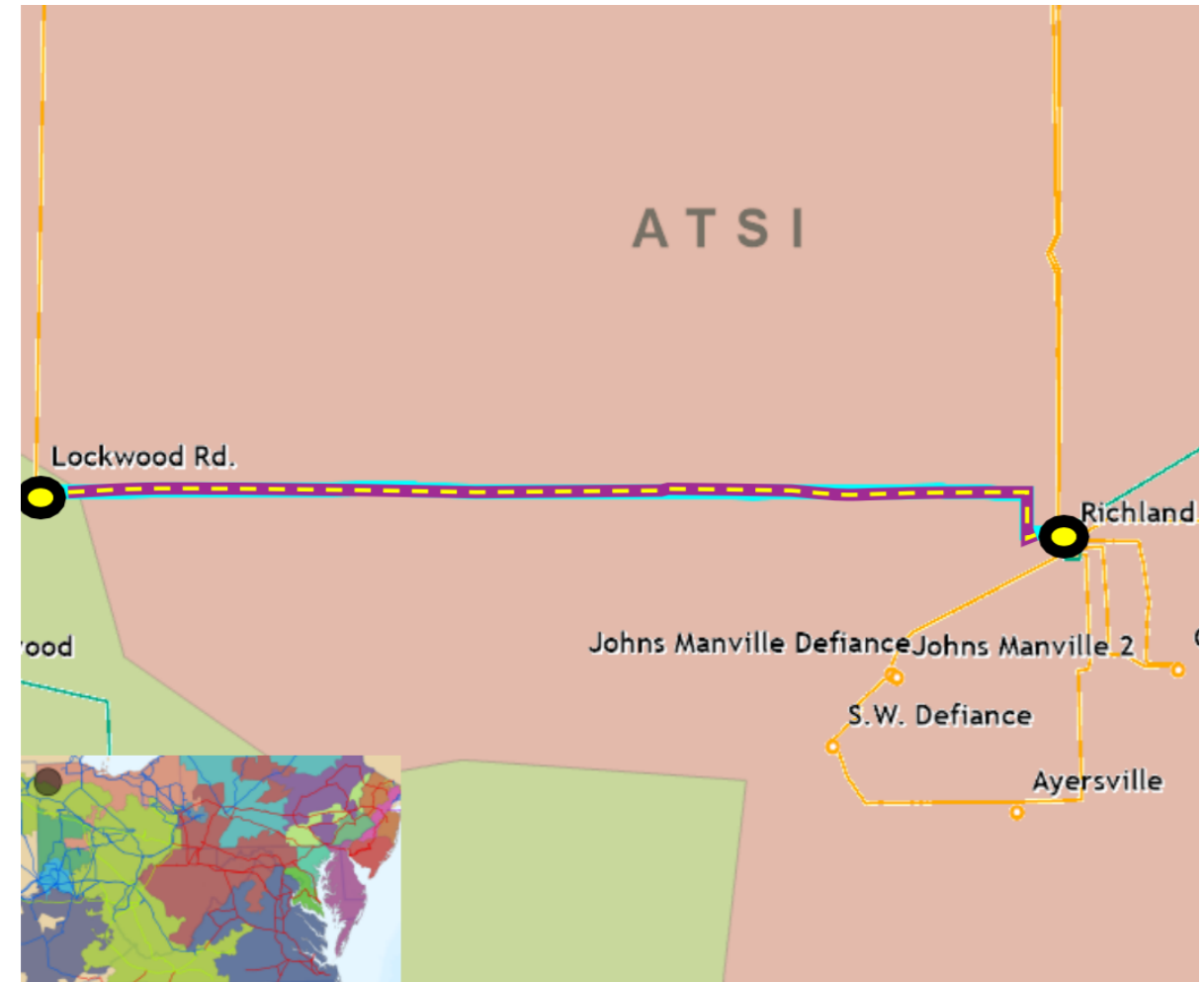
Specific Assumption Reference:

New customer connection requests will be evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement:

New Customer Connection - A customer requested 138 kV service for load of approximately 120 MVA near the Lockwood Road - Richland 138 kV Line. The request is approximately seven miles from Richland Substation.

Requested in-service date is 01/01/2030.



ATSI Transmission Zone M-3 Process Lockwood Road - Richland 138 kV Line

Need Number: ATSI-2026-041
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Proposed Solution:

Phase 1:

- Tap the Lockwood Road - Richland 138 kV Line and build approximately 3.6 miles of double circuit line extension. Only one circuit will be energized in Phase 1.
- Adjust relay settings at Richland.
- Install revenue metering.

