

PSEG 2019

Submission of Supplemental Projects for Inclusion in the Local Plan

PSEG Transmission Zone

Need Number: PSEG-2018-0004

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan: 3/14/2019

Need Presented: 10/29/2018

Solution Presented: 11/28/2018

Project Drivers:

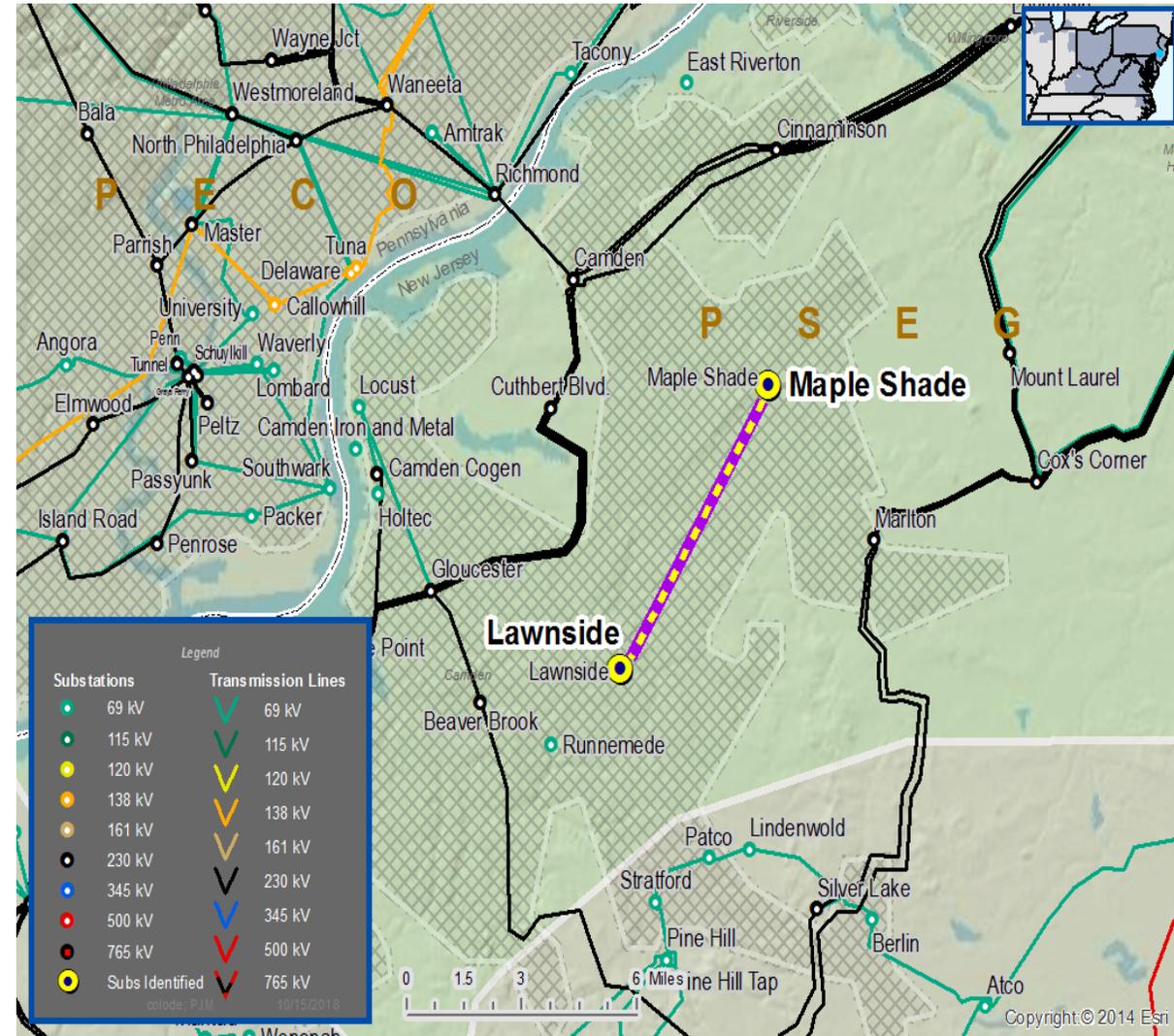
- Operational Flexibility and Efficiency
- Equipment Material Condition, Performance and Risk

Problem Statement:

- Lawnside is a straight bus fed by four 69kV lines that serves roughly 24,000 customers and 113 MVA of load.
 - A stuck breaker condition on any of the 69kV bus section breakers causes the loss of three 69kV lines and two transformers, leaving the station with only a single 69kV supply. This results in an unacceptable voltage drop of roughly 7%.
- Poor circuit performance on the Lawnside-Maple Shade 69kV circuit.
 - Over the past five years, the Lawnside-Maple Shade 69kV circuit has experienced 11 extended outages and 13 momentary outages, with total duration of over 113 hours.

Specific Assumption References:

- [PSE&G 2018 Annual Assumptions](#)



