TEAC - Western Committee
ComEd Supplemental Projects

October 3, 2023

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

ComEd Transmission Zone M-3 Process
Wilton Center 345 kV CBs

Need Number: ComEd-2023-010

Process Stage: Need Meeting 10/3/2023

Project Driver:

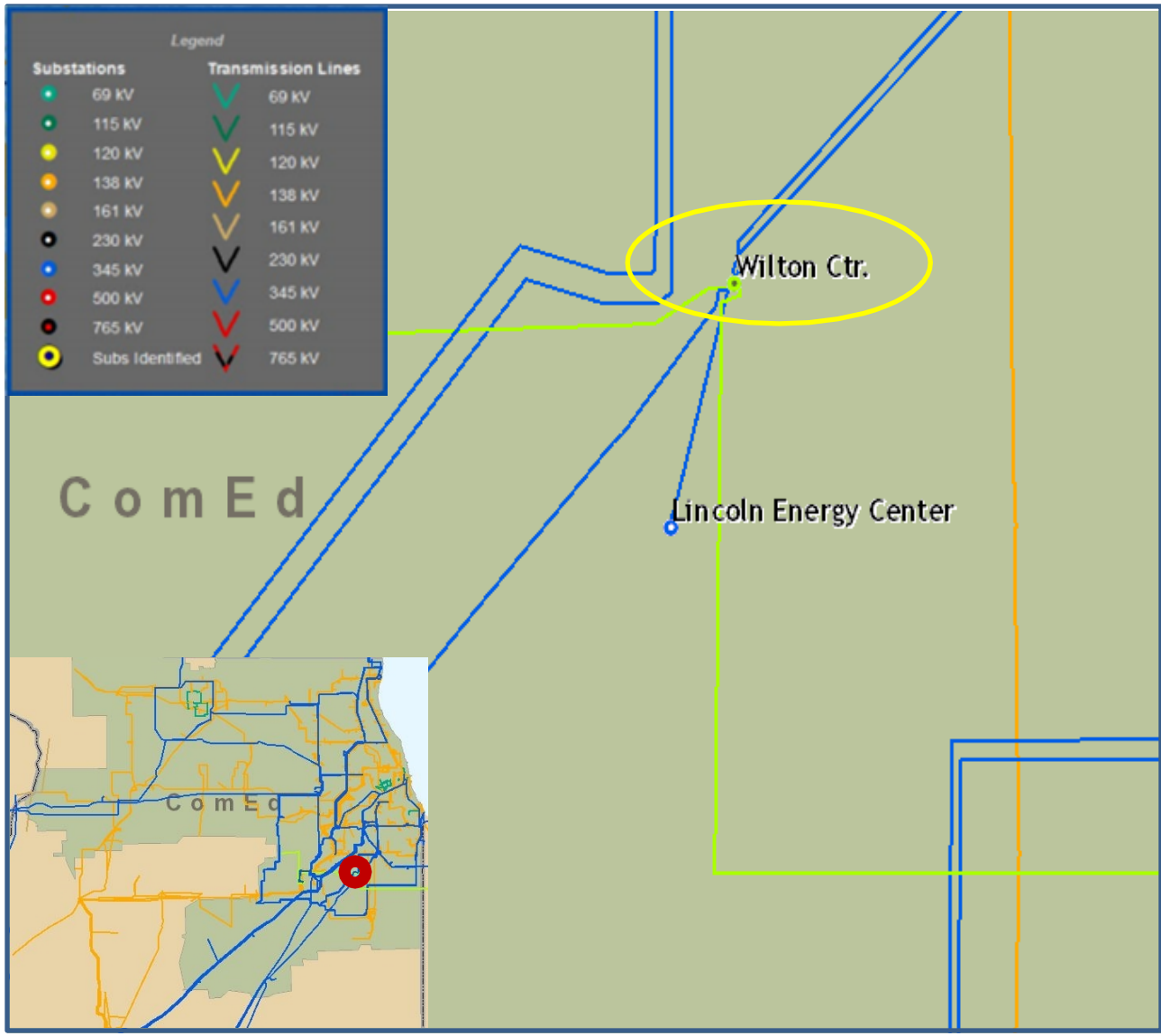
Equipment Material Condition, Performance and Risk

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.



