Sub Regional RTEP Committee
PJM West

December 18, 2019

Proposal Window Exclusion Definitions

- The following definitions explain the basis for excluding flowgates and/or projects from the competitive planning process and designating projects to the incumbent Transmission Owner.
- Flowgates/projects excluded from competition will include the underlined language on the corresponding slide.
  - Immediate Need Exclusion: Due to the immediate need of the violation (3 years or less), the timing required for an RTEP proposal window is infeasible. As a result, the local Transmission Owner will be the Designated Entity. - Operating Agreement, Schedule 6 § 1.5.8(m)
  - Below 200kV Exclusion: Due to the lower voltage level of the identified violation(s), the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(n)
  - Substation Equipment Exclusion: Due to identification of the limiting element(s) as substation equipment, the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(p)

First Review

Baseline Reliability Projects

APS Transmission Zone: Baseline
Wylie Ridge

Process Stage: First Review
Criteria: N-1-1 Thermal
Assumption Reference: 2024 Baseline/Retool
Model Used for Analysis: 2024 Summer Baseline/Retool
Proposal Window Exclusion: Substation Equipment

Problem Statement:
For loss of Tidd – Collier 345kV and Wylie Ridge – Toronto 345 kV, the Wylie Ridge – Smith 138kV circuit overloads to 104% of its rating (229/229 SN/SE). (N2-ST1, N2-ST2)

Proposed Solution:
Replace line relaying and fault detector on the Wylie Ridge terminal at Smith 138 kV Substation (New Rating: 234/297 SN/SE).

Alternatives: None

Total Estimated Transmission Baseline Cost: $0.85M
Required IS Date: 6/1/2024

APS Transmission Zone: Baseline
Morgan 138 kV

Process Stage: First Review
Criteria: Winter Generator Deliverability
Assumption Reference: 2024 Winter Baseline/Retool
Model Used for Analysis: 2024 Winter Baseline/Retool
Proposal Window Exclusion: Substation Equipment

Problem Statement:
For loss of Bedington - Black Oak 500 kV circuit ,the Messick Rd. – Morgan 138 kV line is overloaded to 106% of its rating (229/229 WN/WE). (GD-W255, GD-W256)

Proposed Solution:
Replace line relaying and fault detector relaying at Messick Rd. and Morgan 138 kV Substations; Replace Wave Trap at Morgan 138 kV (New Rating: 250/317 WN/WE).

Alternatives: None

Total Estimated Transmission Baseline Cost: $0.23M
Required IS Date: 12/1/2024

APS Transmission Zone: Baseline
Messick Rd. 138 kV

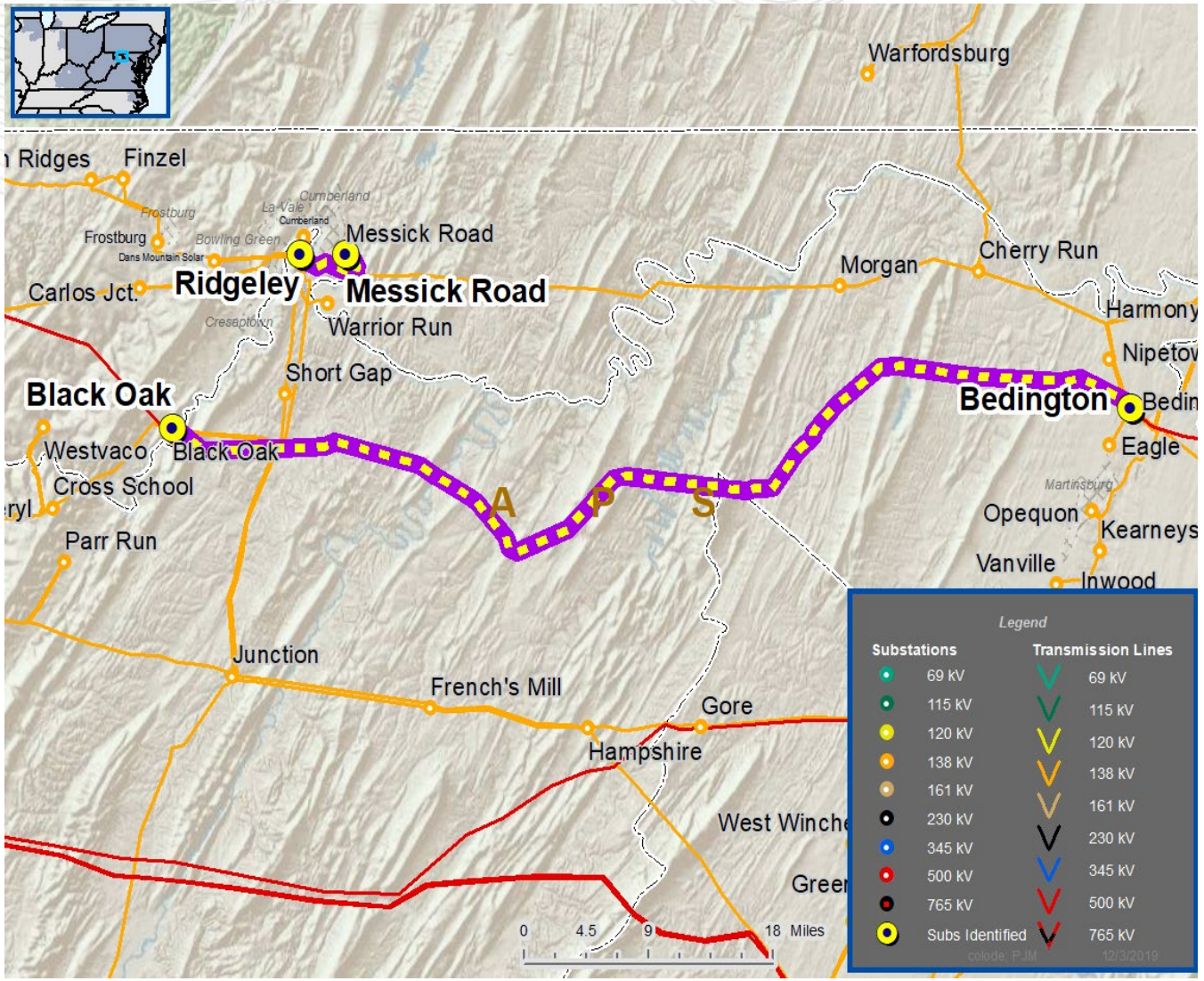
Process Stage: First Review
Criteria: Winter Generator Deliverability
Assumption Reference: 2024 Winter Baseline/Retool
Model Used for Analysis: 2024 Winter Baseline/Retool
Proposal Window Exclusion: Substation Equipment

Problem Statement:
For loss of Beddington - Black Oak 500 kV circuit, the Messick Rd. – Ridgeley 138 kV line is overloaded to 114% of its rating (229/229 WN/WE). (GD-W11, GD-W249, GD-W250)

Proposed Solution:
Replace line relays on the Ridgeley Terminal at Messick Rd. 138 kV Substation(New Rating: 250/317 MVA WN/WE).

