

Submission of Supplemental Projects for Inclusion in the Local Plan

ComEd Local Plan - 2024

Need Number: ComEd-2023-004

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan
January 8, 2024

Previously Presented:

Solutions Meeting 10/3/2023

Need Meeting 7/11/2023

Project Driver:

Operational Flexibility and Efficiency

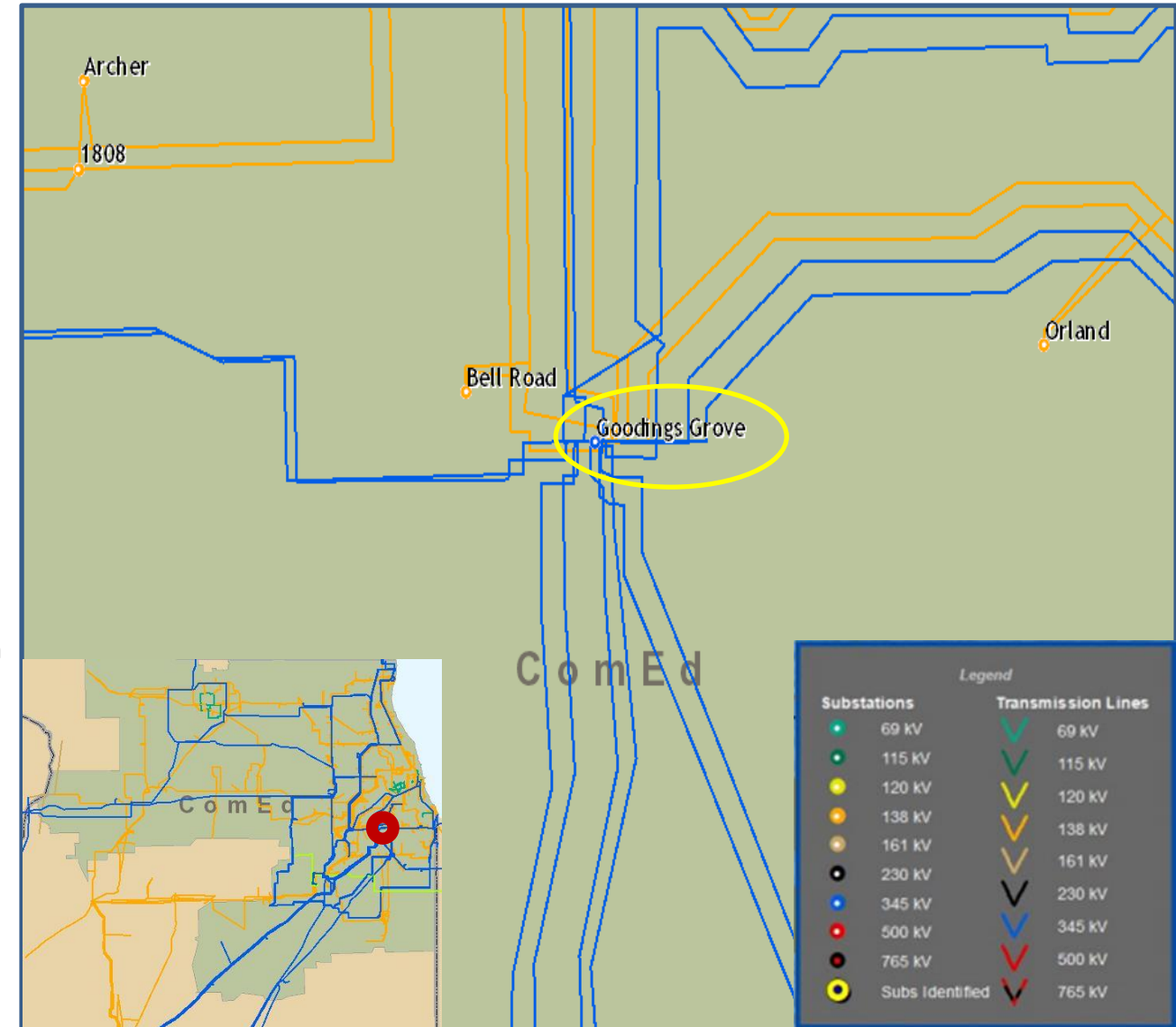
Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

- Enhancing system functionality, flexibility, visibility, or operability
- Transmission infrastructure replacements (EOL/condition/obsolescence) that are consistent with efficient asset management decisions

Problem Statement:

- The 345 kV layout at Goodings Grove consists of a straight bus configuration with three 345 kV bus-ties, four autotransformers, and fourteen 345 kV lines. A single breaker failure can take out seven 345 kV lines and two autotransformers.
- Fourteen of the nineteen breakers are oil circuit breakers ranging in age from 44 to 57 years old and are in deteriorating condition.
- Two of the four autotransformers do not have high-side circuit breakers
- A portion of the 345 kV bus is strain bus
- A fault on Tr. 81 or Tr.83 will temporarily interrupt 3 lines.
- The existing fault current at Goodings Grove is nearing 60kA.



Need Number: ComEd-2023-004

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Selected Solution:

Replace 345 kV open air straight bus with GIS in a breaker and half configuration (34 Circuit Breakers) at Goodings Grove with 80kA capability.

