Sub Regional RTEP Committee
PJM Mid-Atlantic
MetEd

May 31, 2019

PJM©2019

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

PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-023

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

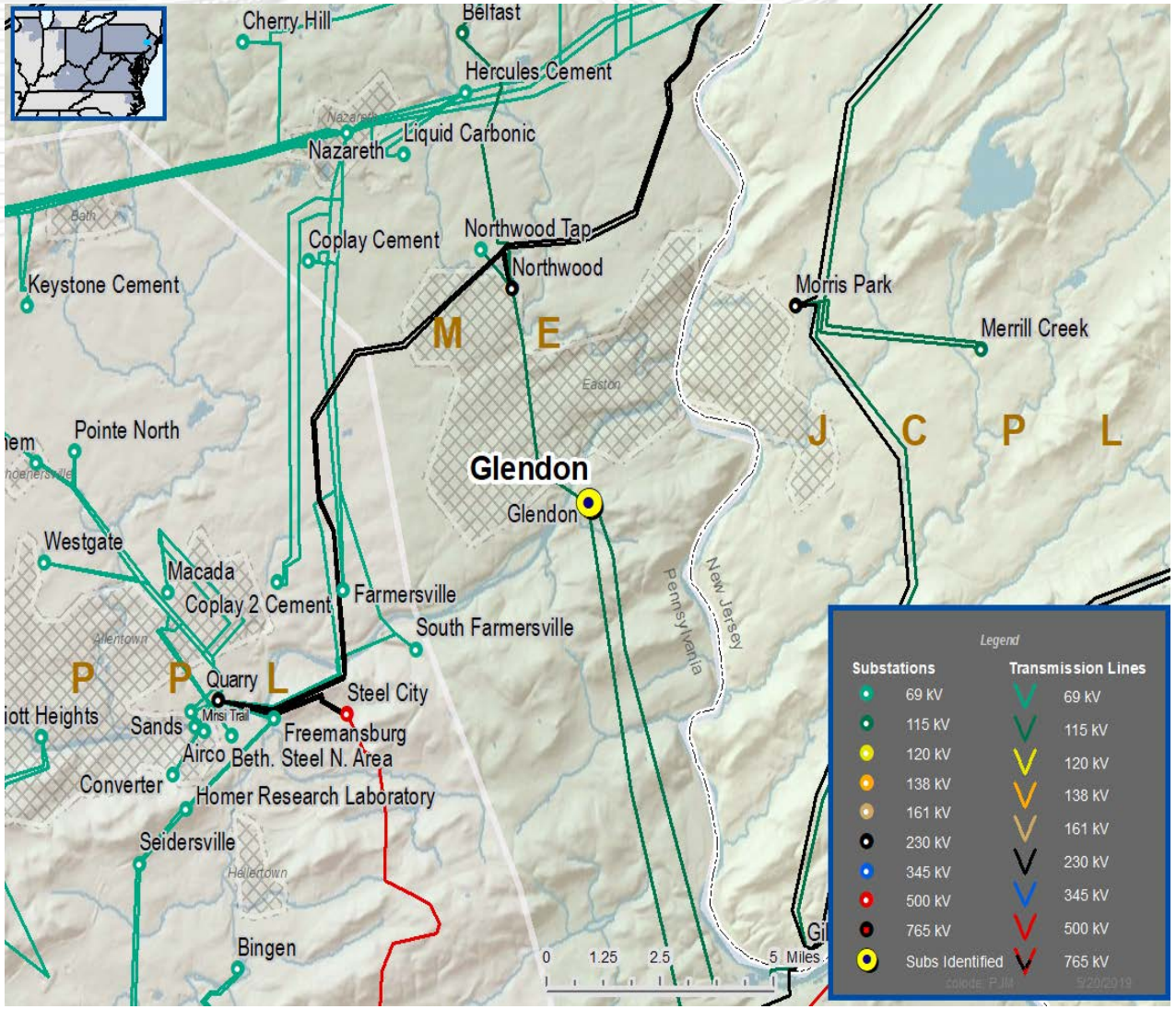
- *Operational Flexibility and Efficiency*

Specific Assumption References:

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

Problem Statement:

- The loss of Glendon substation results in loss of approximately 40 MW of load and approximately 5500 customers.
- Substation consists of:
  - Three networked 115 kV lines
  - Two distribution transformers connected to transmission with switches
  - No bus tie breaker



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-024

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

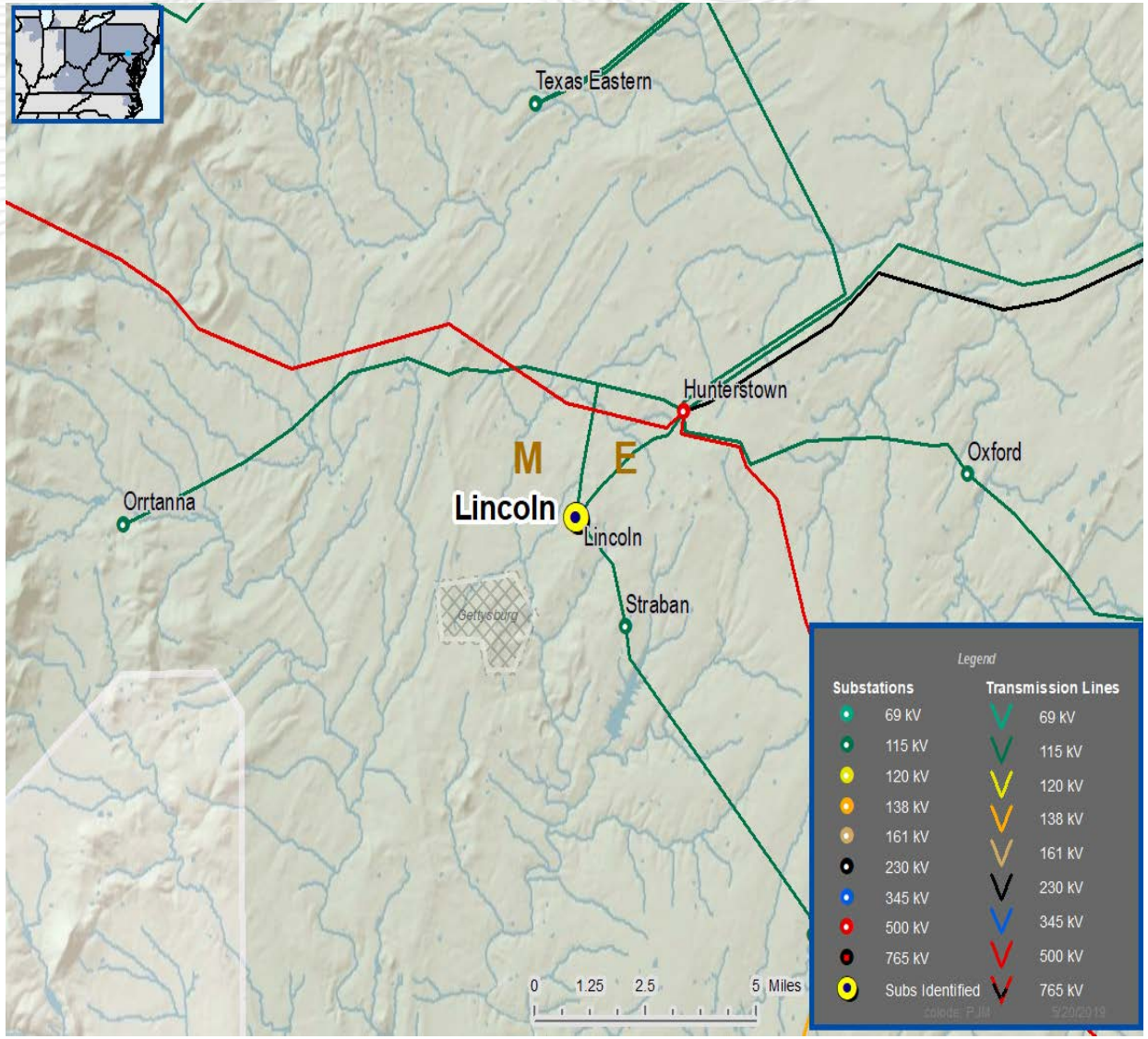
- *Operational Flexibility and Efficiency*