Alternatives: None

Total Estimated Transmission Baseline Cost: $0.14M
Required IS Date: 12/1/2024



Process Stage: First Review
Criteria: TO Planning Criteria
Assumption Reference: FERC 715
Model Used for Analysis: 2024 RTEP Summer
Proposal Window Exclusion: FERC 715
Problem Statement:

For N-1-1 loss of the Pokagon – Lake Street 69kV line and South Bend – Niles 69kV line:

- Pletcher – Buchanan 69kV line overloads to 117% of the 75MVA rating (336 ACSR)
- The area experiences voltage violations with voltages as low as .89 pu and voltage drops as high as 8.5% at the Niles and Lake Street 34.5 kV buses and affects the following load serving buses. Lakehead 69kV, Lake Street 69kV, Lake Street 34.5kV, National Standard 69kV, Simplicity 34.5kV, Niles 69kV, Niles 34.5kV.

For N-1 loss of the Niles 69/34 transformer, Niles 69kV bus or any of the Niles 69kV breakers the following overload occurs.

- Niles – Simplicity 34.5kV line overloads to up to 103% of the 68MVA rating (600A breaker)

For N-1-1 loss of the Niles 69/34.5kV transformer (which takes out the 69kV bus) and the Pokagon 138/69kV transformer:

- The area experiences voltage violations with voltages as low as .79 pu and voltage drops as high as 18.2% at the Niles 34.5 kV bus and affects the following load serving buses. Barrett 69kV, Calvin 69kV, Dailey 69kV, Lakehead 69kV, Lake Street 69kV, Lake Street 34.5kV, National Standard 69kV, Simplicity 34.5kV, Niles 69kV, Niles 34.5kV, Pokagon 69kV, Stone Lake 69kV and Wolverine 69kV station.

For N-1-1 loss of the Lake Street 69/34kV XFR (takes out 69kV bus) and South Bend – Niles 69kV line:

- The area experiences voltage violations with voltages as low as .85 pu and voltage drops as high as 9.0% at the Niles, Simplicity and Lake Street 34.5 kV buses

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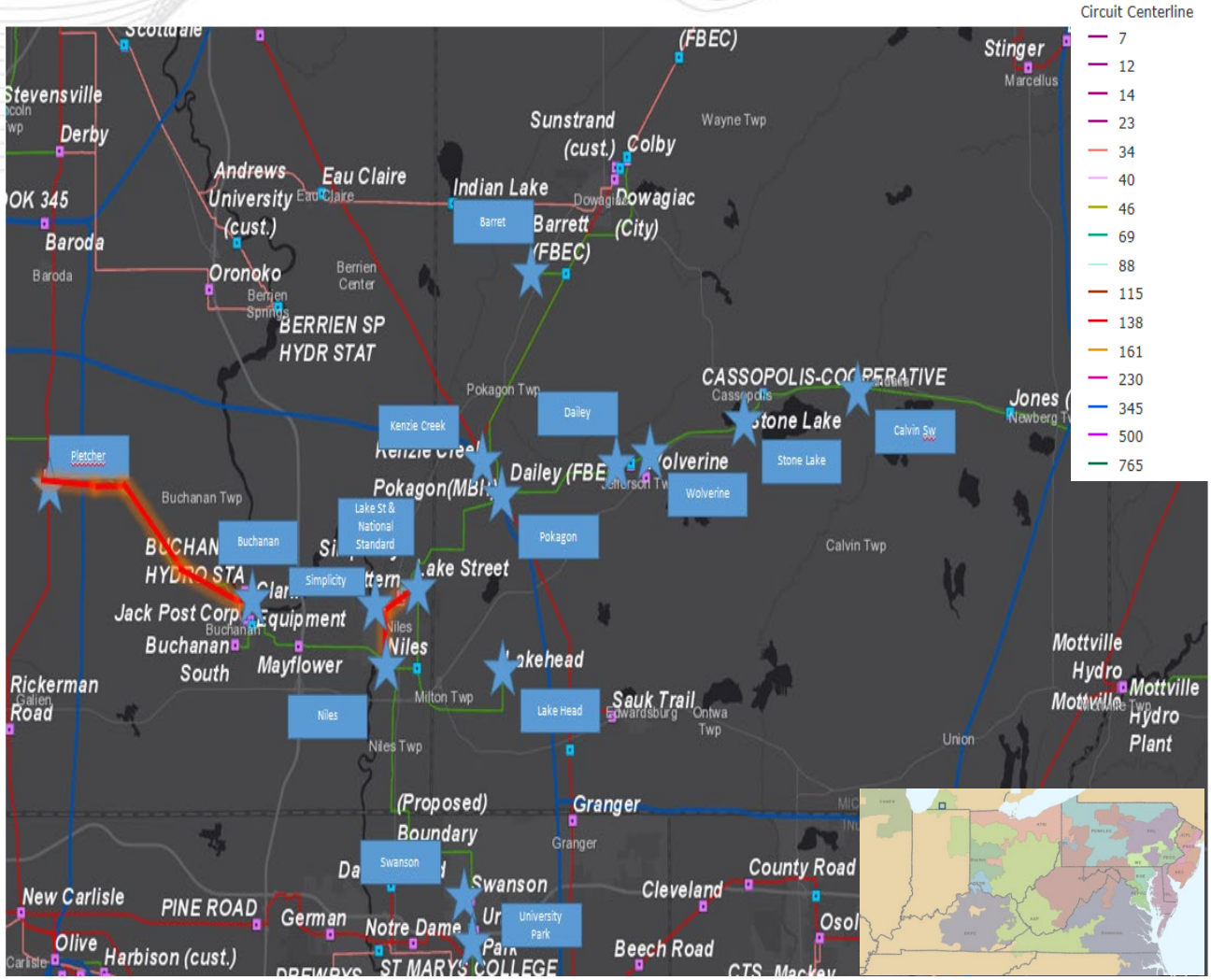

