

# Submission of Supplemental Projects for Inclusion in the Local Plan

**Need Number:** ComEd-2019-006

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 01/28/2020

**Previously Presented:**

Need Meeting 10/17/2019

Solutions Meeting 11/14/2019

**Project Driver:**

Equipment Material Condition, Performance, and Risk

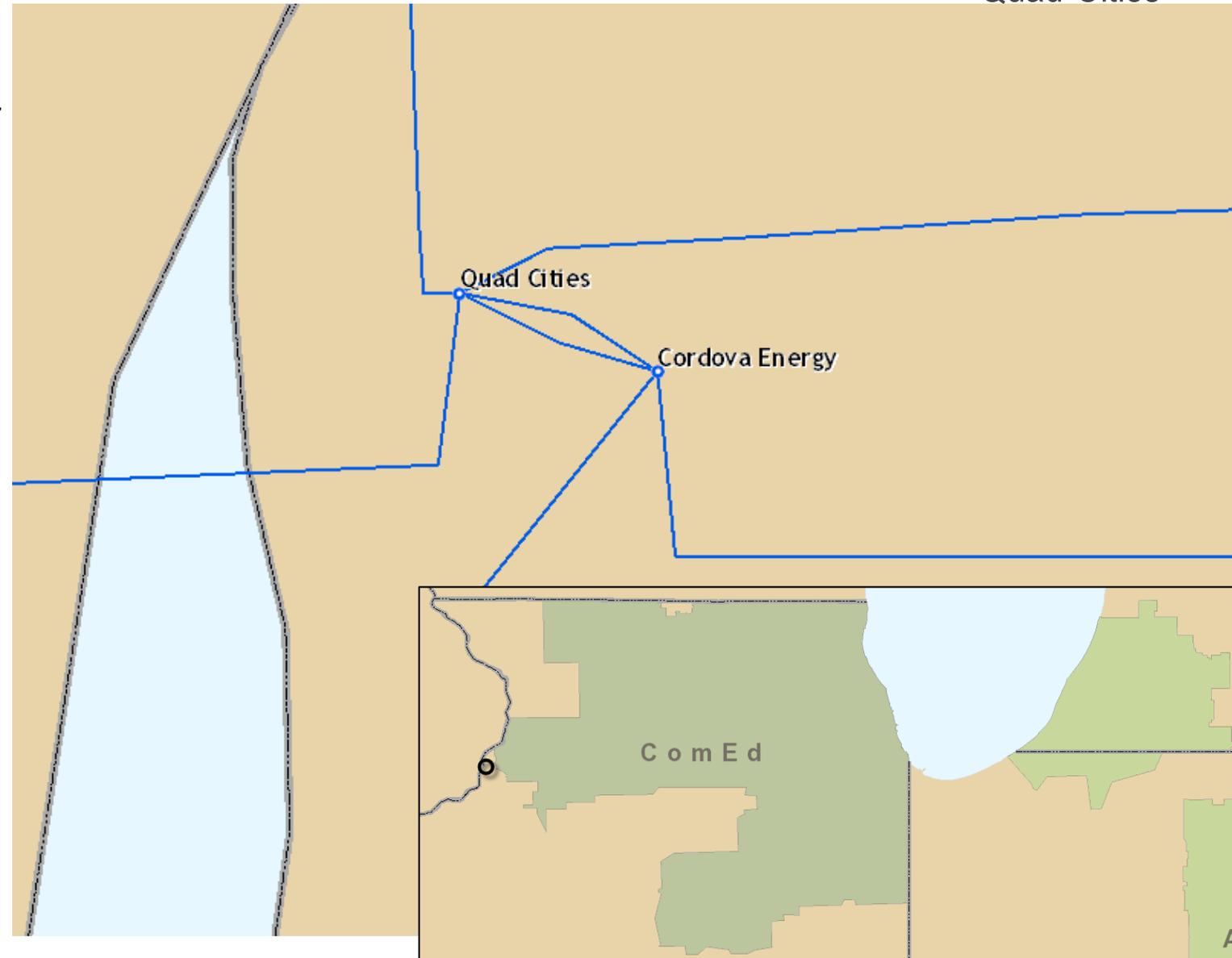
**Specific Assumption Reference:**

Transmission infrastructure replacements (EOL/condition/obsolescence) that are consistent with efficient asset management decisions

**Problem Statement:**

345 kV Line 0402 (Quad Cities – Cordova) has obsolete relays

- Becoming difficult to service REL352 phase comparison relays. They are being phased out of our system.
- Line is an intertie between PJM/MISO



**Need Number:** ComEd-2019-006

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 01/28/2020

**Selected Solution:**

Replace 345 kV Line 0402 relays and upgrade communications equipment

Old ratings: (MVA) 973/1069/1193 SN/SE/SLD  
1053/1143/1536 WN/WE/WLD

Projected ratings: 1173/1193/1193 SN/SE/SLD  
1497/1569/1569 WN/WE/WLD

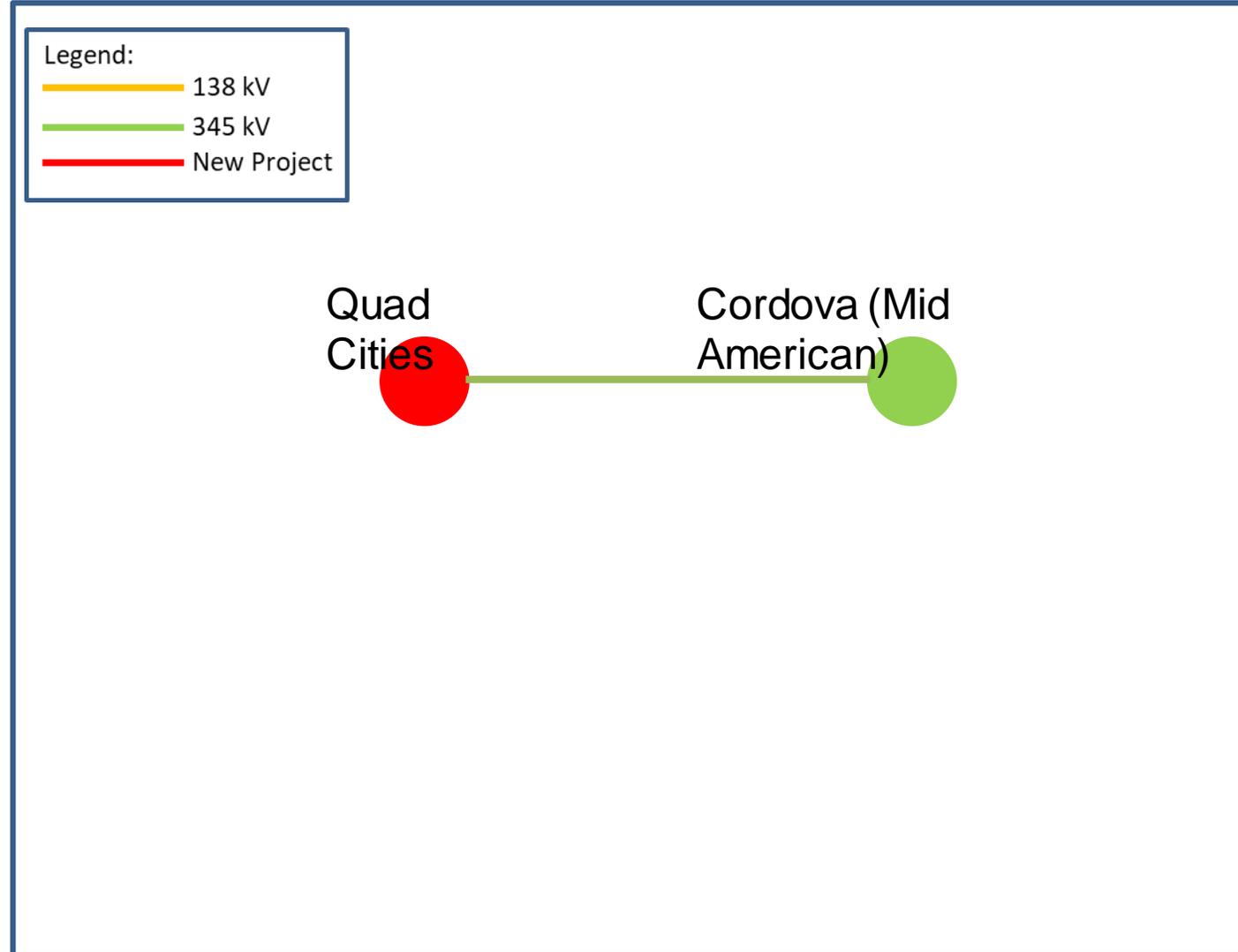
**Estimated Cost:** \$0.2M

**Projected In-Service:** 6/1/2020

**Supplemental Project ID:** S2137

**Project Status:** Engineering

**Model:** PJM 2024 RTEP



# ComEd Transmission Zone M-3 Process Kendall - Lockport

**Need Number:** ComEd-2019-007

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 01/28/2019

**Previously Presented:**

Need Meeting 10/17/2019

Solutions Meeting 11/14/2019

**Project Drivers:**

Operational Flexibility and Efficiency

Equipment Material Condition, Performance, and Risk

**Specific Assumption References:**

Increasing system capacity

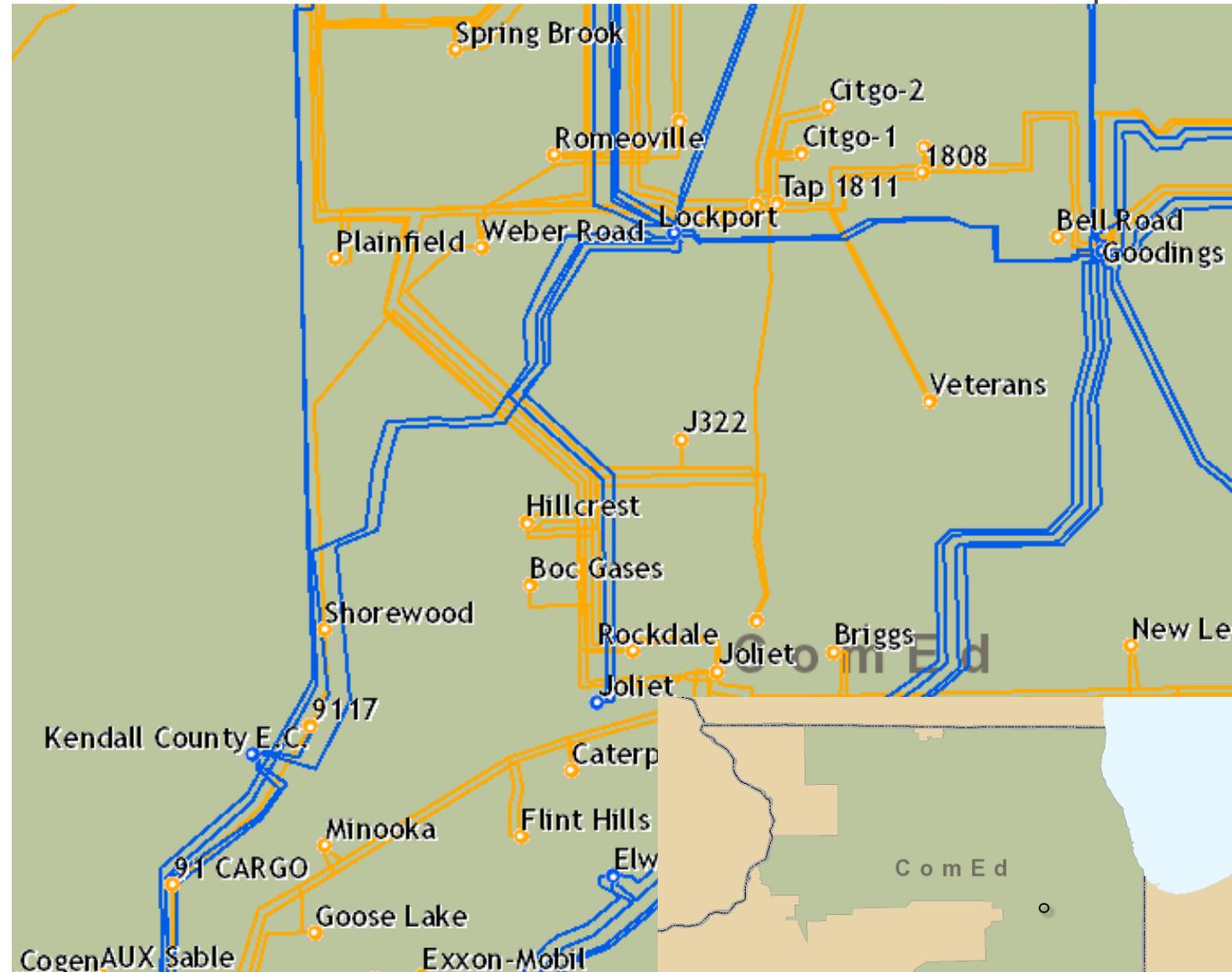
Programmatic replacement of breakers, relays, wood poles, cables, etc.

Supply strategy guidance resulting in standard conductor sizes and other standard equipment

**Problem Statement:**

Network project n5144 is rebuilding 345 kV Kendall – Lockport double circuit towers for 16 miles in 2022 to increase line 10805 rating. New conductor will be T2-1113 (1448 MVA SN/1863 MVA SE).