PSEG Transmission Zone

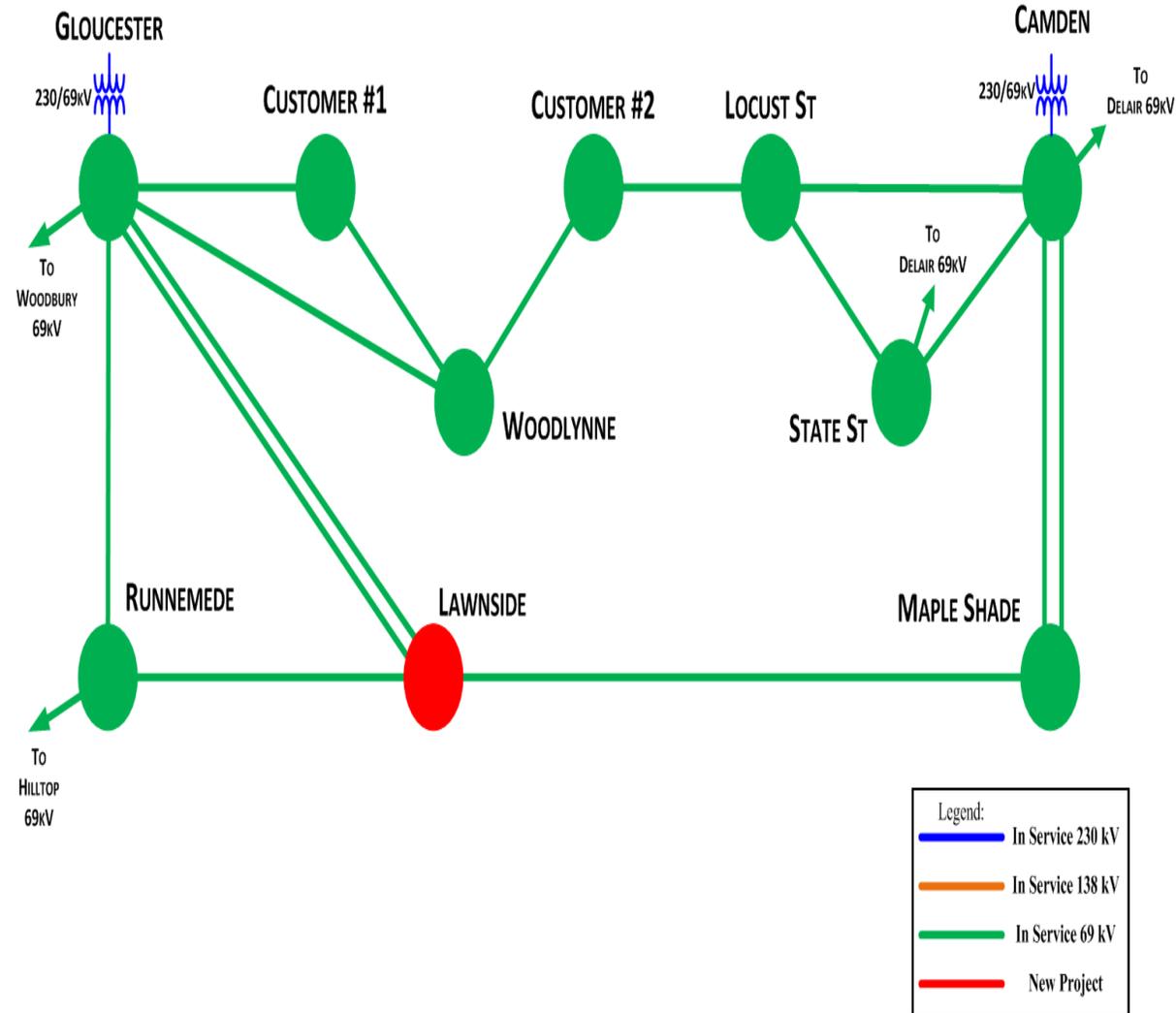
Need Number: PSEG-2018-0004

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan: 3/14/2019

Selected Solution:

- Lawnside 69kV Reconfiguration
 - Purchase neighboring property to accommodate construction
 - Reconfigure bus to a 69kV breaker-and-a-half bus.
- **Estimated Cost:** \$46M
- **Projected In-Service Date:** 12/2022

Supplemental Number: S1787



PSEG Transmission Zone

Need Number: PSEG-2018-0005

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan: 3/14/2019

Need Presented: 10/29/2018

Solution Presented: 11/28/2018

Project Drivers:

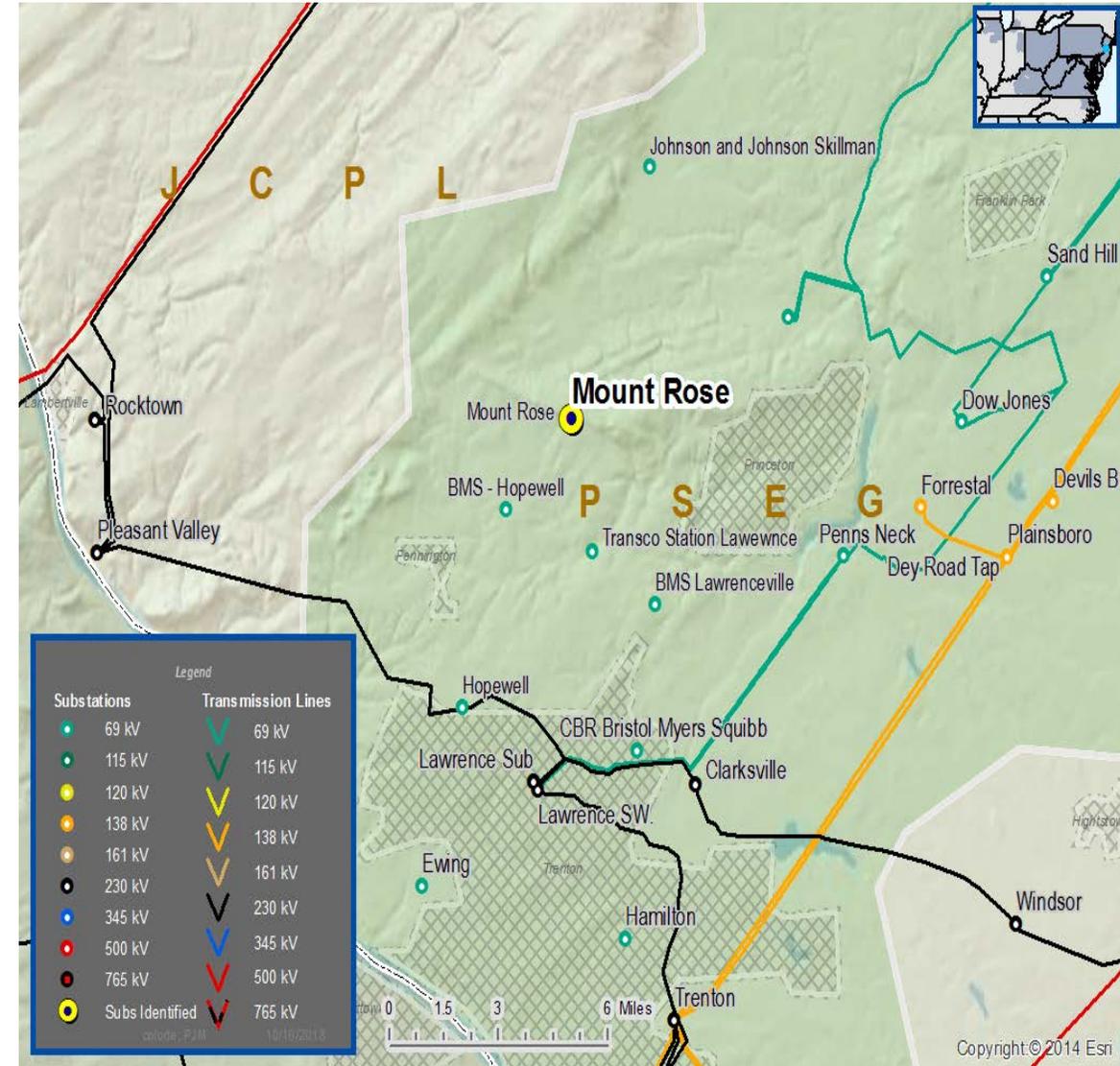
- Operational Flexibility and Efficiency
- Equipment Material Condition, Performance and Risk