AEP Transmission Zone: Baseline
Niles Area

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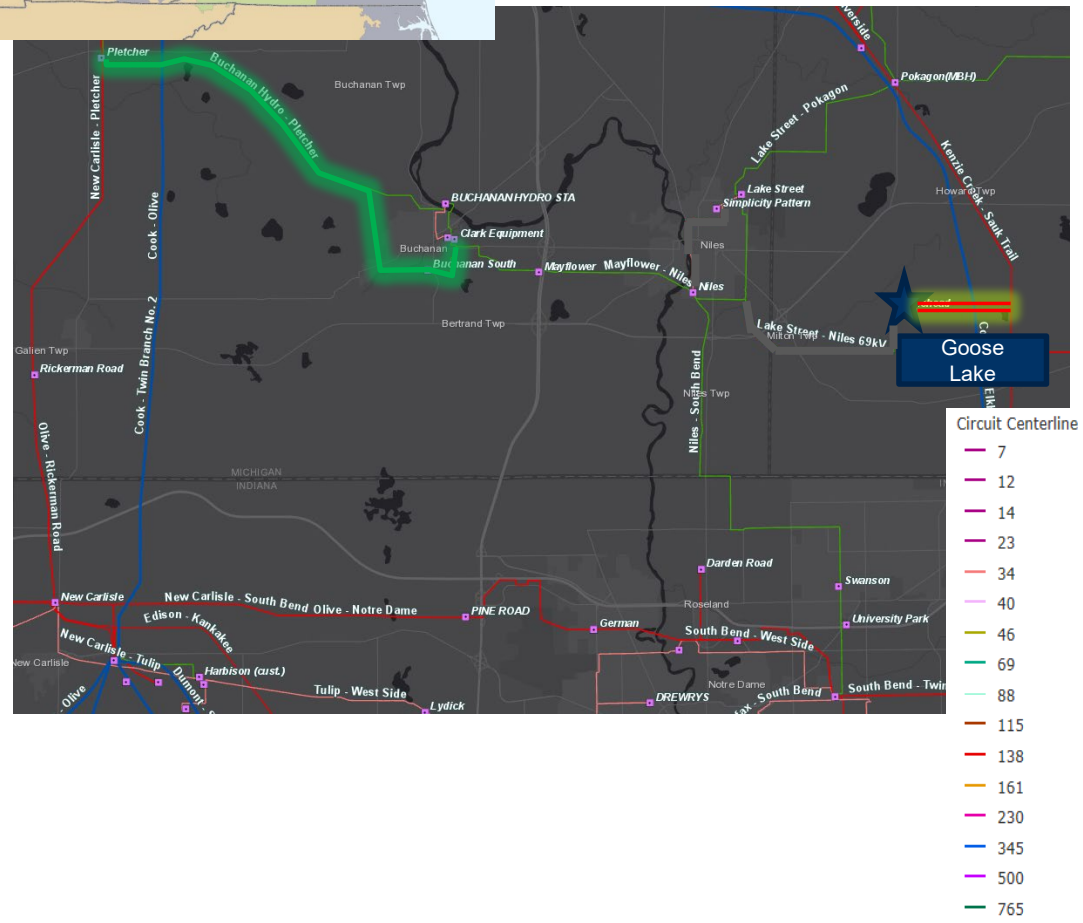
Proposed Solution:
Construct a ~2.4 mile double circuit 138kV Extension using 1033 ACSR to connect Lake Head to the 138kV network.
Estimated Cost: $6M
Retire the ~2.5 mile 34.5kV Niles – Simplicity Tap line.
Estimated Cost: $1.2M
Retire the ~4.6 mile Lakehead 69kV Tap
Estimated Cost: $1.4M
Build new 138/69kV drop down station to feed Lakehead with a 138kV CB, 138kV Switcher, 138/69kV XFR and a 138kV MOAB
Estimated Cost: $4M
Rebuild the ~8.4 mile 69kV Pletcher – Buchanan Hydro line as the ~9 mile Pletcher – Buchanan South 69kV line using 795 ACSR.
Estimated Cost: $20M
Rebuild the ~1.2 mile Buchanan South 69kV Radial Tap using 795 ACSR
Estimated Cost: $3M
Install a PoP switch at Buchanan South station with 2 line Moabs.
Estimated Cost: $0.6M

Total Estimated Transmission Baseline Cost: $36.2M



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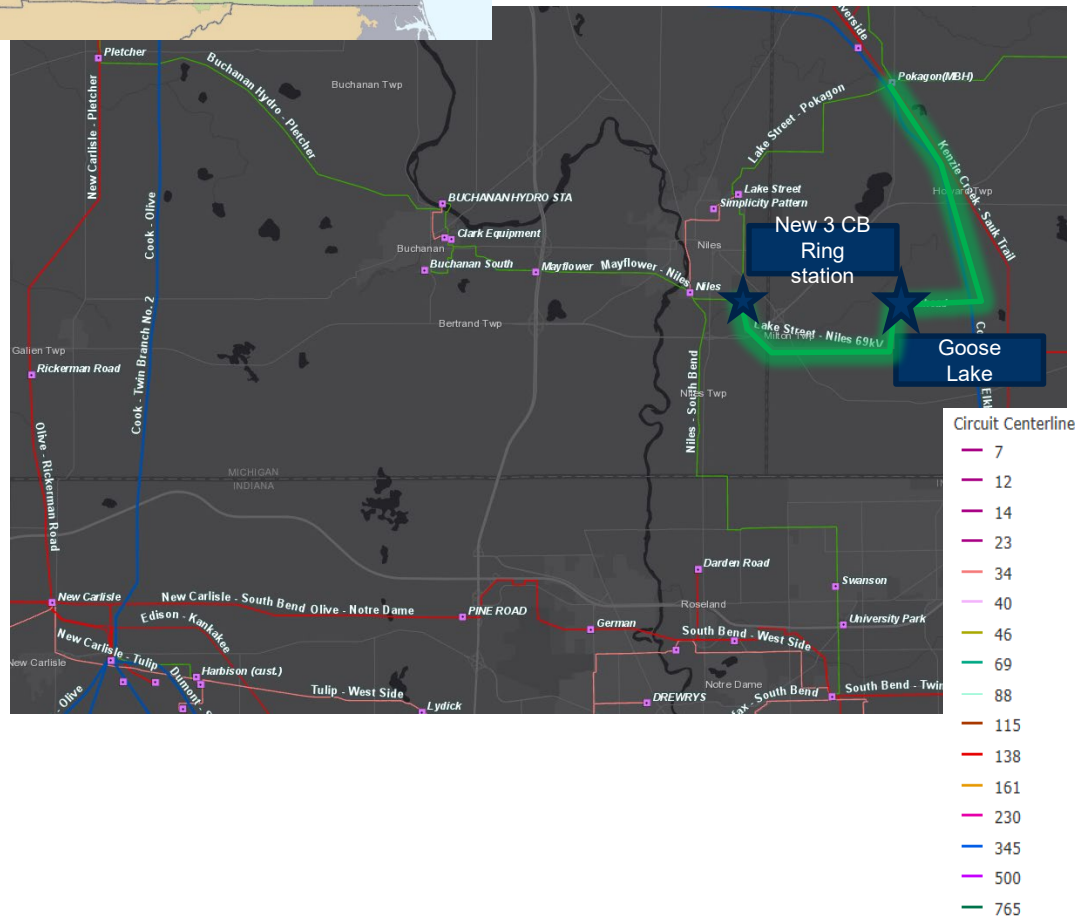
AEP Transmission Zone: Baseline
Niles Area



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Alternative 1:
Bring in a new source from Goose Lake into the 69kV network in lieu of rebuilding Pletcher – Buchanan. This would fix the issues, but since Pletcher – Buchannan and the Lakehead Tap stand on their own as needs, it was decided to just address them. This new ~11 mile line would also cause the total project cost to be higher.
Cost: $40.1M + $20M Supplemental not addressed

Alternative 2:
Rebuild from Pletcher to Buchanan Hydro instead of Buchanan South.
This would solve the needs, but would leave the 11MW at Buchanan South on a radial line. Since the only cost difference between removing this radial is the cost of rebuilding the ~1.2 mile 1970 wood line, this was deemed the better alternative.

