

# 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:**

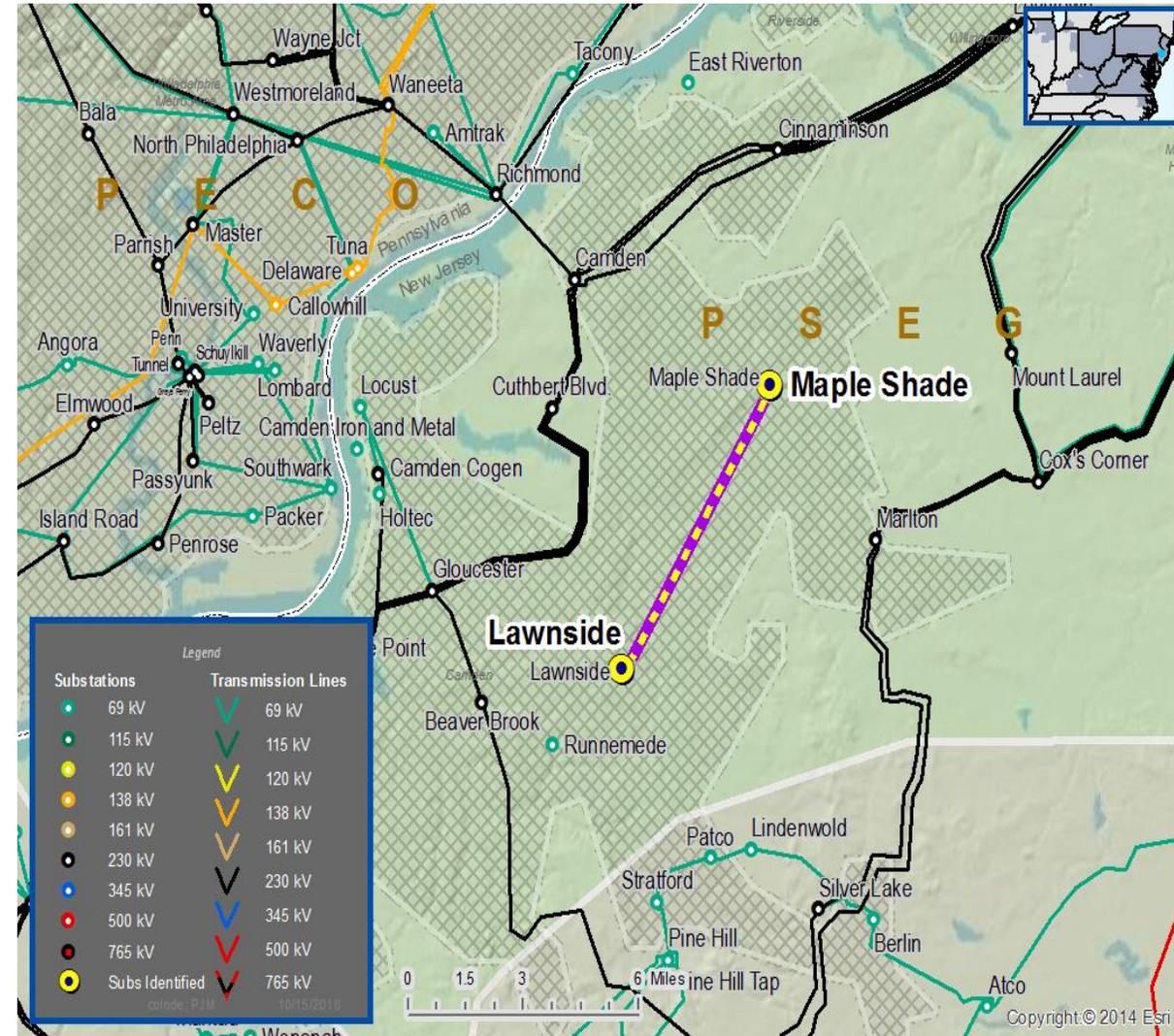
- Operational Flexibility and Efficiency
- Equipment Material Condition, Performance and Risk