Transmission Line Ratings:

Lockwood Road - Richland 138 kV Line:

- Before Proposed Solution: 216 / 229 / 253 / 277 MVA (SN/SE/WN/WE)
- After Proposed Solution: 216 / 229 / 253 / 277 MVA (SN/SE/WN/WE)

Phase 2:

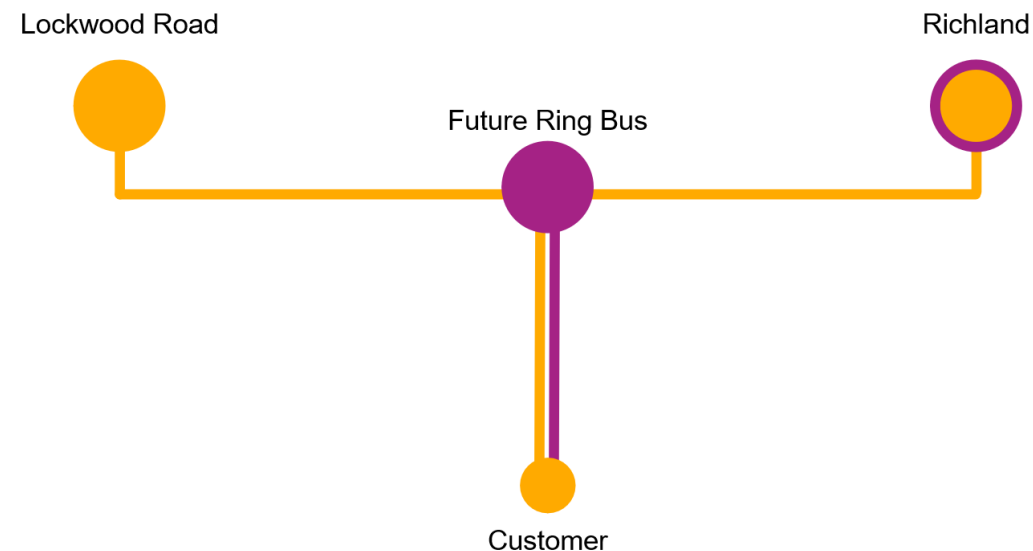
- Construct a new four-breaker 138 kV ring bus substation.
- Cut and loop in the Lockwood Road - Richland 138 kV Line using the double circuit line extension from Phase 1.
- Replace relay paneling and adjust relay settings at Richland.

Transmission Line Ratings:

Lockwood Road - Richland 138 kV Line:

- Before Proposed Solution: 216 / 229 / 253 / 277 MVA (SN/SE/WN/WE)
- After Proposed Solution: N/A

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Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

ATSI Transmission Zone M-3 Process Lockwood Road - Richland 138 kV Line

Need Number: ATSI-2026-041
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Proposed Solution (CONT'):

Lockwood Road - Future Ring Bus 138 kV Line:

- Before Proposed Solution: N/A
- After Proposed Solution: 216 / 229 / 253 / 277 MVA (SN/SE/WN/WE)

Future Ring Bus - Richland 138 kV Line:

- Before Proposed Solution: N/A
- After Proposed Solution: 216 / 229 / 253 / 277 MVA (SN/SE/WN/WE)

Alternatives Considered:

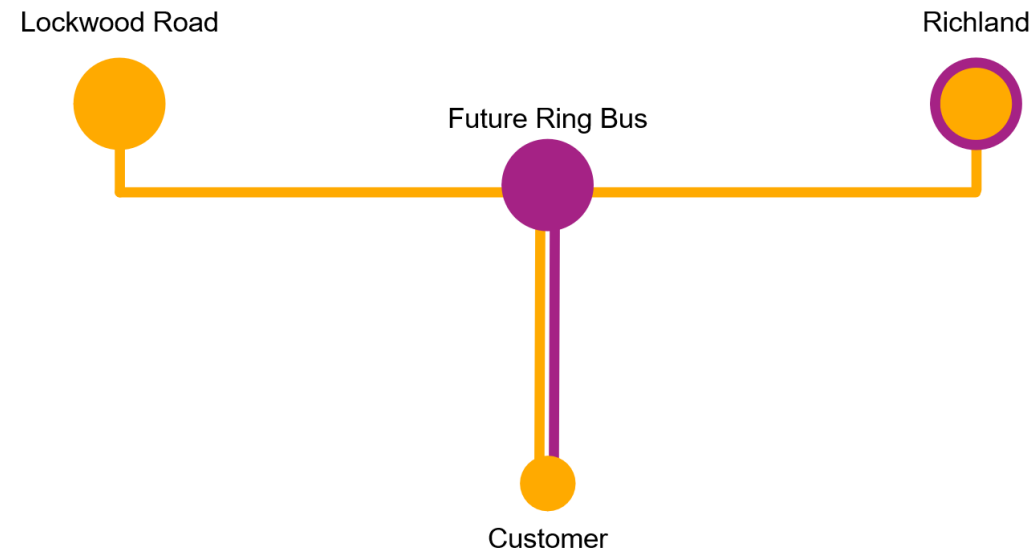
No reasonable alternatives to meet the customer's request due to the magnitude of the load and the proximity to the Lockwood Road - Richland 138 kV Line.