Cost: $33.2M but Radial line isn't addressed. Would cost ~6M in the future to address it once the line became a supplemental need.

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AEP Transmission Zone: Baseline
Niles Area

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Ancillary Benefits:

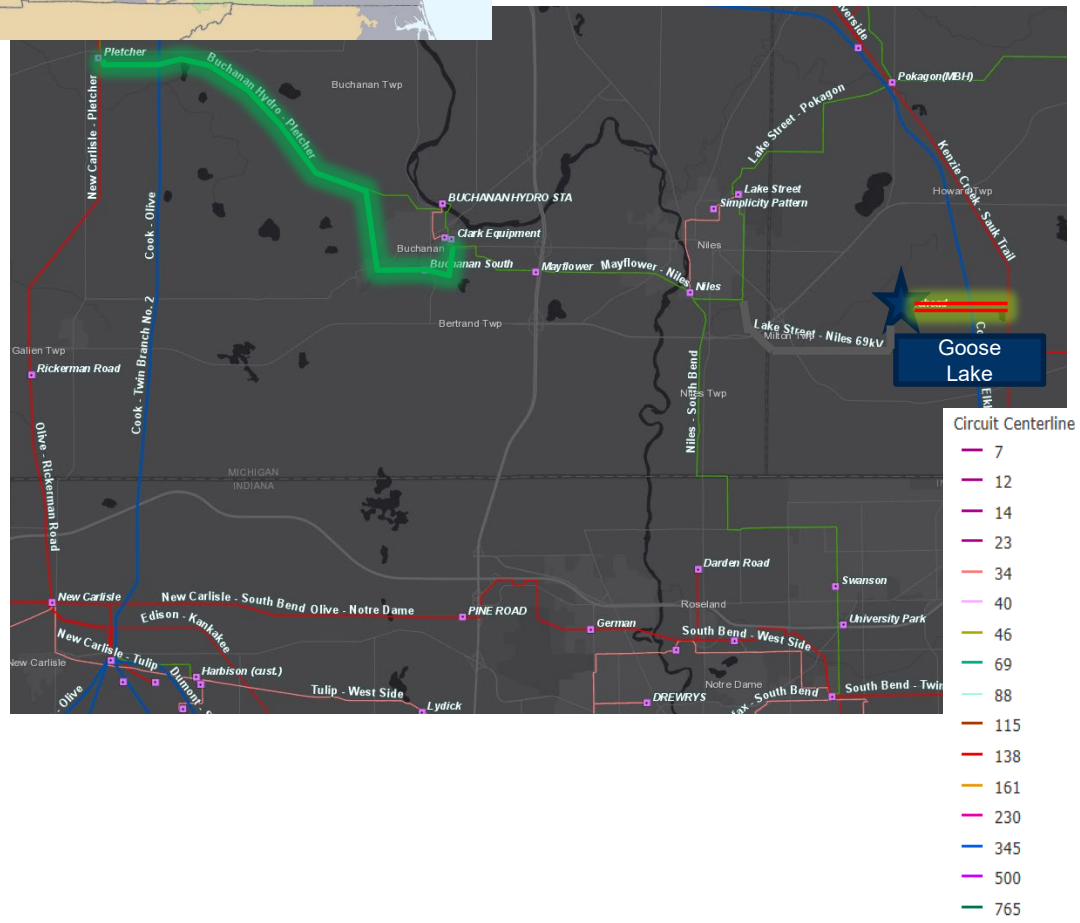
The proposed solution also addresses these supplemental needs:
Lake St – Niles 34.5kV line:
1965 Wood line with cap and pin insulators. Submitted in AEP-2018-IM002

Lakehead Pumping 69kV Tap:
1960's wood crossarm construction. Part of asset submitted in AEP-2018-IM002

Pletcher – Buchanan 69kV line:
1963 wood line. Submitted in AEP-2019-IM047

Buchanan South Side 69kV Tap:
1970 wood radial line. Submitted in AEP-2019-IM047

Required IS Date: 6/1/2024
Proposed IS Date: 6/1/2022



AMPT Transmission Zone: Baseline Bowling Green

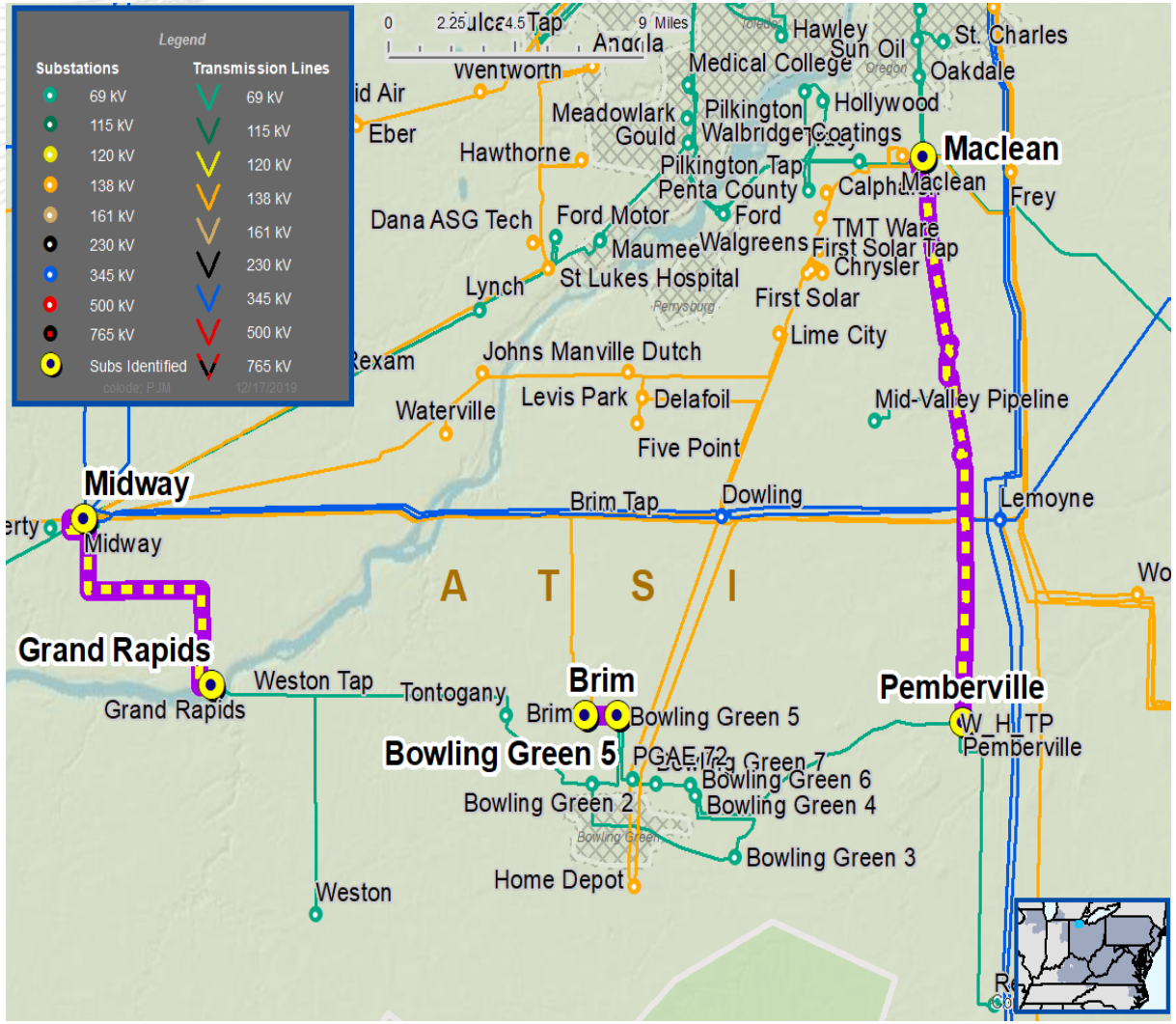
Process Stage: First Review
Criteria: TO Planning Criteria
Assumption Reference: AMPT FERC 715
Model Used for Analysis: RTEP 2024 Summer
Proposal Window Exclusion: FERC 715 (TO Criteria), Below 100kV