**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

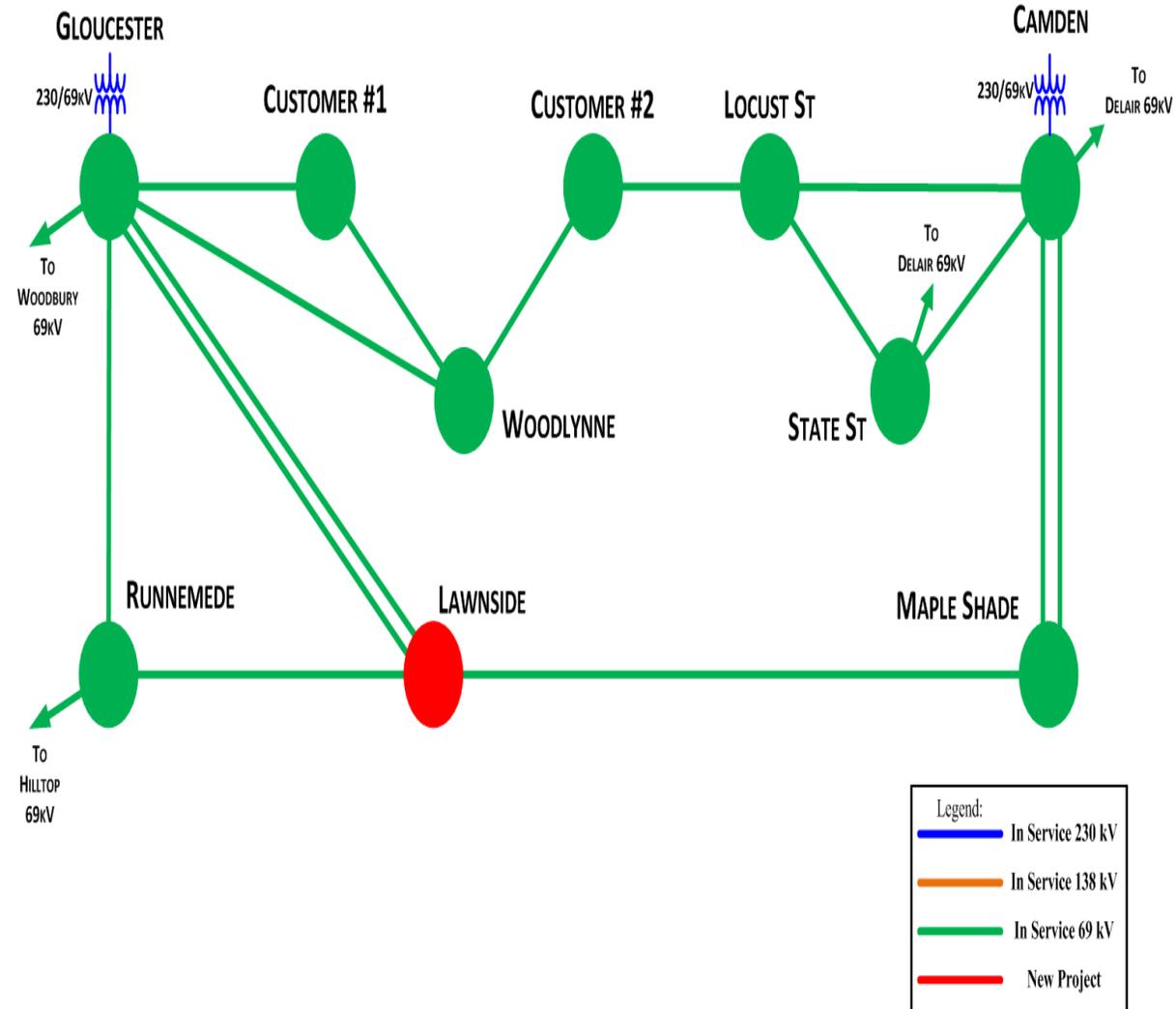
**Need Number:** PSEG-2018-0004

**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:**

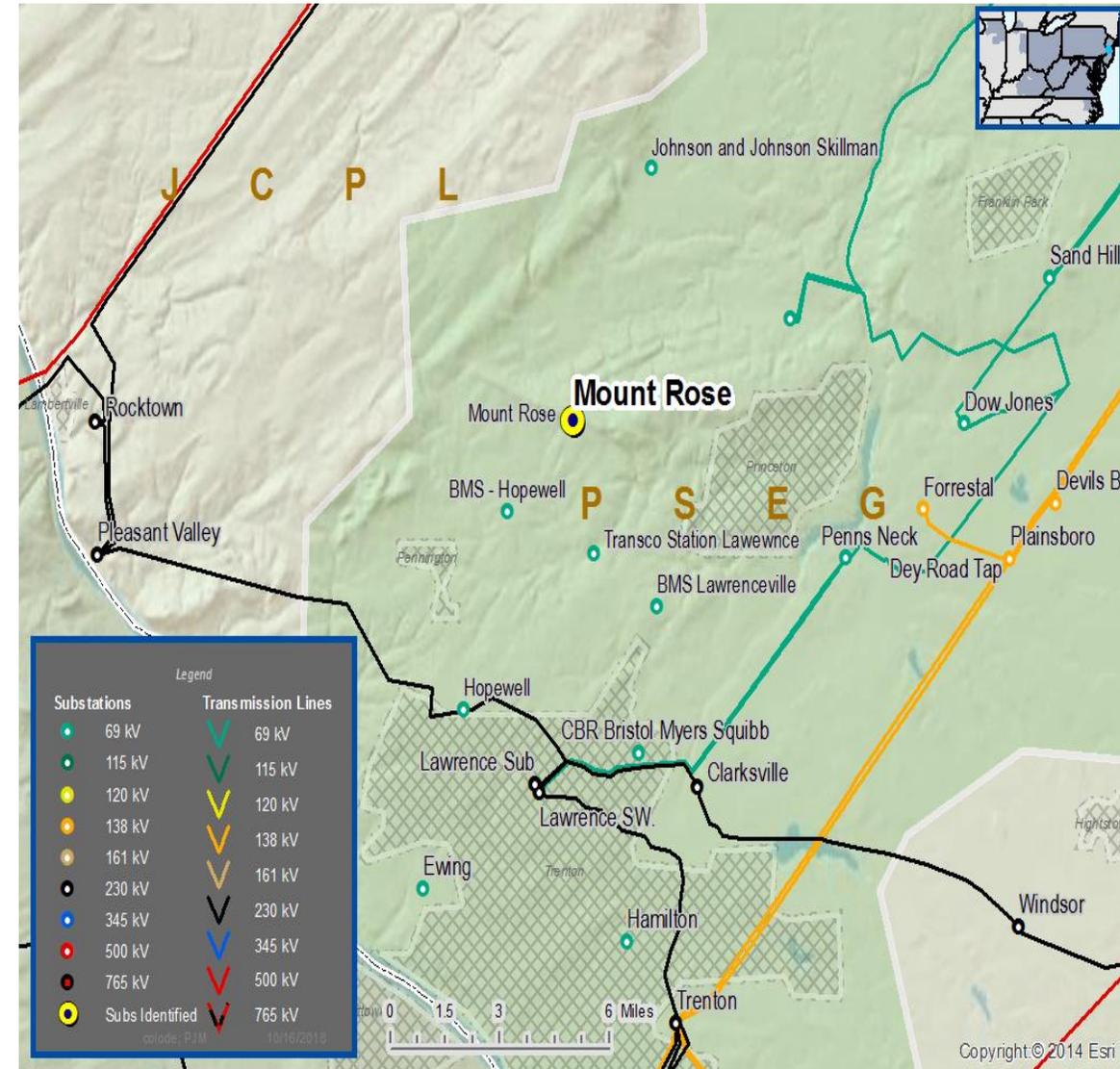
- Operational Flexibility and Efficiency
- Equipment Material Condition, Performance and Risk