Specific Assumption References:

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

Problem Statement:

- The loss of Lincoln substation results in loss of approximately 40 MW of load and approximately 5700 customers.
- Substation consists of:
  - Three networked 115 kV lines
  - Two distribution transformers in substation; one tapped off line
  - All transformers connected to transmission with switches
  - No bus tie breaker



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-025

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

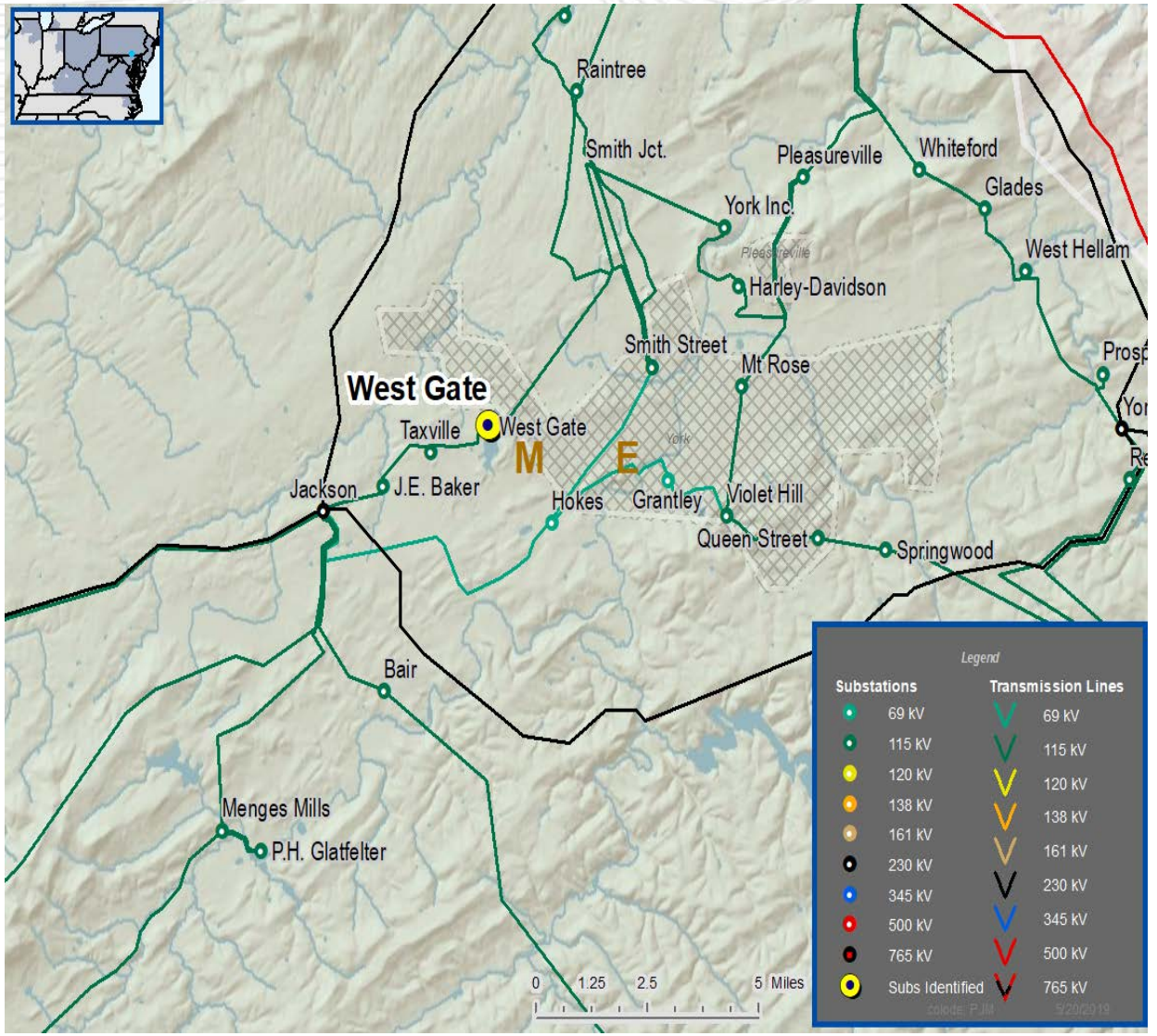
- *Operational Flexibility and Efficiency*

Specific Assumption References:

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

Problem Statement:

- The loss of Westgate substation results in loss of approximately 30 MW of load and approximately 5800 customers.
- Substation consists of:
  - Two networked 115 kV transmission lines
  - Two distribution transformers connected to transmission with switches