Problem Statement:
The transmission system in and around the area of Bowling Green OH, is currently arranged as a three source network. The sources are Midway – Grand Rapids 69kV, Brim - Bowling Green Sub 5 69kV, and Maclean – Pemberville 69kV. Thermal overloads and voltage violations (see next slide) have been identified on the 69kV in the area of bowling green and Pemberville during the N-1-1 loss of Brim – Bowling Green Substation #5 69kV line, combined with either the loss of the Midway – Grand Rapids 69kV or Maclean – Pemberville 69kV line.

Proposed Solution:
Establish a new 138/69kV substation. Install one 138kV circuit breaker, one 138/69kV 130 MVA Transformer, three 69kV circuit breakers. Construct a 0.15 mile 138kV 795 ACSR transmission line between the FE Brim 138/69kV substation and the newly proposed AMPT substation (three steel poles). Loop the Bowling Green Sub #5 – Bowling Green Sub #2 69kV line in and out of the newly established substation.

Alternatives: Loop the 69kV transmission BG Sub5 – BG Sub 2 69kV line in and out of the Brim Substation. Install a second 138/69kV transformer and install a four breaker 69kV ring. Alternative was not utilized due to City's need for a 138 kV source to serve anticipated load growth starting in 2021.

Total Estimated Transmission Baseline Cost: $5.7M
Required IS Date: 6/1/2024



N-1-1 violations in Bowling Green Area:

- Loss of Midway – Grand Rapids 69kV and Loss of Brim – Bowling Green Substation #5 results in:
  - Thermal Overloads
    - Bowling Green Substation #4 – Bowling Green Hancock Wood 69kV Line - 138%
    - Bowling Green Hancock Wood – Pemberville 69kV Line – 100%
    - Pemberville 69/34.5kV Transformer – 167%
    - Maclean – Mid Valley Pipe 2 69kV Line - 105%
  - Voltage Magnitude Violations

Bus	PEMB M	W-H TP	BG4	B10	BG6	BG7	PGE	BG5	BG3	BG2	TNTGON	WESTON	GRNDRP
Voltage (PU)	0.91	0.85	0.84	0.83	0.83	0.82	0.82	0.82	0.82	0.81	0.81	0.80	0.80

- Loss of Pemberville – Bowling Green Hancock Wood 69kV Line and Loss of Brim – Bowling Green Substation #5 results in:
  - Thermal Overloads
    - Bowling Green Substation #2 – Tontogany 69kV Line – 136%
    - Midway – Grand Rapids 69kV Line - 119
  - Voltage Magnitude Violations

Bus	W-H TP	BG4	B10	BG6	BG7	PGE	BG5	BG3	BG2	TNTGON	WESTON	GRNDRP
Voltage (PU)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.76	0.79	0.86	0.890

- Loss of Pemberville - Maclean 69kV Line and Loss of Brim – Bowling Green Substation #5 results in:
  - Thermal Overloads
    - Bowling Green Substation #2 – Tontogany 69kV Line – 119%
    - Pemberville 69/34.5kV transformer – 221%
  - Voltage Magnitude Violations

Bus	W-H TP	BG4	B10	BG6	BG7	PGE	BG5	BG3	BG2	TNTGON	WESTON	GRNDRP
Voltage (PU)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.76	0.79	0.86	0.890

- Loss of Weston - Tontogany 69kV Line and Loss of Weston - Tontogany 69kV Line results in:
  - Thermal Overloads
    - Bowling Green Substation #4 – Bowling Green Hancock Wood 69kV Line - 138%
    - Bowling Green Hancock Wood – Pemberville 69kV Line – 100%
    - Pemberville 69/34.5kV Transformer – 167%
  - Voltage Magnitude Violations

Bus	W-H TP	BG4	B10	BG6	BG7	PGE	BG5	BG3	BG2	TNTGON
Voltage (PU)	0.91	0.90	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.89

Recommended Solution

Baseline Reliability Projects

AEP Transmission Zone: Baseline
Decatur, Indiana

Process Stage: Recommended Solution
Criteria: TO Planning Criteria
Assumption Reference: FERC 715
Model Used for Analysis: 2024 RTEP Summer
Proposal Window Exclusion: FERC 715