**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

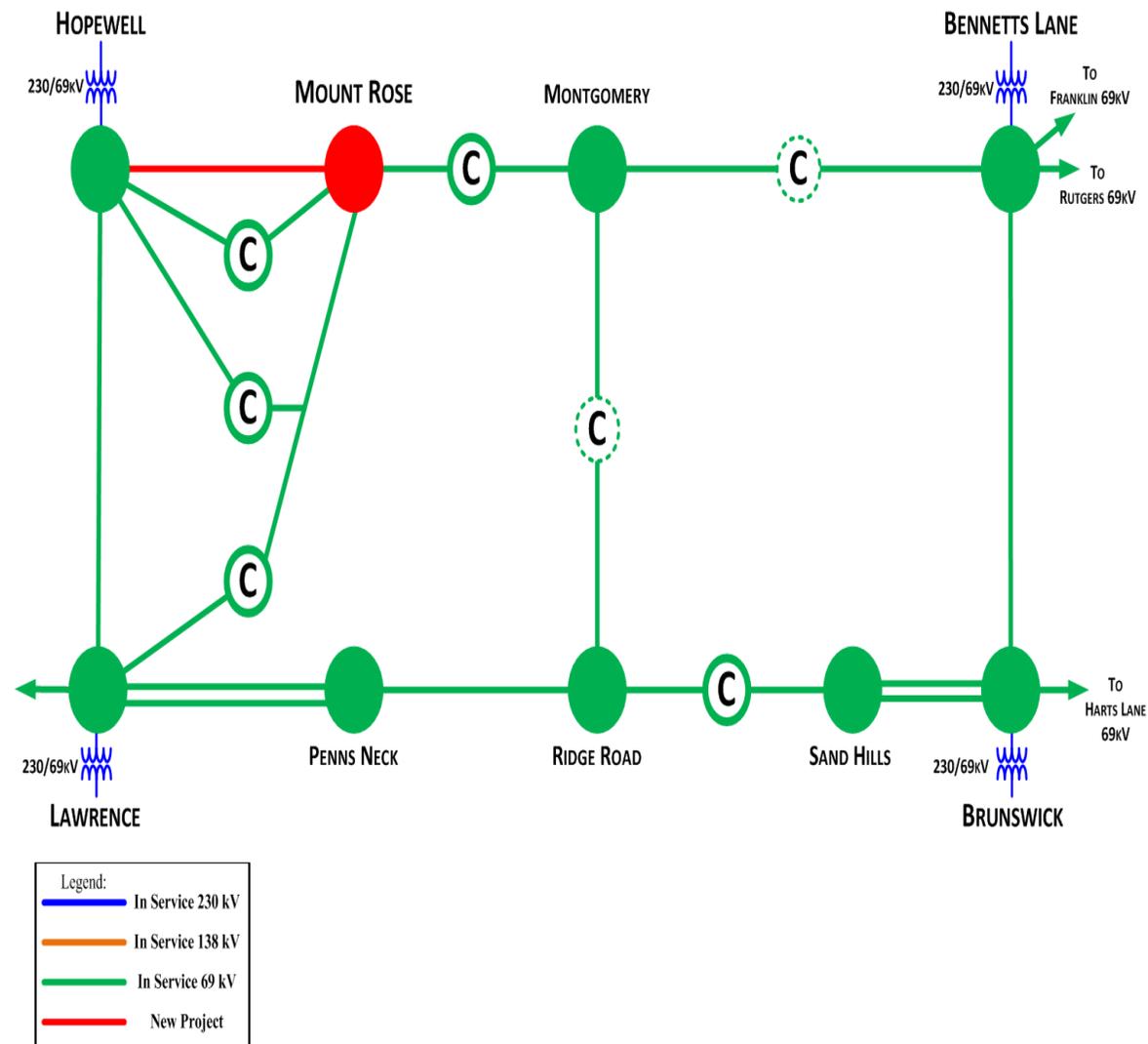
**Selected Solution:**

- 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.

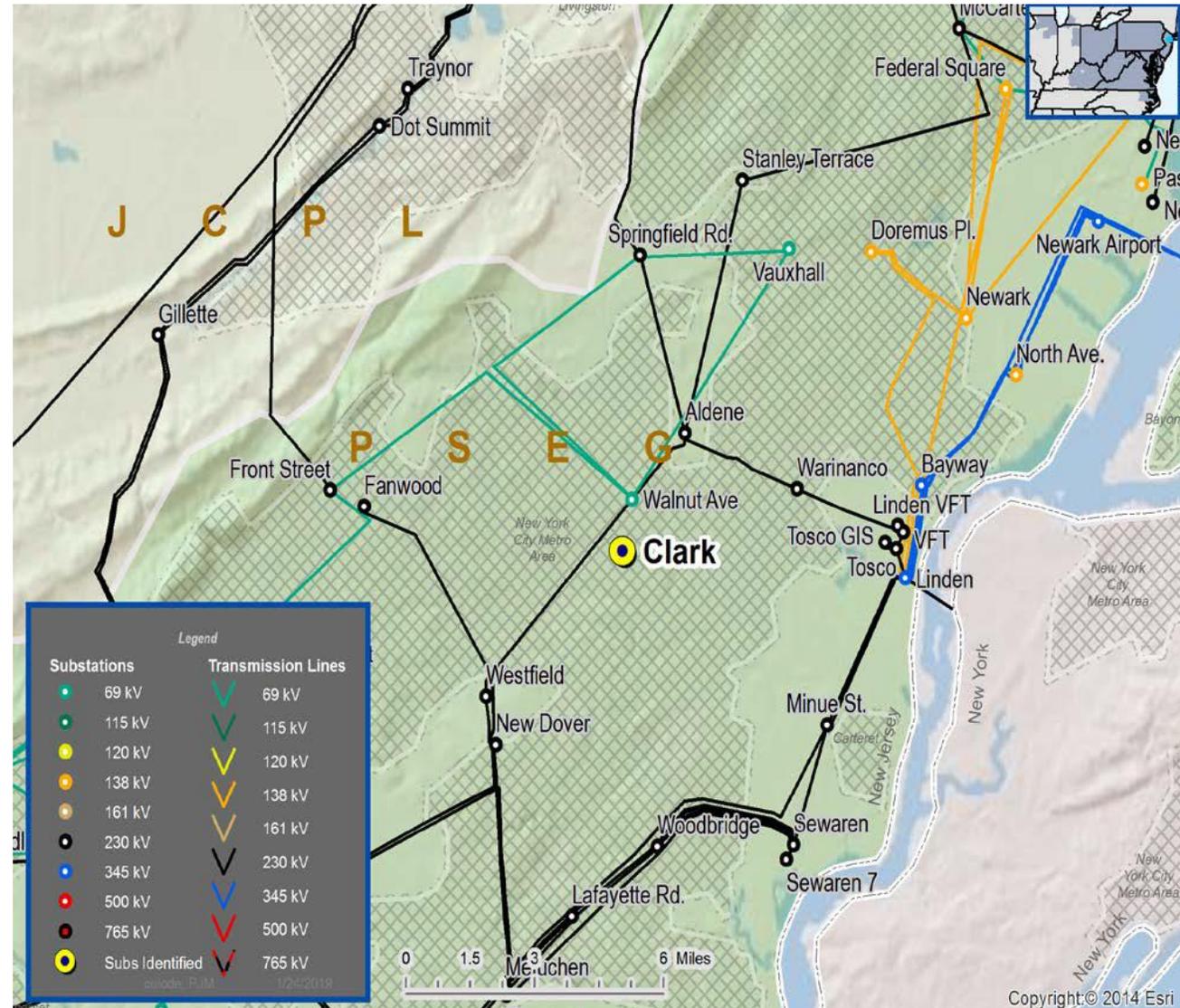
- Over the past decade, the 26kV supply circuits have seen significant momentary and extended outages, with total duration of hundreds of hours.