Problem Statement:

- Poor station reliability at Mount Rose.
 - Mount Rose experienced station shutdowns due to loss of all 69kV supply in 2016 and 2018.
 - Over the past decade, the three 69kV supply circuits at Mount Rose have experienced 21 extended outages and 9 momentary outages, with total duration of over 207 hours.
- Mount Rose serves roughly 11,000 customers and 60 MVA of load.
- Mount Rose is a straight bus fed by three 69kV lines.
- Several contingencies that would result in unacceptable voltage drops:
 - An N-1-1 condition on 69kV supplies in the network leaves Mount Rose and several customer substations in the area with only long distance, daisy-chained paths to 230kV sources. The voltage drops by roughly 7%.
 - A stuck breaker condition on the capacitor bank breaker causes the loss of two 69kV lines and the capacitor bank, leaving the station with only a single 69kV supply. The voltage drops by roughly 6%.
 - A stuck breaker condition on the bus section breaker results in the loss of the entire station.

Specific Assumption References:

- [PSE&G 2018 Annual Assumptions](#)



PSEG Transmission Zone

Need Number: PSEG-2018-0005

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan: 3/14/2019

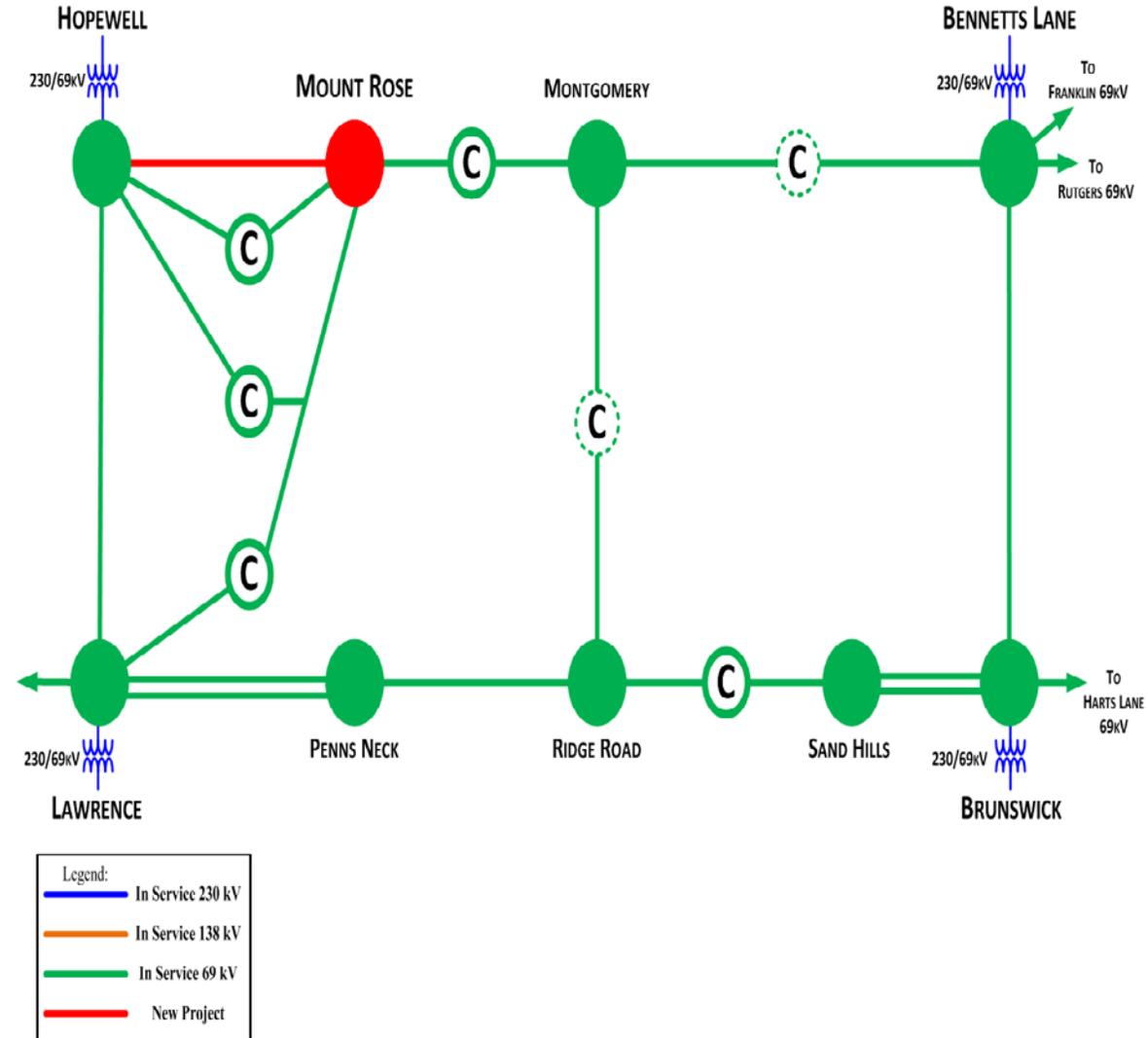
Selected Solution:

- Mount Rose 69kV Reconfiguration
 - Purchase neighboring property to accommodate construction
 - Reconfigure bus to a 69kV ring bus.
 - Construct a new 69kV circuit to Hopewell Switching Station.