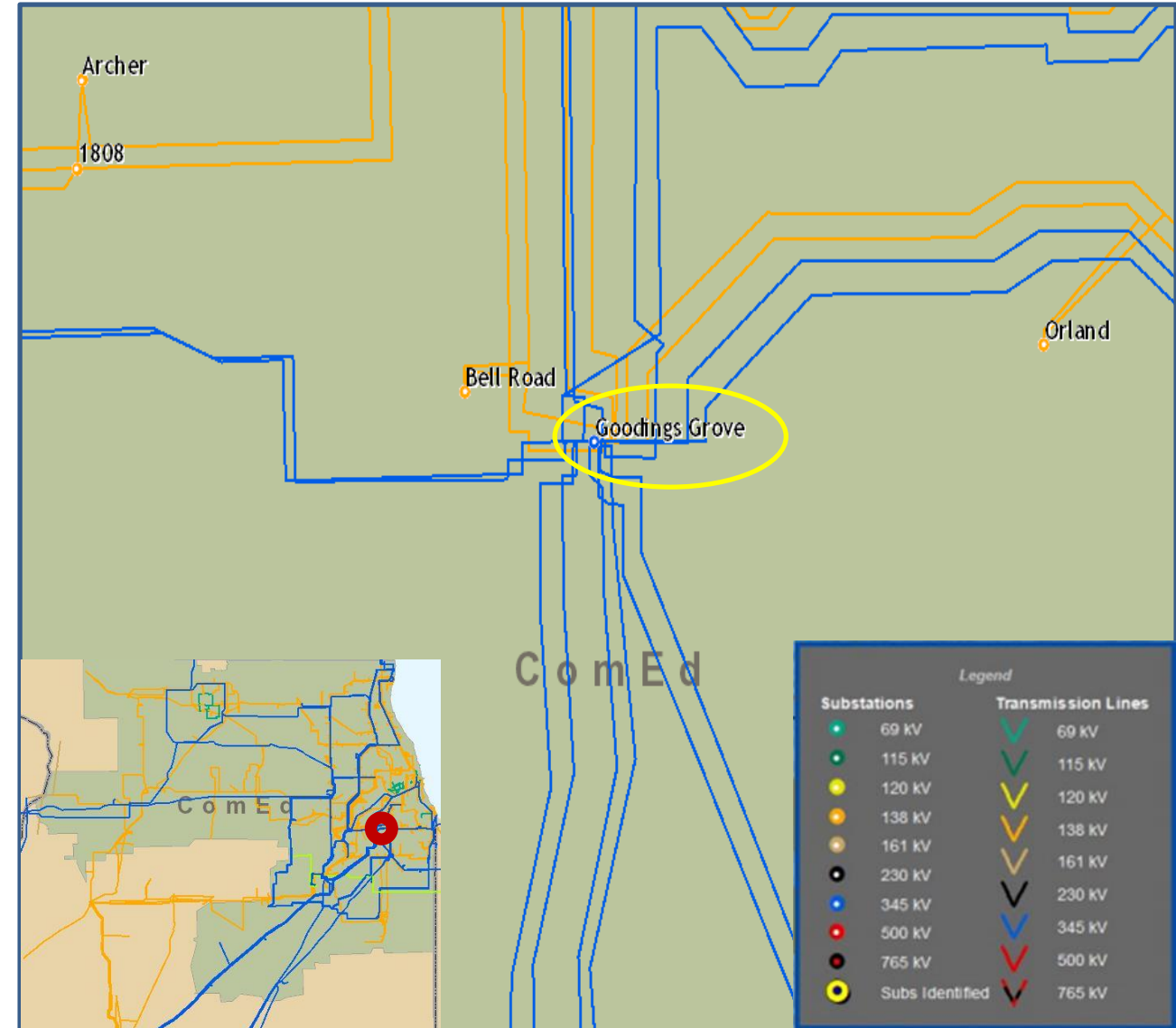
Estimated transmission cost: \$264M

Projected In-Service: 12/31/28

Supplemental Project ID: s3011

Project Status: Conceptual

Model: 2028 RTEP



Need Number: ComEd-2023-007

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan January 8, 2024

Previously Presented:

Solutions Meeting 10/3/2023

Need Meeting 9/5/2023

Project Driver:

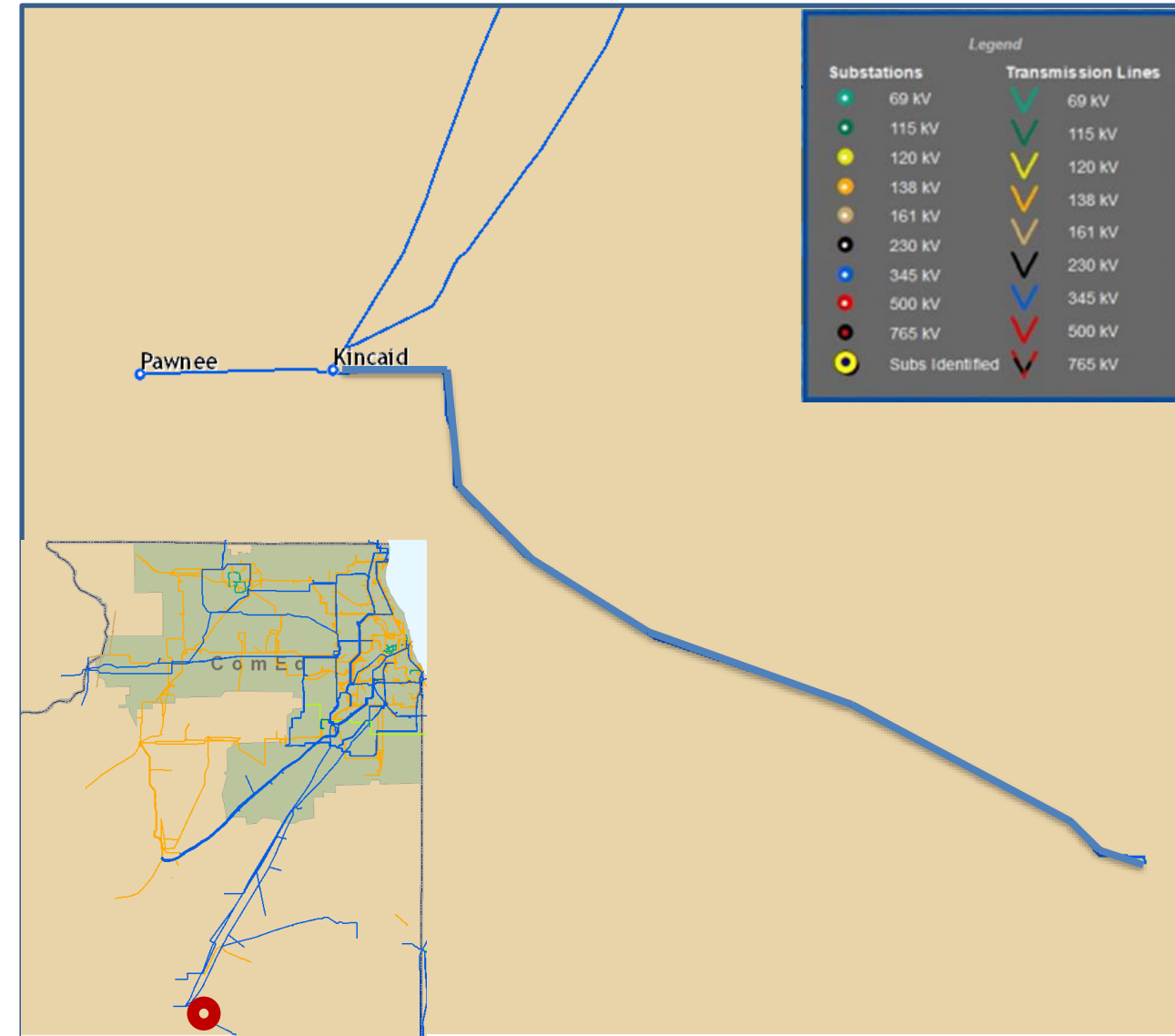
Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

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

Problem Statement:

- 345 kV line 2105 Kincaid – Pana(Ameren) is a 26.4 mile line with 2338 ACAR and 2156 ACSR conductor on 56-year-old wood H-frame structures.
- The wood components are at end-of-life, with many plank arms deteriorating which lead to dropping conductor. In 2022, there were outages on the line due to broken crossarms on clear weather days.
- Several of the wood poles and components are also suffering from woodpecker damage.
- The line has significant stretches of tangent structures without modern anti-cascade provisions.
- Inspections identified multiple locations of corona damaged 9-inch insulators on this line.
- L2105 contains small static wire and is a poor performer against lightning which has caused static wire failure in the past.



Need Number: ComEd-2023-007

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Selected Solution:

Rebuild approx. 26.4 miles with new structures, OPGW, and 2-1277 ACAR conductor.

	SN/SE (MVA)	WN/WE (MVA)
Old rating	1201/1201	1497/1497
New rating	1679/1793	1793/1793