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 Walnut Ave 69kV Substation

**Need Number:** PSEG-2018-0003

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

**Selected Solution:**

**Walnut Ave 69kV Substation**

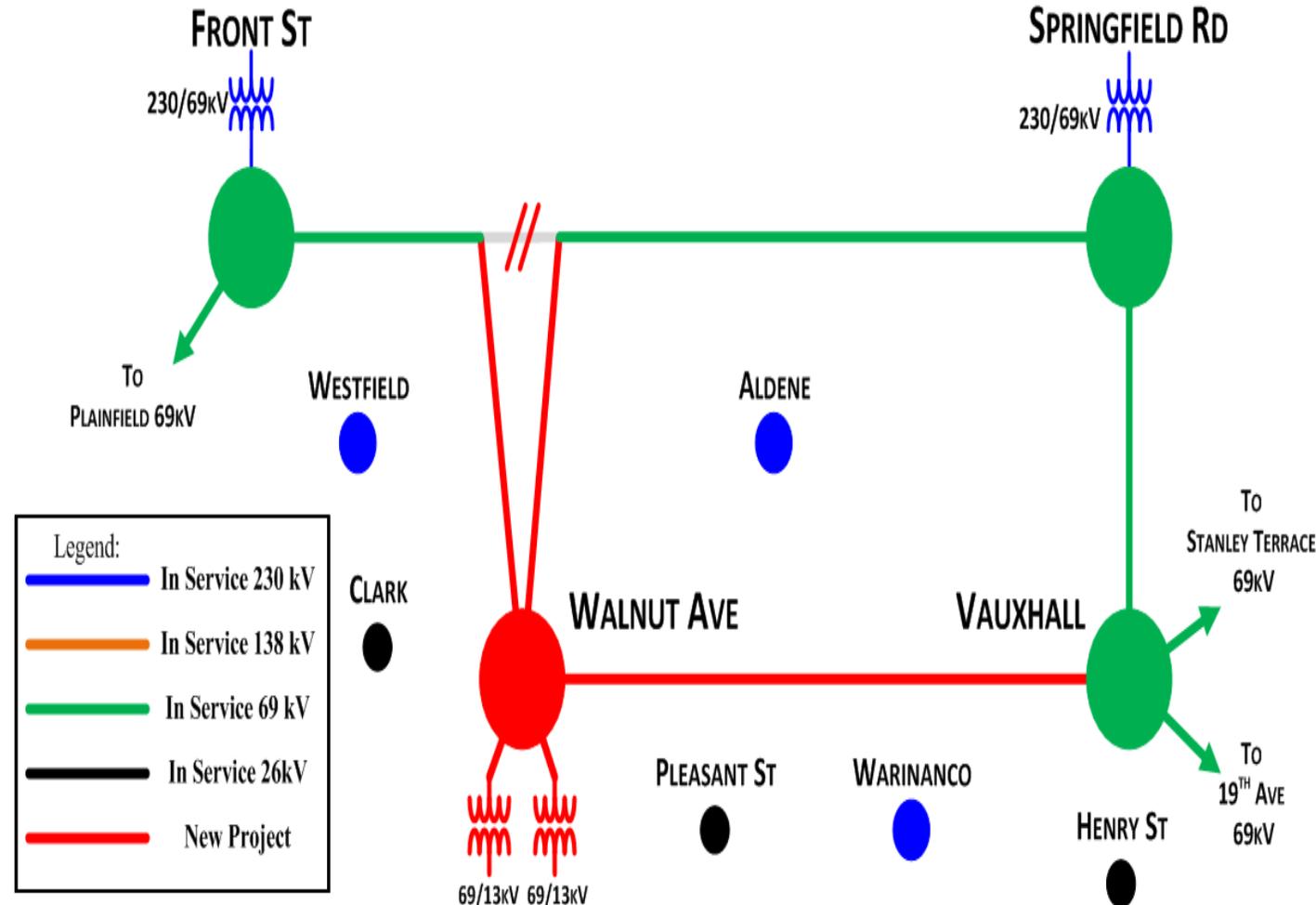
- Purchase property to accommodate new construction.
- Install a 69kV bus with two (2) 69/13kV transformers.
- Construct a 69kV network between Front St, Springfield Rd, Vauxhall, and Walnut Ave.
- Eliminate Clark substation.
- Transfer load from nearby heavily loaded Aldene, Warinanco, and Westfield to the new station.
- Provide for future asset condition based retirements.