Estimated Cost: \$66M

Projected In-Service Date: 06/2022

Supplemental Number: S1788.1 and S1788.2



PSE&G Transmission Zone M-3 Process Walnut Ave 69kV Substation

Need Number: PSEG-2018-0003

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 5/24/2019

Previously Presented:

Need Presented: 9/21/2018

Solution Presented: 1/25/2019

Supplemental Project Driver:

- Customer Service
- Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

[PSE&G 2018 Annual Assumptions](#)

[August 2017 26kV to 69kV PSE&G Presentation](#)

Problem Statement:

Clark is supplied by 26kV circuits with increasing performance problems.

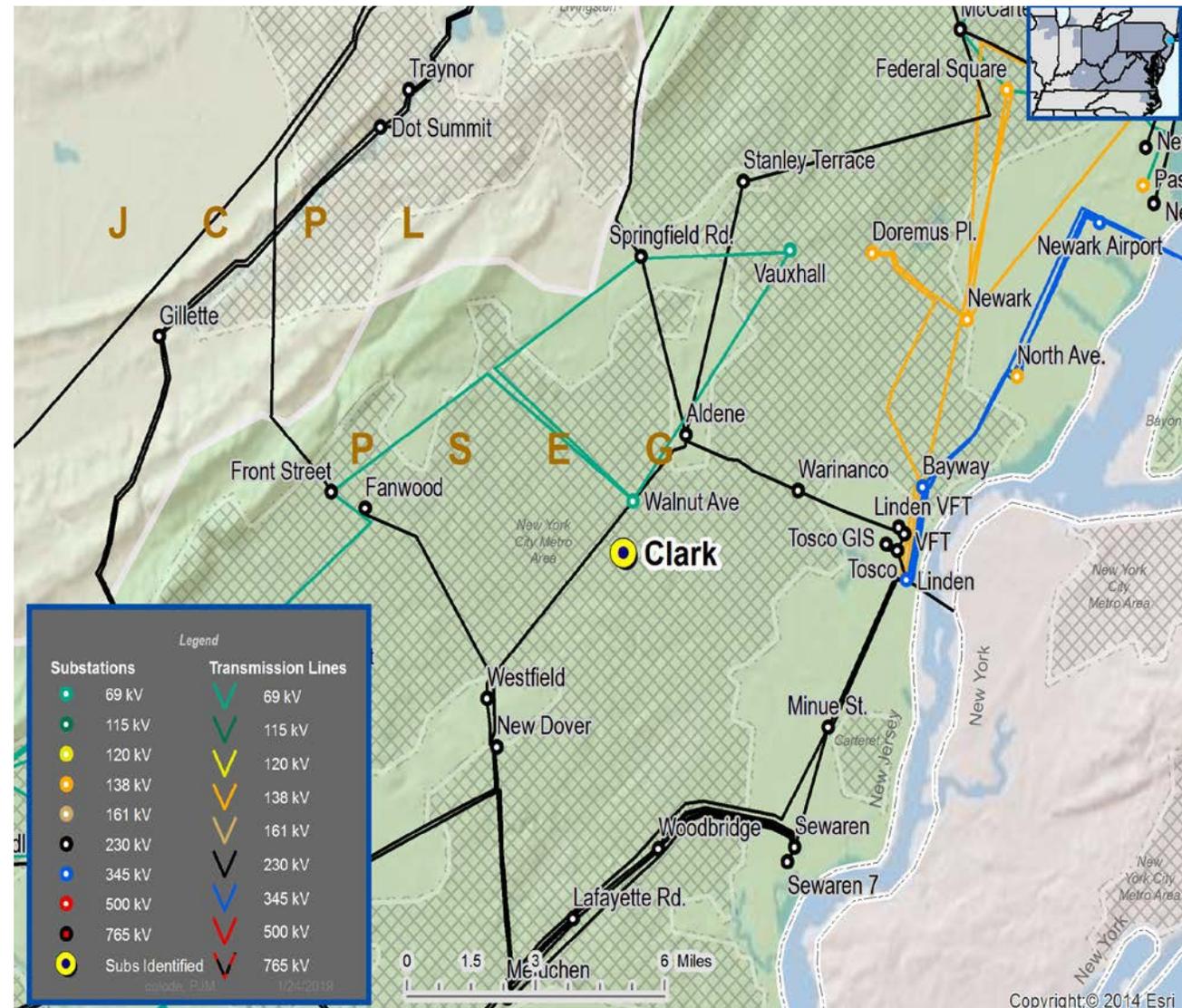
- Over the past decade, the 26kV supply circuits have seen significant momentary and extended outages, with total duration of hundreds of hours.

Station equipment at Clark has been in service for over 60 years. This equipment has been identified as being in poor condition and needs to be addressed. The station has outdoor metal clad switchgear that has resulted in rust and leaks over time, which causes bus failures.

- Clark serves roughly 2,300 customers and 16 MVA of load.

Stations around Clark are at or near capacity. There is a need for additional capacity in the area.

Model: 2017 Series RTEP 2022 SUM Non MTX-042617-no FSA_V3_PSEG 69kV_loadfix_Hillsdale_NBridge_Harvey_new-2018-JulySRTEP_AugustSRTEP.sav



PSE&G Transmission Zone M-3 Process North Brunswick 69kV Substation

Need Number: PSEG-2018-0006

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 5/23/2019

Previously Presented:

Need Presented: 11/28/2018

Solution Presented: 1/25/2019

Supplemental Project Driver:

- Customer Service

Specific Assumption Reference:

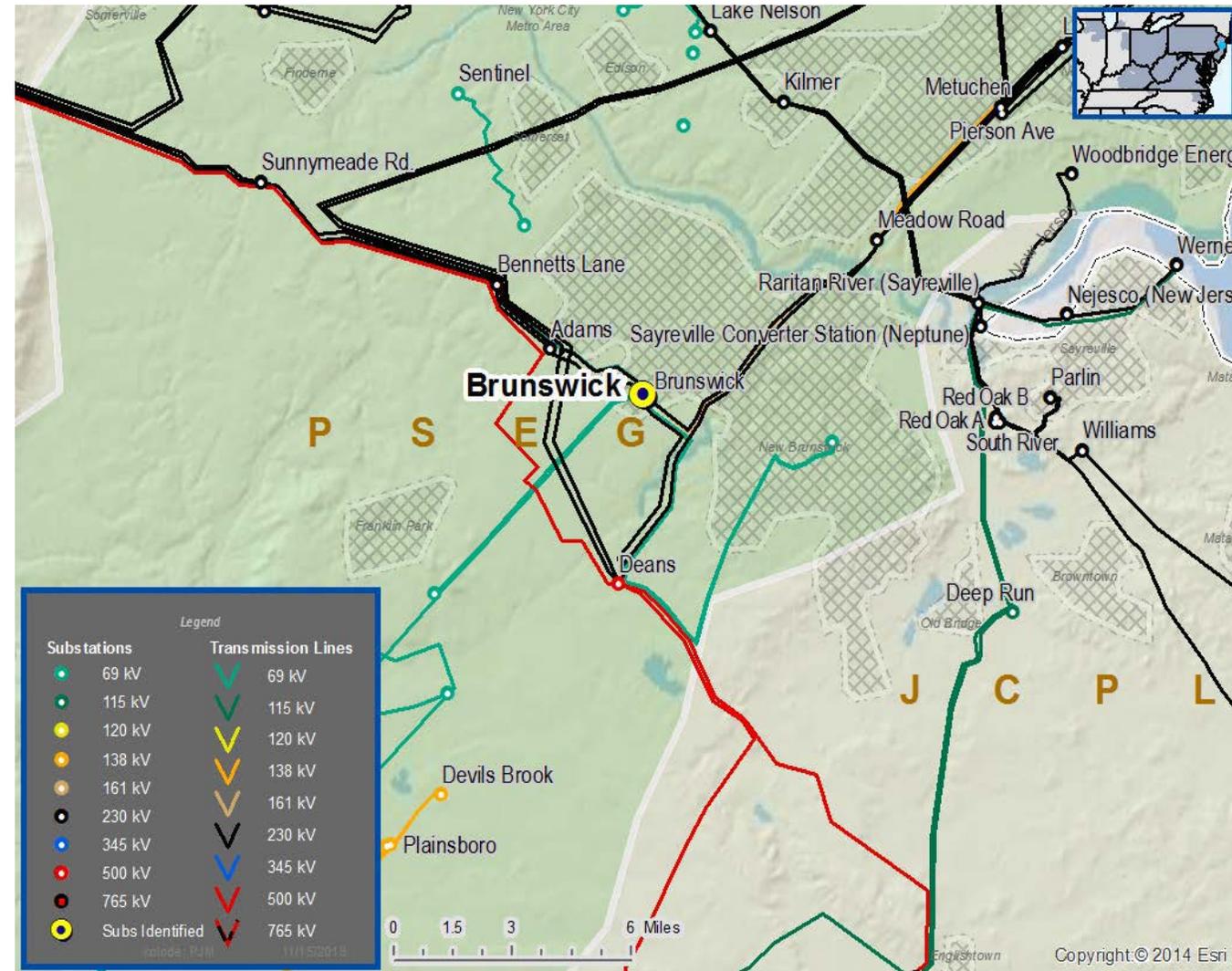
[PSE&G 2018 Annual Assumptions](#)

Problem Statement:

Stations in the New Brunswick area are at or near capacity. There is a need for additional capacity in the area.

- Adams serves roughly 22,000 customers and 83 MVA of load.
- Bennetts Lane serves roughly 21,000 customers and 83 MVA of load.
- Brunswick serves roughly 10,000 customers and 46 MVA of load.
- Station capacity for each station is 60 MVA, excluding the value of inter-station ties.

Model: 2017 Series RTEP 2022 SUM Non MTX-042617-no FSA_V3_PSEG69kV_loadfix_Hillsdale_NBridge_Harvey_new-2018-JulySR RTEP_AugustSR RTEP.sav



PSE&G Transmission Zone M-3 Process North Brunswick 69kV Substation

Need Number: PSEG-2018-0006

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 5/24/2019

Selected Solution:

New 69kV Substation in North Brunswick

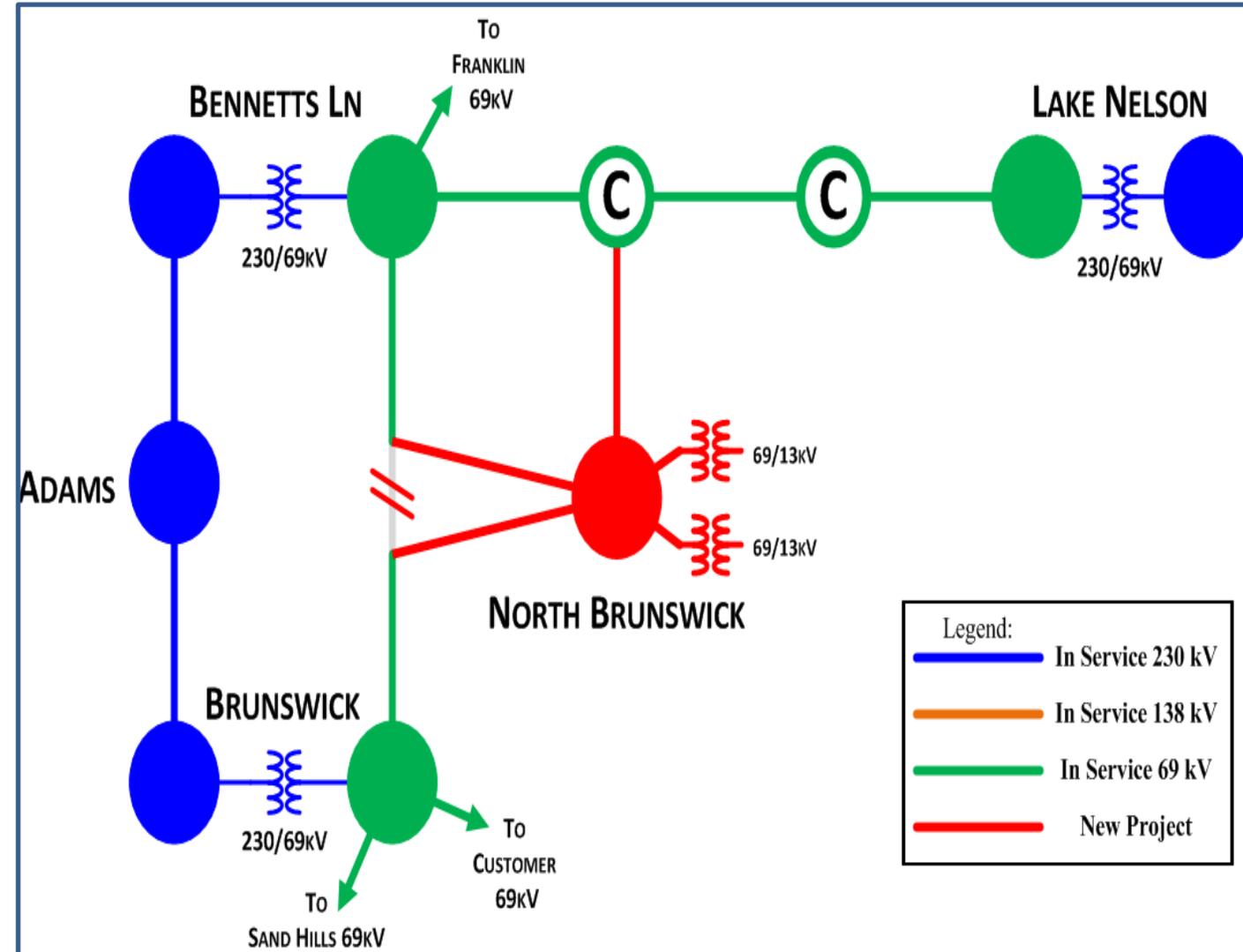
- Purchase property to accommodate construction.
- Install a 69kV breaker-and-a-half bus with two (2) 69/13kV transformers.
- Construct a 69kV network between Bennetts Lane, Brunswick, a customer substation, and the new station.
- Transfer load from nearby heavily loaded Adams, Bennetts Lane, and Brunswick to the new station.
- Provide for future asset condition based retirements and continued system expansion to accommodate future downtown New Brunswick load growth.