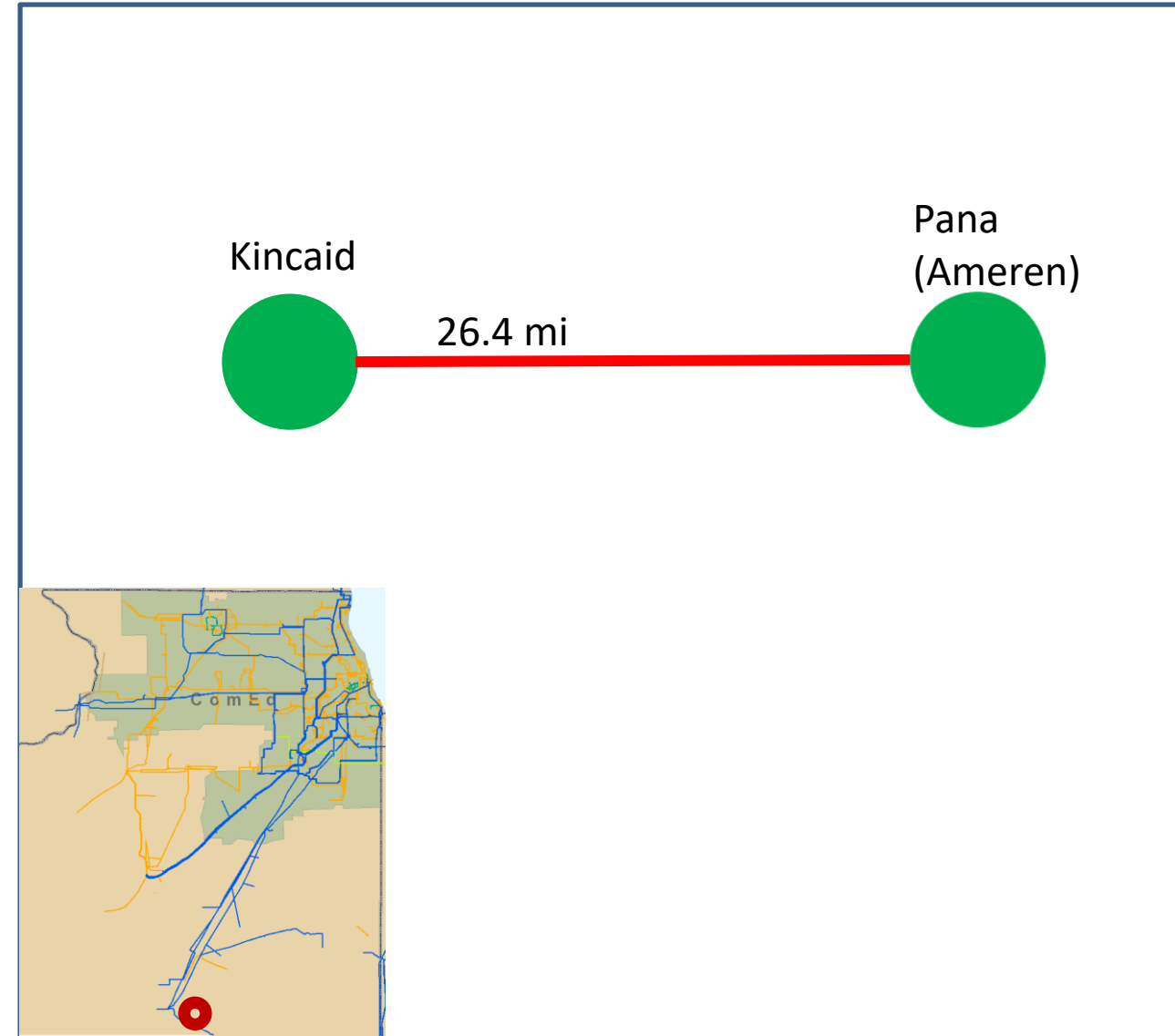
Estimated transmission cost: \$149M

Projected In-Service: 12/31/26

Supplemental Project ID: s3012

Project Status: Conceptual

Model: 2028 RTEP



Need Number: ComEd-2023-006

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan February 27, 2024

Previously Presented:

Solution Meeting 9/15/2023

Need Meeting 8/18/2023

Project Driver:

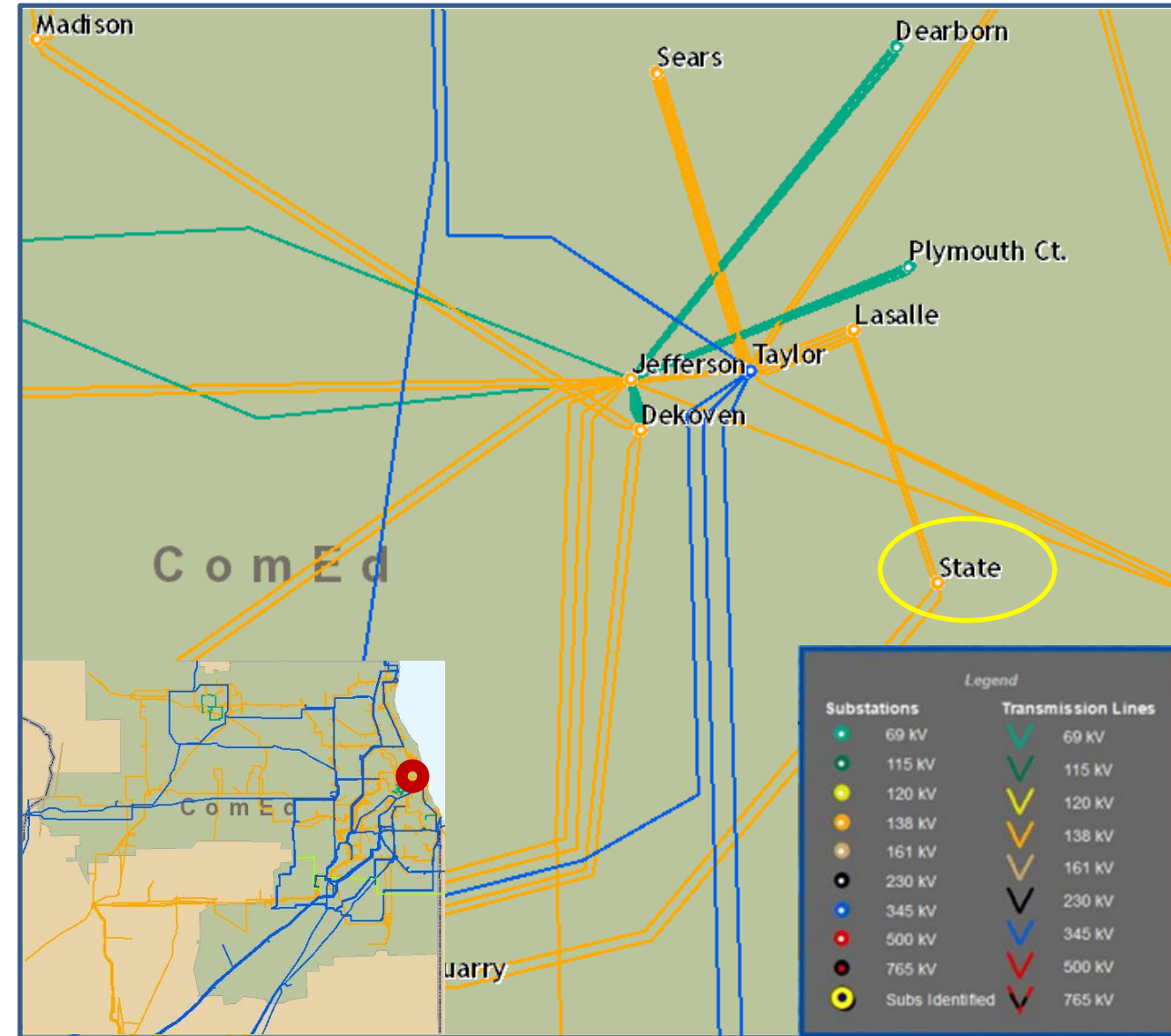
Customer Service

Specific Assumption Reference:

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

Problem Statement:

ComEd Distribution has a need for an additional 138-12 kV transformer at State substation.