**Estimated Cost:** \$146M

**Projected In-Service Date:** 05/2023

**Supplemental Project ID:** s1823

**Project Status:** Engineering and Planning



# 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:**

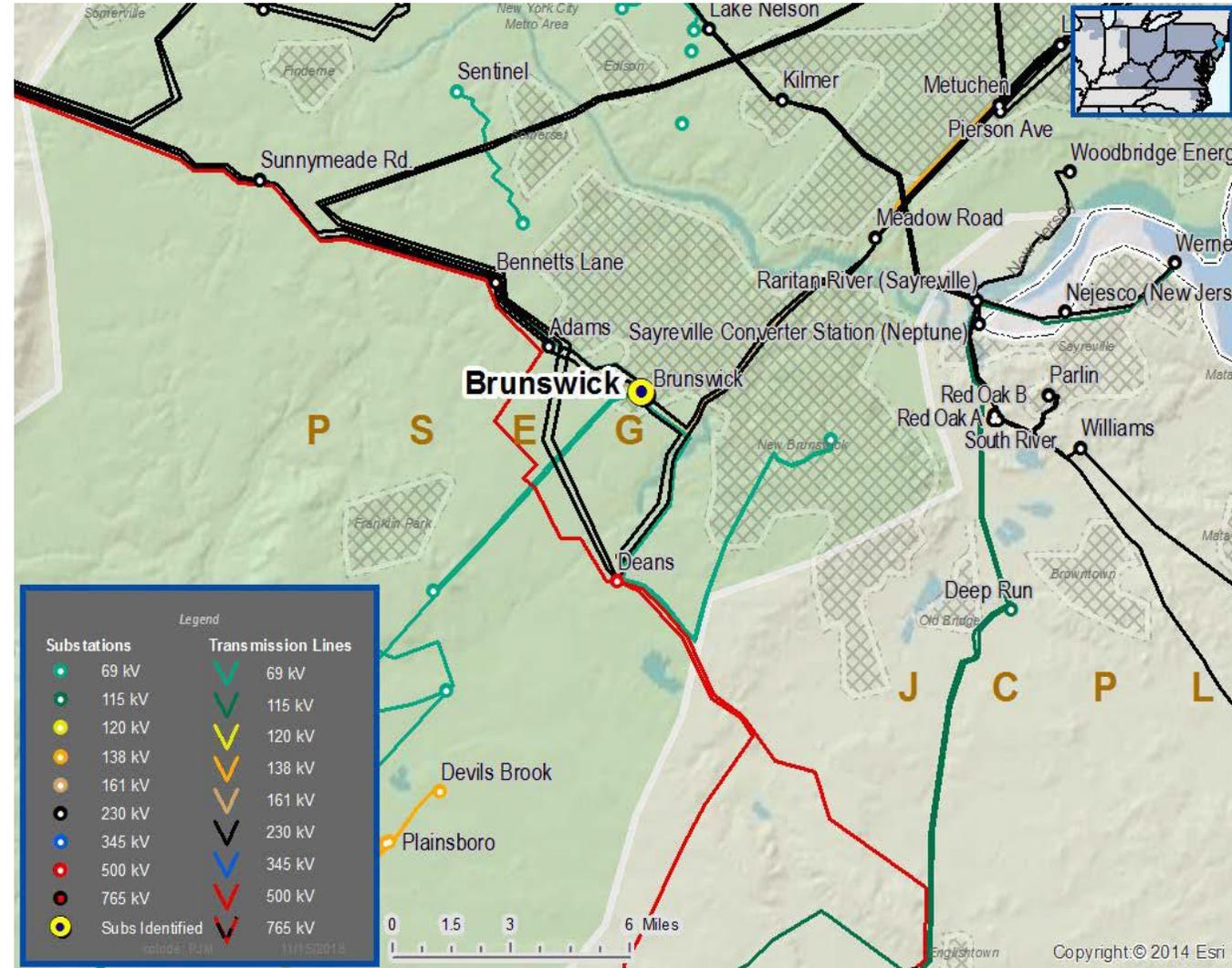
[PSE&G 2018 Annual Assumptions](#)

**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-JulySRRTEP\_AugustSRRTEP.sav





# 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.

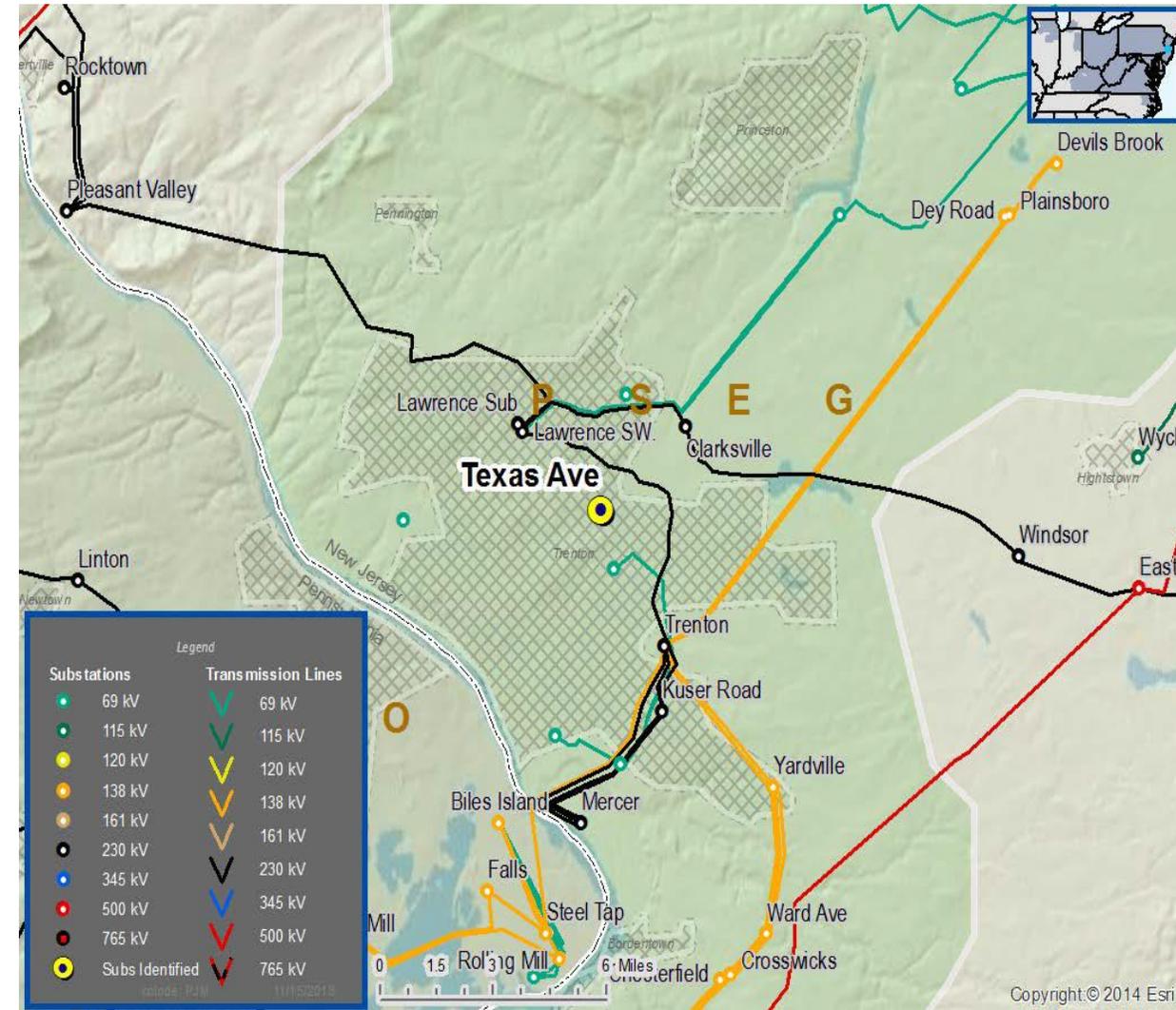
- Over the past decade, the two 26kV supply circuits at Texas have experienced 10 extended outages and 32 momentary outages, with total duration of over 82 hours.