- 345 kV Line 10806 runs in parallel on the same towers. Existing conductor is 2156 kcm (1334 MVA SN/1726 MVA SE). The disconnect switch at Lockport is a non-standard 1600A switch.
- 138 kV lines 0908 (Joliet – Shorewood) and 9117 (Shorewood – Cargo Court) run along the same ROW for 10.5 miles on wood poles.
  - The wood poles are 59-60 years old
  - ComEd intends to eliminate wood poles on the transmission system.



**Need Number:** ComEd-2019-007

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 01/28/2020

**Selected Solution:**

- Install quad circuit towers for 10.5 miles between Kendall and Lockport. String 138 kV conductor and cut line 0908 (Rockdale - Hillcrest - Shorewood) and part of line 9117 (Cargo Court/J-402 - Shorewood) over to new towers. **(S2138.1) Estimated Cost: \$12M**
- Install T2-1113 conductor on 345kV line 10806 (Kendall - Lockport) and OPGW static wire. Replace 10806 disconnect at Lockport. **(S2138.2) Estimated Cost: \$1.1M**

**Ancillary Benefits:**

Risk to Shorewood and Cargo Court will be significantly reduced during construction due to shorter outage required.

Increased reliability of steel poles over wood

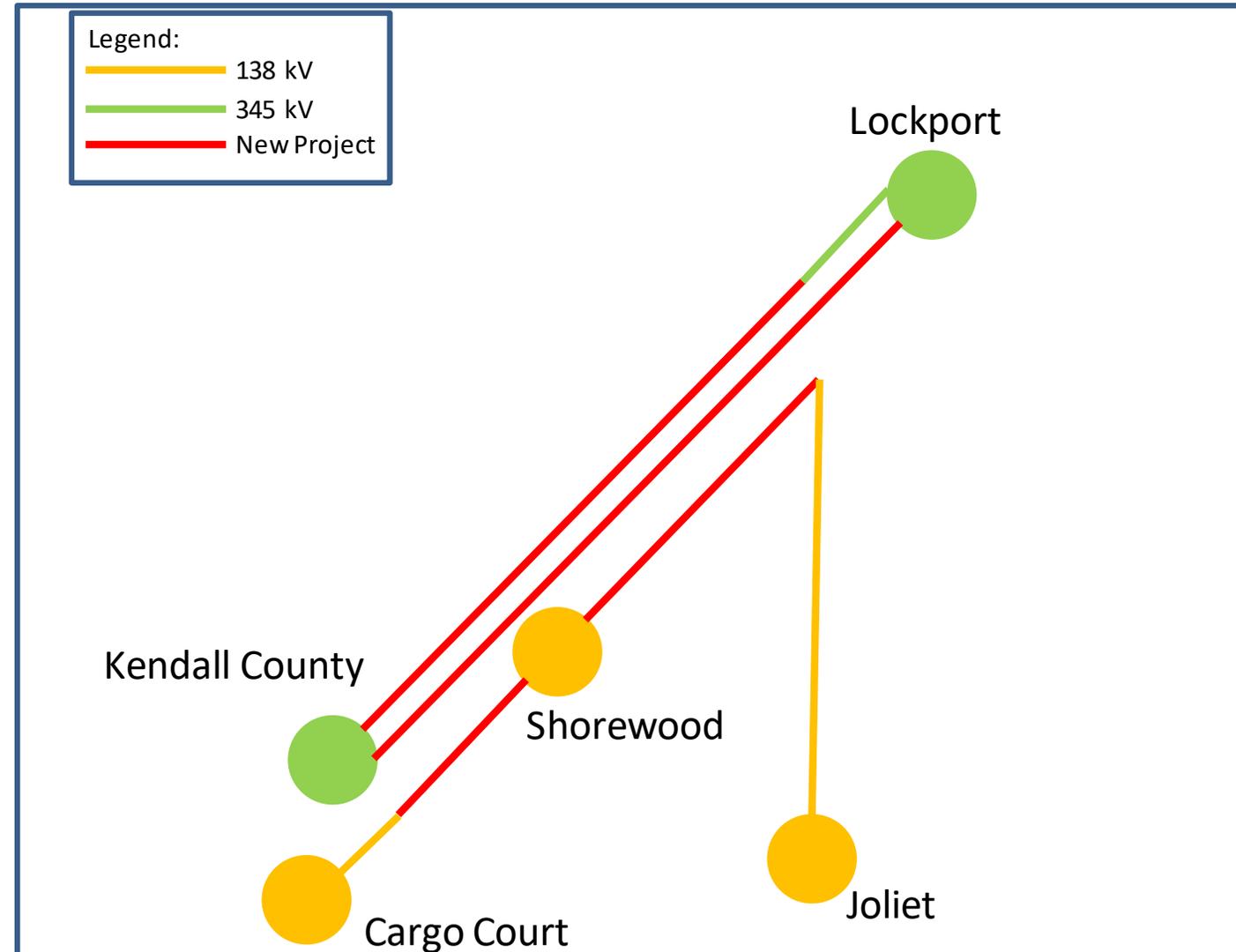
**Estimated Cost:** \$13.1M

**Projected In-Service:** 6/1/2022

**Supplemental Project ID:** S2138.1-2

**Project Status:** Engineering

**Model:** PJM 2019 RTEP



**Need Number:** ComEd-2020-001

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 6/15/2020

**Previously Presented:**

Needs Meeting 3/10/2020

Solutions Meeting 4/14/2020

**Project Driver:**

Equipment Material Condition, Performance and Risk

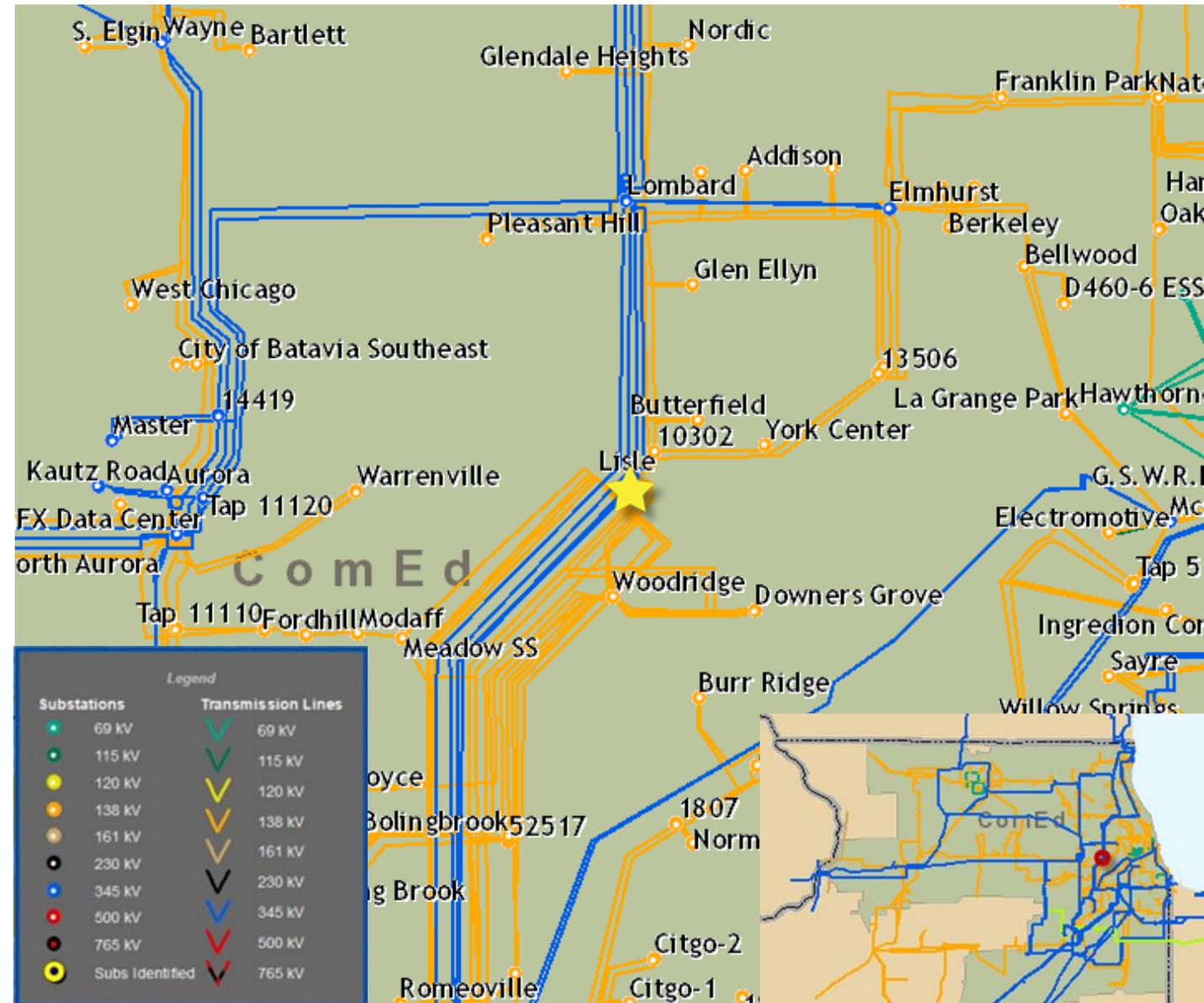
**Specific Assumption Reference:**

Transmission infrastructure replacements (EOL/condition/obsolescence) that are consistent with efficient asset management decisions

**Problem Statement:**

Lisle 345/138 kV Transformer #83 acoustic testing shows higher than expected vibration levels and increased frequencies associated with looseness in the core/coil assembly.

- Looseness has worsened since previous testing
- Shell form design that cannot be re-blocked
- Dissolved gas analysis shows insulation degradation.
- Last unit of 5 that were purchased with this design. 3 of the 5 failed catastrophically and one other was condemned before failure



**Need Number:** ComEd-2020-001

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 6/15/2020

**Selected Solution:**

Replace Lisle Transformer 83, add high-side CB (S2247)