Estimated Cost: \$129M

Projected In-Service: 03/2023

Supplemental Project ID: s1824

Project Status: Engineering and Planning



PSEG Transmission Zone M-3 Process

Texas Ave 69kV Substation

Need Number: PSEG-2018-0007

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 5/24/2019

Previously Presented:

Need Presented: 11/28/2018

Solution Presented: 1/25/2019

Supplemental Project Driver:

- Customer Service
- Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

[PSEG 2018 Annual Assumptions](#)

Problem Statement:

Stations around Texas Ave are at or near capacity. There is a need for additional capacity in the area.

- Lawrence serves roughly 26,000 customers and 121 MVA of load.

Texas Ave is a unit substation supplied by two 26kV circuits with increasing performance problems.

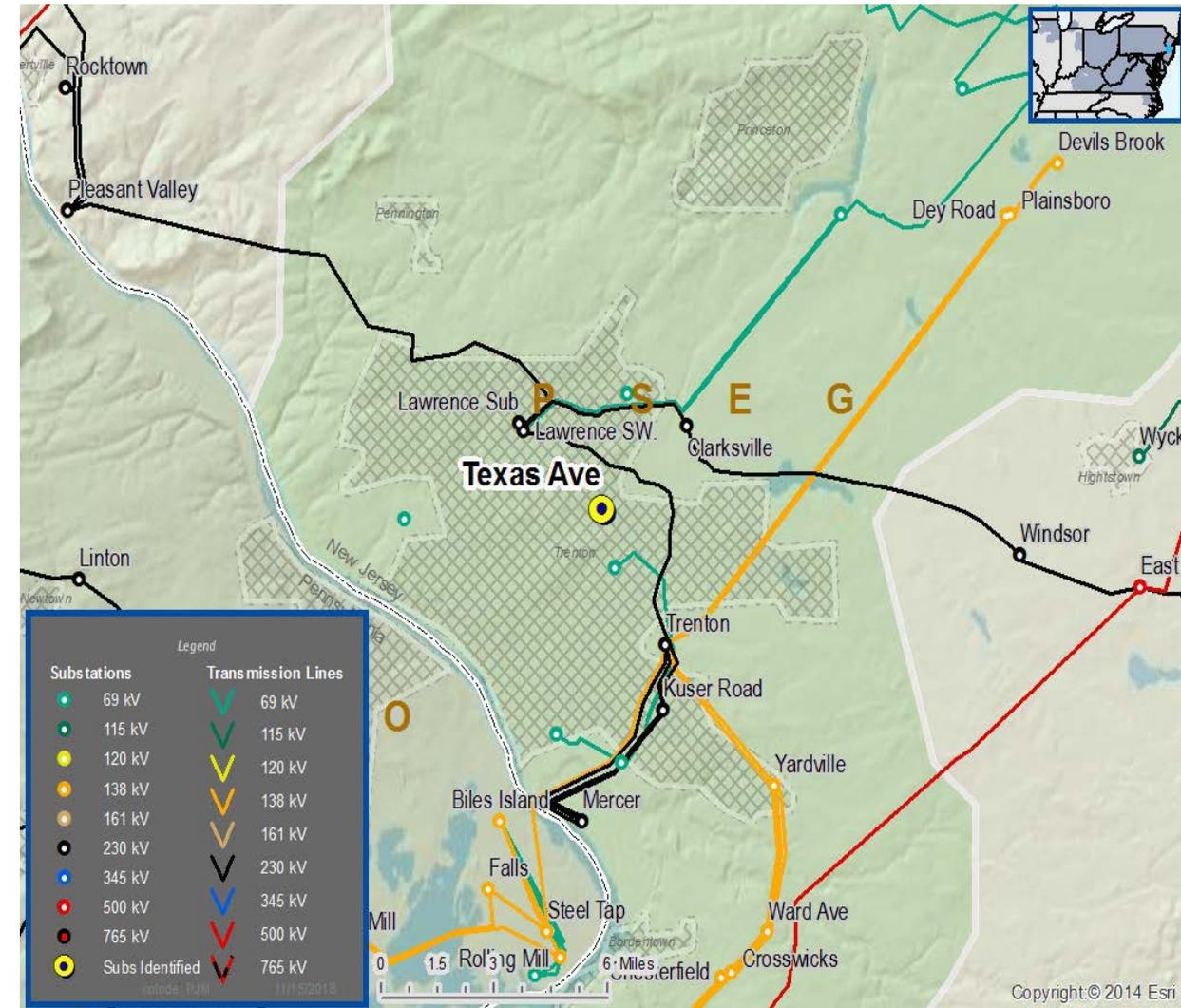
- Over the past decade, the two 26kV supply circuits at Texas have experienced 10 extended outages and 32 momentary outages, with total duration of over 82 hours.