Need Number: ComEd-2023-006

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan February 27, 2024

Selected Solution:

Install a new 50 MVA 138-12 kV distribution transformer and 138 kV BT 4-5 CB at State substation.

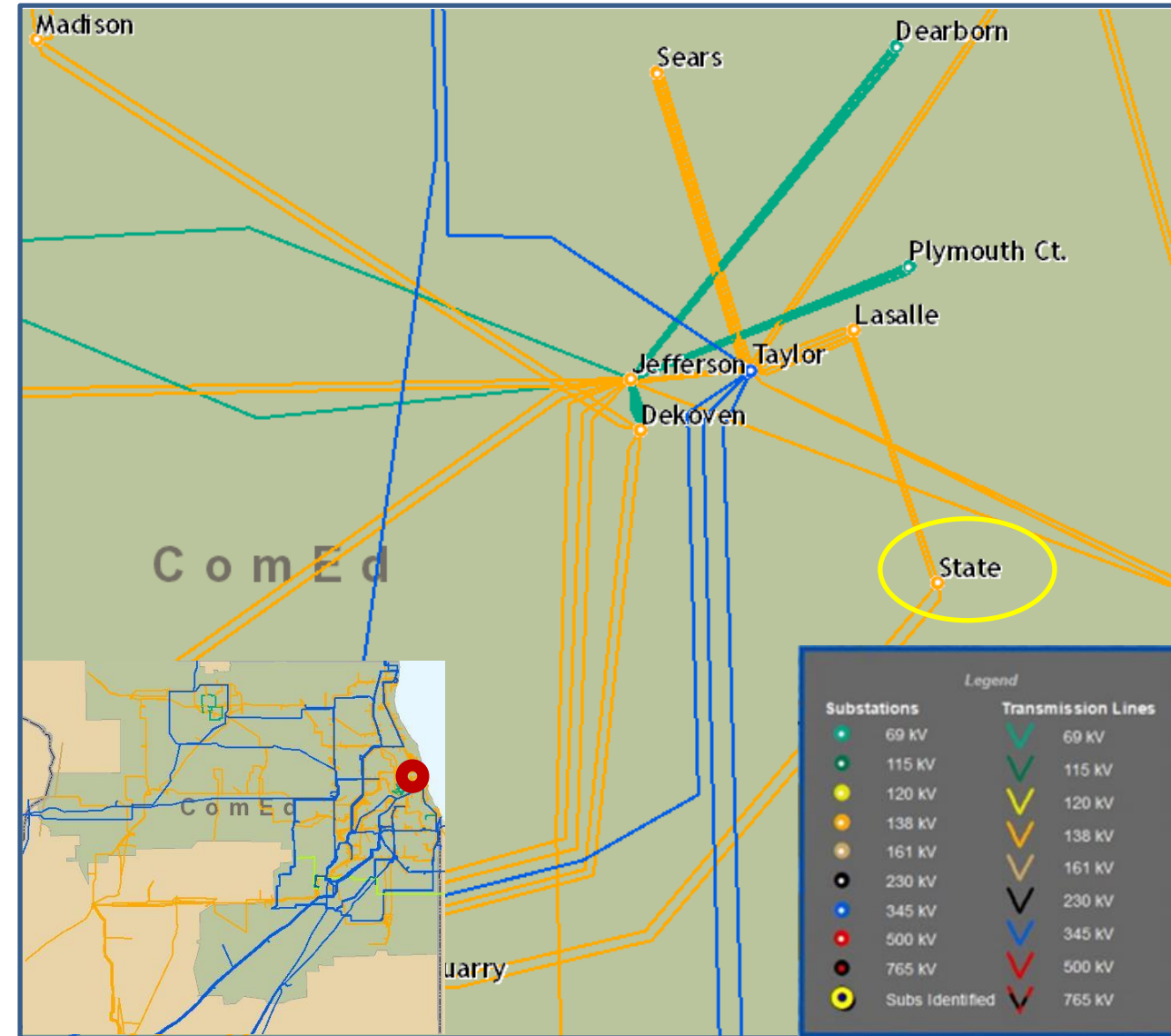
Estimated transmission cost: \$2M

Projected In-Service: 6/1/24

Supplemental Project ID: s3155

Project Status: Engineering

Model: 2027 RTEP



Need Number: ComEd-2023-010

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan February 27, 2024

Previously Presented:

Solution Meeting 10/31/2023

Need Meeting 10/3/2023

Project Driver:

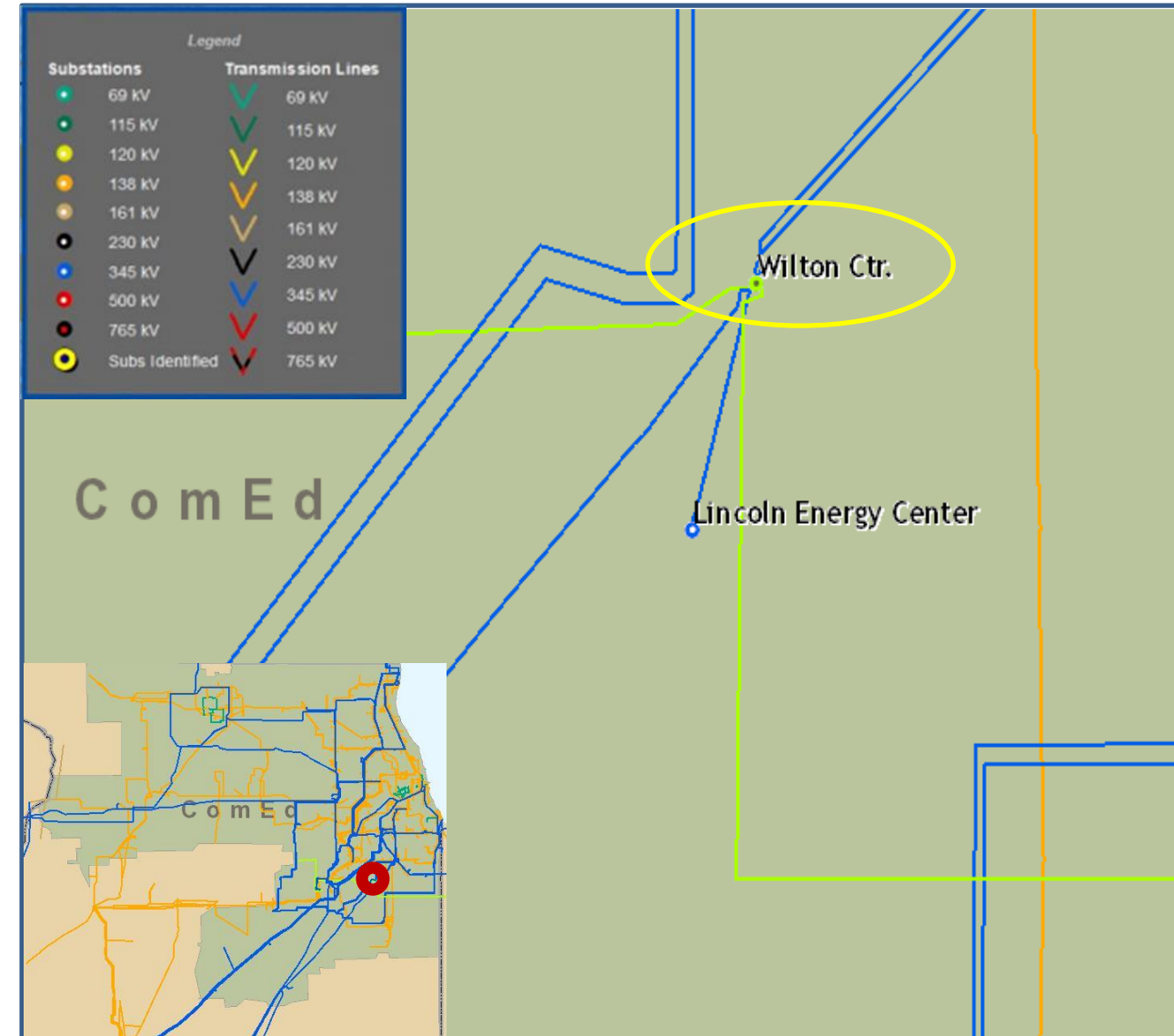
Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

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

Problem Statement:

- 345 kV oil circuit breakers BT2-3, BT3-4, BT4-5, BT5-6, BT6-7 at Wilton Center substation were installed in 1970. They are in deteriorating condition, lack replacement parts, and have elevated maintenance cost.



Need Number: ComEd-2023-010

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan February 27, 2024

Selected Solution:

Replace existing 345 kV oil BT2-3, BT3-4, BT4-5, BT5-6, BT6-7 CBs with new 345 kV SF6 CBs.

Existing Breaker Ratings: 2000 A, 50 kA

New Breaker Ratings: 3000 A, 63 kA

345 kV Wilton – Loretto Line		
	SN/SE (MVA)	WN/WE (MVA)
Old Rating	1364/1528	1590/1781
New Rating	1679/2058	2091/2340