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-JulySR RTEP\_AugustSR RTEP.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

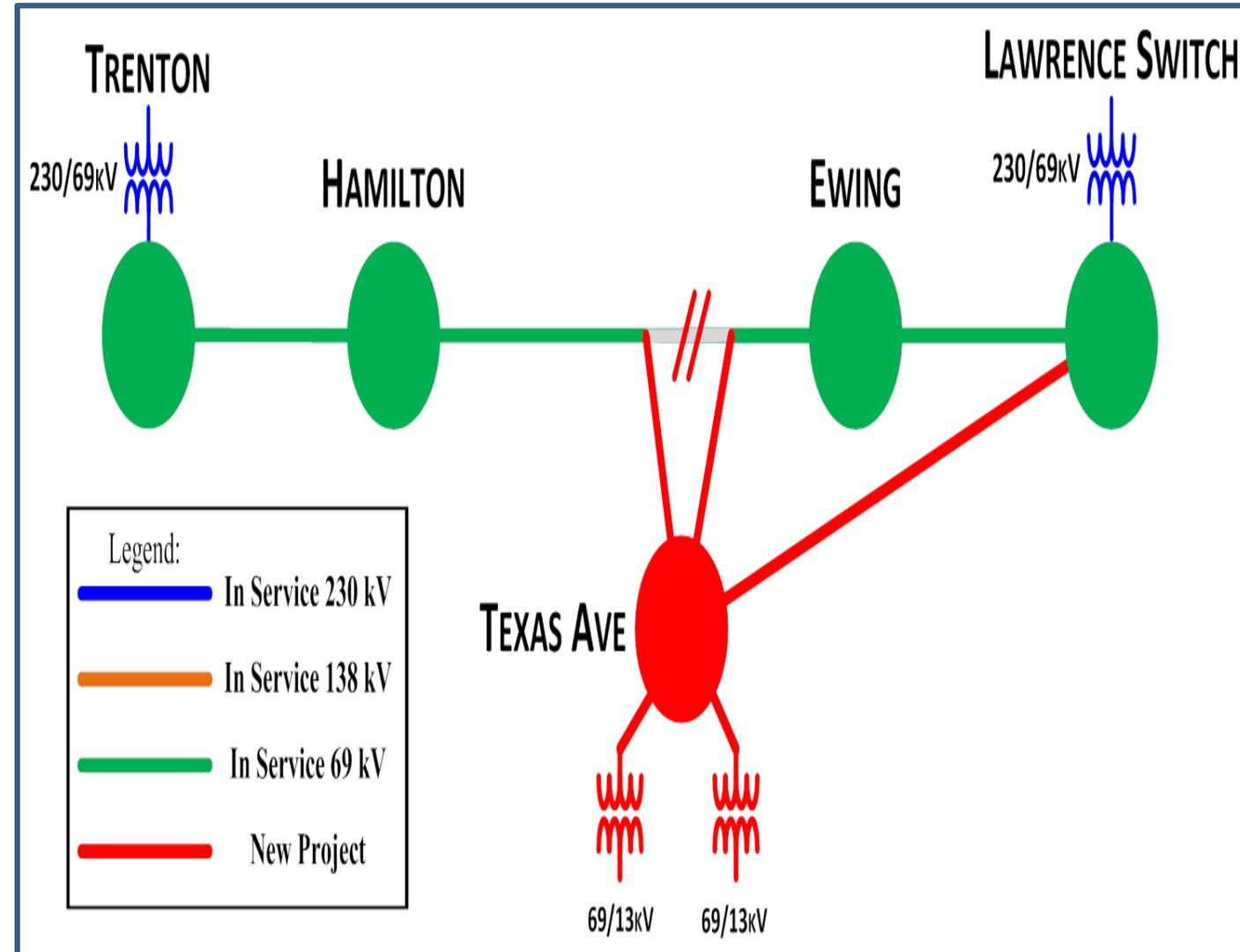
- Purchase neighboring property to accommodate construction.
- Install a 69kV bus with two (2) 69/13kV transformers.
- Construct a 69kV network between Ewing, Hamilton, Lawrence, and the new station.
- Transfer load from nearby heavily loaded Lawrence to the new station.

**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](#)

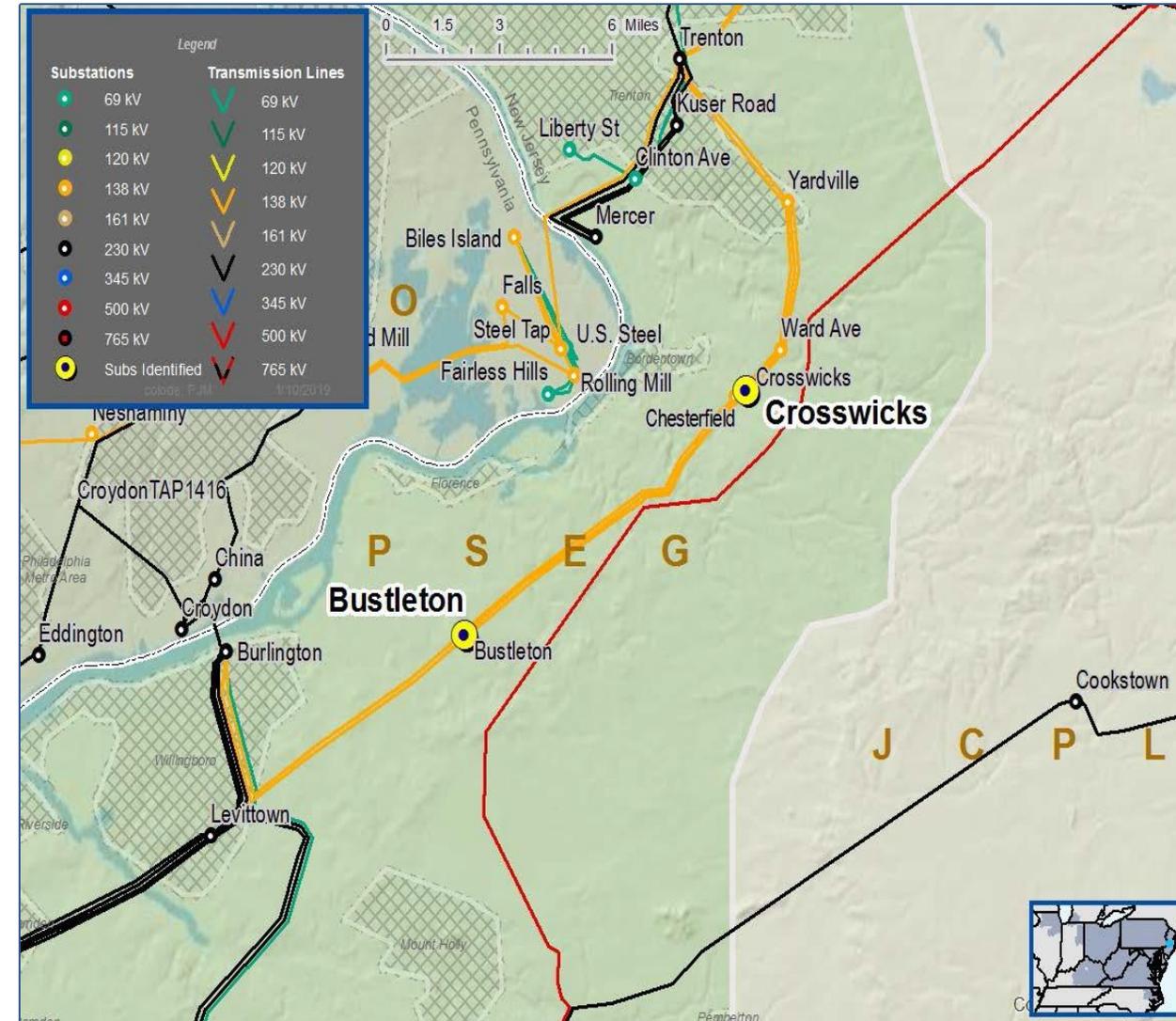
- Localized Load Growth & Contingency Overloads