ComEd Transmission Zone M-3 Process
Desplaines 345/138 kV Transformer 83

Need Number: ComEd-2023-011

Process Stage: Need Meeting 10/3/2023

Project Driver:

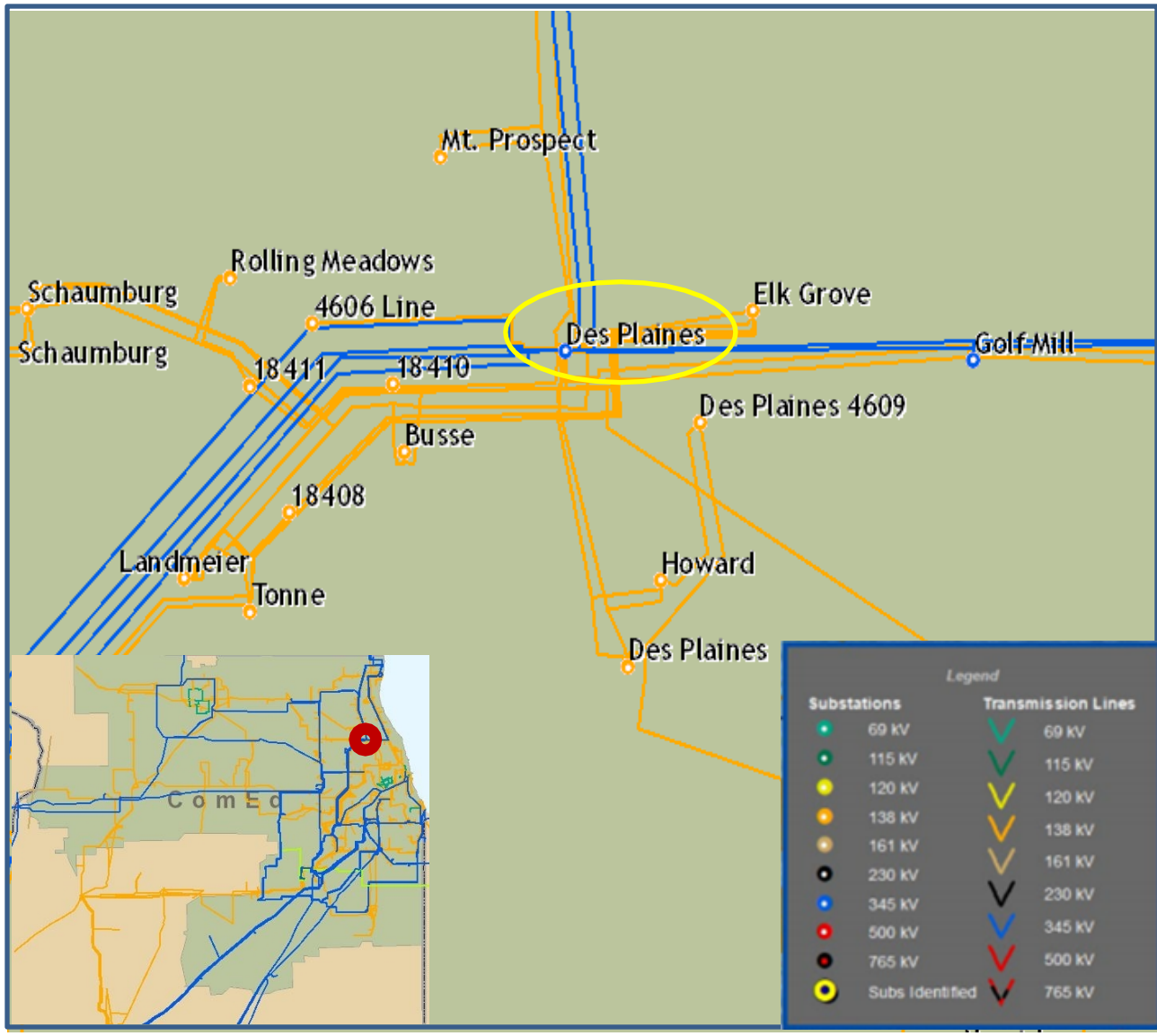
Equipment Material Condition, Performance and Risk

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.