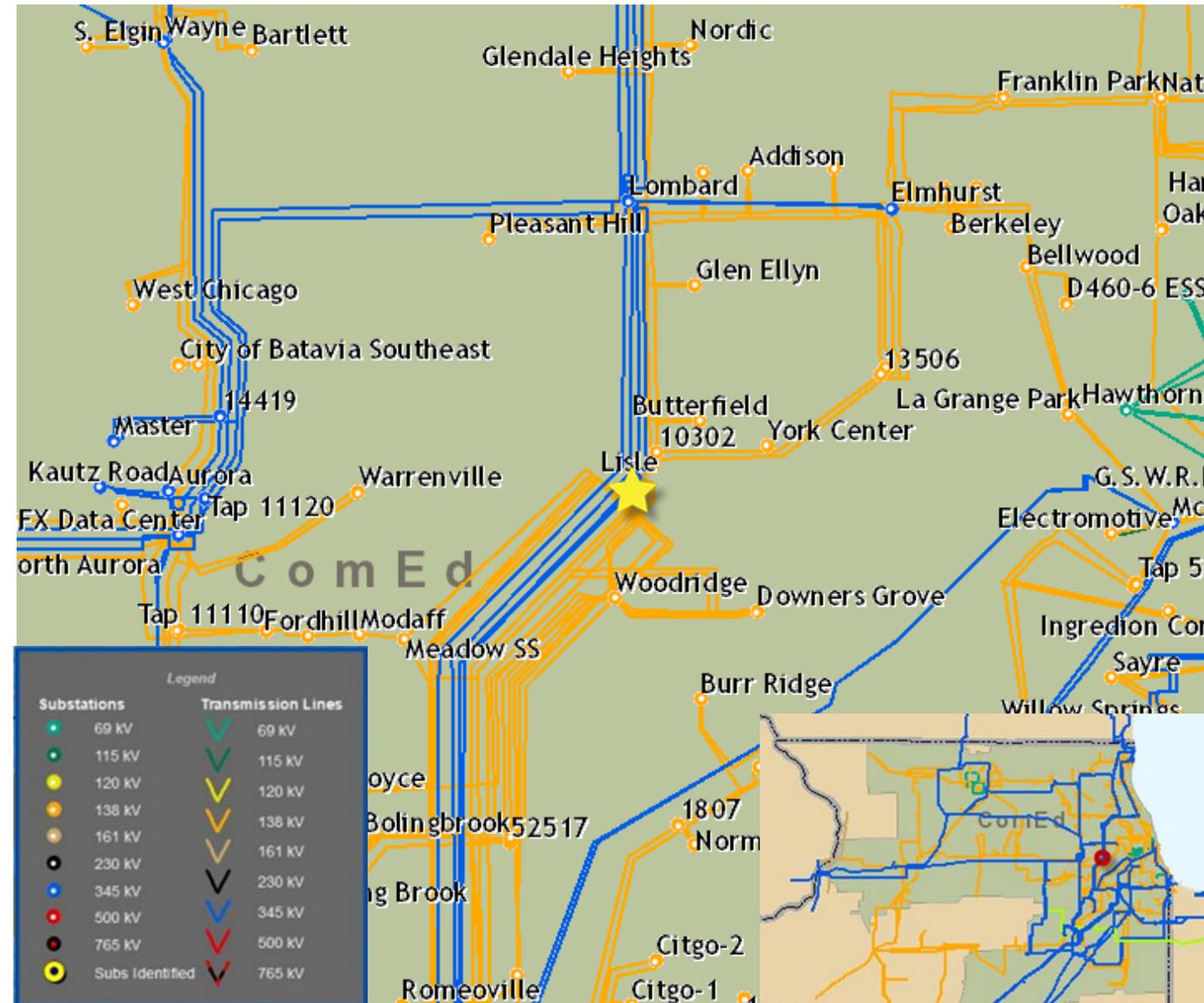
**Estimated Cost:** \$8.5M

**Projected In-Service:** 12/31/2021

**Supplemental Project ID:** S2247

**Project Status:** Engineering & Procurement

**Model:** N/A



**Need Number:** ComEd-2020-002

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan, August 7, 2020

**Previously Presented:**

Needs Meeting April 14, 2020  
Solutions Meeting May 12, 2020

**Project Drivers:**

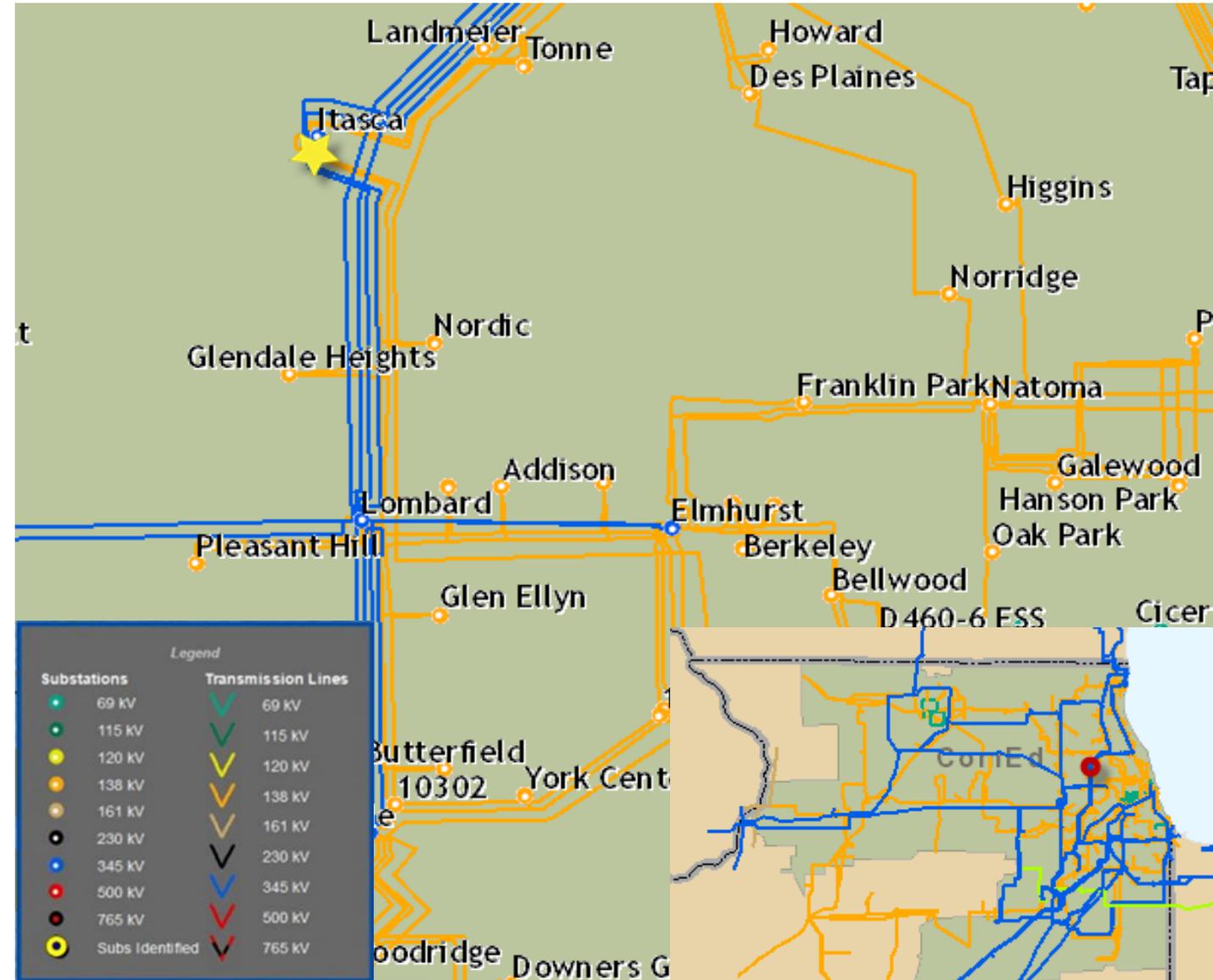
- Equipment Material Condition, Performance, and Risk
- Operational Flexibility and Efficiency

**Specific Assumption Reference:**

- Transmission infrastructure replacements (EOL/condition/obsolescence) that are consistent with efficient asset management decisions
- Internal and/or regulatory design guidelines or PJM minimum design standards
- Enhancing system functionality, flexibility, or operability

**Problem Statement:**

Itasca 345 kV configuration does not comply with current standards. It is a straight bus design with four lines and two transformers with only two 345 kV circuit breakers, one of which is obsolete and has poor test scores. Two lines are connected directly to the bus with disconnect switches. Transformers do not have high side circuit breakers. 345 kV/138 kV Transformer 82 has partial discharge gassing due to a design deficiency and questionable acoustic test results. 2 out of 5 similar transformers have failed in service.



**Need Number:** ComEd-2020-002

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan, August 7, 2020

**Selected Solution:**

- Rebuild Itasca 345 kV bus as an indoor GIS double ring bus expandable to breaker-and-a-half connecting 4 lines and two transformers.
- Replace TR 82
- Retire tertiary cap bank

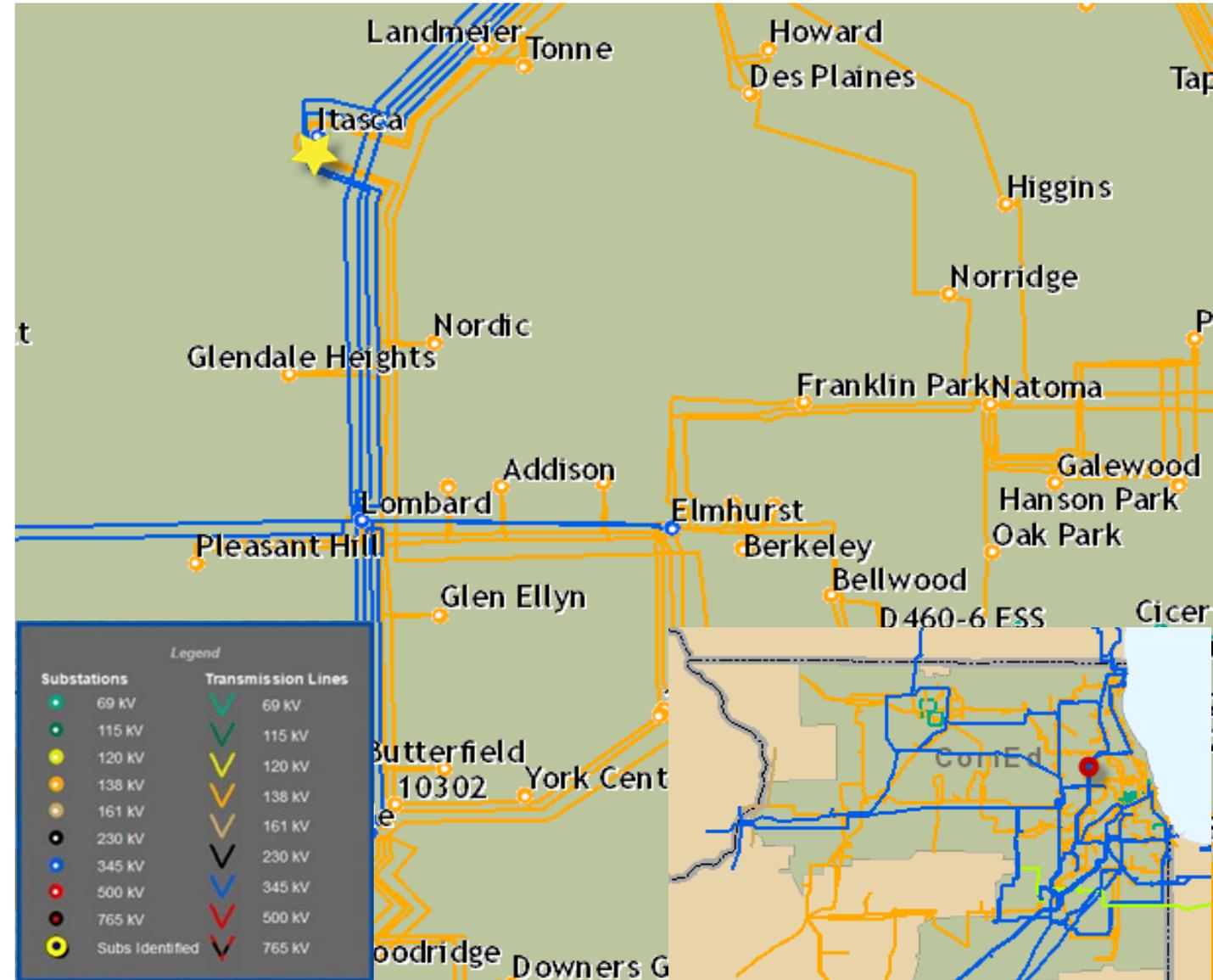
Estimated cost: \$65M

**Projected In-Service:** 6/1/2024

**Supplemental Project ID:** S2266

**Project Status:** Conceptual

**Model:** 2025 RTEP



**Need Number:** ComEd-2020-003

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan, August 7, 2020

**Previously Presented:**

Needs Meeting April 14, 2020

Solutions Meeting May 12, 2020

**Project Drivers:**

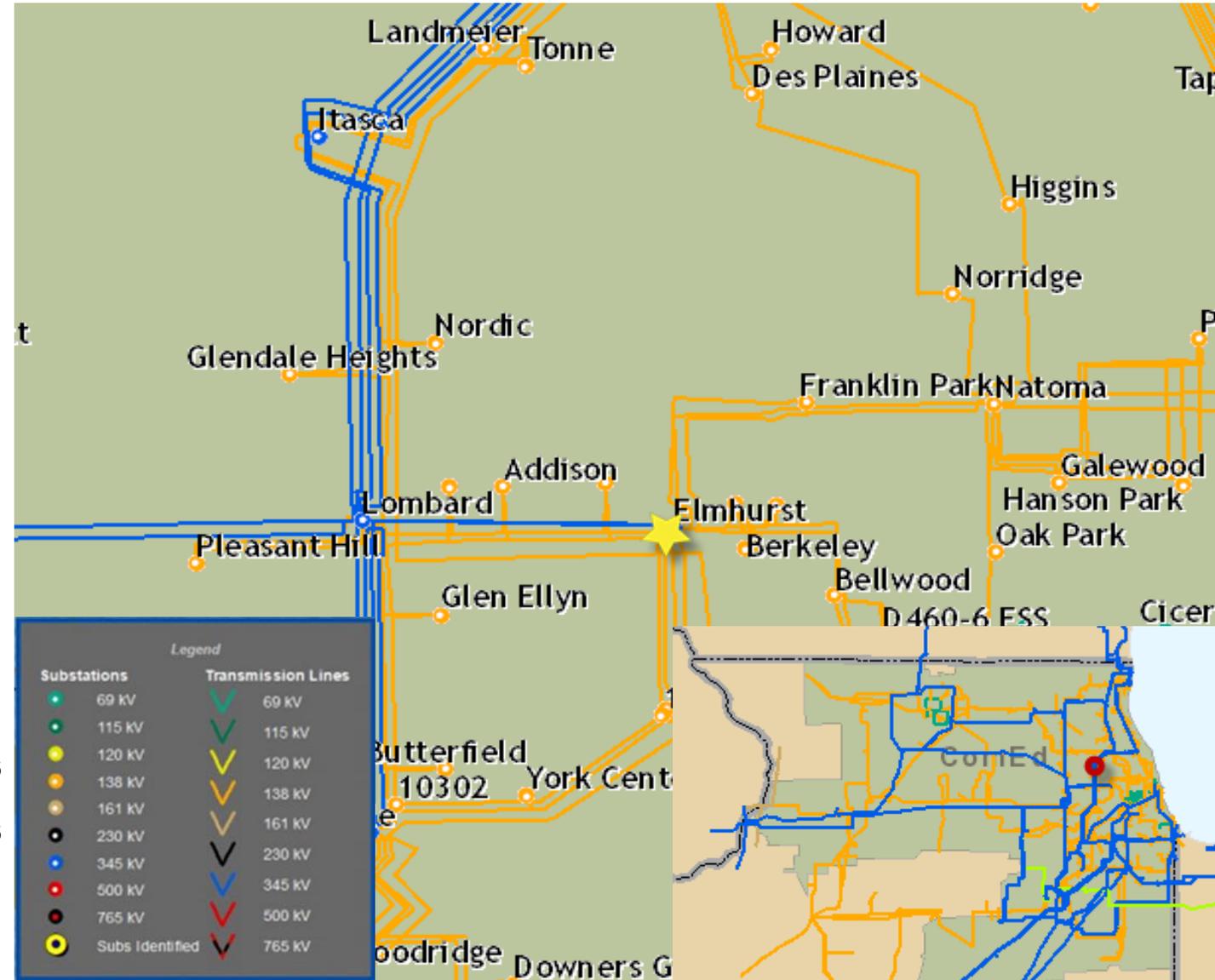
- Equipment Material Condition, Performance, and Risk
- Operational Flexibility and Efficiency

**Specific Assumption References:**

- Transmission infrastructure replacements (EOL/condition/obsolescence) that are consistent with efficient asset management decisions
- Internal and/or regulatory design guidelines or PJM minimum design standards
- Enhancing system functionality, flexibility, or operability

**Problem Statement:**

Elmhurst 345 kV configuration does not comply with current standards. It is a straight bus design with two 345 kV bus tie circuit breakers protecting two lines and three transformers. Lines and transformers are directly connected to the bus via switches. Lines and transformers trip together. Both 345 kV circuit breakers are obsolete and are in need of bushing replacements due to leaking oil.