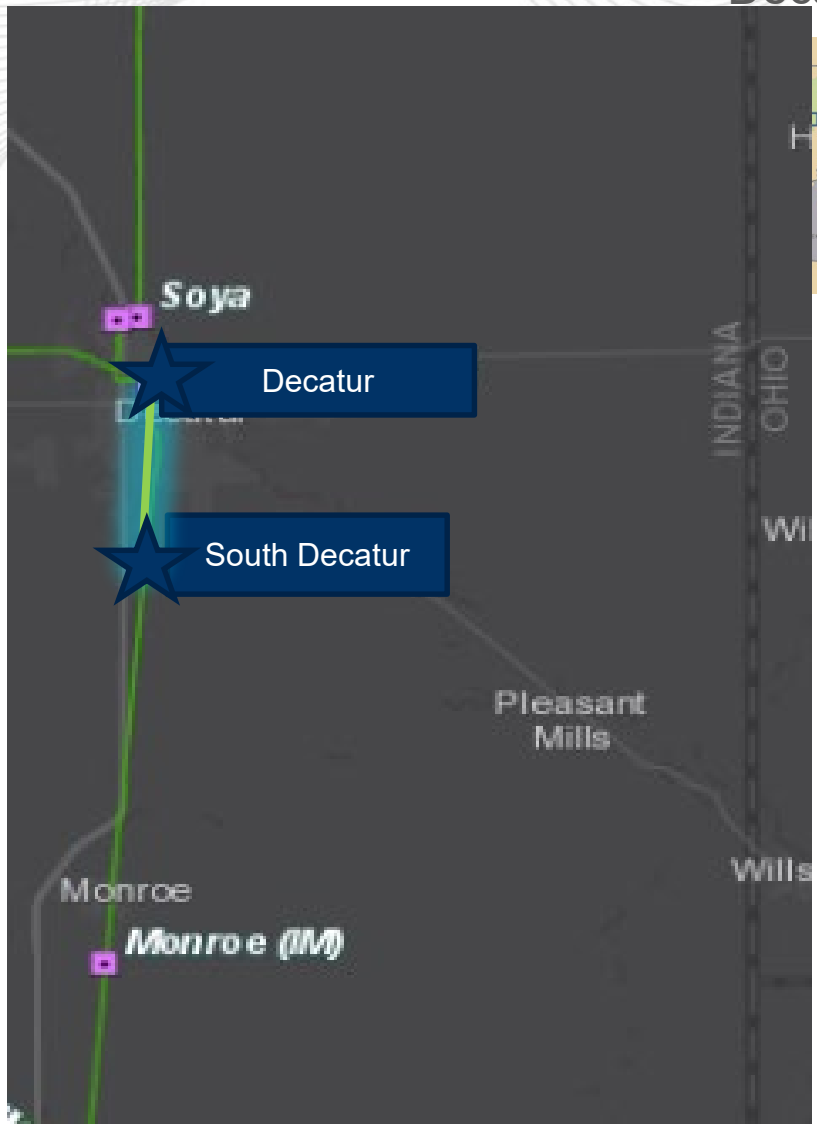
Problem Statement:
For loss of Marathon – Limberlost 69kV and Adams – Berne 69kV, the Decatur – South Decatur 69kV circuit overloads to 112% of the 50MVA 4/0 ACSR line conductor rating

Existing Facility Rating: 50/50/63/63 MVA for SN/SE/WN/WE

Preliminary Facility Rating: 82/90/107/113 MVA for SN/SE/WN/WE

Recommended Solution:
Decatur – South Decatur 69kV line
(B3149) Rebuild the 2.3 mile Decatur – South Decatur 69kV line using 556 ACSR in order to alleviate the overload.

Estimated Cost: $9.3M
Required IS Date: 6/1/2024
Projected IS Date:10/15/2021
Previously Presented: 11/22/2019



AEP Transmission Zone: Baseline
Ft Wayne, Indiana

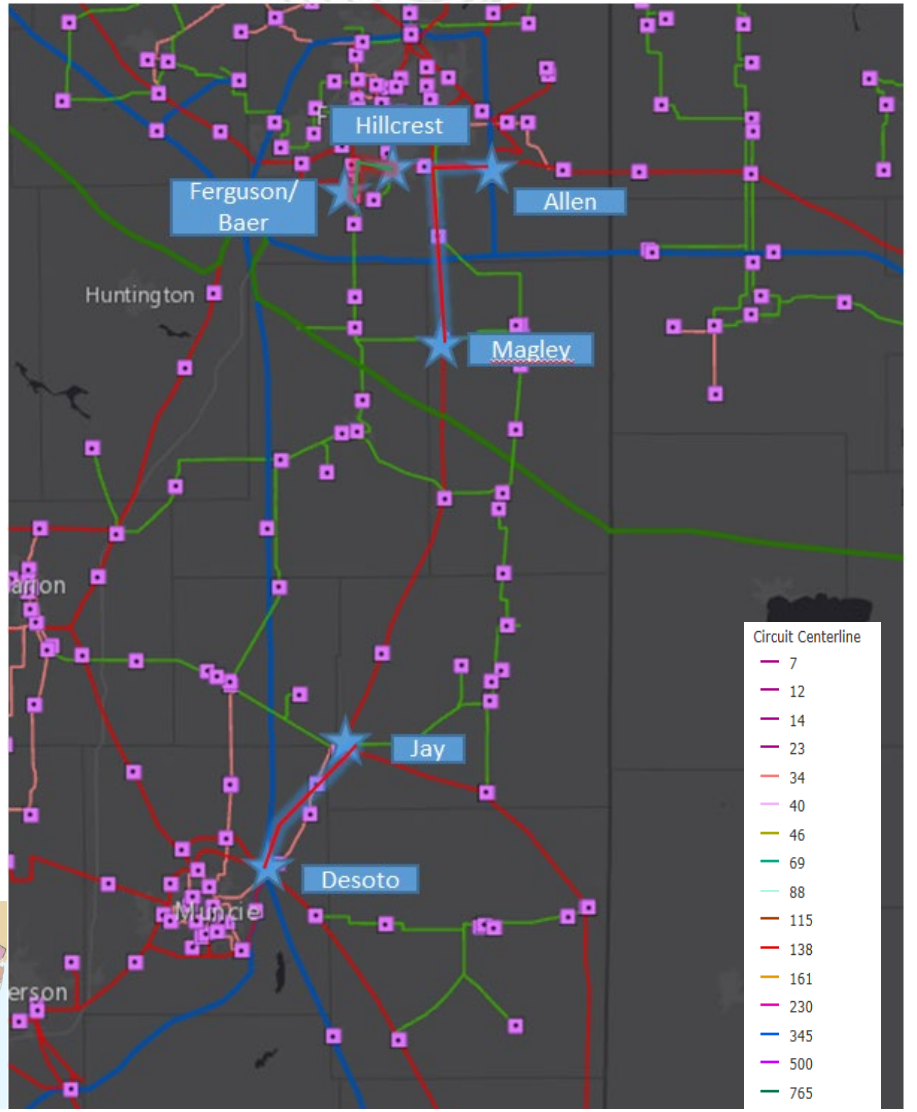
Process Stage: Recommended Solution
Criteria: TO Planning Criteria
Assumption Reference: FERC 715
Model Used for Analysis: 2024 RTEP Summer
Proposal Window Exclusion: FERC 715
Problem Statement:
For loss of Desoto – Jay 138kV and Magley – Allen 138kV, Hillcrest – Ferguson 69kV overloads to 107.7% of the 54MVA 4/0 CU conductor rating. The line is also overloaded for multiple other contingency pairs.