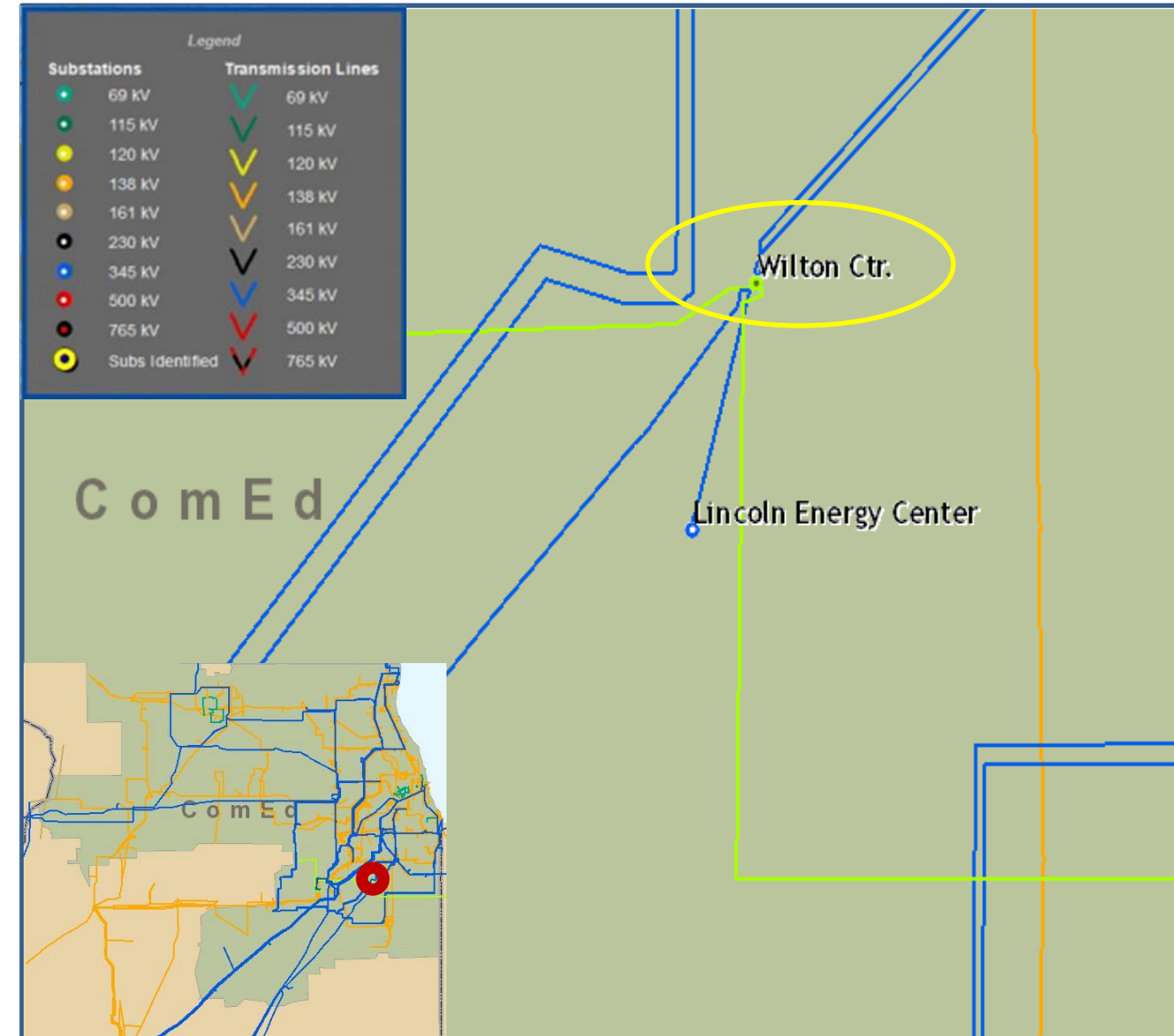
Estimated transmission cost: \$12.7M

Projected In-Service: 12/31/24

Supplemental Project ID: s3156

Project Status: Engineering

Model: 2028 RTEP



Need Number: ComEd-2023-011

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan February 27, 2024

Previously Presented:

Solution Meeting 10/31/2023

Need Meeting 10/3/2023

Project Driver:

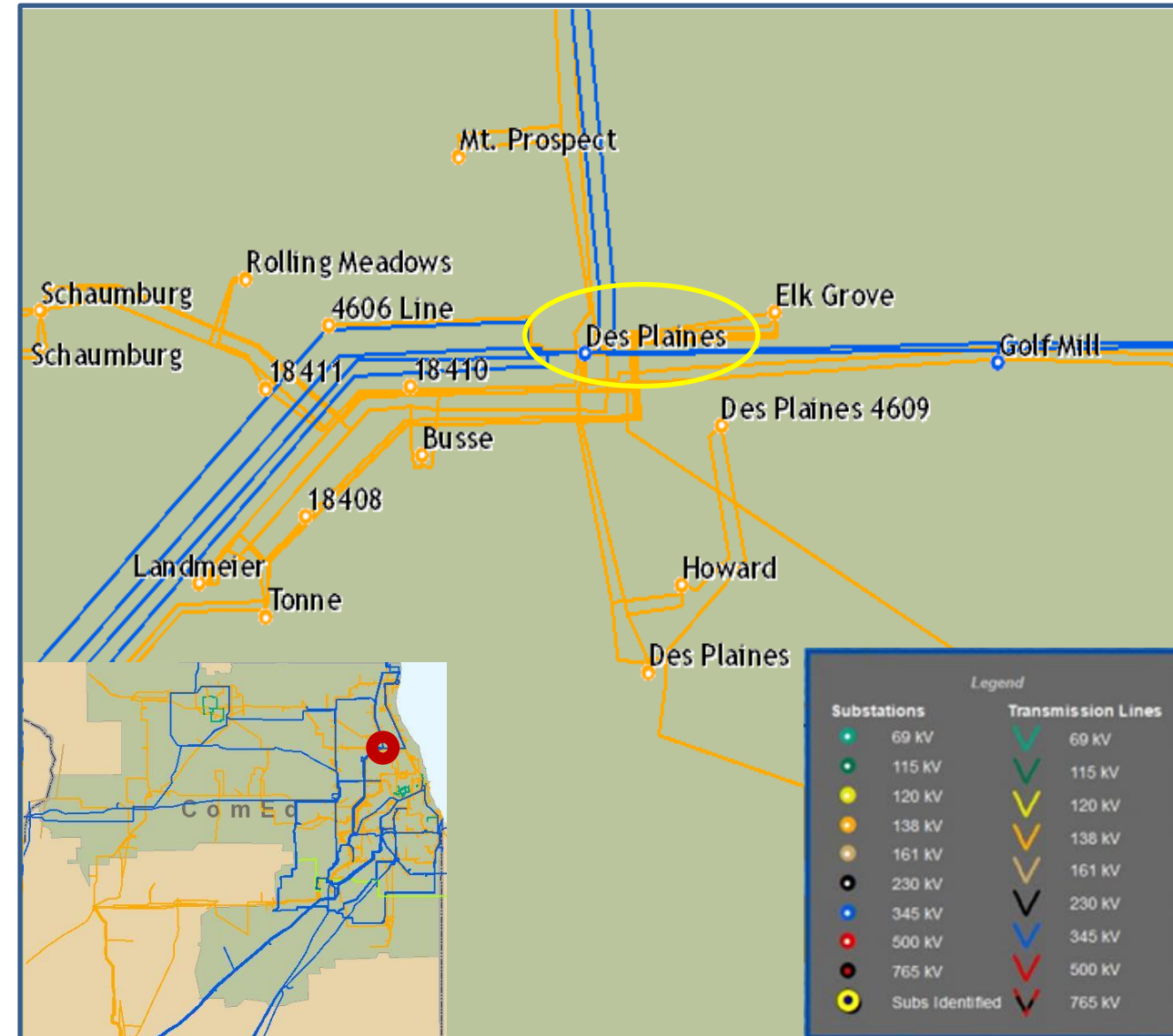
Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