**Need Number:** ComEd-2020-003

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan, August 7, 2020

**Selected Solution:**

Rebuild Elmhurst 345 kV bus as indoor GIS double ring bus expandable to breaker-and-a-half connecting two lines and three transformers

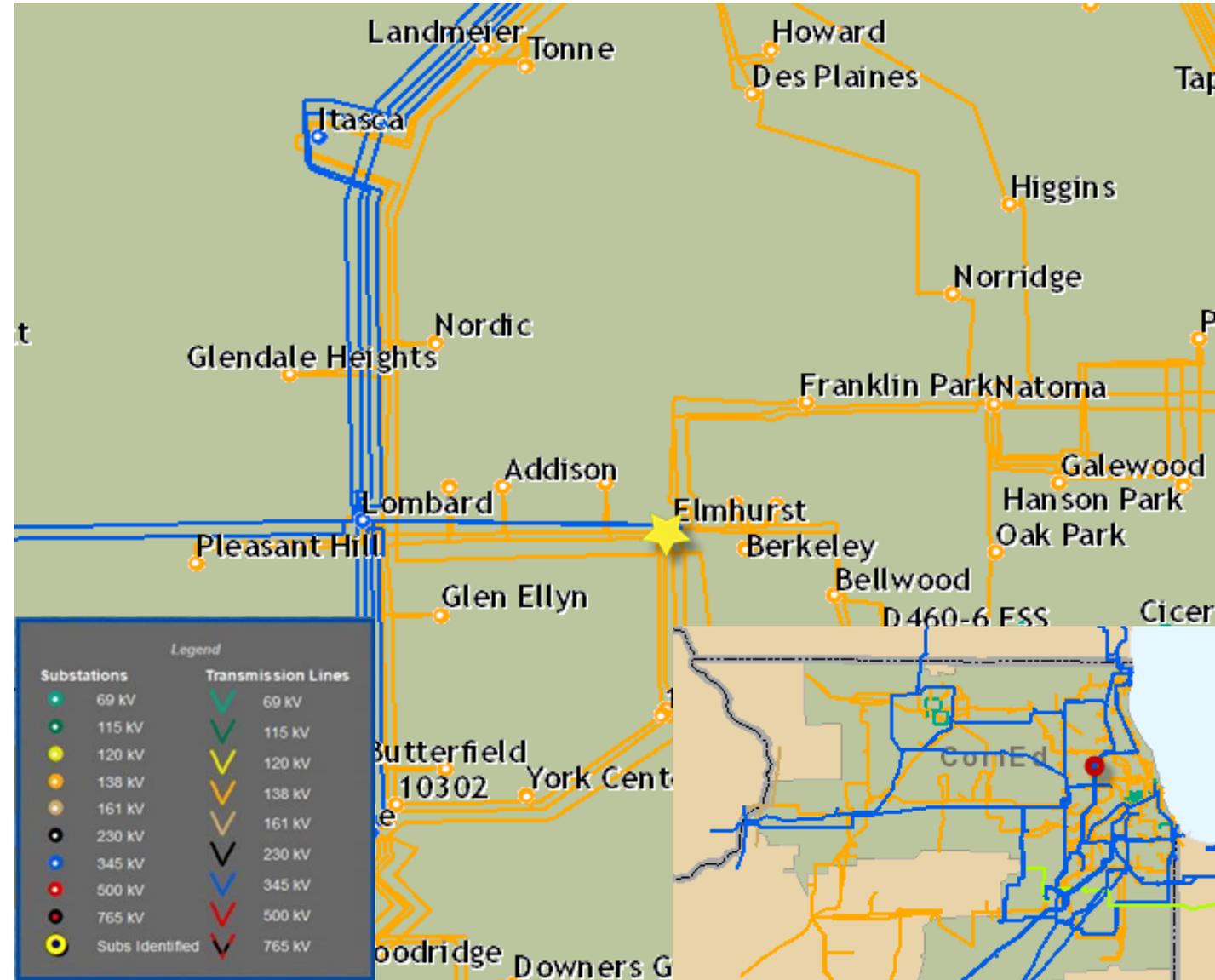
Estimated cost: \$55M

**Projected In-Service:** 6/1/2024

**Supplemental Project ID:** S2267

**Project Status:** Conceptual

**Model:** 2025 RTEP



**Need Number:** ComEd-2020-005

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan, August 7, 2020

**Previously Presented:**

Need Meeting April 20, 2020

Solutions Meeting May 22, 2020

**Project Driver:**

Operational Flexibility and Efficiency

**Specific Assumption Reference:**

Internal and/or regulatory design guidelines or PJM minimum design standards

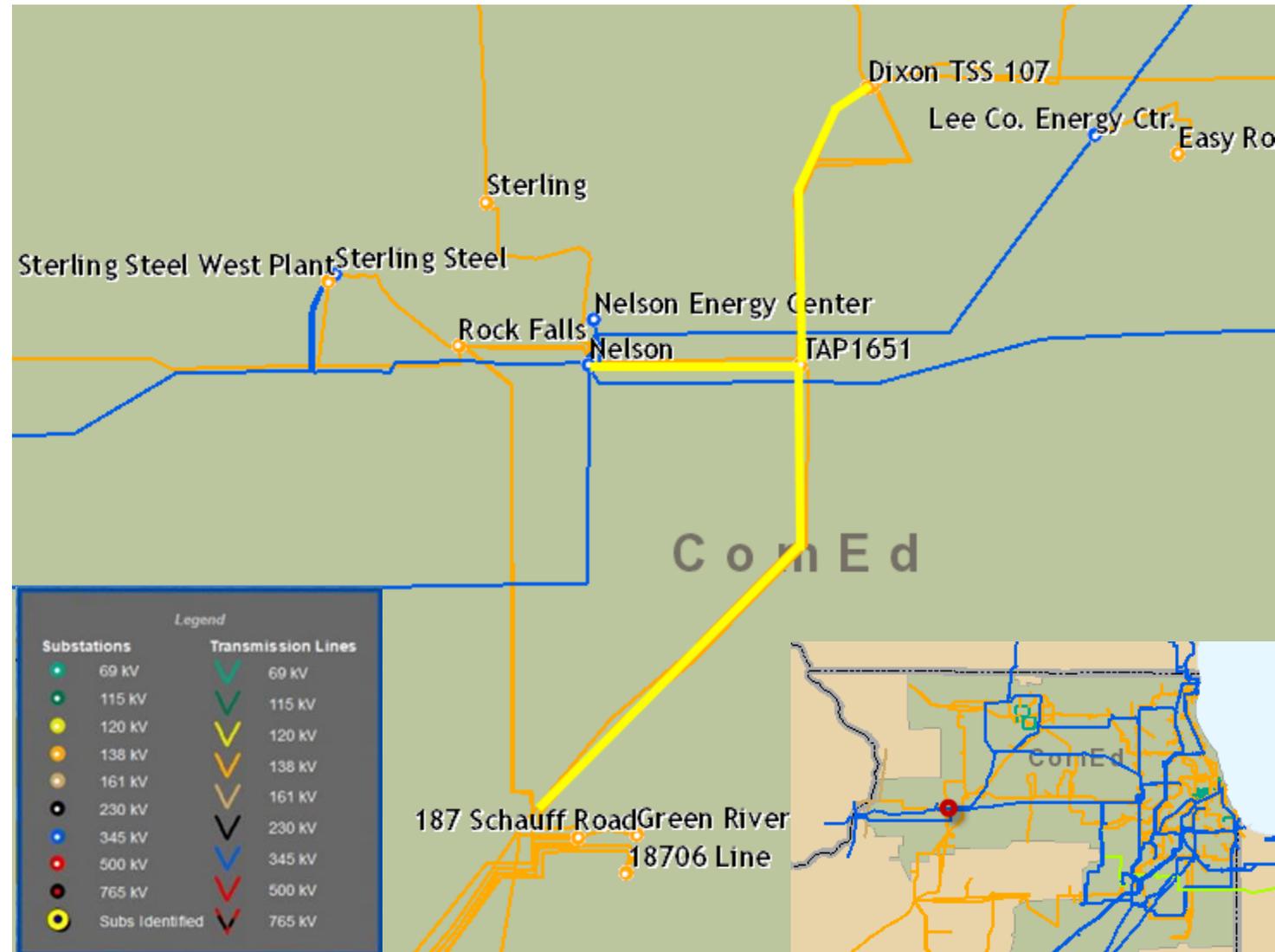
Enhancing system functionality, flexibility, or operability

**Problem Statement:**

138 kV Line 15508 is a three terminal line. The current configuration is difficult to relay properly due to unequal lengths of the three legs.

- Nelson (4.5 miles)
- Dixon (5.7 miles)
- Schauff Rd. (13.1 miles)

Project b2999 is rebuilding the Schauff Rd. leg with an 11/1/2021 projected in-service date.



**Need Number:** ComEd-2020-005

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan, August 7, 2020

**Selected Solution:**

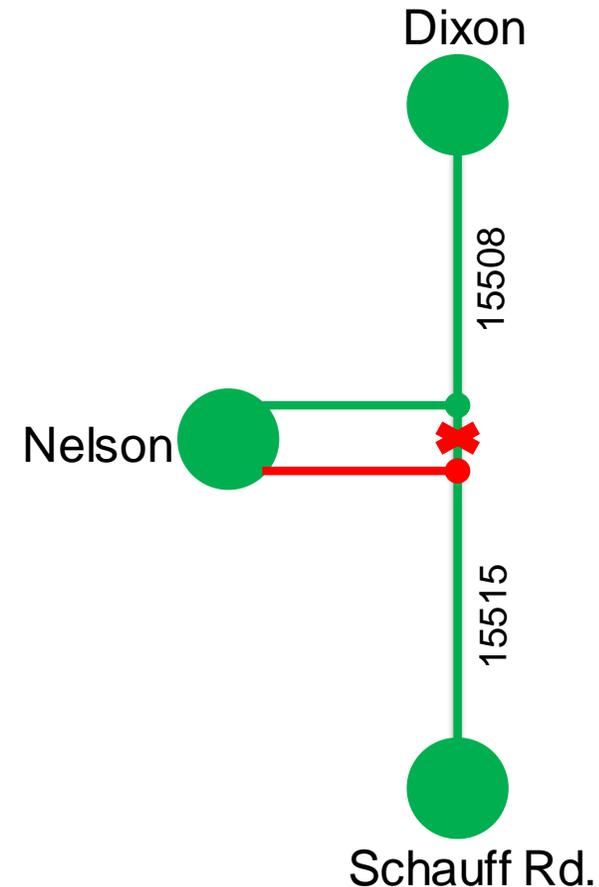
Build a 2<sup>nd</sup> circuit 4.5 miles in existing ROW from Nelson to tap point and split into two 2-terminal lines. Ratings on the new section will be 351/449 MVA SN/SLTE consistent with b2999 project. Estimated cost: \$15.2M

**Projected In-Service:** 6/1/22

**Supplemental Project ID:** S2268

**Project Status:** Engineering

**Model:** 2024 RTEP



**Need Number:** ComEd-2020-006

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan, August 7, 2020

**Previously Presented:**

Need Meeting April 20, 2020

Solutions Meeting May 22, 2020

**Project Driver:**

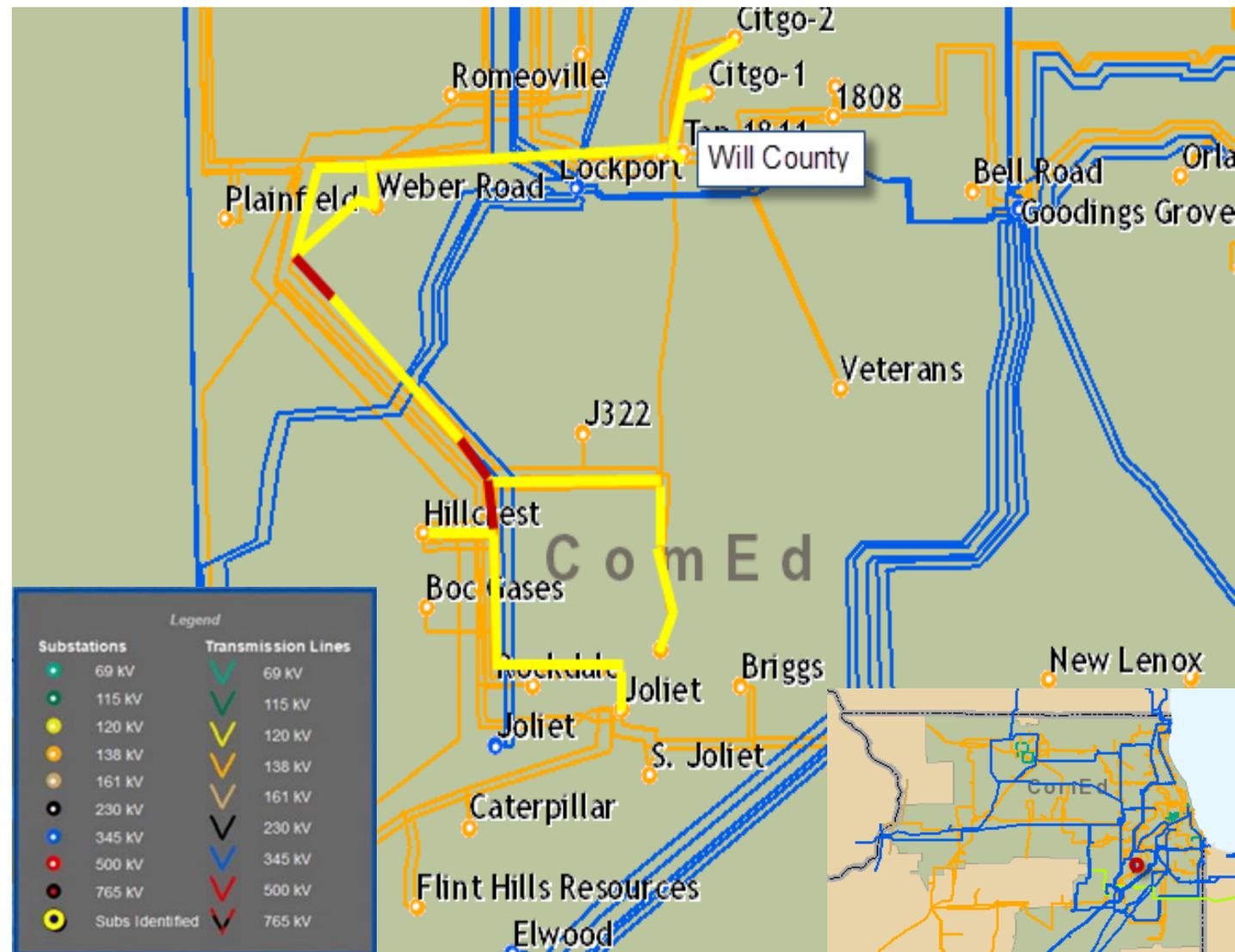
Equipment Material Condition, Performance, and Risk