**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

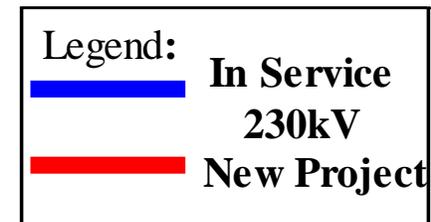
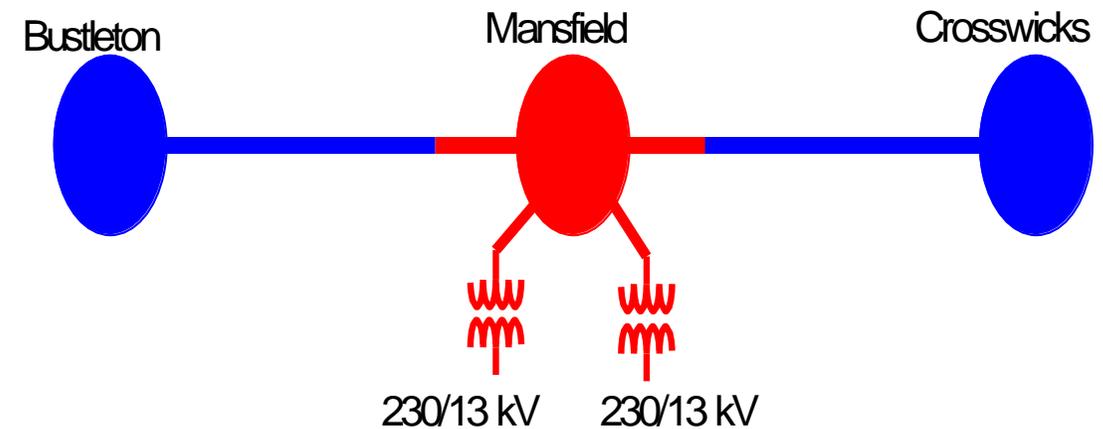
- Install a 230 kV bus with two (2) 230/13 kV transformers.
- Cut and loop the Bustleton-Crosswicks 230 kV line in to the 230 kV bus.
- Transfer load from nearby heavily loaded Bustleton and Crosswicks to the new station.

**Estimated Cost:** \$43 M

**Projected In-Service:** 12/2023

**Supplemental Project ID:** s1831

**Project Status:** Engineering and Planning



**Need Number:** PSEG-2019-0002

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 12/3/2019

**Previously Presented:**

- Need Meeting 9/24/2019
- Solutions Meeting 10/21/2019

**Supplemental Project Driver:**

- Customer Service

**Specific Assumption Reference:**

[PSE&G 2019 Annual Assumptions](#)

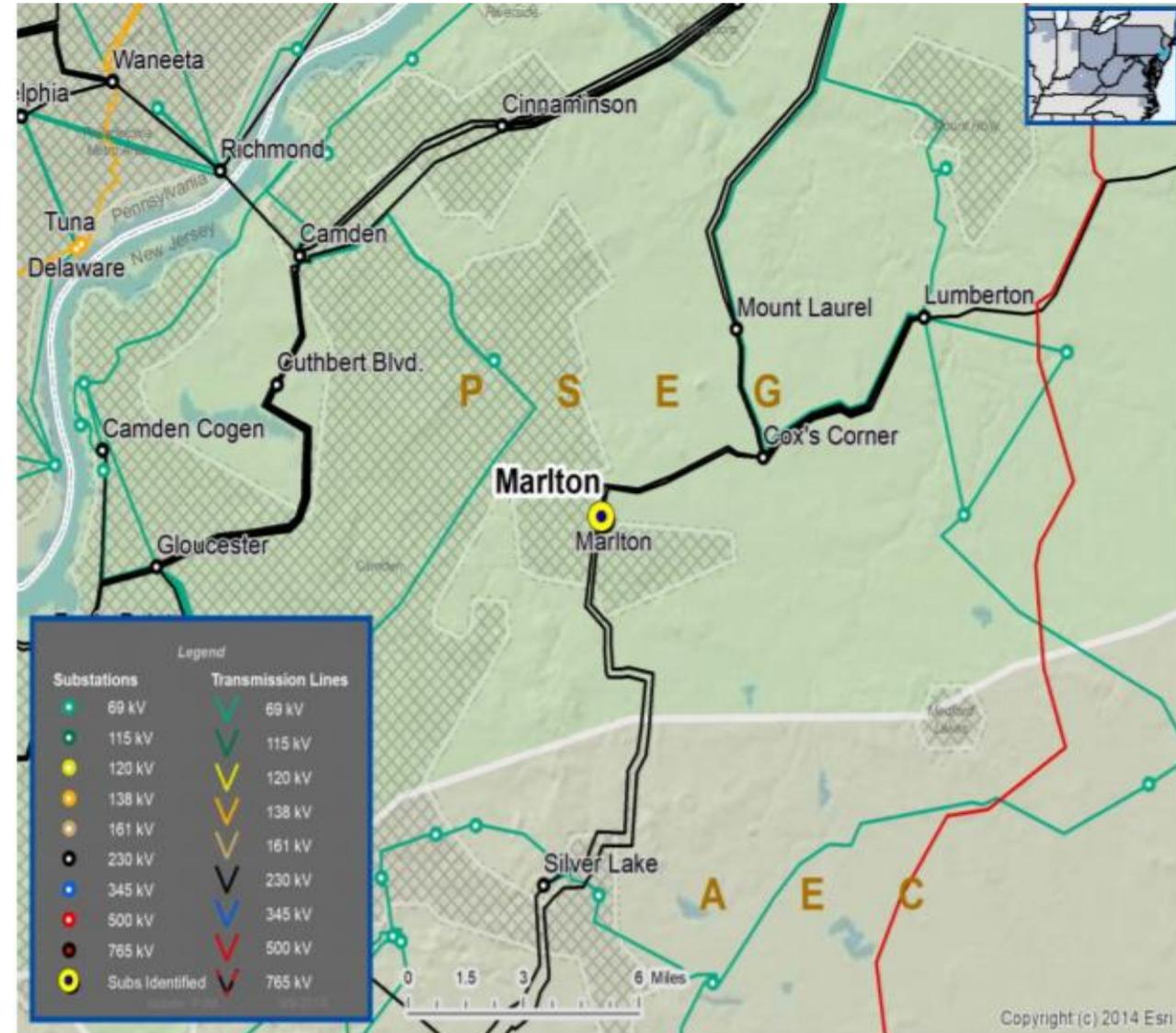
- Localized Load Growth & Contingency Overloads