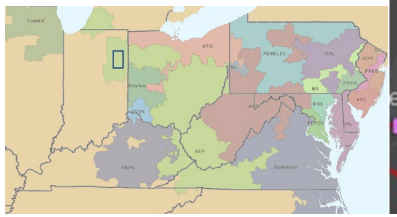
Existing Facility Rating: N/A

Preliminary Facility Rating: 323/451/408/506 MVA for SN/SE/WN/SE for 05BAER – Cut in point of the Aviation- Ellison Rd 138kV line

Recommended Solution:
Baer/Ferguson station
(B3150) Rebuild Ferguson 69/12kV station in the clear as the 138/12kV Baer station and connect it to a ~1 mile double circuit 138kV extension from the Aviation – Ellison Rd 138kV line to remove the load from the 69 kV line.

Total Estimated Transmission Cost: $6.4M
Required IS Date: 6/01/2024
Projected IS Date:10/1/2023
Previously Presented: 11/22/2019





AEP Transmission Zone: Baseline Western Fort Wayne Improvements

Process Stage: Recommended Solution

Criteria: TO Planning Criteria

Assumption Reference: FERC 715

Model Used for Analysis: 2024 RTEP Summer

Proposal Window Exclusion: FERC 715

Problem Statement:

For the N-1-1 loss of Saturn – Sorenson 138kV and Columbia 138/69kV XFR 2 the following issues occur:

- 123.6% overload of the Carroll – Churubusco 34.5kV 17MVA limit (1/0 CU conductor)
- The area experiences voltage violations with voltages as low as .839 pu and voltage drops as high as 13% at the Whitley 34.5kV bus and affects the following load serving buses. Whitley 34.5kV, Union 34.5kV, Ummel 69kV, Tri-Lake 69kV, Richland 69kV, Eel River 34.5kV, Cleveland 69kV, Churubusco 34.5kV and Carrol 34.5kV.

For the N-1-1 loss of Saturn – Columbia 138kV and Gateway 69/34kV XFR (knocks out Gateway 69kV bus) the following issues occur:

- 149.3% overload of the Carroll – Wallen 34.5kV 17MVA limit (1/0 CU conductor); 106% overload of Churubusco – Whitley's 34.5kV 17MVA limit (1/0 CU conductor); 167.0% overload of the Carroll – Churubusco 34.5kV 17MVA limit (1/0 CU conductor)
- The area experiences voltage violations with voltages as low as .66 pu and voltage drops as high as 27% at the Whitley 34.5kV bus and affects the following load serving buses. Whitley 34.5kV, Union 34.5kV, Eel River 34.5kV, Churubusco 34.5kV and Carrol 34.5kV.

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AEP Transmission Zone: Baseline Western Fort Wayne Improvements

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For the N-1-1 loss of Saturn – Columbia 138kV and Illinois Road 138/69 XFR (knocks out Illinois Road 69kV bus) the following issues occur:

- 108.2% overload of the Carroll – Churubusco 34.5kV 17MVA limit (1/0 CU conductor); 103% overload of the 138/69kV XFR 2 at Columbia station.
- The area experiences voltage violations with voltages as low as .866 pu and voltage drops as high as 8.9% at the Whitley 34.5kV bus and affects the following load serving buses. Whitley 34.5kV, Ummel 69kV, Tri Lake 69kV, Richland 69kV, LincolnWay 69kV, Gateway 69kV, Cleveland 69kV and Churubusco 34.5kV

For the N-1 loss of Columbia 138kV breaker "D":

- 132.4% overload of the Wallen – Carroll 34.5kV 17MVA limit (1/0 CU conductor);
- The Whitley 34.5 experiences a voltage of .906 with a Vdrop of 8.2%

For the N-1-1 loss of Rob Park 138/69/34.5kV XFR 4 and Wallen 138/69/34.5kV XFR 2 the following issues occur.

- 108.3% overload of the St Joe – Vulcraft 69kV 50MVA limit (4/0 ACSR)
- The area experiences voltage violations with voltages as low as .82 pu and voltage drops as high as 19.2% at the Perry 69kV bus and affects the following load serving buses. Perry 69kV, Woodland 69kV, Harlan 69kV and Diebold 69kV.

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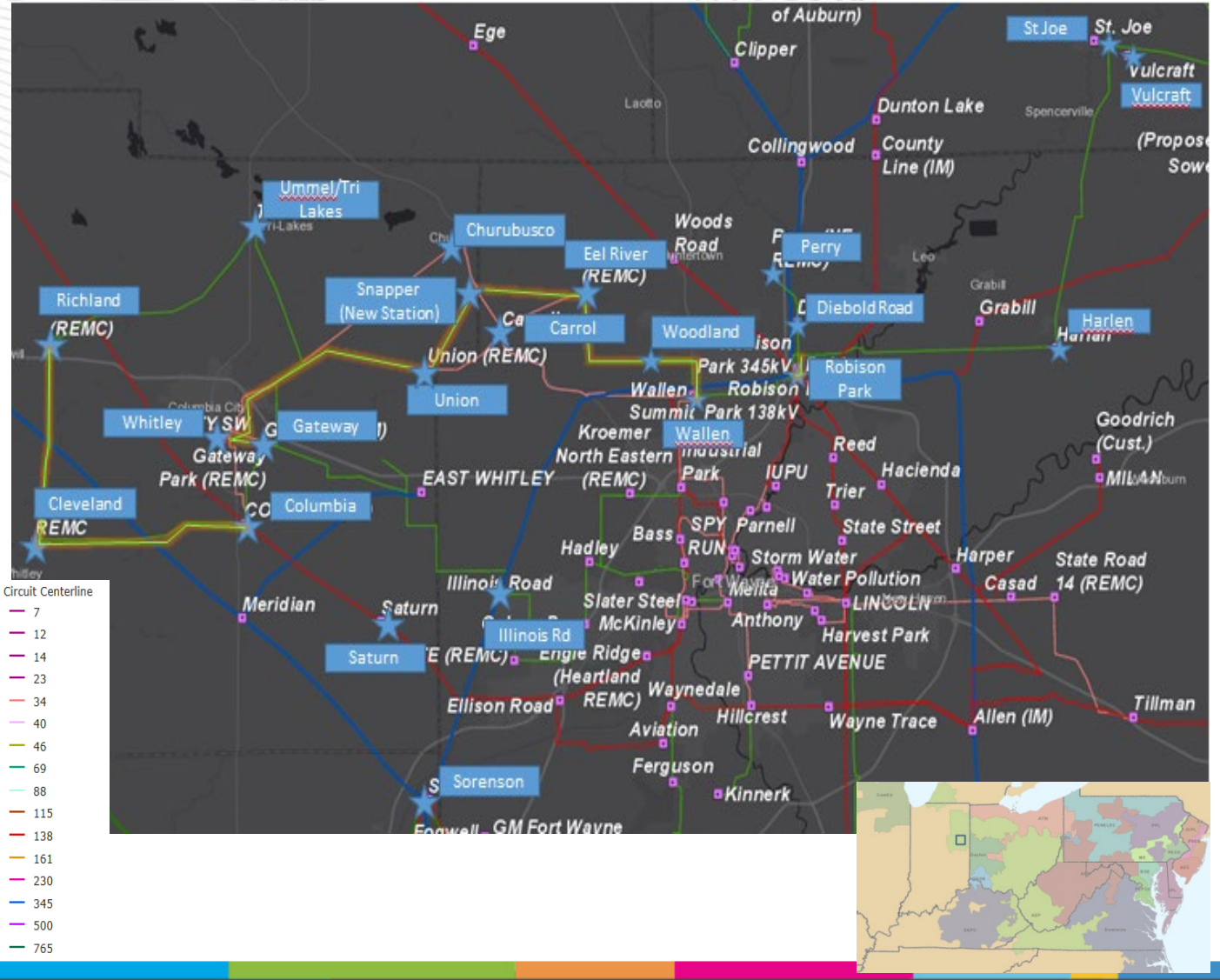