**Specific Assumption Reference:**

Transmission infrastructure replacements (EOL/condition/obsolescence) that are consistent with efficient asset management decisions

**Problem Statement:**

- 138 kV Line 0905 (Joliet – Hillcrest – Joliet Central – Will County), 15 miles total, has 2.4 miles of 300 kcmil cu conductor. Conductor was installed in 1942.
- 138 kV Line 0906 (Joliet – Hillcrest – Joliet Central – Weber Rd. – ESS J322 tap – Will County), 16.5 miles total, has 3.0 miles of 300 kcmil cu conductor. Conductor was installed in 1942.
- 300 cu conductor has iron clamps that cause heating issues
- Attachments are made with aluminum clamps with a bi-metallic buffer between the clamps and the conductor which is difficult for the crews to handle.





**Need Number:** ComEd 2020-004

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan September 14, 2020

**Previously Presented:**

Need Meeting April 14, 2020

Solutions Meeting June 2, 2020

**Project Driver:**

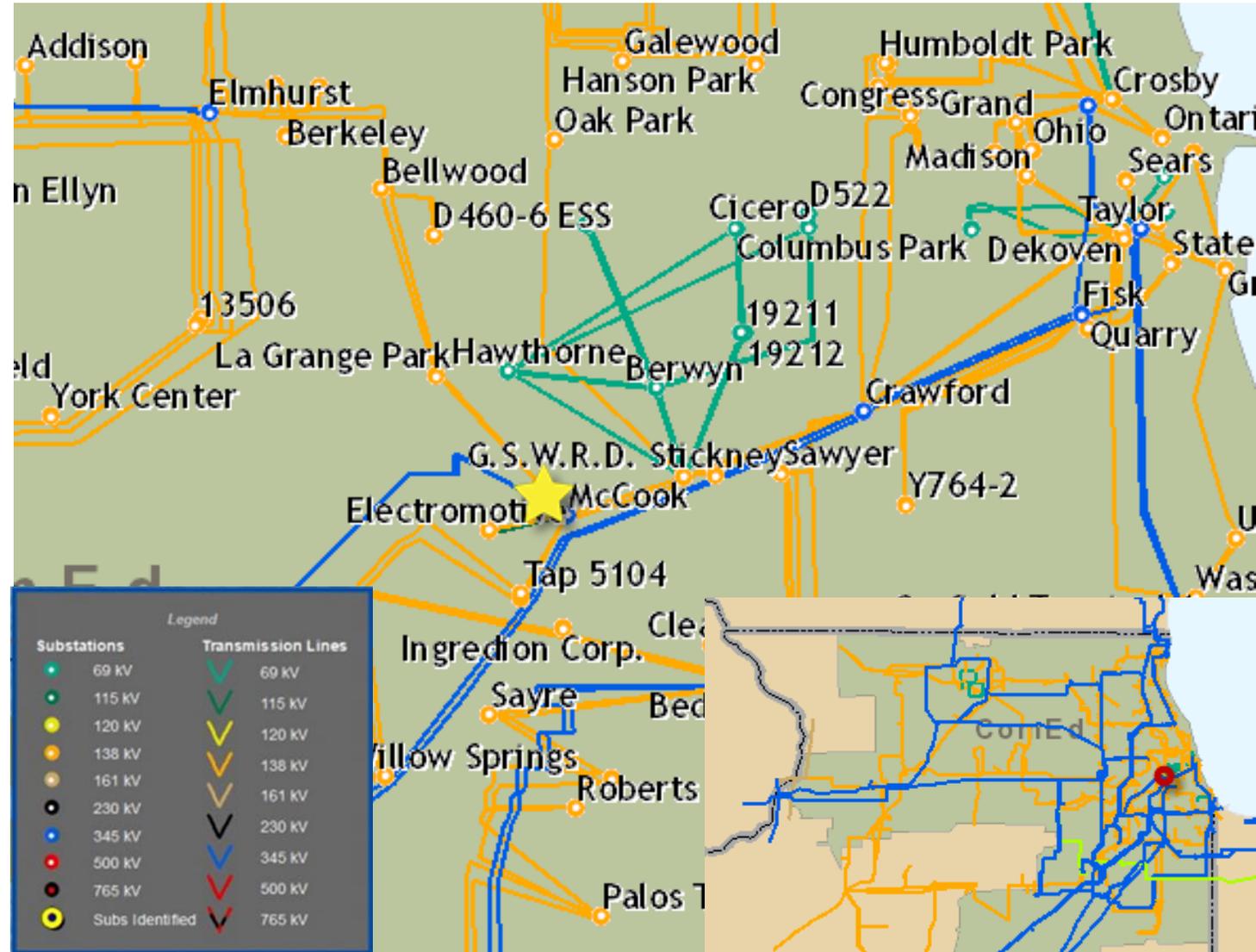
- Operational Flexibility and Efficiency

**Specific Assumption References:**

- Internal and/or regulatory design guidelines or PJM minimum design standards
- Enhancing system functionality, flexibility, or operability

**Problem Statement:**

McCook 345 kV bus does not comply with current standards. It is a straight bus design with two lines and two transformers with the lines directly connected to the bus via disconnects. Loss of a line also trips a transformer.



**Need Number:** ComEd 2020-004

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan September 14, 2020

**Selected Solution:**

Rebuild McCook 345 kV bus as indoor GIS double ring bus expandable to breaker-and-a-half (BAAH). (**S2285**)

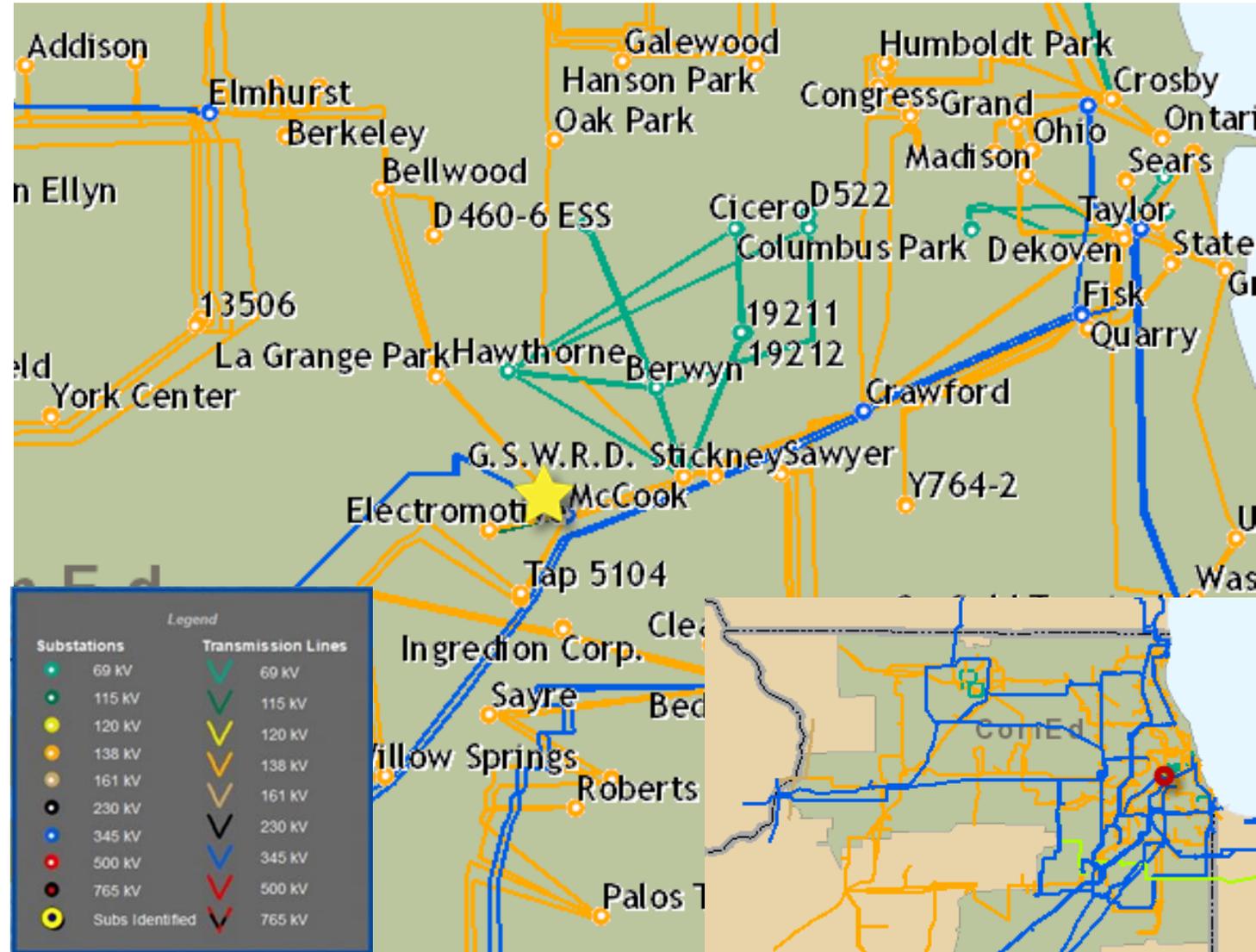
**Estimated Cost:** \$64M

**Projected In-Service:** 12/31/2024

**Supplemental Project ID:** S2285

**Project Status:** Conceptual

**Model:** 2025 RTEP



**Need Number:** ComEd-2020-009

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan September 14, 2020

**Previously Presented:**

Needs Meeting May 22, 2020

Solutions Meeting June 19, 2020

**Project Drivers:**

Customer Service

Operational Flexibility and Efficiency

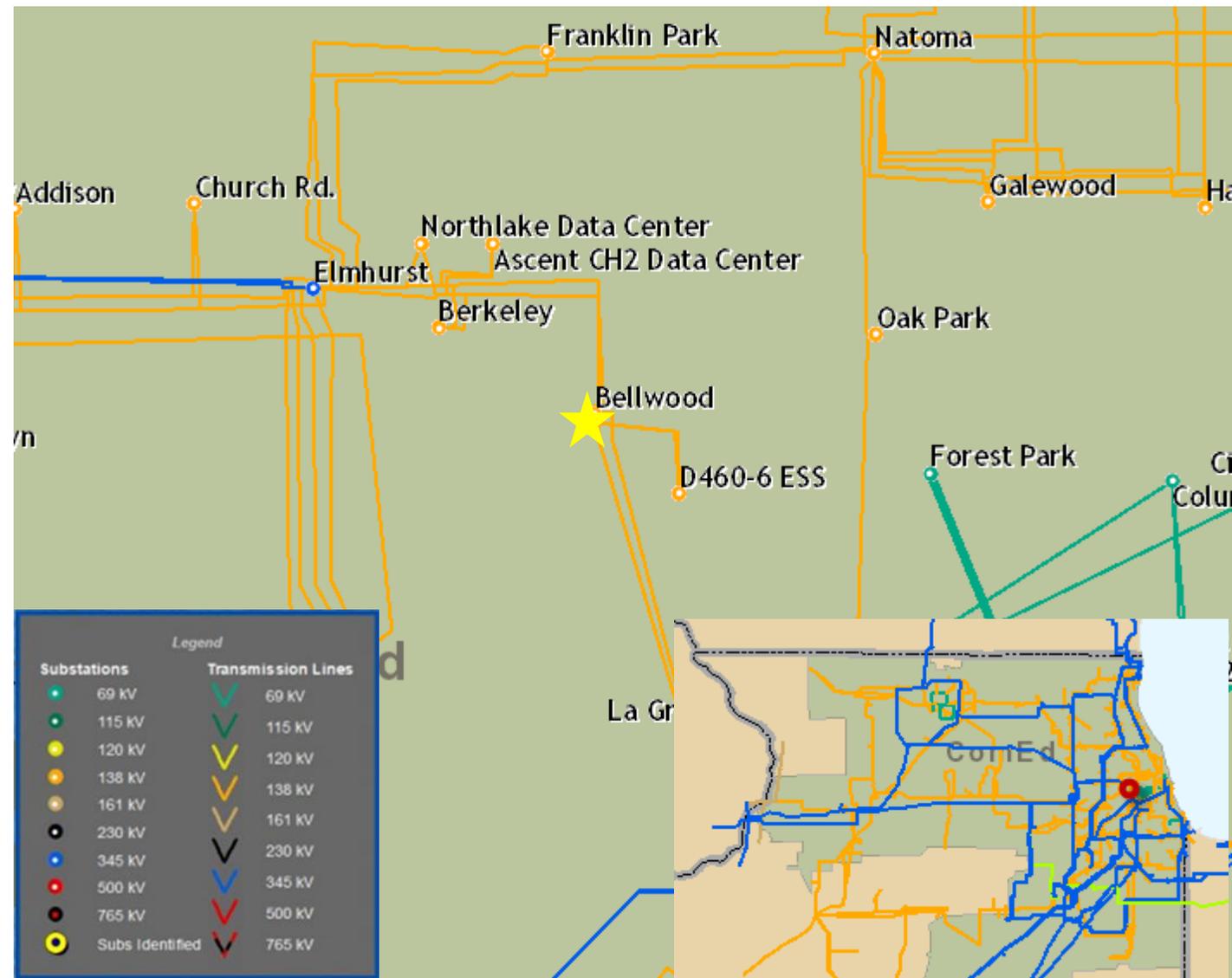
**Specific Assumption References:**

Transmission system configuration changes due to new or expansion of existing distribution substations

Enhancing system functionality, flexibility, or operability

**Problem Statement:**

ComEd Distribution is replacing 138/34 kV transformer 78 at Bellwood which is currently tapped from 138 kV line 13501 (Elmhurst – Bellwood). The transformer and the line trip together.