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

Problem Statement:

- 345 -138 kV autotransformer 83 was installed in 1993. It is one of five similar transformers purchased by ComEd. Two have failed in service and one other is being replaced on supplemental project S2266.
- Undersized core allows for overexcitation during loading causing overheating of metal, partial discharge, and circulating currents.
- Due to the hydrogen levels, the transformer must be taken out of service periodically and degasified.
- 138 kV TR 83 CB was installed in 1974. It is deteriorating condition, has a lack of replacement parts, and has elevated maintenance costs.



Need Number: ComEd-2023-011

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan February 27, 2024

Selected Solution:

Replace 345/138 kV autotransformer with a new standard autotransformer. Replace tertiary capacitor bank with a new 138 kV capacitor bank on new 138 kV bus. Replace 138 kV TR 83 oil CB with a new 138 kV SF6 CB.

TR 83	SN/SE (MVA)	WN/WE (MVA)
Old Rating	400/465	400/465
New Rating	420/480	420/480

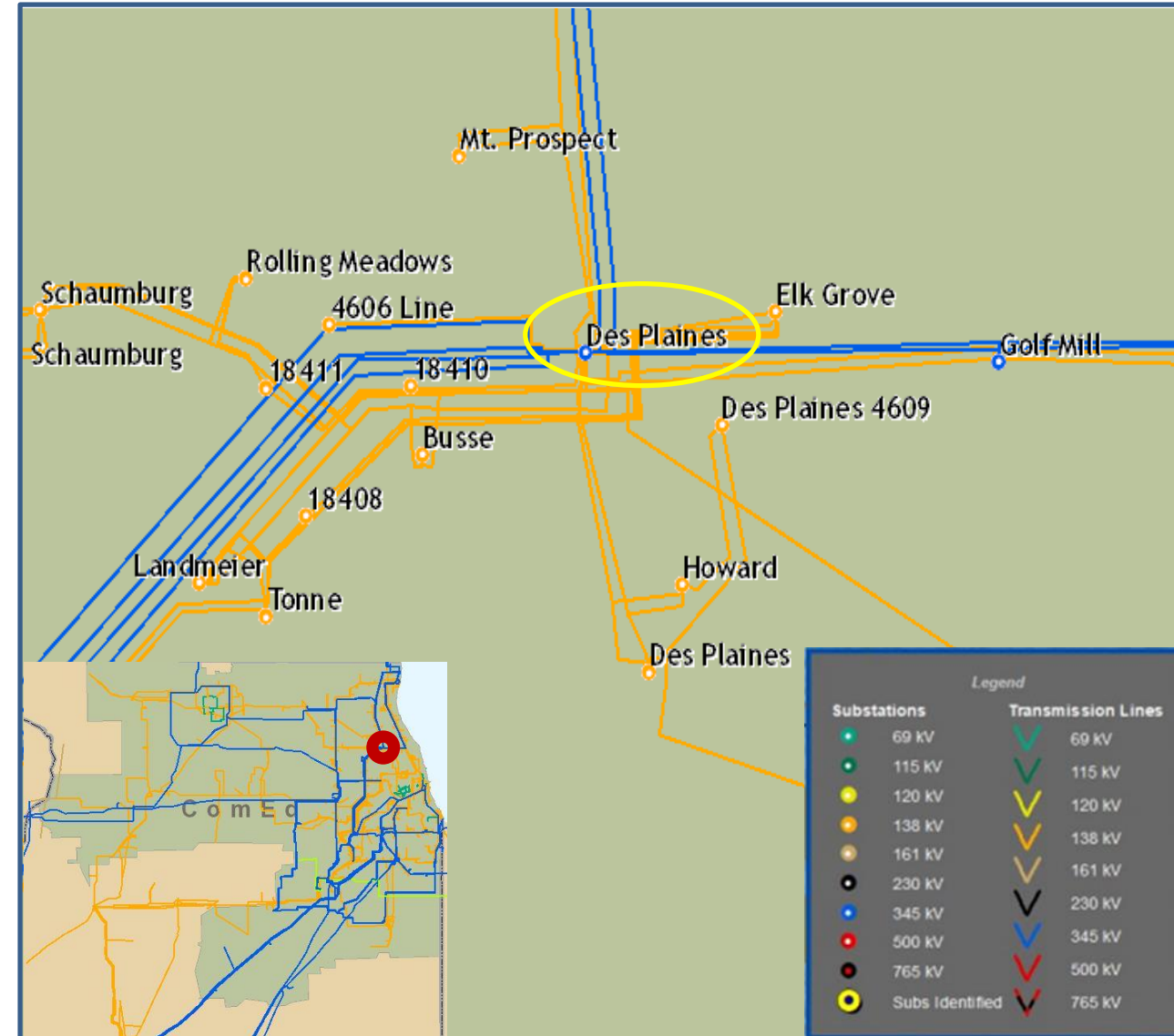
Estimated transmission cost: \$24.1M

Projected In-Service: 12/31/25

Supplemental Project ID: s3157

Project Status: Engineering

Model: 2028 RTEP



Revision History

1/8/2024 – V1 Added slides #1-5, s3011-s3012

3/4/2024 – V2 Added slides #6-11, s3155- s3157