Solutions

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

ComEd Transmission Zone M-3 Process
345 kV Line 2105

Need Number: ComEd-2023-007

Process Stage: Solutions Meeting 10/3/2023

Previously Presented: Need Meeting 9/5/2023

Project Driver:

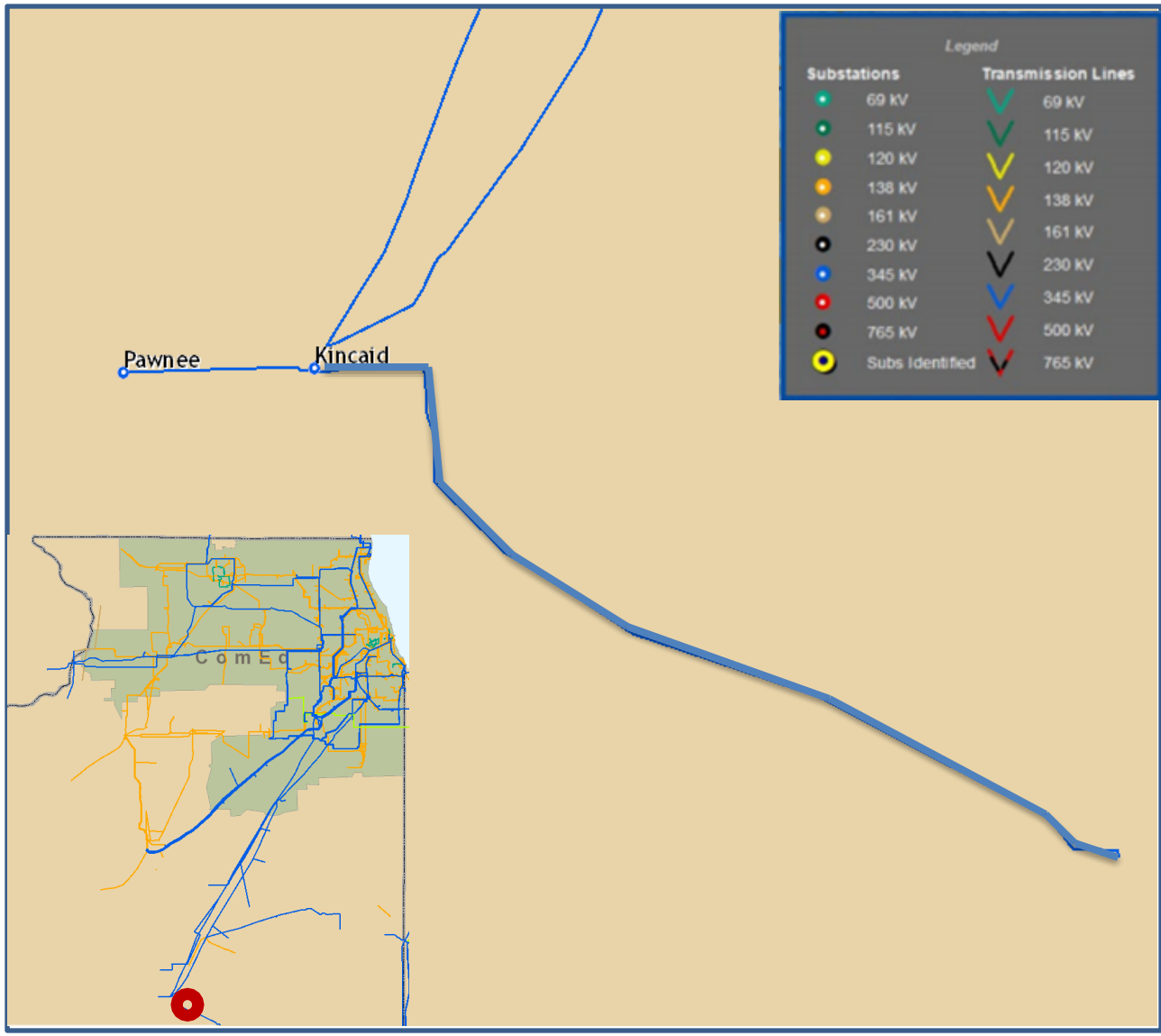
Equipment Material Condition, Performance and Risk

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.