**Need Number:** ComEd-2020-009

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan September 14, 2020

**Selected Solution:**

Reconnect Transformer 78 to the 138 kV bus through a high-side circuit breaker. Add a circuit breaker for line 13501.  
**(S2286)**

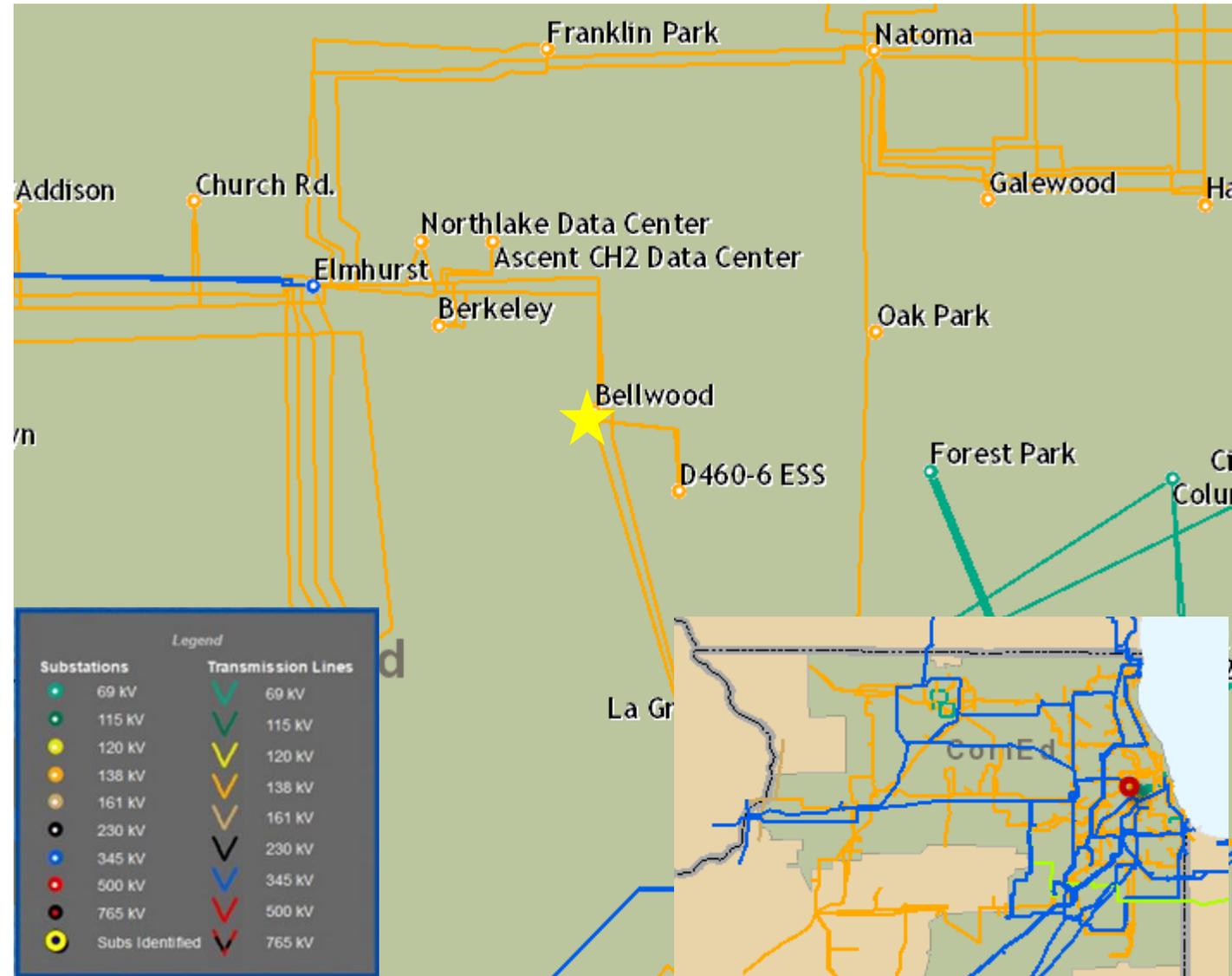
**Estimated cost:** \$1.4M (Transmission only)

**Projected In-Service:** 12/31/2020

**Supplemental Project ID:** S2286

**Project Status:** Engineering

**Model:** 2025 RTEP



**Need Number:** ComEd-2020-007

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan October 21, 2020

**Previously Presented:**

Need Meeting April 20, 2020

Solutions Meeting July 17, 2020

**Project Driver:**

Customer Service

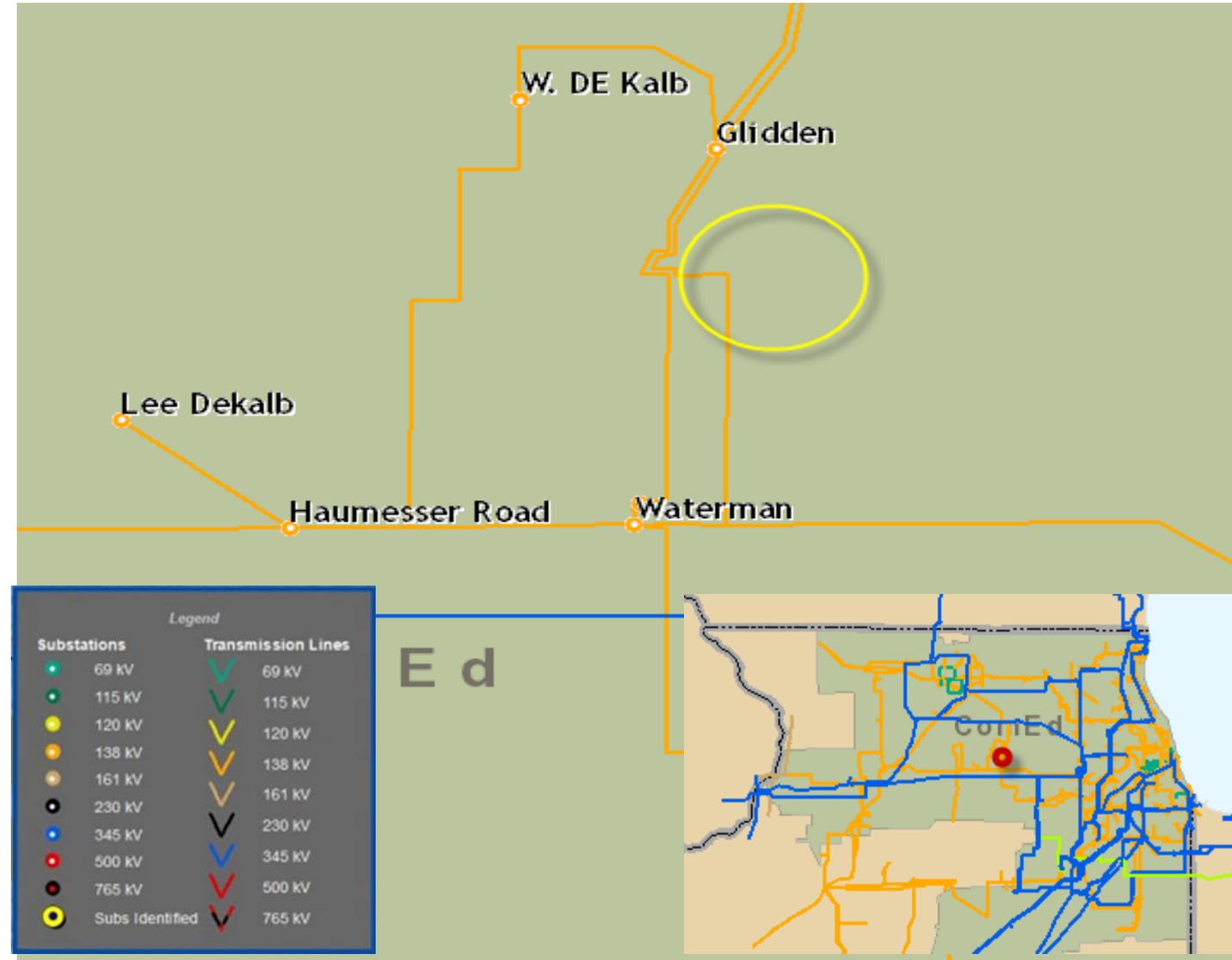
**Specific Assumption Reference:**

New transmission customer interconnection

**Problem Statement:**

New customer has requested service in the Dekalb area

- In service by 9/2021 with initial load < 5MW, growing to 200 MW by the end of 2026



## ComEd Transmission Zone M-3 Process New Customer in Dekalb area

**Need Number:** ComEd-2020-007

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan October 21, 2020

**Selected Solution:**

- Cut into existing lines 11323 and 11106, Install new 138 kV breaker-and-a-half substation by 9/1/21
- Install two 138 kV 43.2 MVAR cap banks, 1<sup>st</sup> by 6/1/22, 2<sup>nd</sup> by 6/1/24

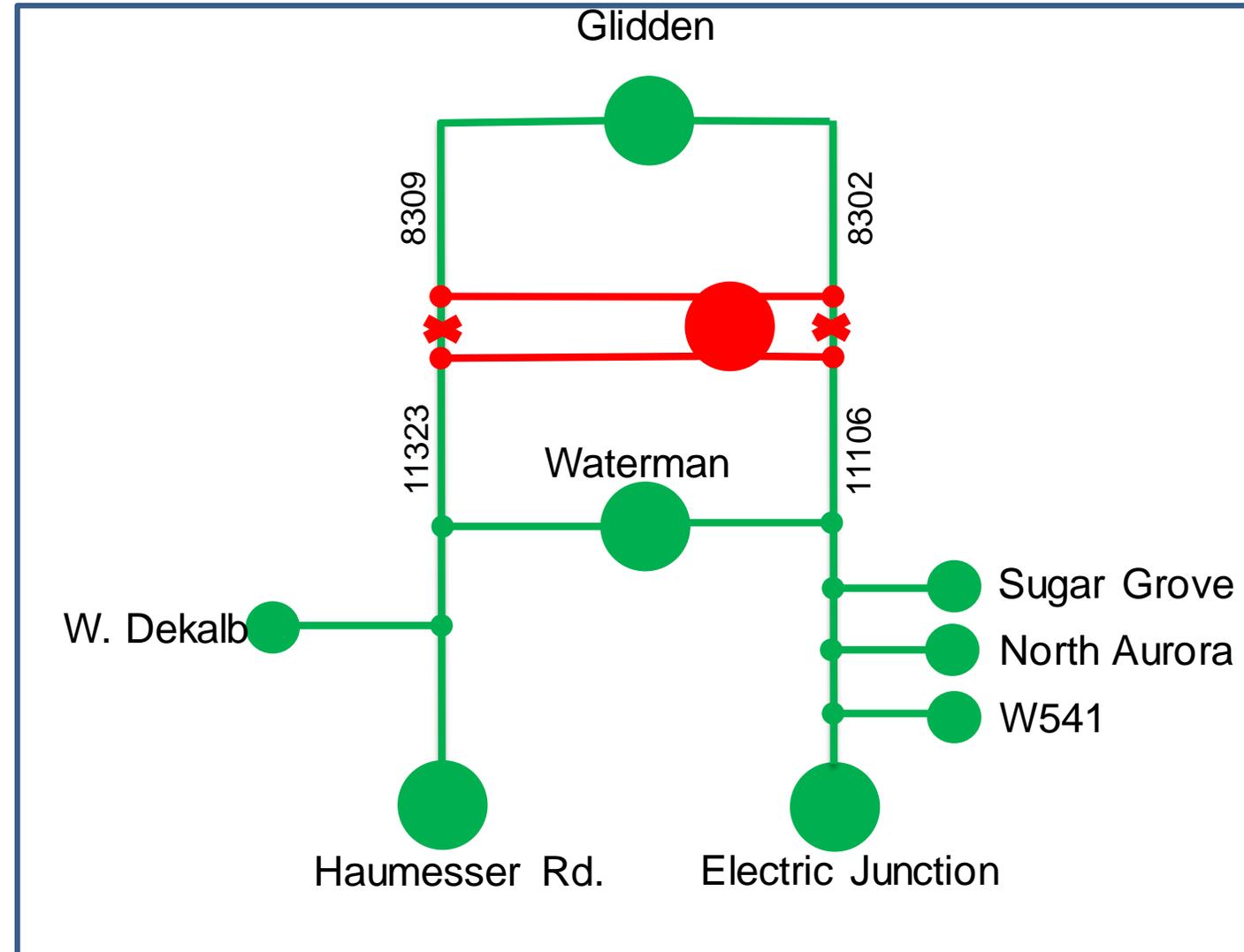
**Estimated cost:** \$61.9M (increased from \$45M previously presented due to higher grading, drainage, environmental, and civil costs)