Estimated Project Cost: Phase 1:\$10.21M
Phase 2:\$17.07M

Projected In-Service: Phase 1: 4/18/2028
Phase 2: 6/21/2029

Project Status: Conceptual

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)



Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

ATSI Transmission Zone M-3 Process

Cloverdale - Torrey 138 kV Line & Canton Central - Cloverdale 138 kV Line

Need Number: ATSI-2026-044
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026
Previously Presented: Need Meeting 06/17/2026
Project Driver: Customer Service

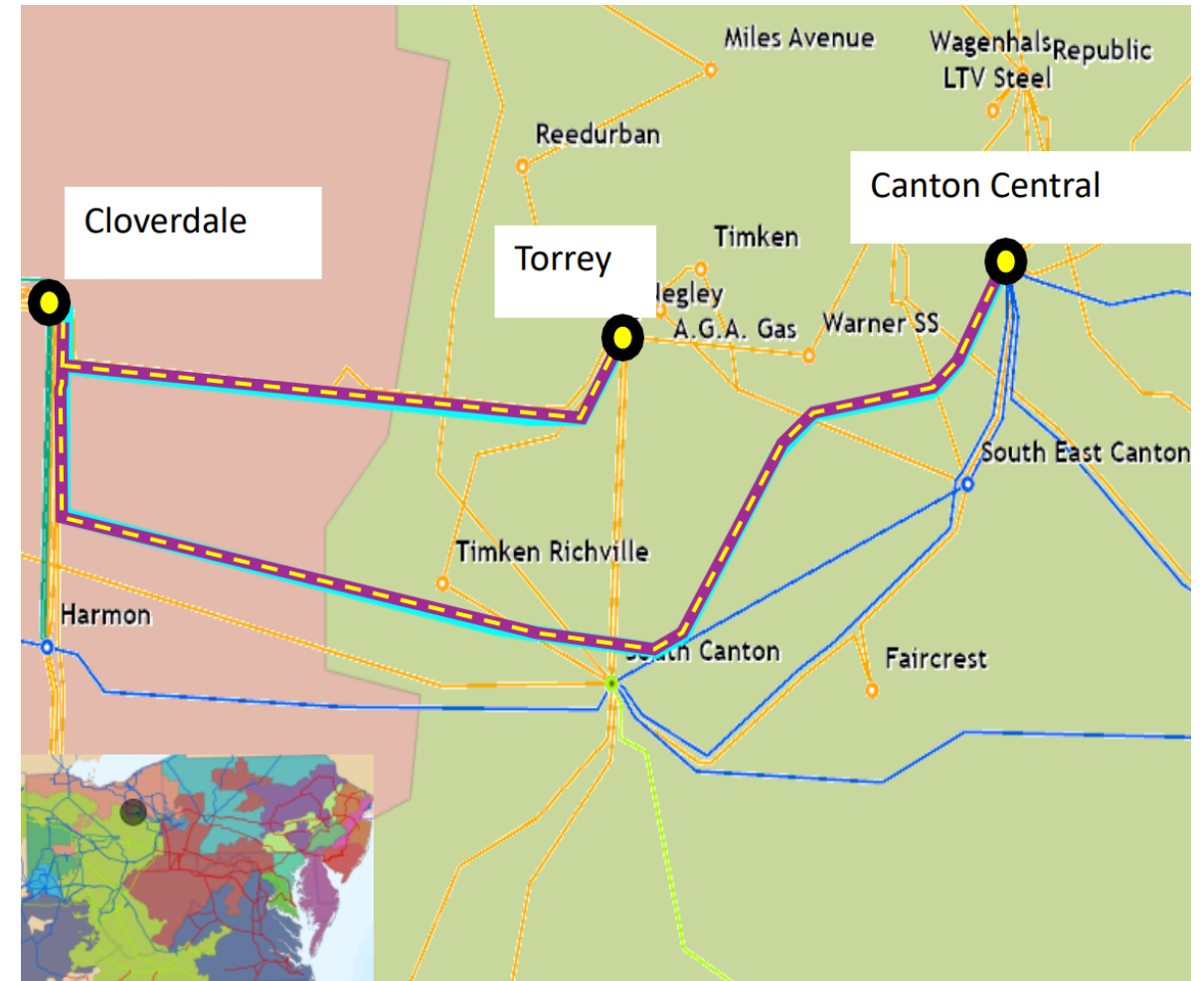
Specific Assumption Reference:

New customer connection requests will be evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement:

New Customer Connection - A customer has requested two new 138 kV delivery points near the Cloverdale - Torrey 138 kV Line and the Canton Central - Cloverdale 138 kV Line. The anticipated load of the new customer connection is 90 MVA (45 MVA on each line). The request is approximately 0.2 miles from Cloverdale Substation.