Station equipment at Texas Ave has been in service for over 60 years. This equipment has been identified as being in poor condition and needs to be addressed.

- Texas Ave serves roughly 1,000 customers and 5 MVA of load.

Model: 2017 Series RTEP 2022 SUM Non MTX-042617-no FSA_V3_PSEG

69kV_loadfix_Hillsdale_NBridge_Harvey_new-2018-JulySRRTEP_AugustSRRTEP.sav



PSE&G Transmission Zone M-3 Process Texas Ave 69kV Substation

Need Number: PSEG-2018-0007

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 5/24/2019

Selected Solution:

New 69kV Substation at Texas Ave

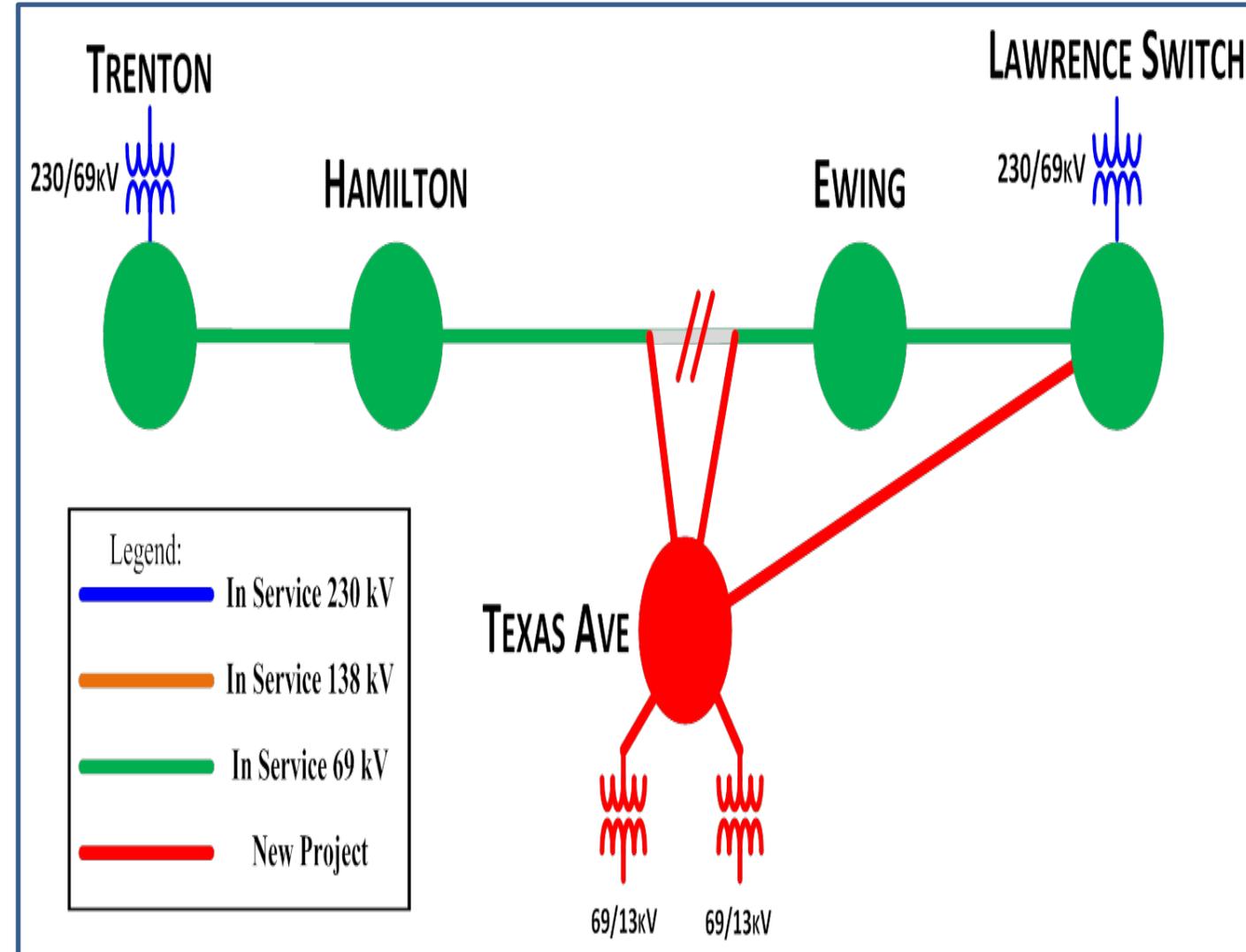
- Purchase neighboring property to accommodate construction.
- Install a 69kV bus with two (2) 69/13kV transformers.
- Construct a 69kV network between Ewing, Hamilton, Lawrence, and the new station.
- Transfer load from nearby heavily loaded Lawrence to the new station.

Estimated Cost: \$71M

Projected In-Service: 04/2023

Supplemental Project ID: s1825

Project Status: Engineering and Planning



PSE&G Transmission Zone M-3 Process Mansfield 230kV Substation

Need Number: PSEG-2019-0001

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan: 7/19/2019

Previously Presented:

Need Presented: 1/25/2019

Solution Presented: 2/22/2019

Supplemental Project Driver:

- Customer Service

Specific Assumption Reference:

[PSE&G 2019 Annual Assumptions](#)