**Projected In-Service:** 9/1/21

**Supplemental Project ID:** S2349

**Project Status:** Engineering & Procurement

**Model:** 2025 RTEP



**Need Number:** ComEd-2020-008

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan October 21, 2020

**Previously Presented:**

Need Meeting May 12, 2020

Solutions Meeting July 7, 2020

**Project Drivers:**

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

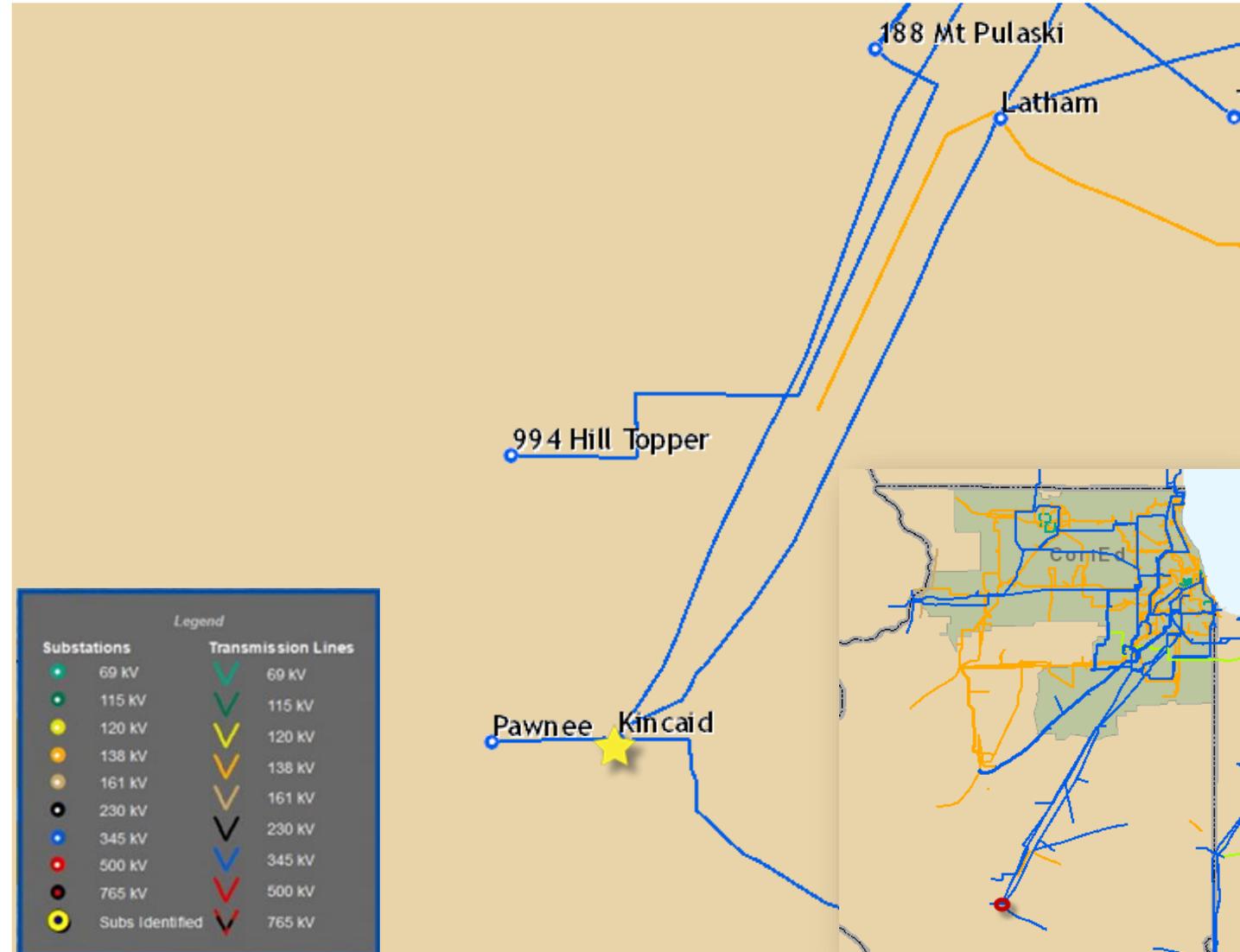
**Specific Assumption References:**

- Removal of existing SPS/RAS/LPS
- Transmission infrastructure replacements (EOL/condition/obsolescence) that are consistent with efficient asset management decisions

**Problem Statement:**

To prevent first swing and/or oscillatory instability of either unit, a multi-phase fault high-speed sectionalizing scheme and a multiple line outage scheme are in place at Kincaid.

345 kV circuit breakers are all 1966 vintage and have had increased maintenance required over the past several years.



**Need Number:** ComEd-2020-008

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan October 21, 2020

**Proposed Solution:**

- Replace five 345 kV oil circuit breakers with 2-cycle IPO SF6 circuit breakers
- Change timer settings for breaker failure relays
- Remove Kincaid SPS

Expected ratings changes:

L2102 Kincaid – Latham SN from 1364 to 1434 MVA

L2106 Kincaid – Austin WN from 1486 to 1507 MVA

Interrupting capability will go from 42 kA to 63 kA

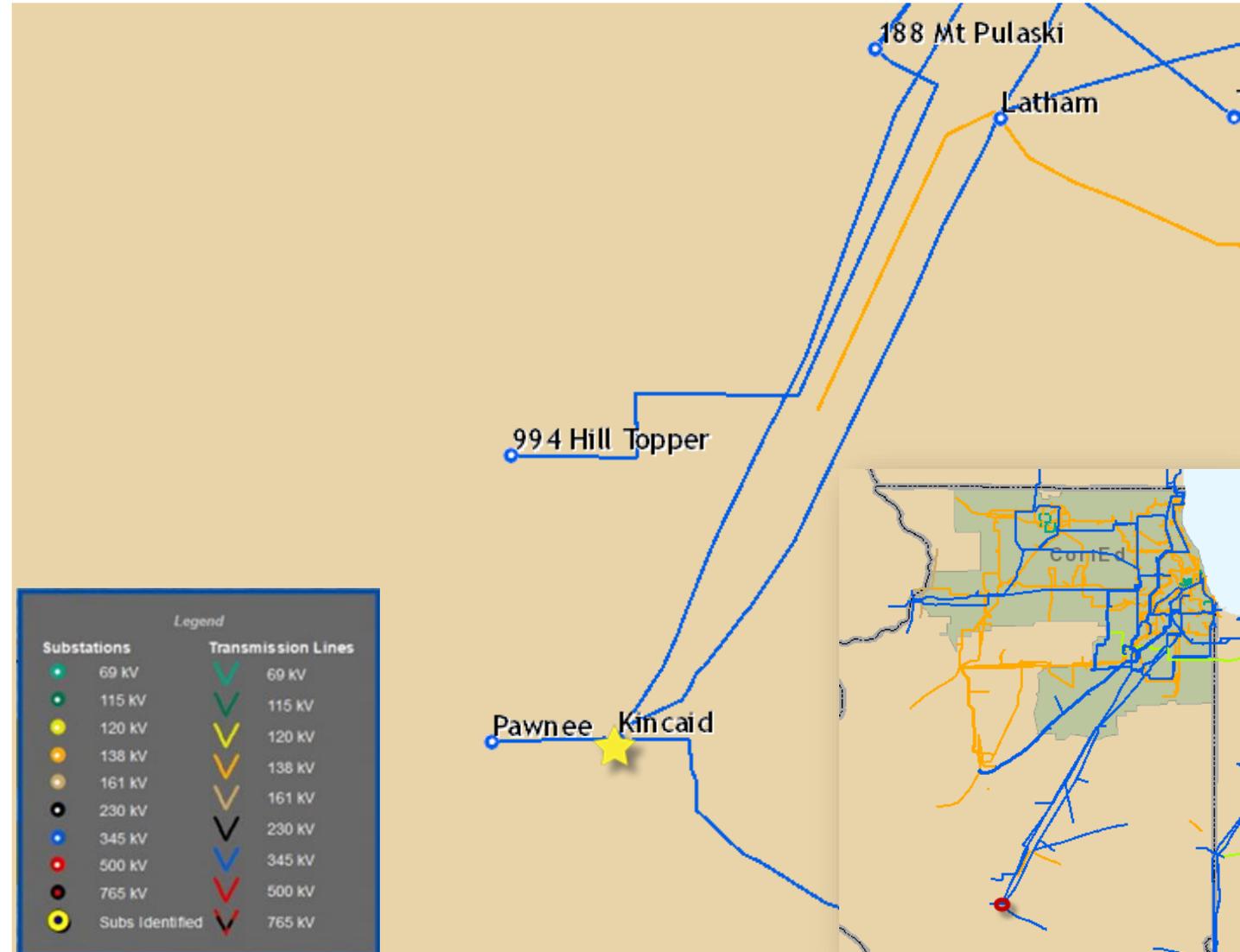
**Estimated cost:** \$15.7M

**Supplemental Project ID:** S2350

**Projected In-Service:** 12/31/2024

**Project Status:** Engineering

**Model:** 2025 RTEP



## ComEd Transmission Zone M-3 Process Load Addition in Burr Ridge Area

**Need Number:** ComEd-2020-010

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan October 21, 2020

**Previously Presented:**

Need Meeting July 17, 2020

Solutions Meeting August 14, 2020

**Project Driver:**

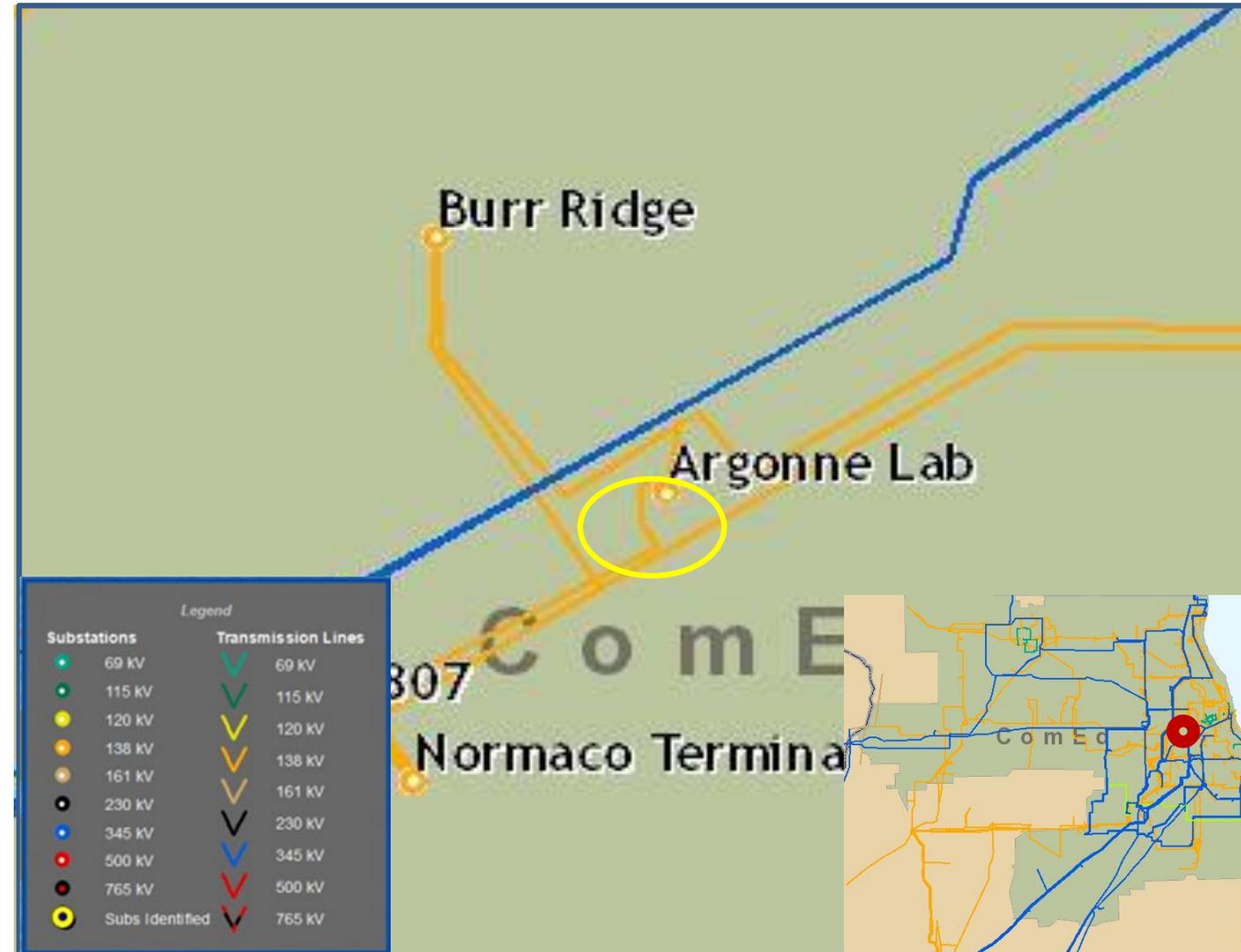
Customer Service

**Specific Assumption Reference:**

Modification to an existing customer

**Problem Statement:**

An existing customer has requested an additional 43 MW by 06/2022 with a total increase of 77 MW by the end of 2030.