Requested in-service date is 06/22/2028.



ATSI Transmission Zone M-3 Process Cloverdale - Torrey 138 kV Line & Canton Central - Cloverdale 138 kV Line

Need Number: ATSI-2026-044
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Proposed Solution:

- Install a temporary tap on the Cloverdale - Torrey 138 kV Line and the Canton Central - Cloverdale 138 kV Line and construct two line extensions of 0.2 miles each for two new delivery points to the customer.

Transmission Line Ratings:

Cloverdale - Torrey 138 kV Line:

- Before Proposed Solution: 200 / 242 / 226 / 286 MVA (SN/SE/WN/WE)
- After Proposed Solution: 200 / 242 / 226 / 286 MVA (SN/SE/WN/WE)

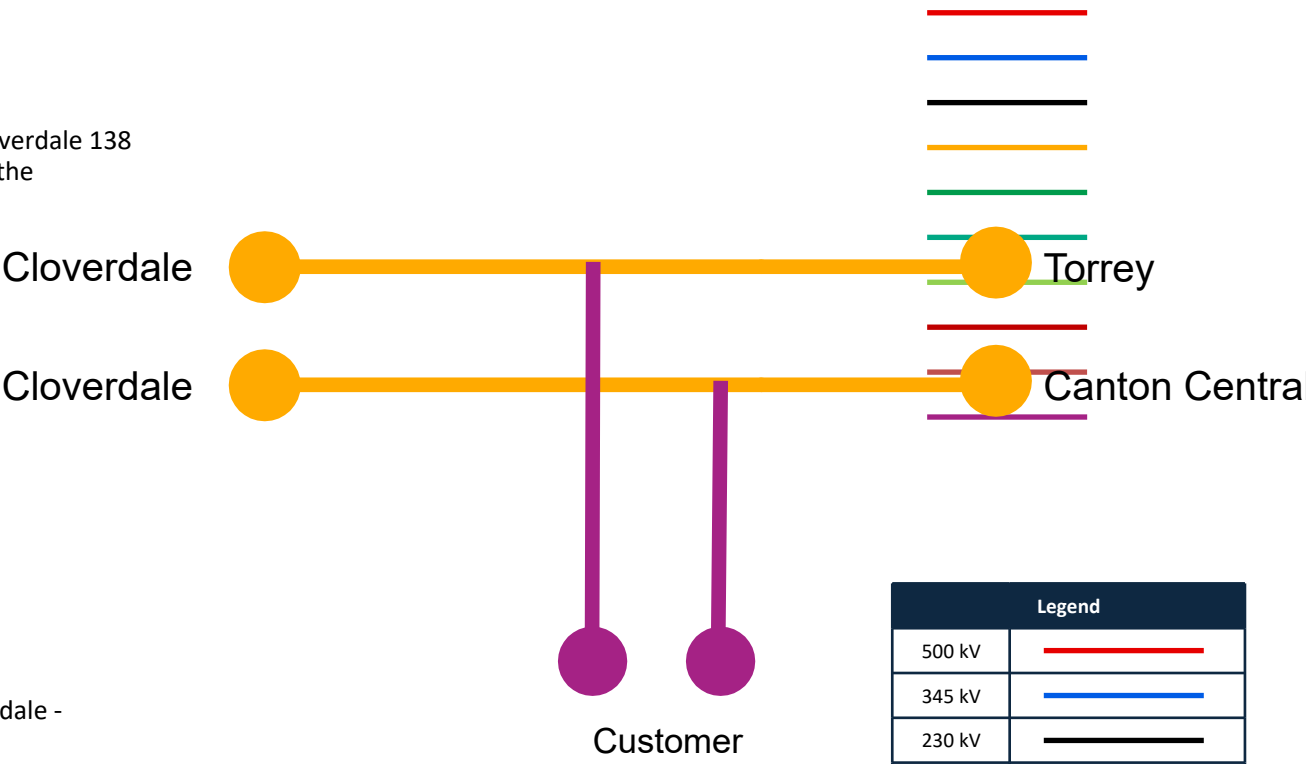
Canton Central - Cloverdale 138 kV Line:

- Before Proposed Solution: 161 / 194 / 182 / 230 MVA(SN/SE/WN/WE)
- After Proposed Solution: 161 / 194 / 182 / 230 MVA(SN/SE/WN/WE)

Alternatives Considered:

No alternatives considered to meet the customer's request due to the proximity to the Cloverdale - Torrey 138 kV Line and Canton Central - Cloverdale 138 kV Line.