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-026

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

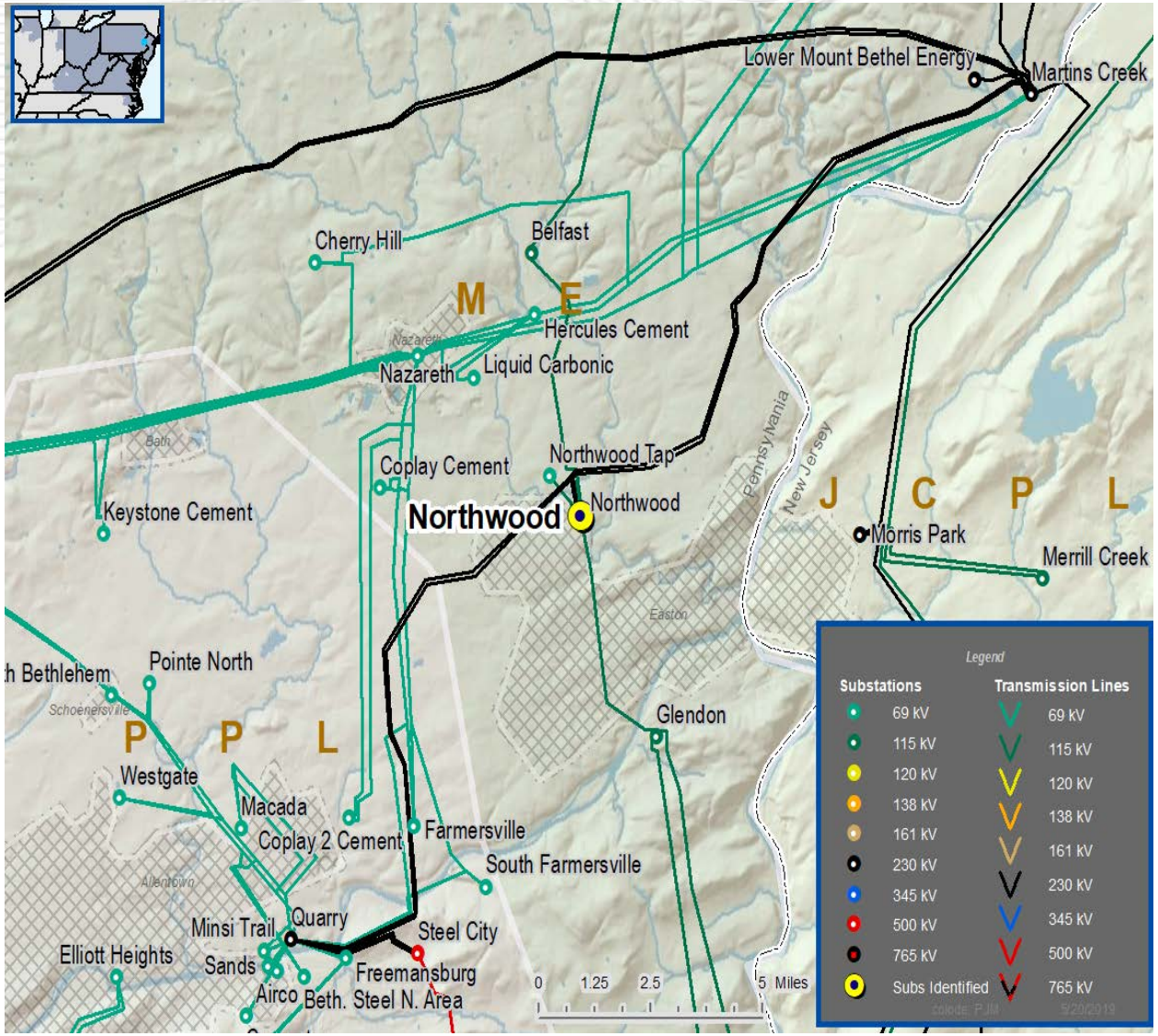
- *Operational Flexibility and Efficiency*

Specific Assumption References:

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

Problem Statement:

- The loss of Northwood substation results in loss of approximately 150 MW of load and approximately 9000 customers.
- Substation consists of:
  - Two networked 230 kV lines
  - One 230/115 kV transformer connected with circuit switcher
  - Two 230-34.5 kV distribution transformers connected with circuit switchers
  - One bus tie breaker



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-027

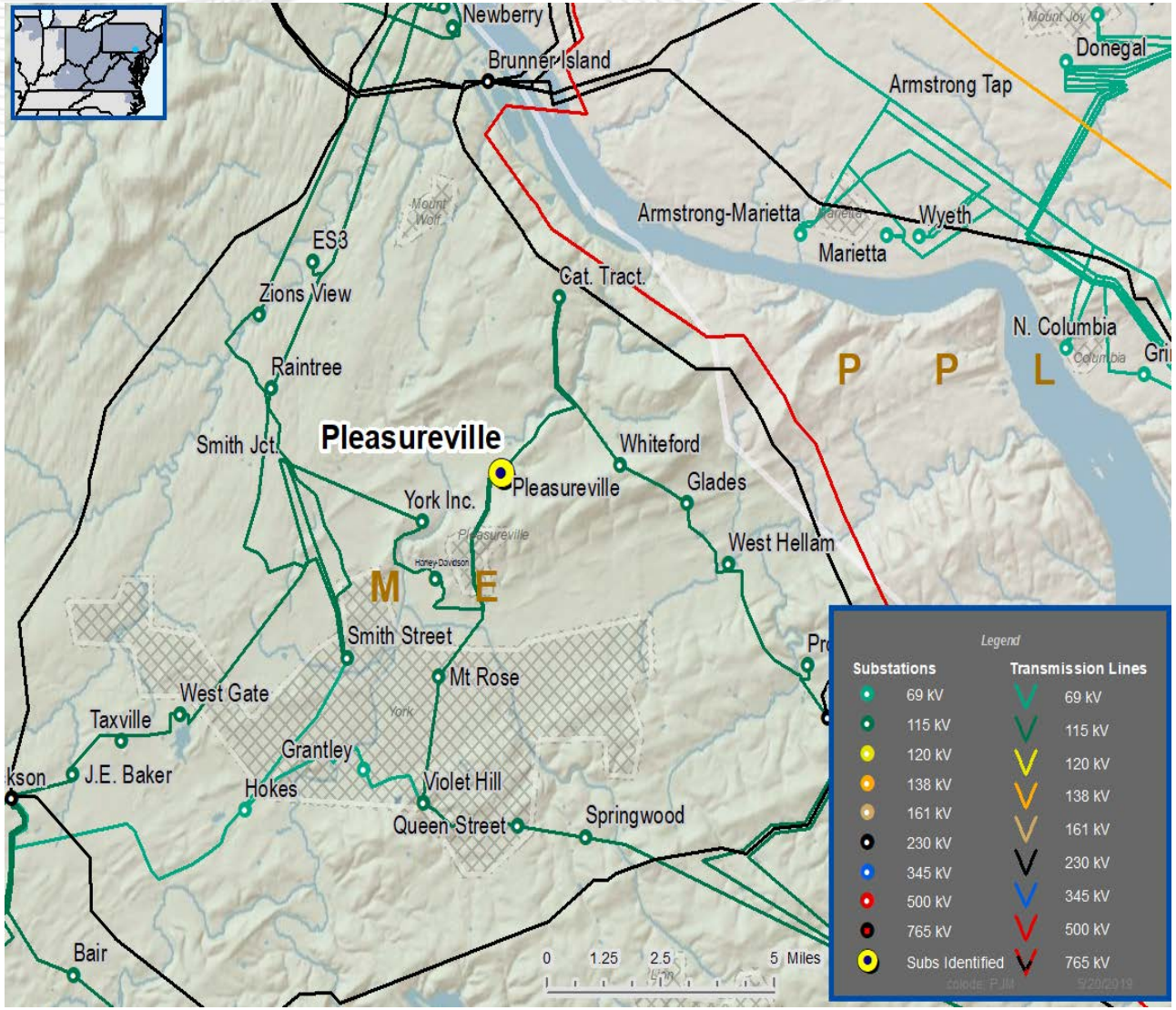
Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