## ComEd Transmission Zone M-3 Process Load Addition in Burr Ridge Area

**Need Number:** ComEd-2020-010

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan October 21, 2020

**Proposed Solution:**

- Cut into existing line 1802, Install new 138 kV 4 breaker ring bus substation by 6/30/22

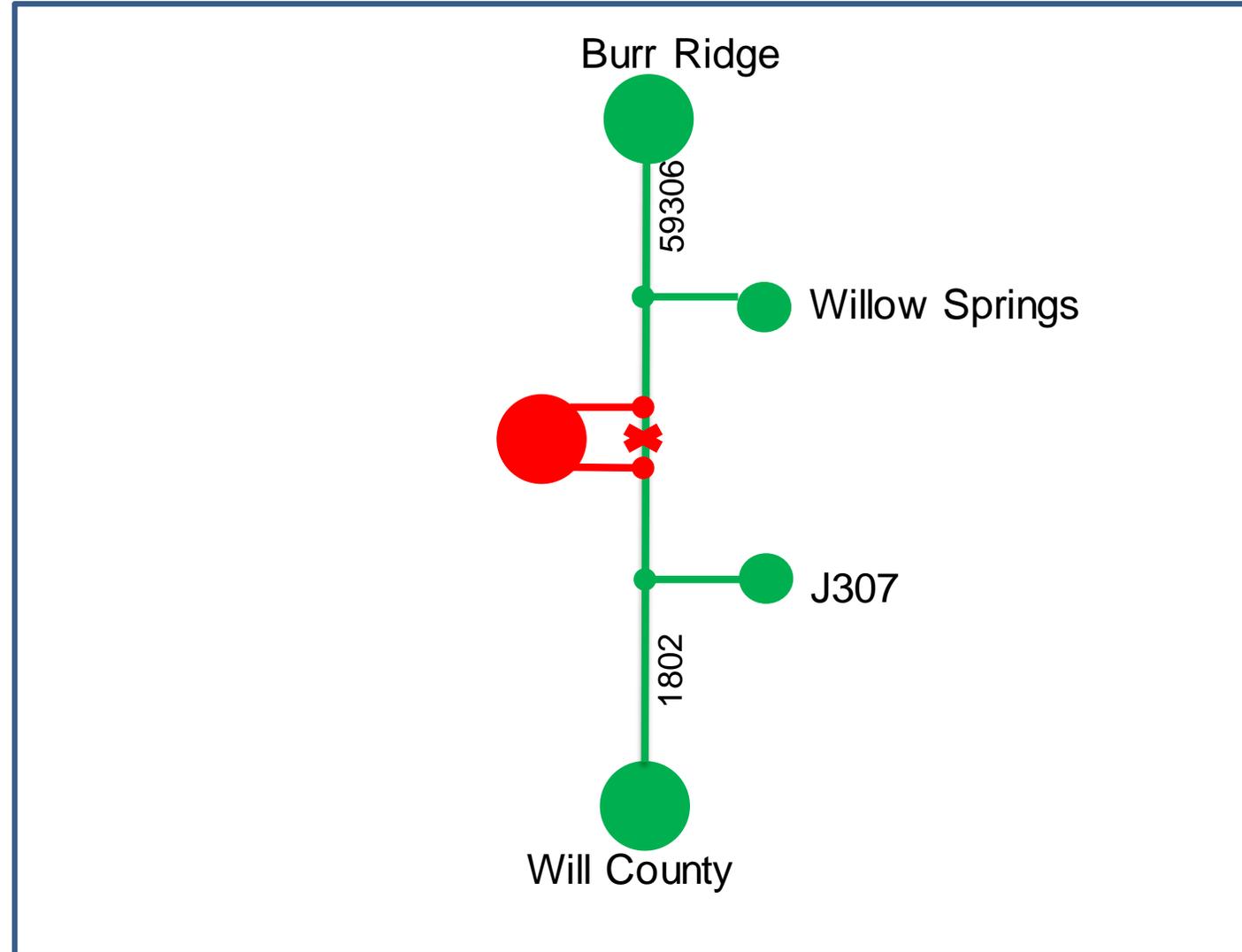
**Estimated cost:** \$18.7M

**Supplemental Project ID:** S2353

**Projected In-Service:** 6/30/22

**Project Status:** Engineering

**Model:** 2025 RTEP



**Need Number:** ComEd-2020-011

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan October 21, 2020

**Previously Presented:**

Need Meeting July 17, 2020

Solutions Meeting August 14, 2020

**Project Driver:**

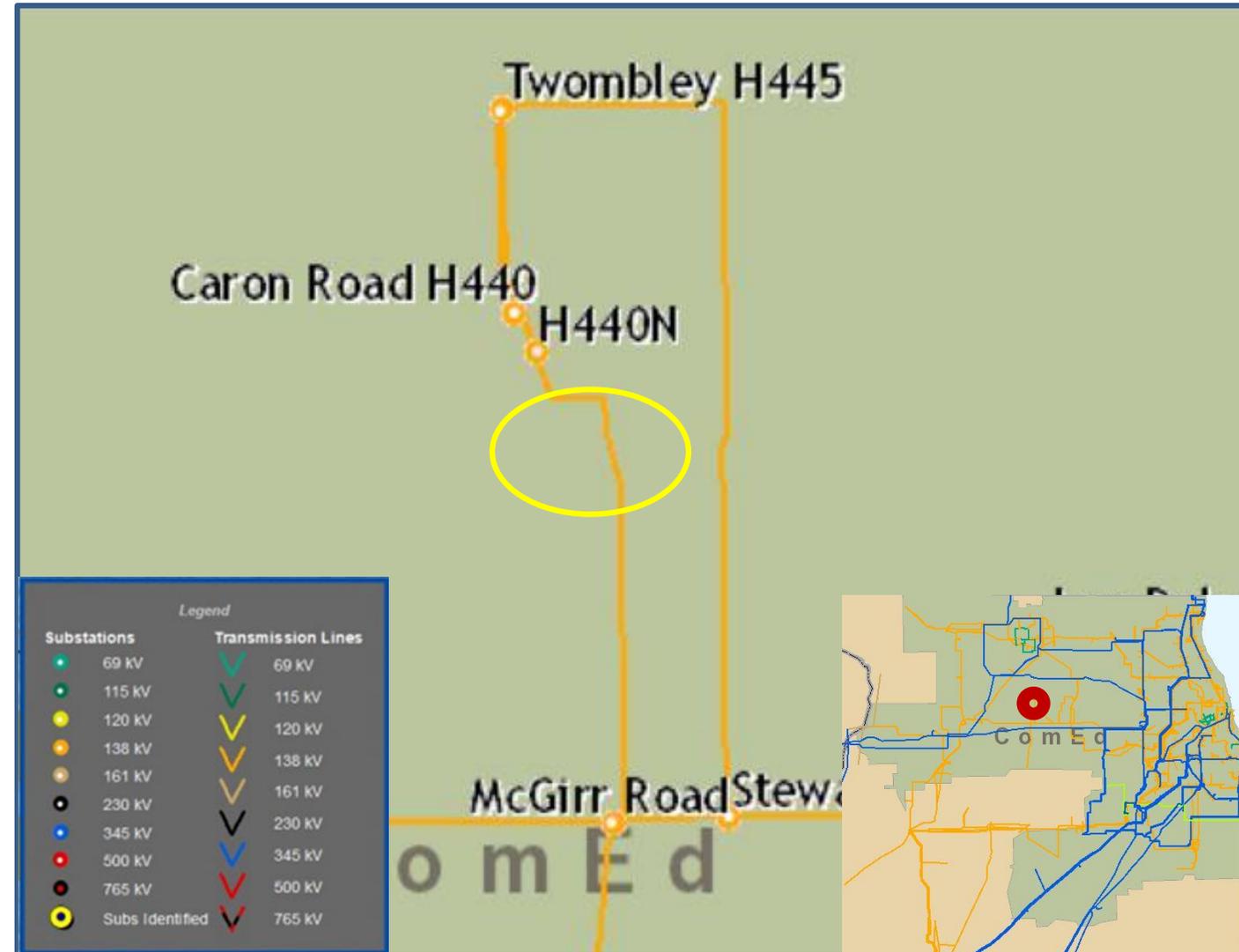
Customer Service

**Specific Assumption Reference:**

New transmission customer interconnection

**Problem Statement:**

Customer has requested new service by 12/2021 with a load of 20 MW.



**Need Number:** ComEd-2020-011

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan October 21, 2020

**Proposed Solution:**

- Cut into existing 138 kV line 16914. Install new 138 kV, 3 breaker ring substation by 12/31/21

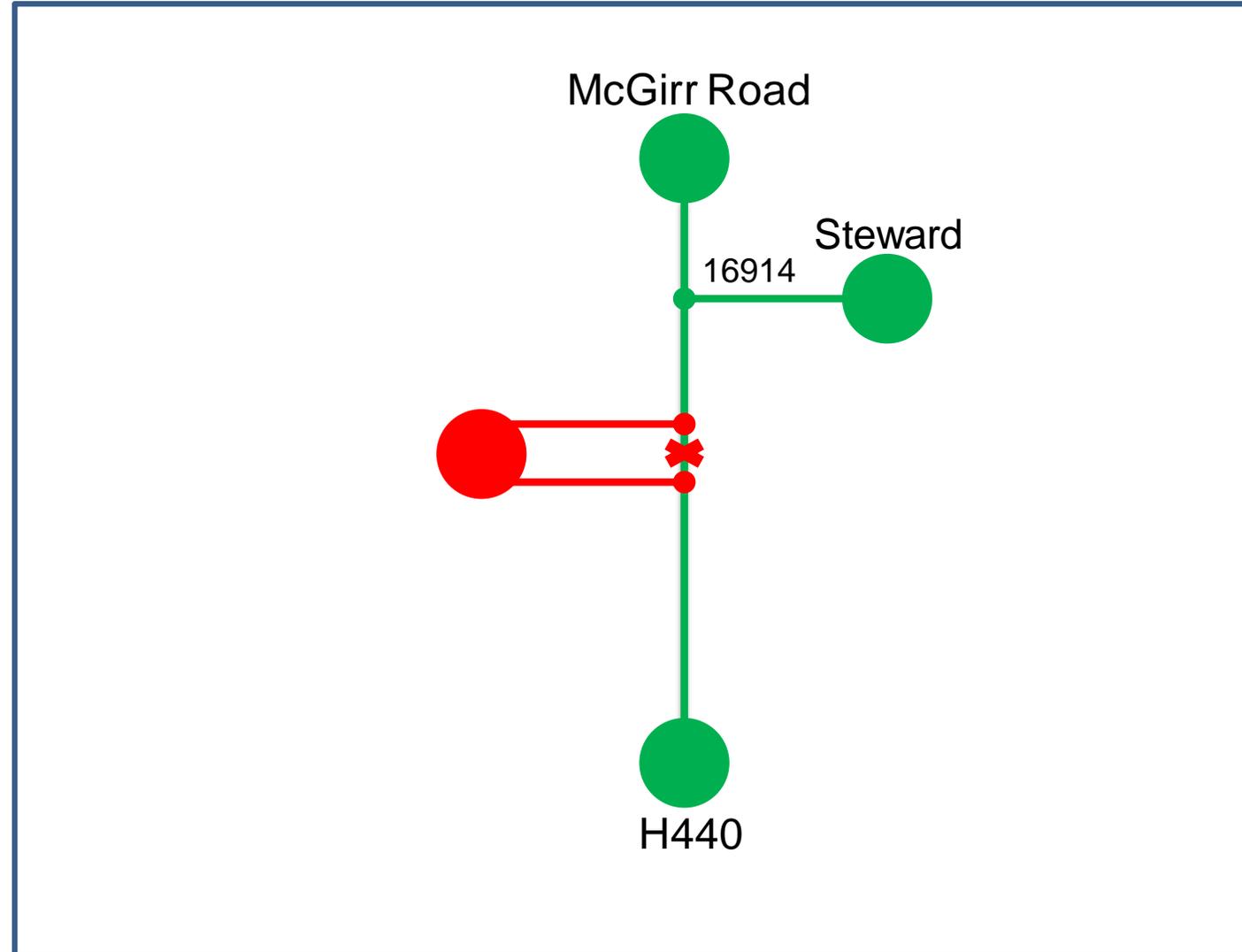
**Estimated cost:** \$15.3M

**Supplemental Project ID:** S2354

**Projected In-Service:** 12/31/21

**Project Status:** Conceptual

**Model:** 2025 RTEP



# Revision History

1/28/2019 – V1 – Added S2137 and S2138.1-.2

6/15/2020 – V2 – Added S2247

8/7/2020 – V3 – Added Slides # 9-15, S2266 – S2269

9/15/2020 – V4 – Added Slides # 16-19, S2285 – S2286

10/21/2020 – V5 – Added Slides # 20-27, S2349, S2350, S2353 and S2354