Estimated Project Cost: \$0M (Customer to pay full cost)
Projected In-Service: 06/22/2028
Project Status: Conceptual
Model: 2024 RTEP model for 2029 Summer & Winter (50/50)



Need Number: ATSI-2024-072
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026
Previously Presented: Need Meeting 10/18/2024
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference:

System Performance Global Factors

- System reliability/performance

Line Condition Rebuild / Replacement

- Aged or deteriorated transmission line structures
- Negatively impact customer outage frequency and/or durations
- Demonstrate an increasing trend in maintenance findings and/or costs

Problem Statement:

The Black River – Shinrock 69 kV Line is approaching end of life. It is approximately 23 miles long with 474 wood pole transmission line structures.

Per recent inspections, the line is exhibiting deterioration.

- 87% of wood pole structures were installed in 1974.
- 13% of wood pole structures were installed in 1956.
- 44% of structures have shell rot.

Since 2019, there has been four sustained unscheduled outages on the line.

Transmission Line / Substation Locations: Black River – Black River Tap 69 kV Line

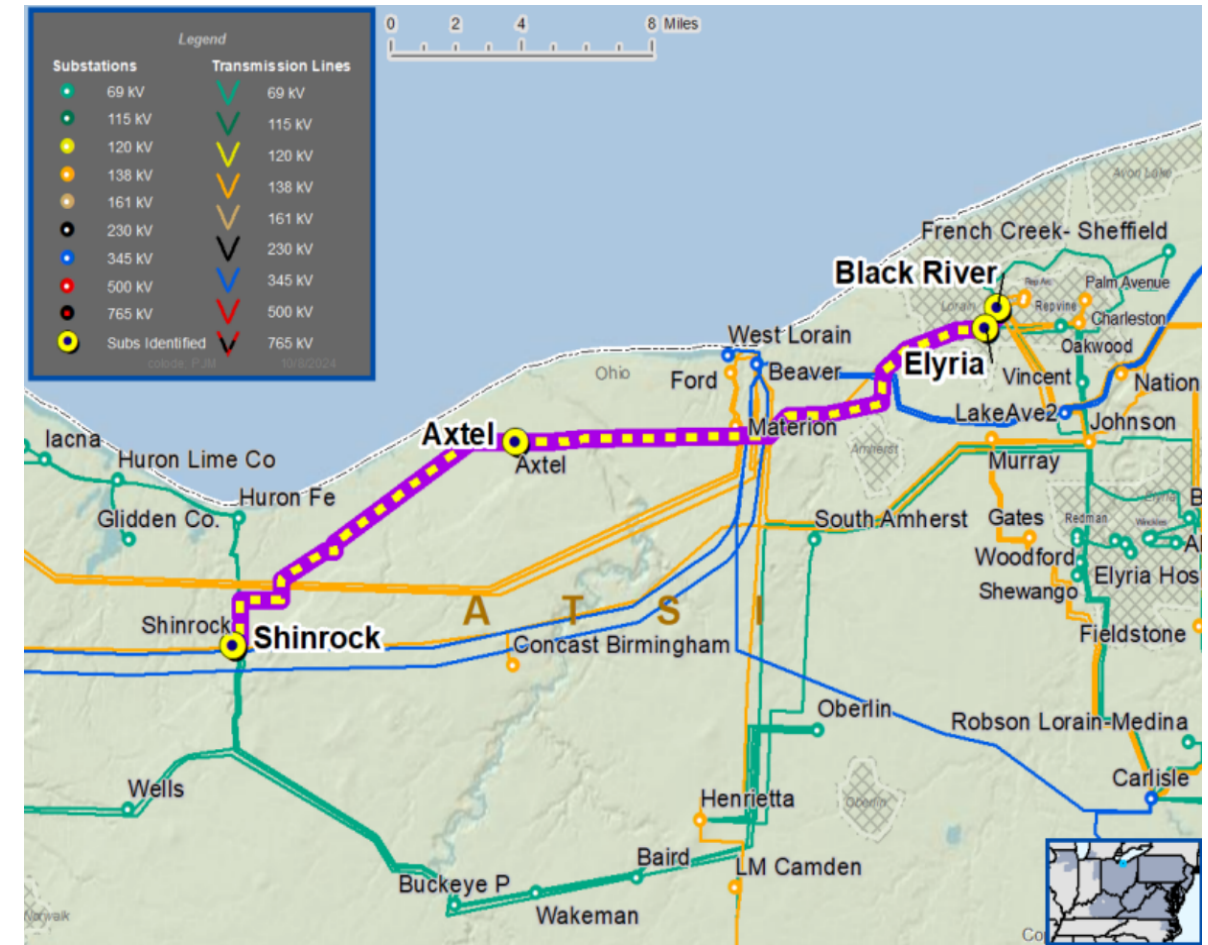
Existing Line Rating MVA (SN / SE / WN / WE): 100 / 121 / 113 / 143