- *Operational Flexibility and Efficiency*

Specific Assumption References:

- System Performance Projects
  - Load at risk in planning and operational scenarios
- Add/Expand Bus Configuration
  - Reduce the amount of exposed potential local load loss during contingency conditions
  - Eliminate simultaneous outages to multiple networked elements
- Problem Statement:
- The loss of Pleasureville substation results in loss of approximately 40 MW of load and approximately 5800 customers.
- Substation consists of:
  - Three networked 115 kV lines connected to a straight bus
  - No bus tie breaker



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-028

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

- *Operational Flexibility and Efficiency*

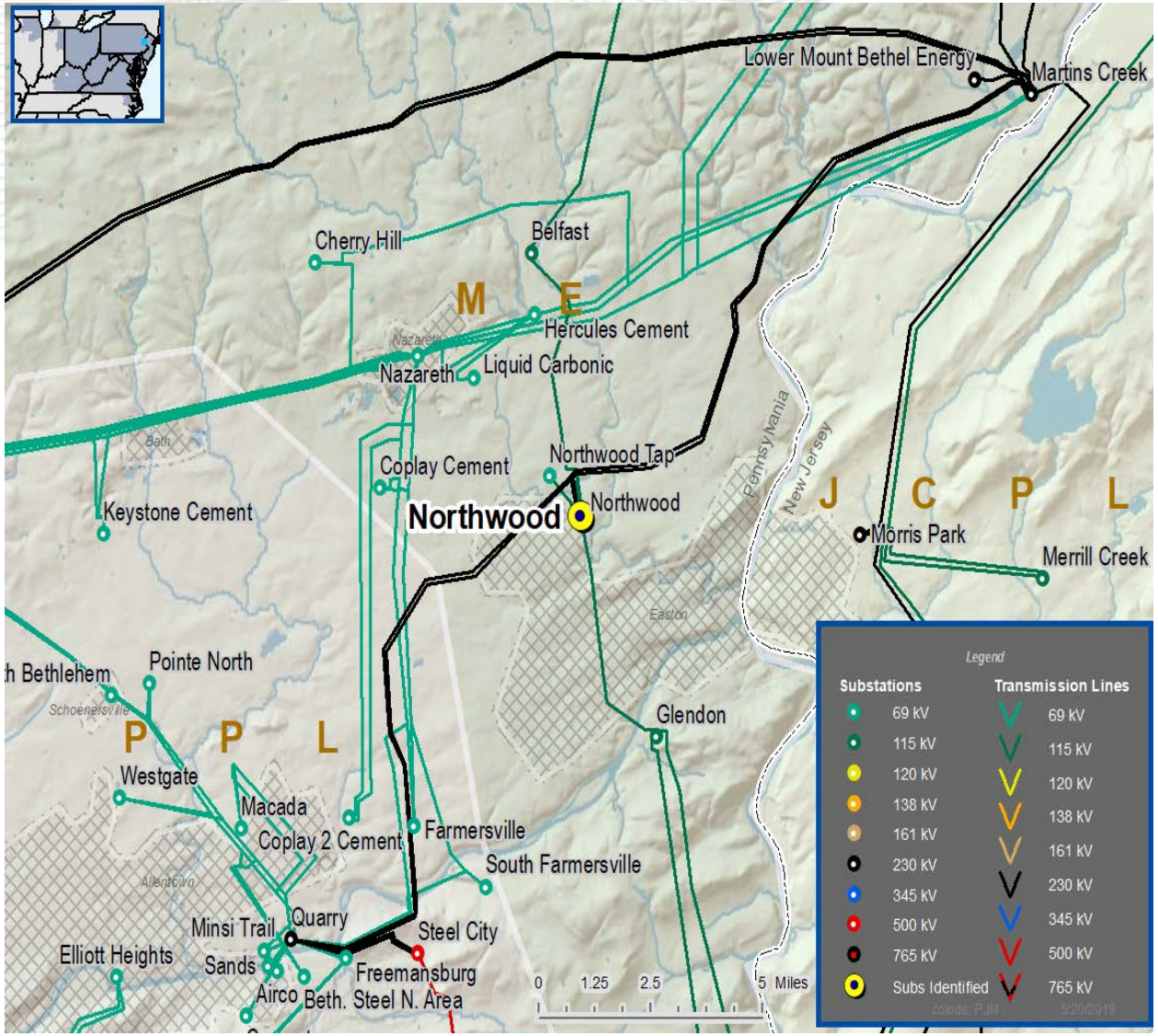
Specific Assumption References:

- Add/Expand Bus Configuration
  - Eliminate simultaneous outages to multiple networked elements

Problem Statement:

- The Northwood 115 kV bus creates a three-terminal line consisting of two 115 kV lines and a 230/115 kV transformer.

- An N-1 outage results in the loss of all three networked elements



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-029

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

- *Operational Flexibility and Efficiency*

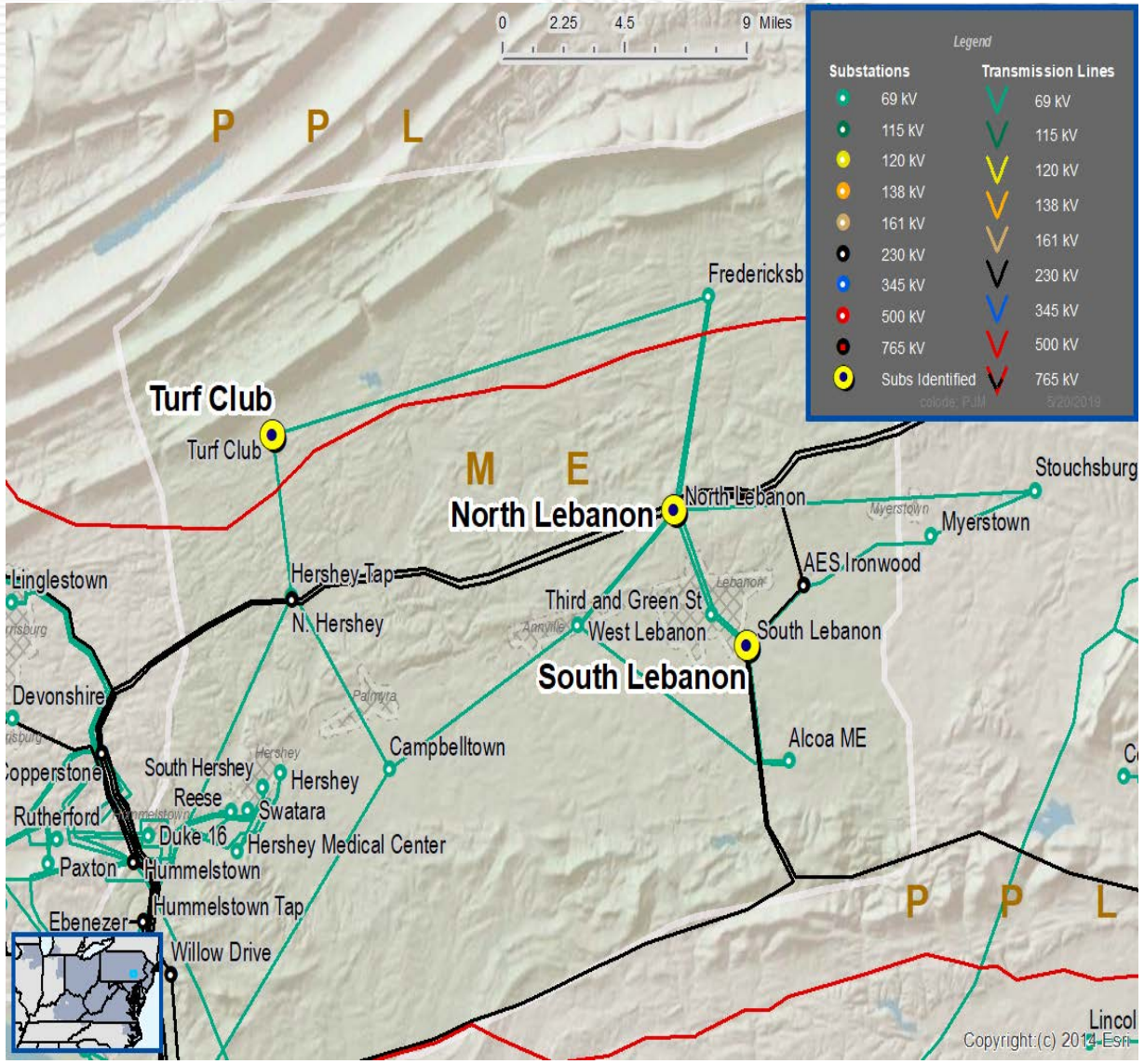
Specific Assumption References:

- System Performance Projects
  - Load at risk in planning and operational scenarios
- Network Radial Line
  - Radial lines defined by normally open points

Problem Statement:

- The North Lebanon – Turf Club – South Lebanon 69 kV line is operated normally opened at Frystown to prevent a 3-terminal line.
- Substations impacted by normally open point are as follows:
  - Fredericksburg – 12 MW & 1433 Customers
  - Lickdale – 24 MW & 3302 Customers
  - Indiantown Gap – 7 MW & 1 Customer (Wholesale)
  - Frystown – 16 MW & 1696 Customers
  - Rehrersburg – 5 MW & 1217 Customers

- These substations total to over 60 MW and approximately 7600 customers.



MetEd Transmission Zone M-3 Process

Need Number: ME-2019-031

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

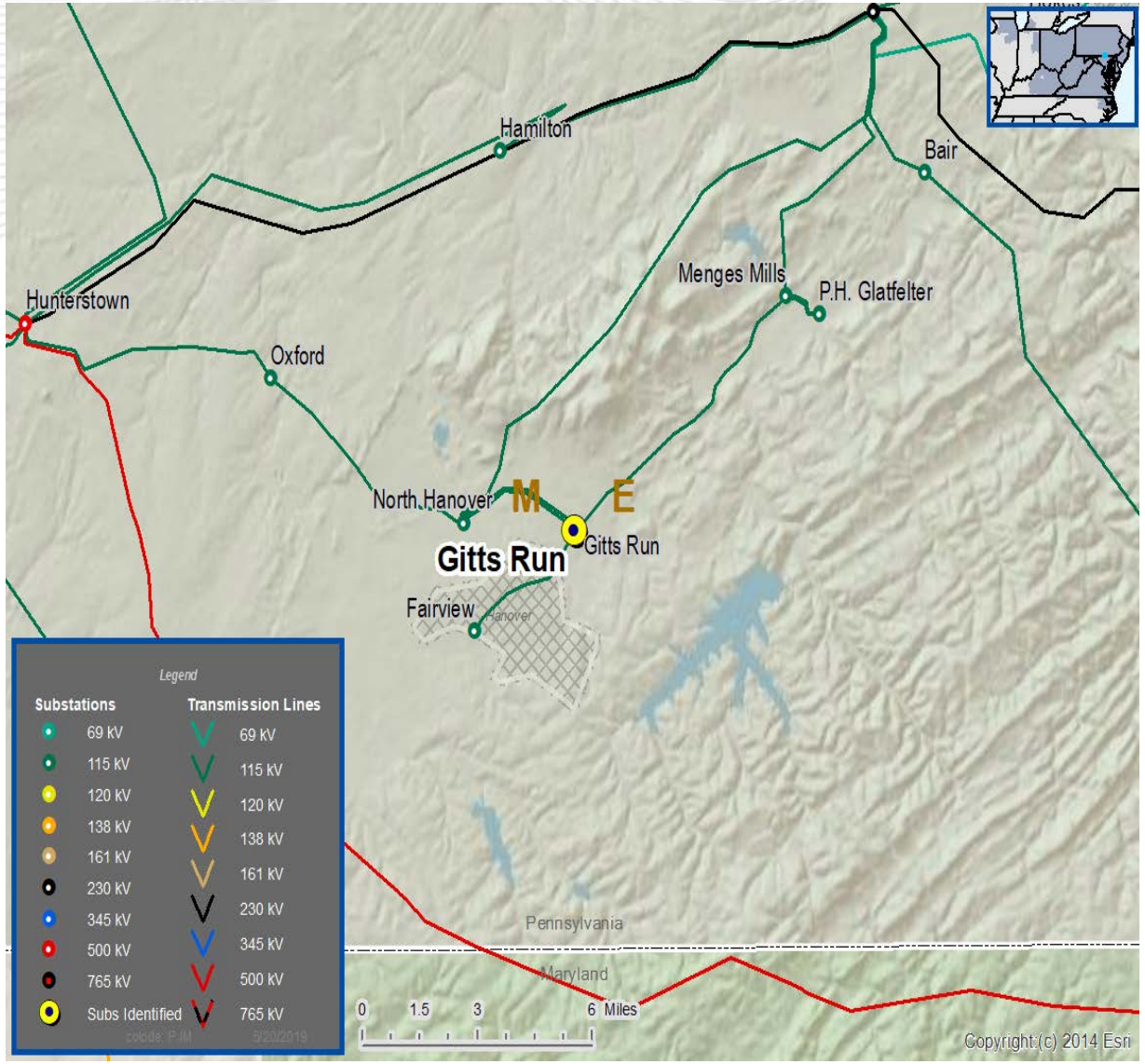
- *Operational Flexibility and Efficiency*

Specific Assumption References:

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

Problem Statement:

- The loss of Gitts Run substation results in loss of approximately 40 MW of load and approximately 2900 customers.
- Substation consists of:
  - Four 115 kV transmission lines
  - Two distribution transformers connected to transmission with switches
  - One normally open bus tie switch