ComEd Transmission Zone M-3 Process
345 kV Line 2105

Need Number: ComEd-2023-007

Process Stage: Solutions Meeting 10/3/2023

Preferred 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

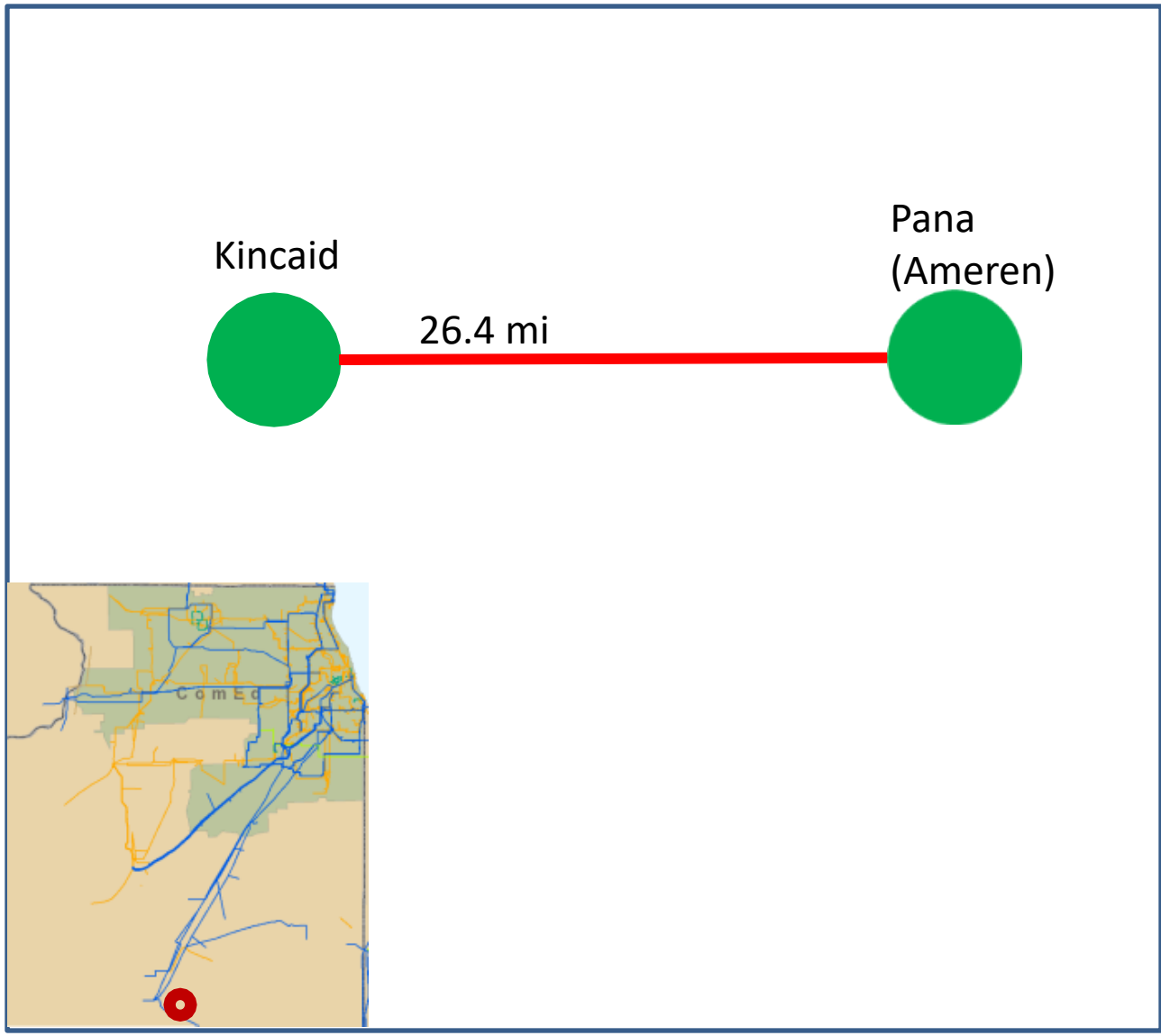
Alternatives Considered:

No feasible alternatives.