Existing Conductor Rating MVA (SN / SE / WN / WE): 100 / 121 / 113 / 143

Transmission Line / Substation Locations: Black River Tap – Washington Tap 69 kV Line

Existing Line Rating MVA (SN / SE / WN / WE): 100 / 121 / 113 / 143

Existing Conductor Rating MVA (SN / SE / WN / WE): 100 / 121 / 113 / 143



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Need Number: ATSI-2024-072
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Problem Statement (CONT'):

Transmission Line / Substation Locations: Elyria Waterworks Tap – Washington Tap 69 kV Line

Existing Line Rating MVA (SN / SE / WN / WE): 80 / 96 / 90 / 114

Existing Conductor Rating MVA (SN / SE / WN / WE): 80 / 96 / 90 / 114

Transmission Line / Substation Locations: Baumhart – Elyria Waterworks Tap 69 kV Line

Existing Line Rating MVA (SN / SE / WN / WE): 80 / 96 / 90 / 114

Existing Conductor Rating MVA (SN / SE / WN / WE): 80 / 96 / 90 / 114

Transmission Line / Substation Locations: Axtel – Baumhart 69 kV Line

Existing Line Rating MVA (SN / SE / WN / WE): 80 / 96 / 90 / 114

Existing Conductor Rating MVA (SN / SE / WN / WE): 80 / 96 / 90 / 114

Transmission Line / Substation Locations: Axtel – Shinrock 69 kV Line

Existing Line Rating MVA (SN / SE / WN / WE): 80 / 96 / 90 / 114

Existing Conductor Rating MVA (SN / SE / WN / WE): 80 / 96 / 90 / 114

Transmission Line / Substation Locations: Black River Tap – Willow Creek Tap 69 kV Line

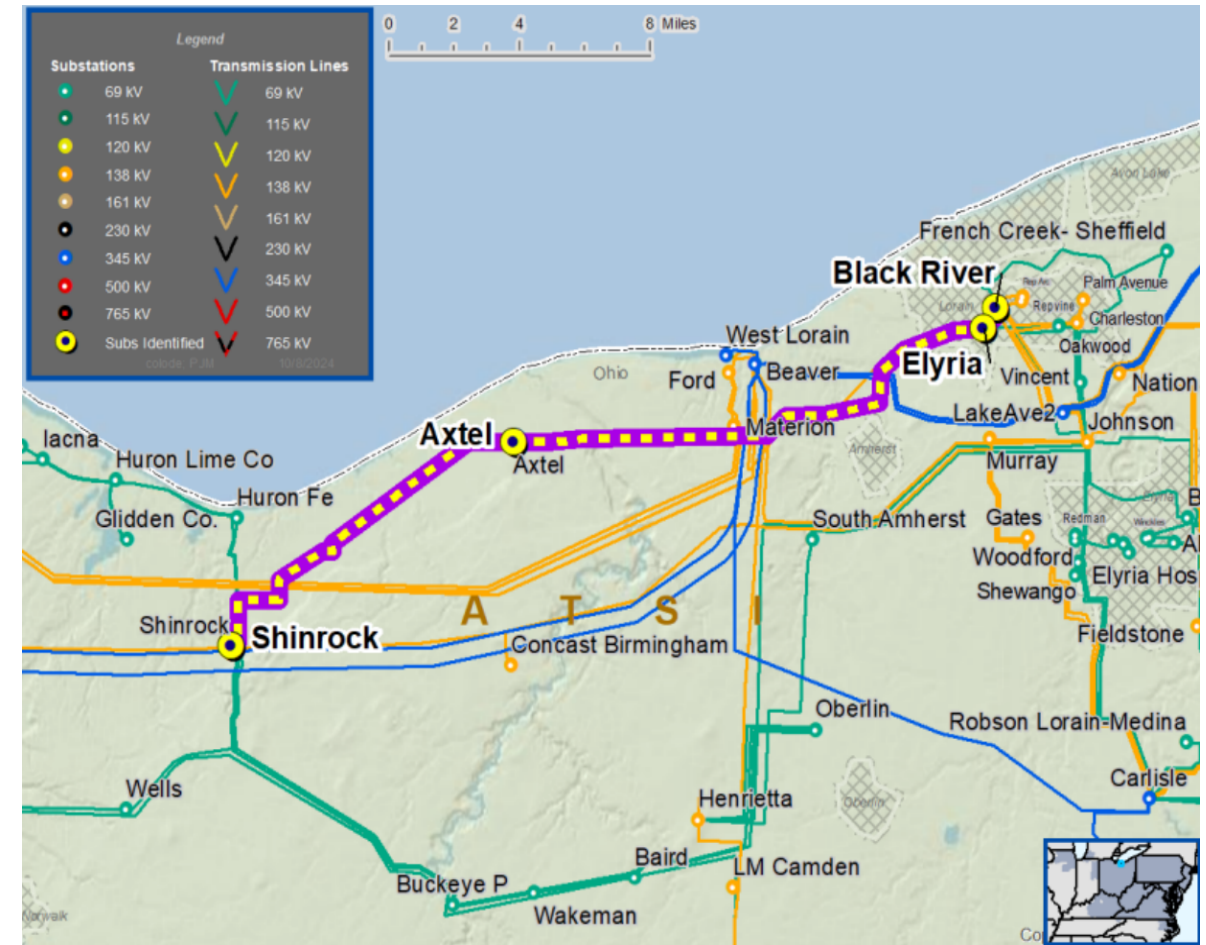
Existing Line Rating MVA (SN / SE / WN / WE): 82 / 103 / 108 / 124