**Problem Statement:**

Marlton is a station in the Voorhees area over capacity. The station exceeds its capacity of 120MVA.

- Marlton serves roughly 22,100 customers with a current load of 131 MVA and a projected load of 140 MVA in 2024.

**Model:** 2018 Series 2023 Summer RTEP 50/50



**Need Number:** PSEG-2019-0002

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 12/3/2019

**Selected Solution:**

- New 230kV Station in Echelon
  - Install a 230kV station with two (2) 230/13kV transformers.
  - Cut and loop the New Freedom-Marlton 230kV line in to the 230kV bus.
  - Transfer load from heavily loaded Marlton 1H and Marlton 2H to the new station.

**Ancillary Benefits:**

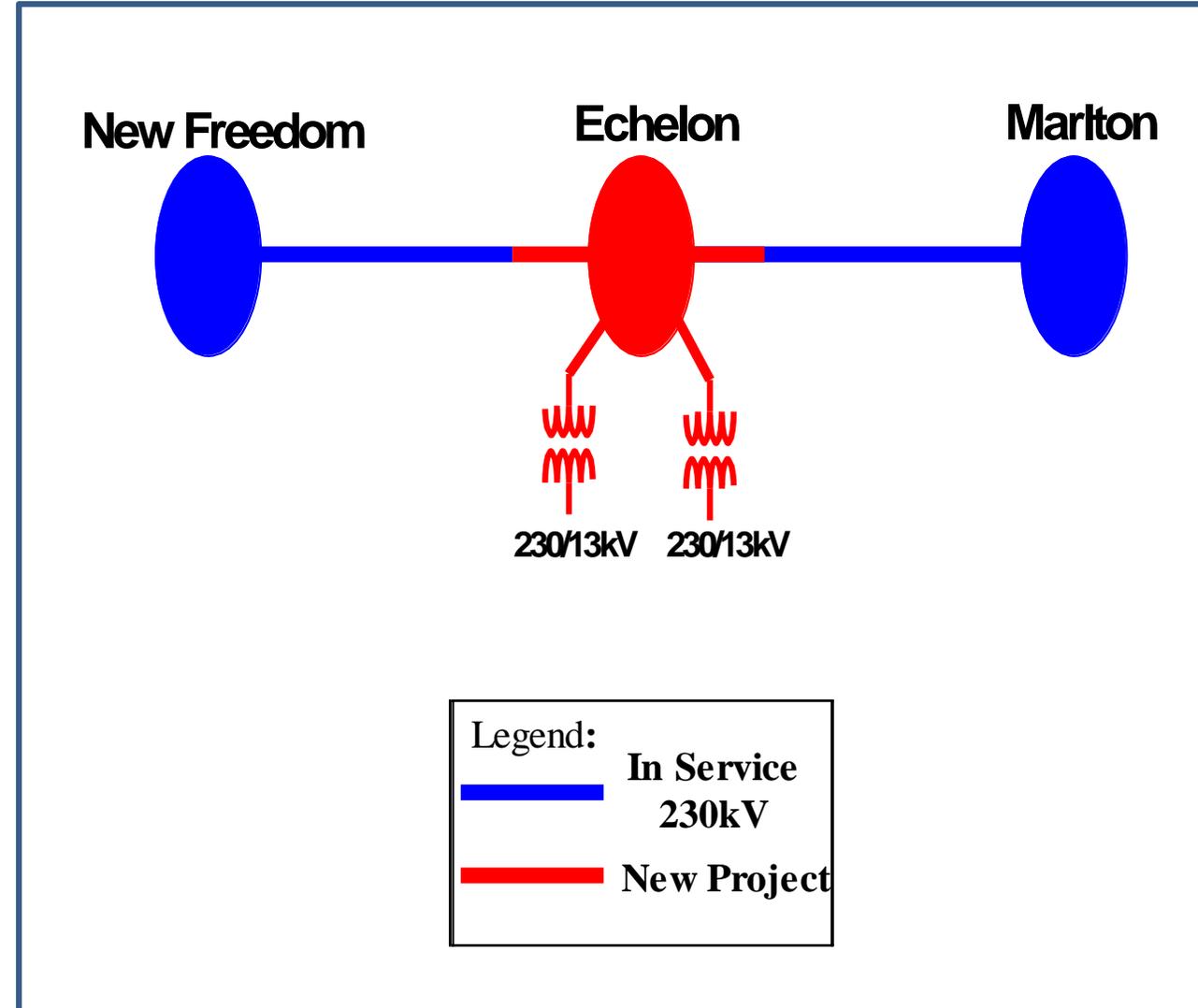
- Decreases the amount of exposure and increases the reliability of the 230kV circuit.

**Estimated Cost:** \$39M

**Projected In-Service:** 06/2024

**Supplemental Project ID:** S2077

**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

12/3/2019 – V5 – Submission of Supplemental Project for inclusion in the local plan for S2077