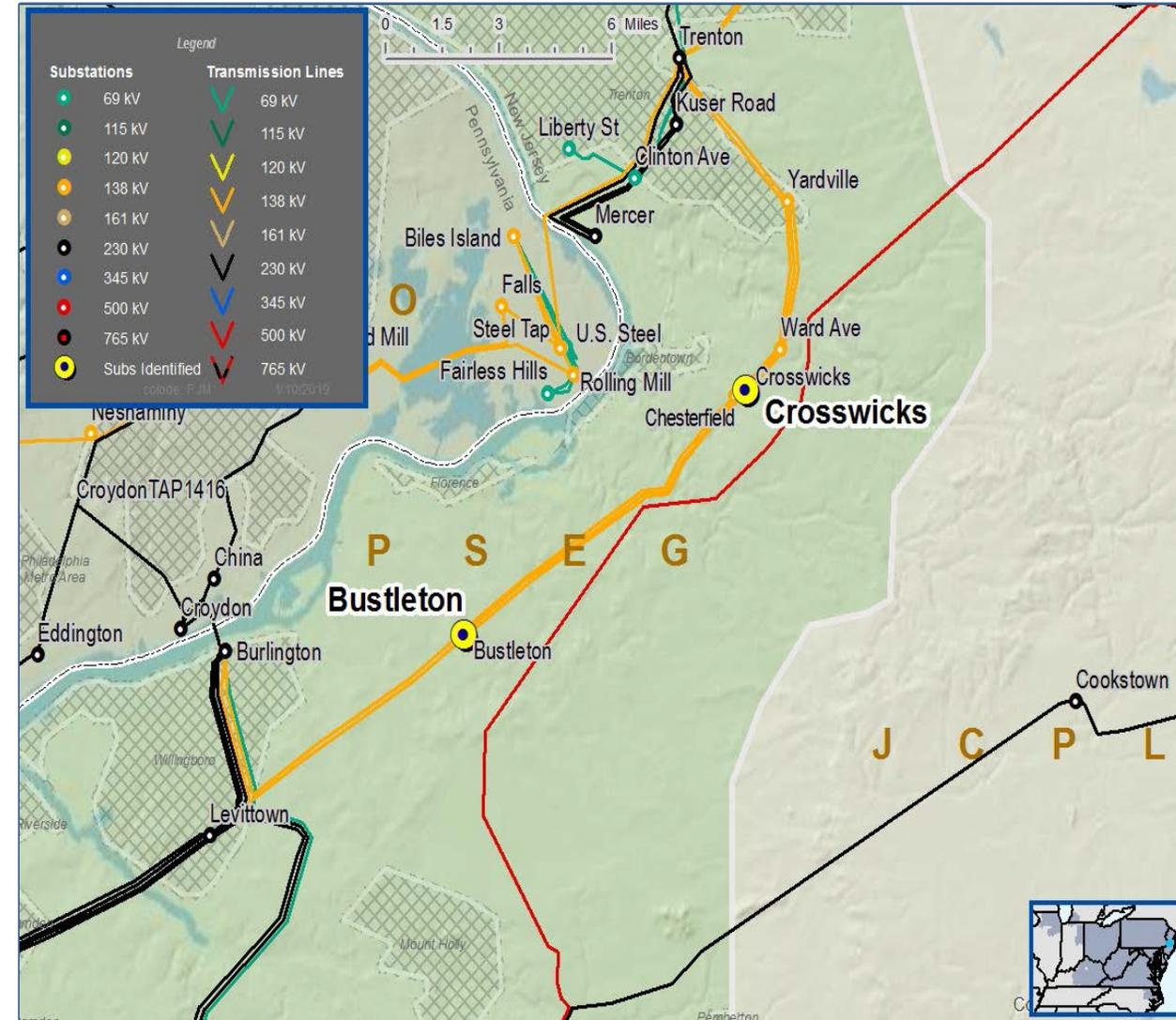
- Localized Load Growth & Contingency Overloads

Problem Statement:

Crosswicks and Bustleton are stations at capacity. There is a need for additional capacity in the area.

- Crosswicks serves roughly 14,900 customer and projected load of 66 MVA in 2024.
- Bustleton serves roughly 16,400 customers and projected load of 77 MVA in 2024.
- Station capacity for each station is 60 MVA.

Model: RTEP 2022 Summer



PSE&G Transmission Zone M-3 Process Mansfield 230kV Substation

Need Number: PSEG-2019-0001

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 7/19/2019

Selected Solution:

New 230 kV Substation in Mansfield

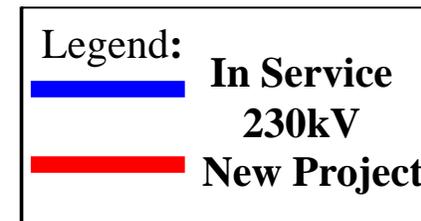
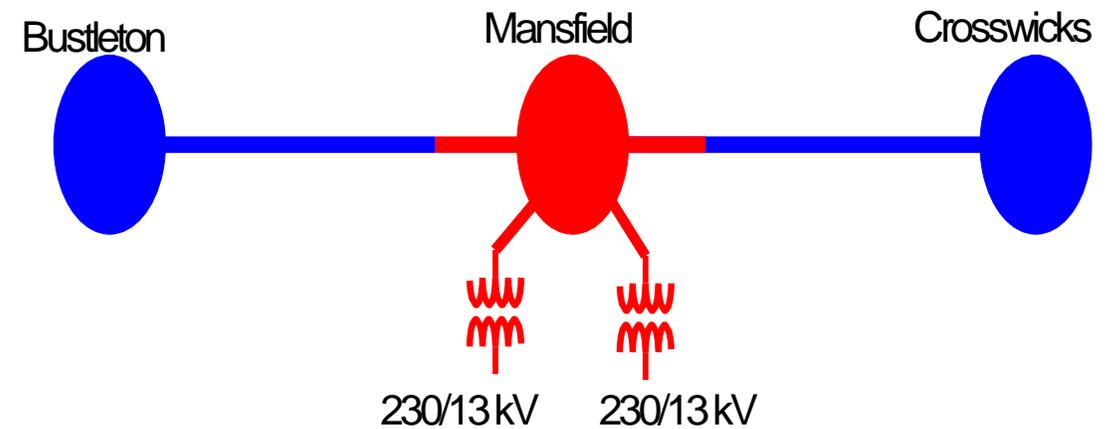
- Install a 230 kV bus with two (2) 230/13 kV transformers.
- Cut and loop the Bustleton-Crosswicks 230 kV line in to the 230 kV bus.
- Transfer load from nearby heavily loaded Bustleton and Crosswicks to the new station.

Estimated Cost: \$43 M

Projected In-Service: 12/2023

Supplemental Project ID: s1831

Project Status: Engineering and Planning



Revision History

5/21/2019 – V1 – Local Plan for s1787 and s1788 posted to pjm.com

5/24/2019 – V2 – Submission of Supplemental Project for inclusion in the Local Plan for s1787 and s1788. Corrected the date of when the submission was posted which was 3/14/2019.
Removed PJM header and footer

5/24/2019 – V3 - Submission of Supplemental Project for inclusion in the Local Plan for s1823, s1824 and s1825

7/19/2019 – V4 - Submission of Supplemental Project for inclusion in the Local Plan: s1831