Existing Conductor Rating MVA (SN / SE / WN / WE): 100 / 121 / 113 / 143

Transmission Line / Substation Locations: Washington Tap – Washington 69 kV Line

Existing Line Rating MVA (SN / SE / WN / WE): 45 / 54 / 51 / 65

Existing Conductor Rating MVA (SN / SE / WN / WE): 45 / 54 / 51 / 65



Need Number: ATSI-2024-072
Process Stage: Solution Meeting SRRTEP-W - 07/17/2026

Proposed Solution:

Reconductor the Black River-Shinrock 69 kV Line from Str. 113=39 to Str. 244=41 (~22.56 miles). Rebuild the section from Shinrock Substation to Str. 113=39 with double circuit structures, this will rebuild a section of the Shinrock-Greenfield 69 kV Line as well (~1 mile). The section from Str. 244=41 to Black River Substation will not be reconducted due to being reconducted recently. Also reconductor the taps to Baumhart (~0.1 miles), Elyria City Pumping (~0.2 miles), and Washington (~0.4 miles).

Transmission Line Ratings:

Black River Tap-Washington Tap 69 kV Line

- Before Proposed Solution: 100 / 121 / 113 / 143 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

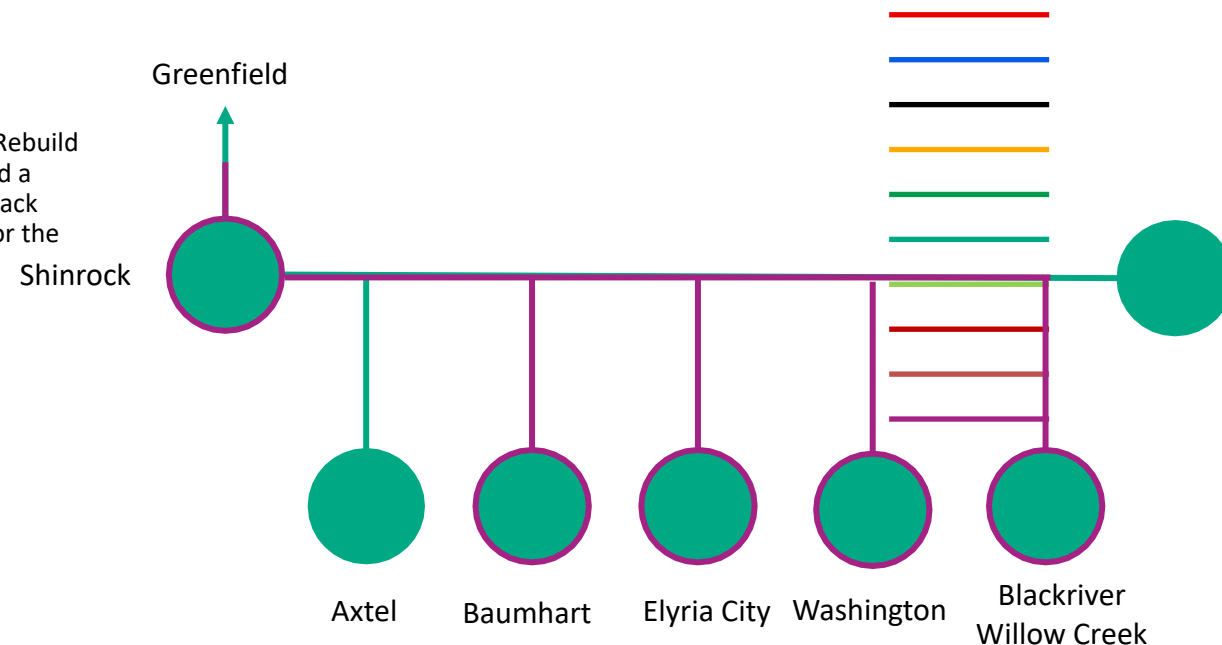
Elyria Waterworks Tap-Washington Tap 69 kV Line