Projected In-Service: 12/31/26

Project Status: Conceptual

Model: 2028 RTEP



ComEd Transmission Zone M-3 Process
Goodings Grove 345 kV

Need Number: ComEd-2023-004

Process Stage: Solutions Meeting 10/3/2023

Previously Presented: Need Meeting 7/11/2023

Project Driver:

Operational Flexibility and Efficiency

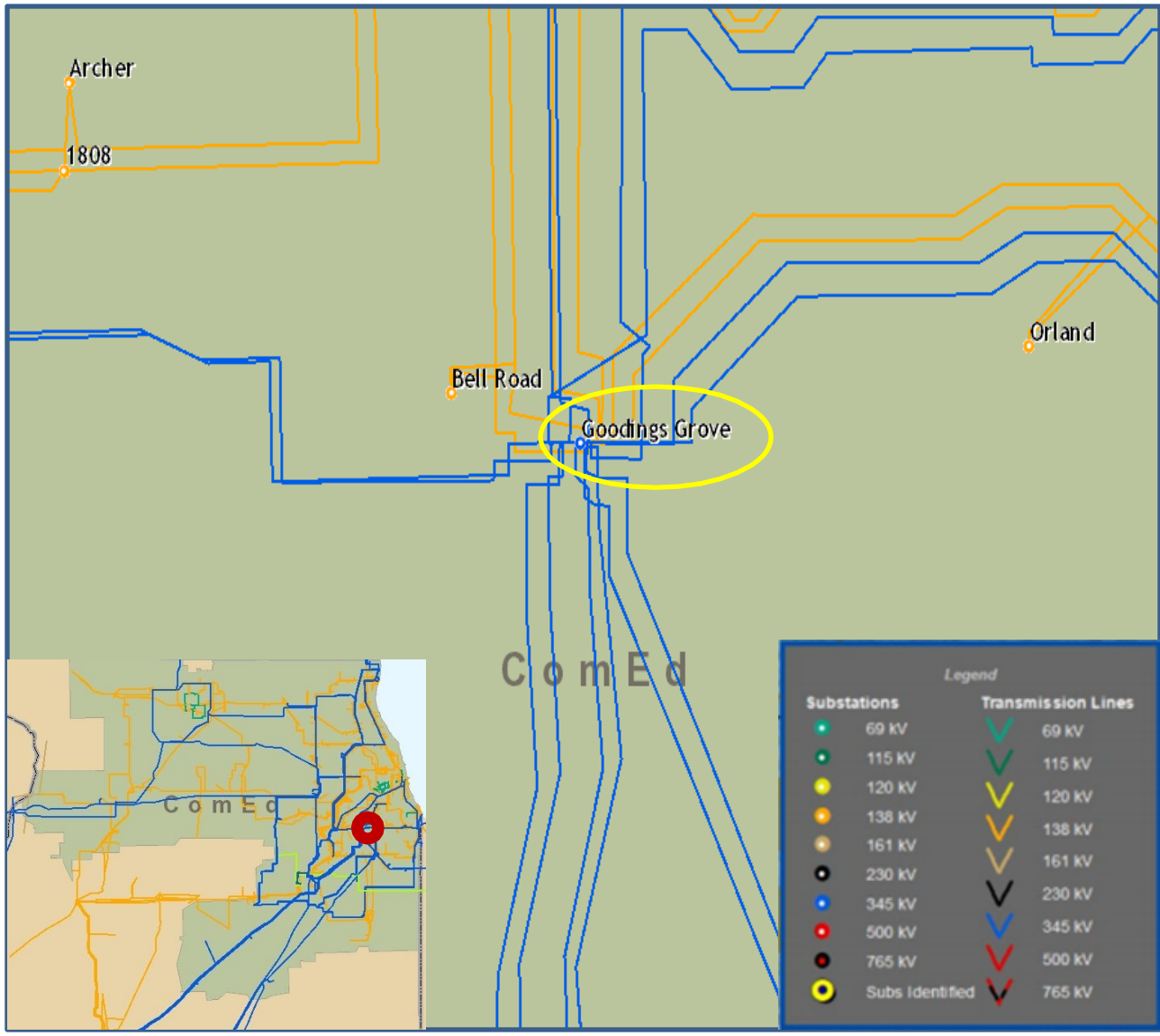
Equipment Material Condition, Performance and Risk

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.



ComEd Transmission Zone M-3 Process
Goodings Grove 345 kV

Need Number: ComEd-2023-004

Process Stage: Solutions Meeting 10/3/2023

Preferred 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

Alternatives Considered:

Replace existing 345 kV open air straight bus with 345 kV open air bus in a breaker and a half configuration (34 Circuit Breakers).

- This alternative was not pursued due to real estate constraints.