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-032

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

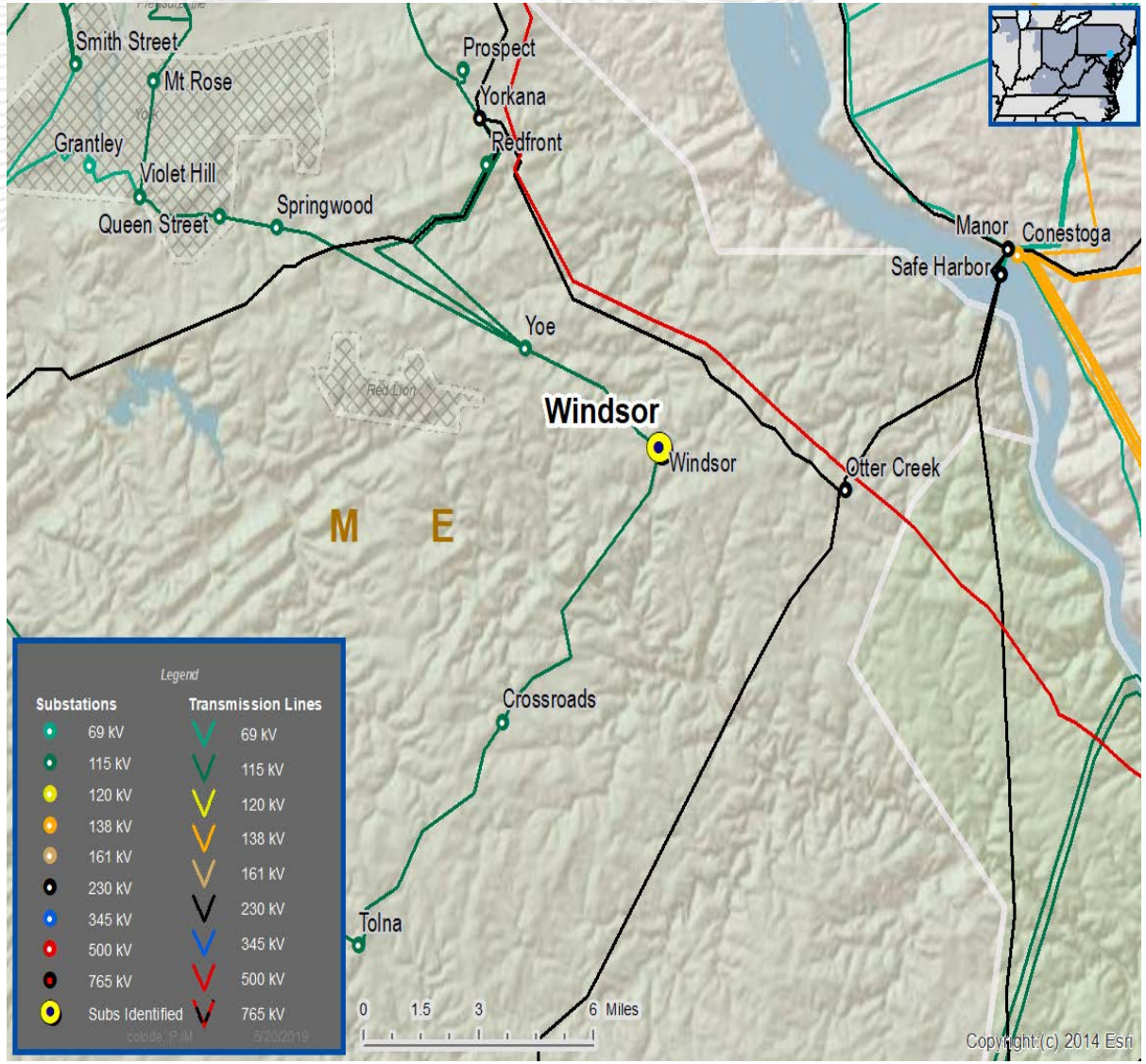
- *Operational Flexibility and Efficiency*

Specific Assumption References:

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

Problem Statement:

- The loss of Windsor substation results in the loss of approximately 30 MW of load and approximately 5900 customers.
- Substation consists of:
  - Two networked 115 kV transmission lines
  - Two distribution transformers connected to transmission with switches



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-033

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

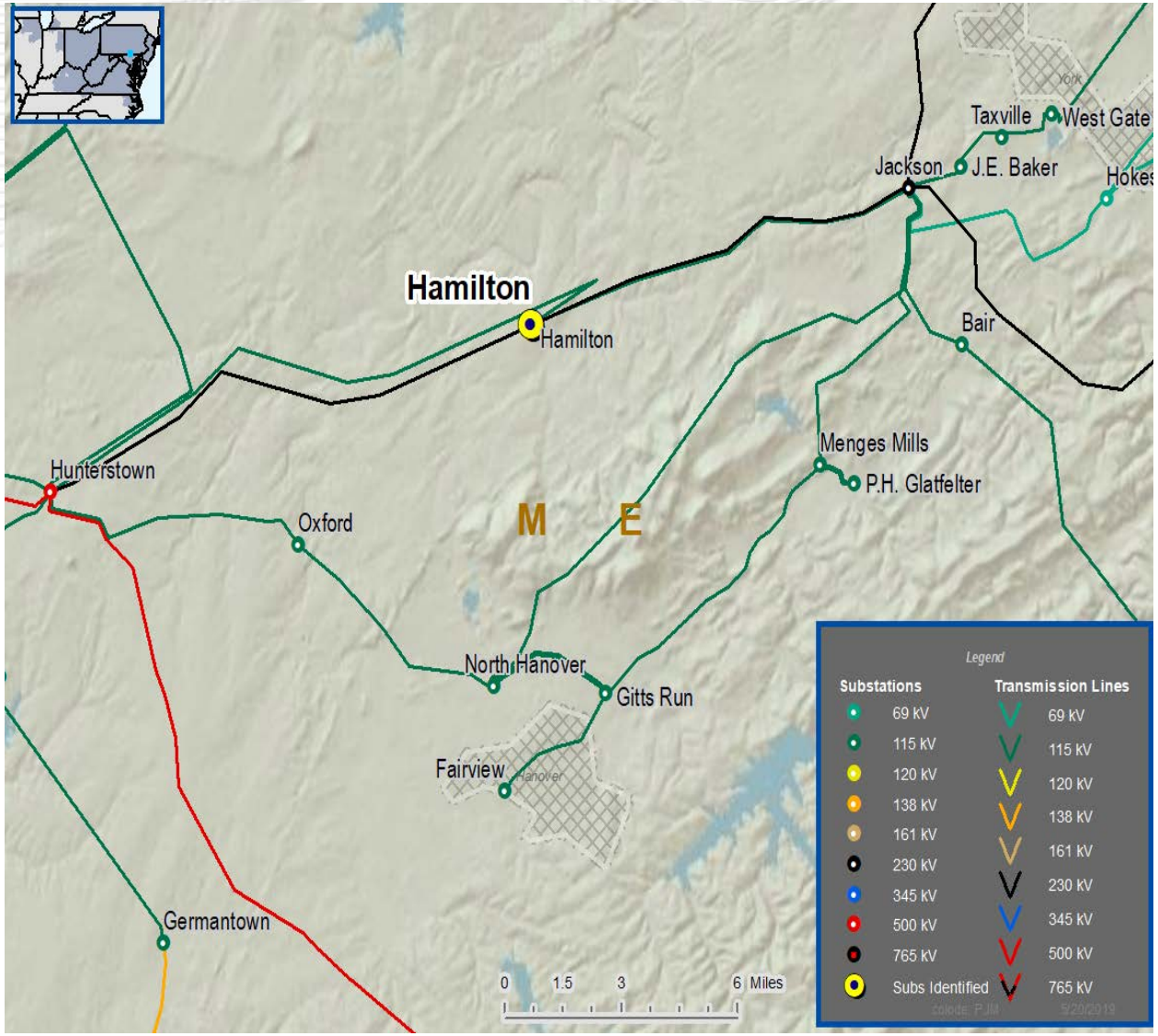
- *Operational Flexibility and Efficiency*