- Before Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

Baumhart-Elyria Waterworks Tap 69 kV Line

- Before Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)
- After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

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Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

Need Number: ATSI-2024-072
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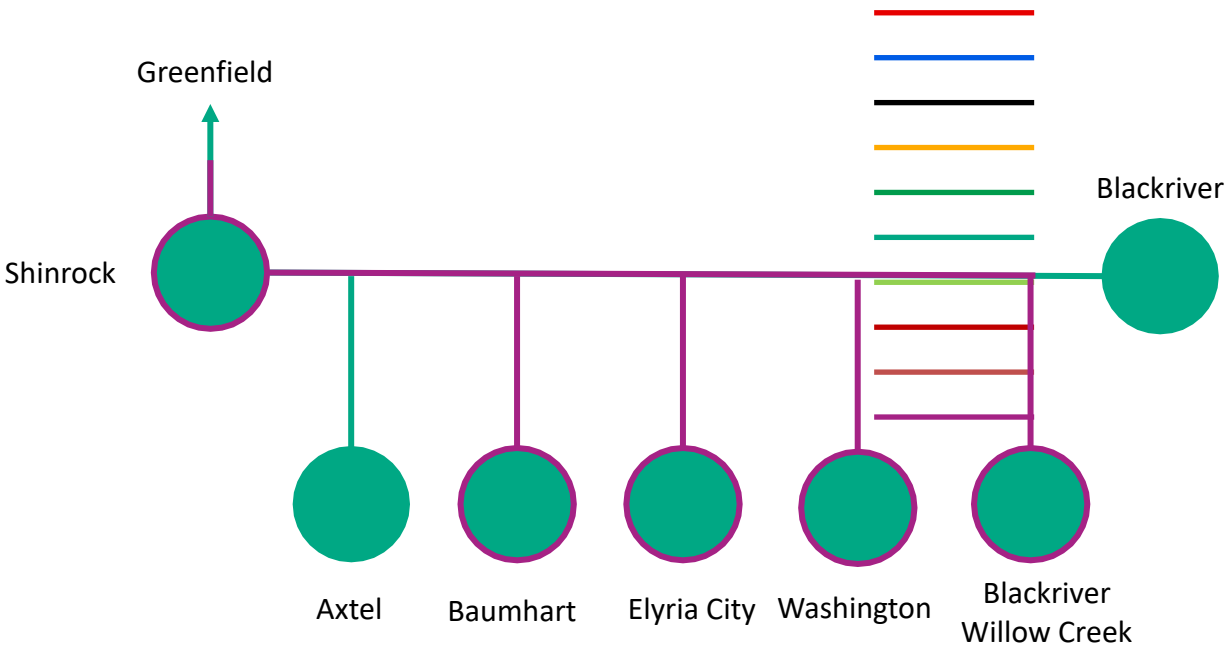
Proposed Solution:

- Axtel-Baumhart 69 kV Line
- Before Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)
 - After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)
- Axtel-Shinrock 69 kV Line
- Before Proposed Solution: 80 / 96 / 90 / 114 MVA (SN/SE/WN/WE)
 - After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)
- Washington-Washington Tap 69 kV Line
- Before Proposed Solution: 45 / 54 / 51 / 65 MVA (SN/SE/WN/WE)
 - After Proposed Solution: 111 / 134 / 125 / 159 MVA (SN/SE/WN/WE)

Alternatives Considered:

Continue to maintain line in its existing condition with increased maintenance costs and risk of a reliability event due to its deteriorated condition.

Estimated Project Cost: \$67.65M
Projected In-Service: 12/31/2029
Project Status: Conceptual
Model: 2024 RTEP model for 2029 Summer & Winter (50/50)



Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

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

07/07/2026– V1 – Original version posted to pjm.com

07/10/2026– V2 – Correct need number for ATSI-2021-021