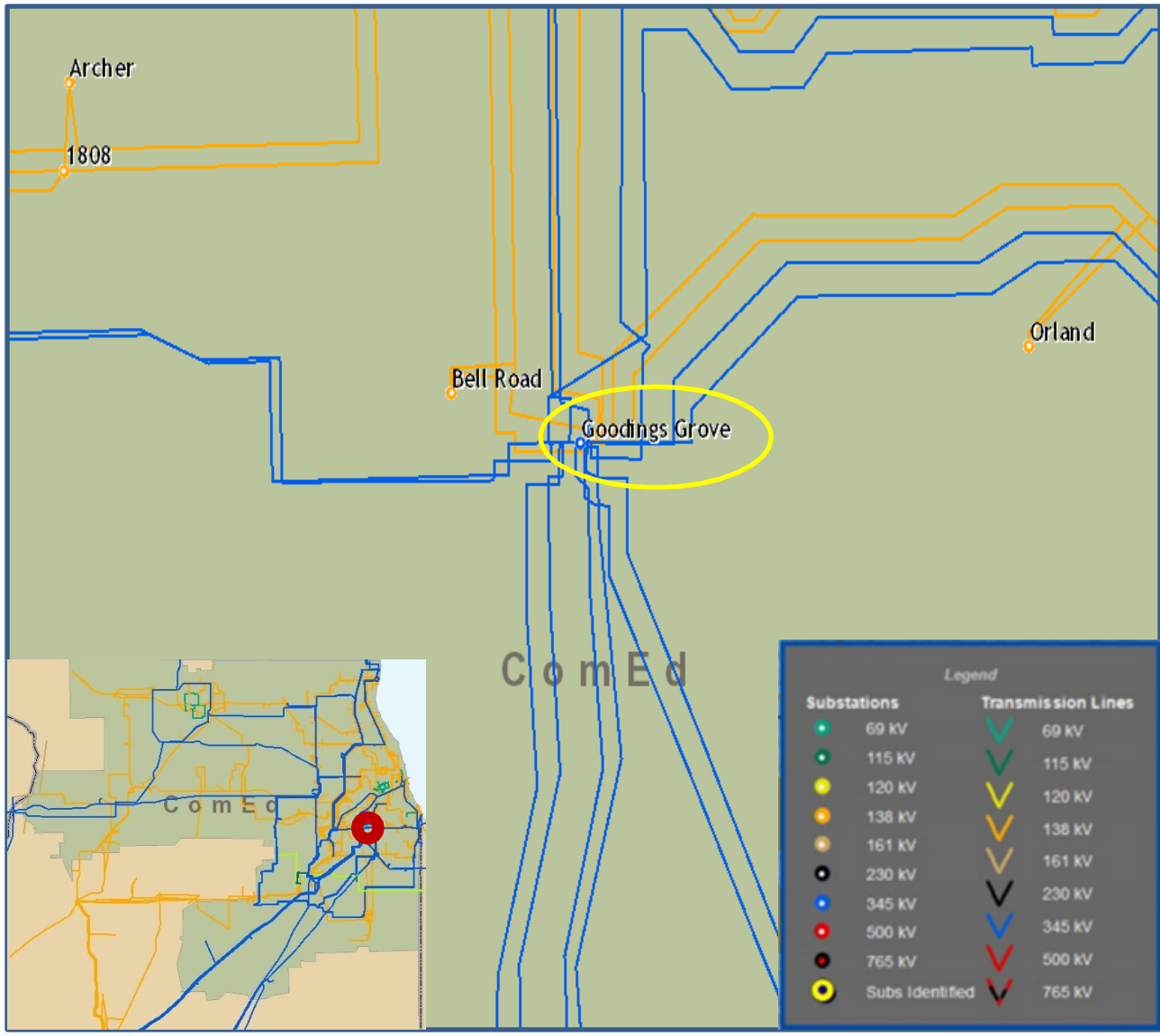
Replace existing 345 kV breakers with 80kA SF6 breakers.

- This alternative was not pursued since it does not address the straight bus configuration at Goodings Grove.

Projected In-Service: 12/31/28

Project Status: Conceptual

Model: 2028 RTEP



Appendix

High Level M-3 Meeting Schedule

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

Revision History

9/22/2023 – V1 – Original version posted to pjm.com