Specific Assumption References:

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

Problem Statement:

- The loss of Hamilton substation results in loss of approximately 30 MW of load and approximately 3600 customers.
- Substation consists of:
  - Two 115 kV lines.
  - Two distribution transformers connected with switches
  - One generator connected with a switch



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-034

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

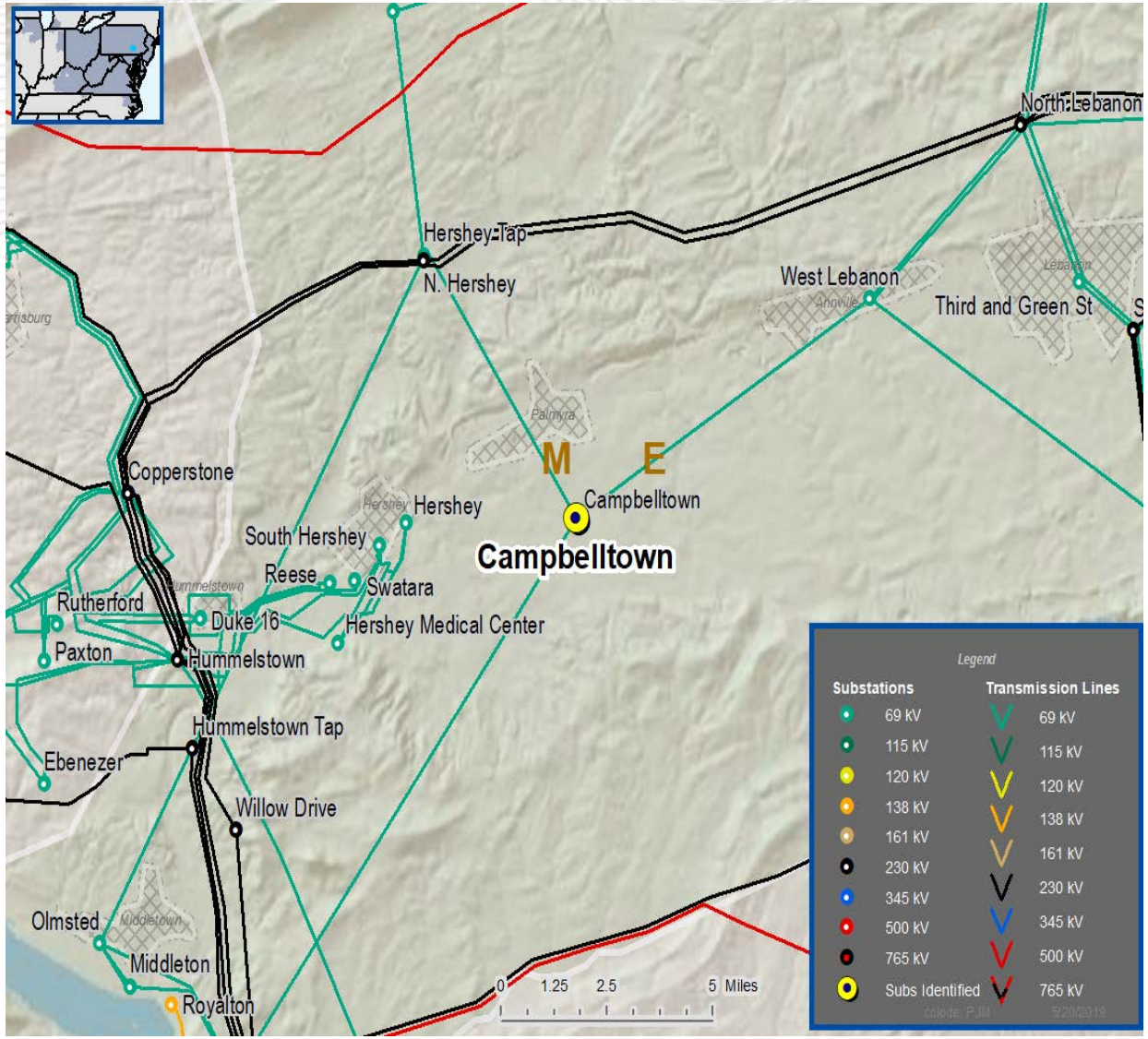
- *Operational Flexibility and Efficiency*

Specific Assumption References:

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

Problem Statement:

- The loss of Campbelltown substation results in loss of approximately 40 MW of load and approximately 8800 customers.
- Substation consists of:
  - Three networked 69 kV transmission lines
  - Two distribution transformers connected to bus with switches
  - No bus tie breaker



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-037

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

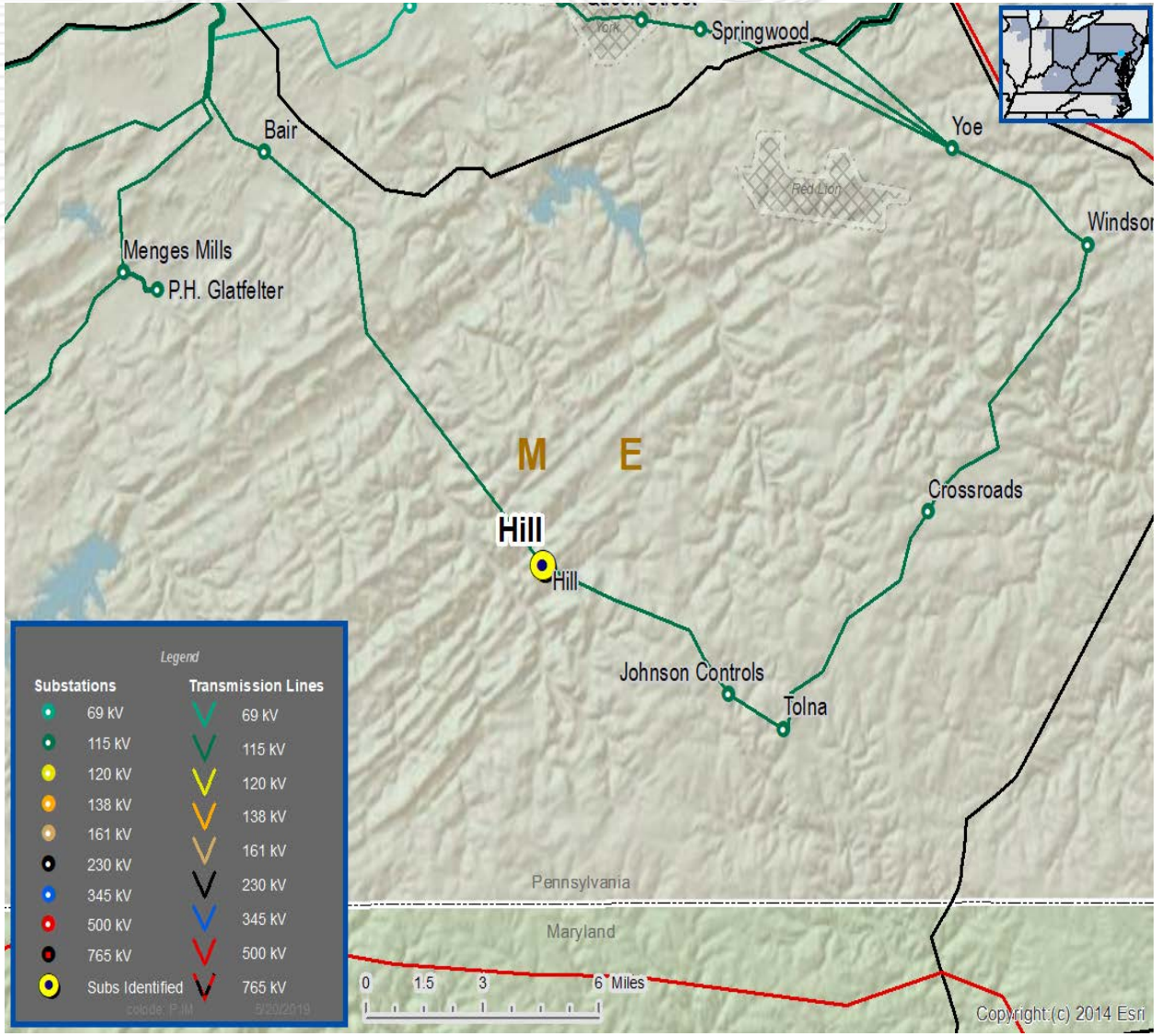
- *Operational Flexibility and Efficiency*

Specific Assumption References:

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

Problem Statement:

- The loss of Hill substation results in loss of approximately 30 MW of load and approximately 7800 customers.
  - Two 115 kV lines
  - Two distribution transformers connected to transmission with switches



PJM©2019

MetEd Transmission Zone M-3 Process

Need Number: ME-2019-038

Process Stage: Need Meeting 5/31/2019

Supplemental Project Driver:

- *Customer Service*

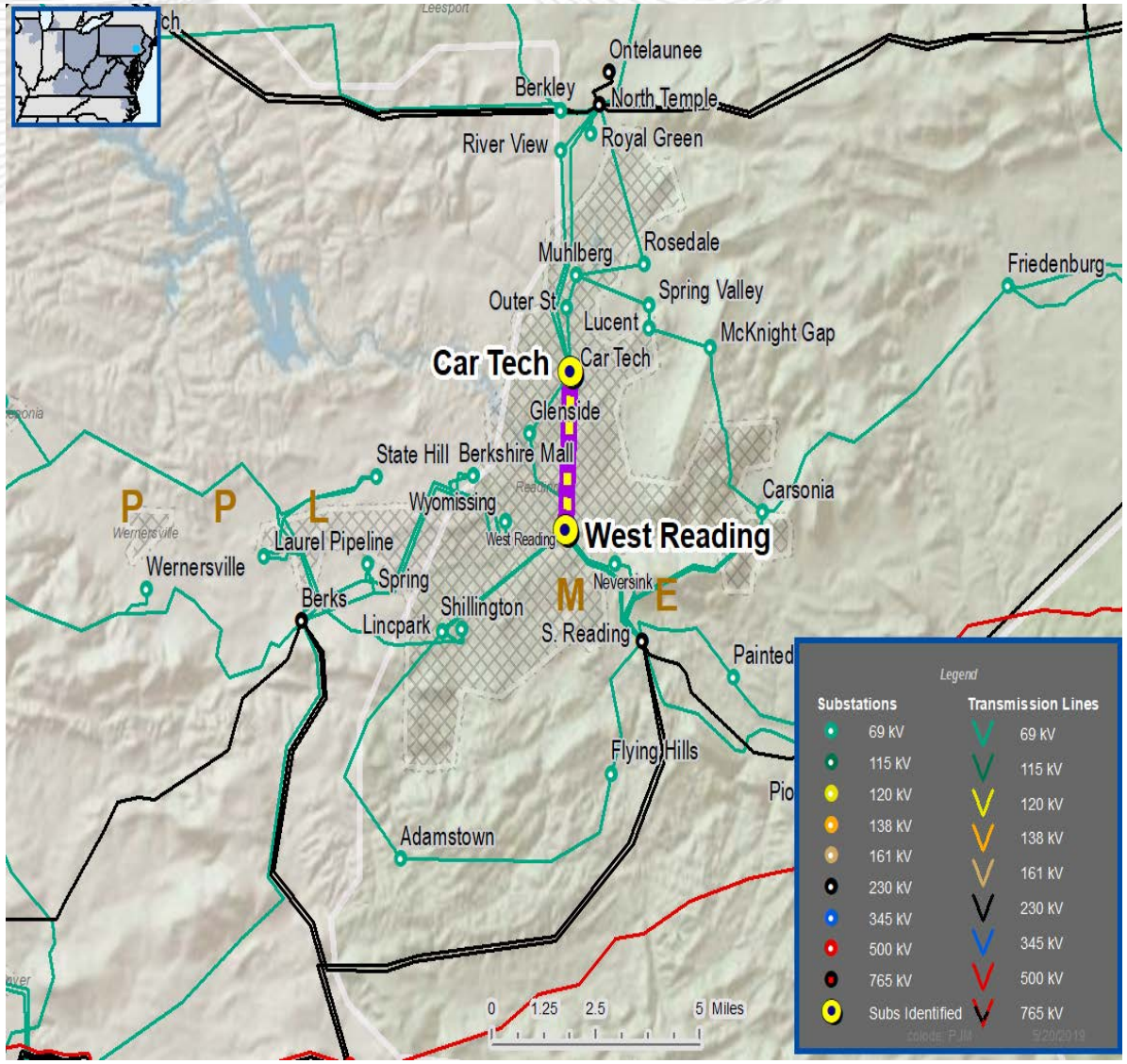
Specific Assumption References:

- Customer request 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 69 kV service; anticipated load is 22 MVA; location is near the Carpenter Technology-West Reading 69 kV line.

- Requested in-service date is 10/1/2019



PJM©2019

Questions?

PJM©2019

Appendix

PJM©2019

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

PJM©2019

Revision History

5/21/2019 – V1 – Original version posted to pjm.com

PJM©2019