AEP Transmission Zone: Baseline Western Fort Wayne Improvements

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For the N-1-1 loss of Northeast – Columbia 138kV and Illinois Road – Gateway 69kV the following issues occur:

- 134.7% overload of the Carroll – Churubusco 34.5kV 17MVA limit (1/0 CU conductor); 138.6% overload of the 138/34kV XFR 1 at Columbia station; 205.5% overload of the Columbia – Whitley 34.5kV 25MVA limit (4/0 ACSR); 128.9% overload of the Gateway – Whitley 34.5kV 35MVA limit (4/0 CU Riser, 336.4 ACSR is also overloaded); and a 150.2 % overload of the Wallen – Carroll 34.5kV 17MVA limit (1/0 CU conductor)
- The area experiences voltage violations with voltages as low as .597 pu and voltage drops as high as 39.1% at the Richland 69kV bus and affects the following load serving buses. Carroll 34.5kV, Churubusco 34.5kV, Cleveland 69kV, Eel River 34.5kV, Gateway 69kV, Richland 69kV, Tri-Lake 69kV, Ummel 69kV, Union 34.5kV and Whitley 34.5kV.

For the N-1 loss of Wallen – Carroll 34.5kV

- The area experiences voltage violations with voltages as low as .88 pu and voltage drops as high as 10.0% at the Carroll 34.5kV, Churubusco 34.5kV, Eel River 34.5kV and Union 34.5kV busses.

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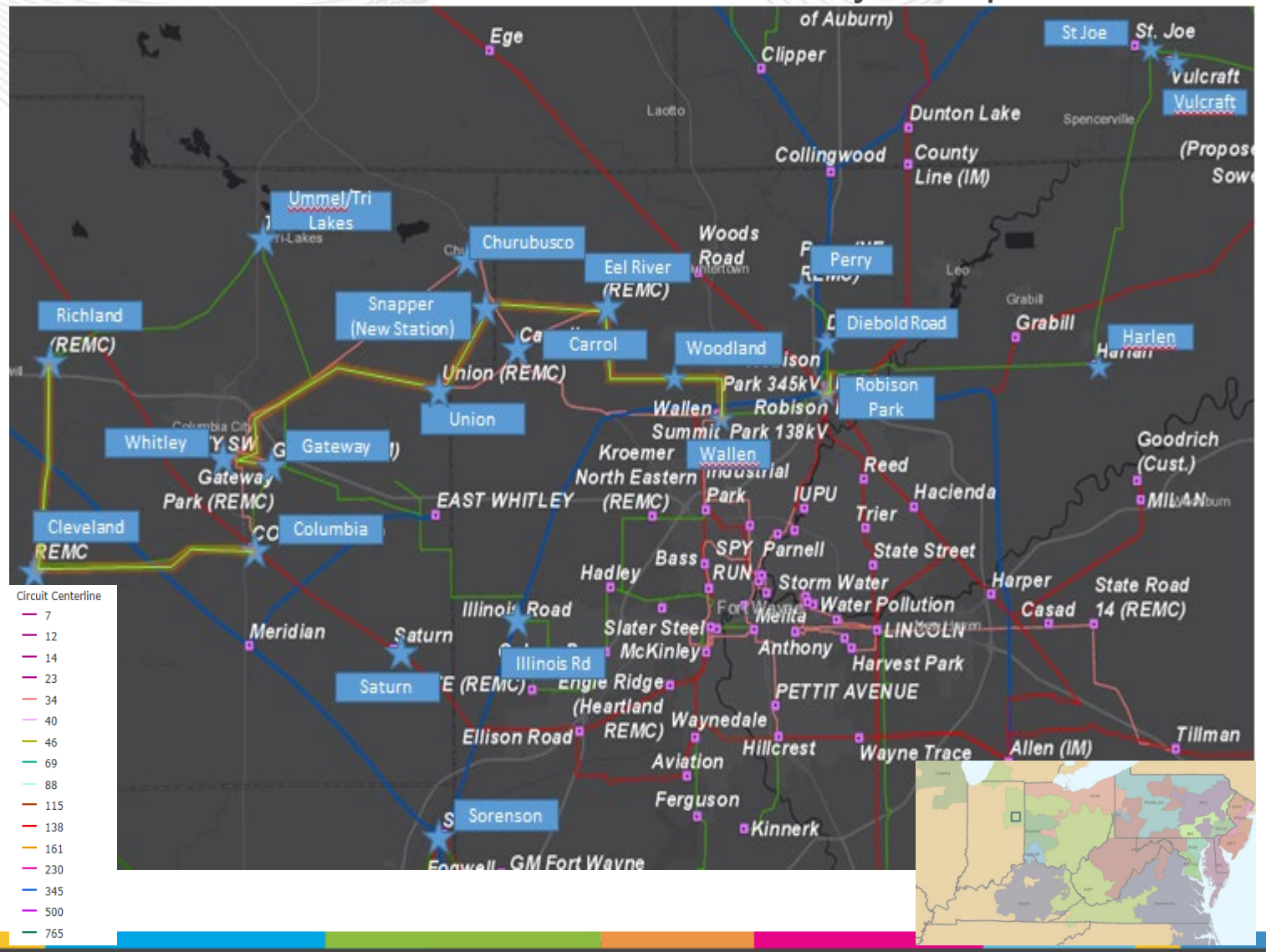

AEP Transmission Zone: Baseline Western Fort Wayne Improvements

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For the N-1-1 loss of Saturn – Sorenson 138kV and Gateway 69/34.5kV Transformer (knocks out the 69kV bus) the following issues occur:

- The area experiences voltage violations with voltages as low as .897 at Richland 69kV, Tri-Lake 69kV and Ummel 69kV

For the N-1-1 loss of Saturn – Sorenson 138kV and Columbia XFR 2 the following issue occurs:

- The Whitley bus drops to .906 PU

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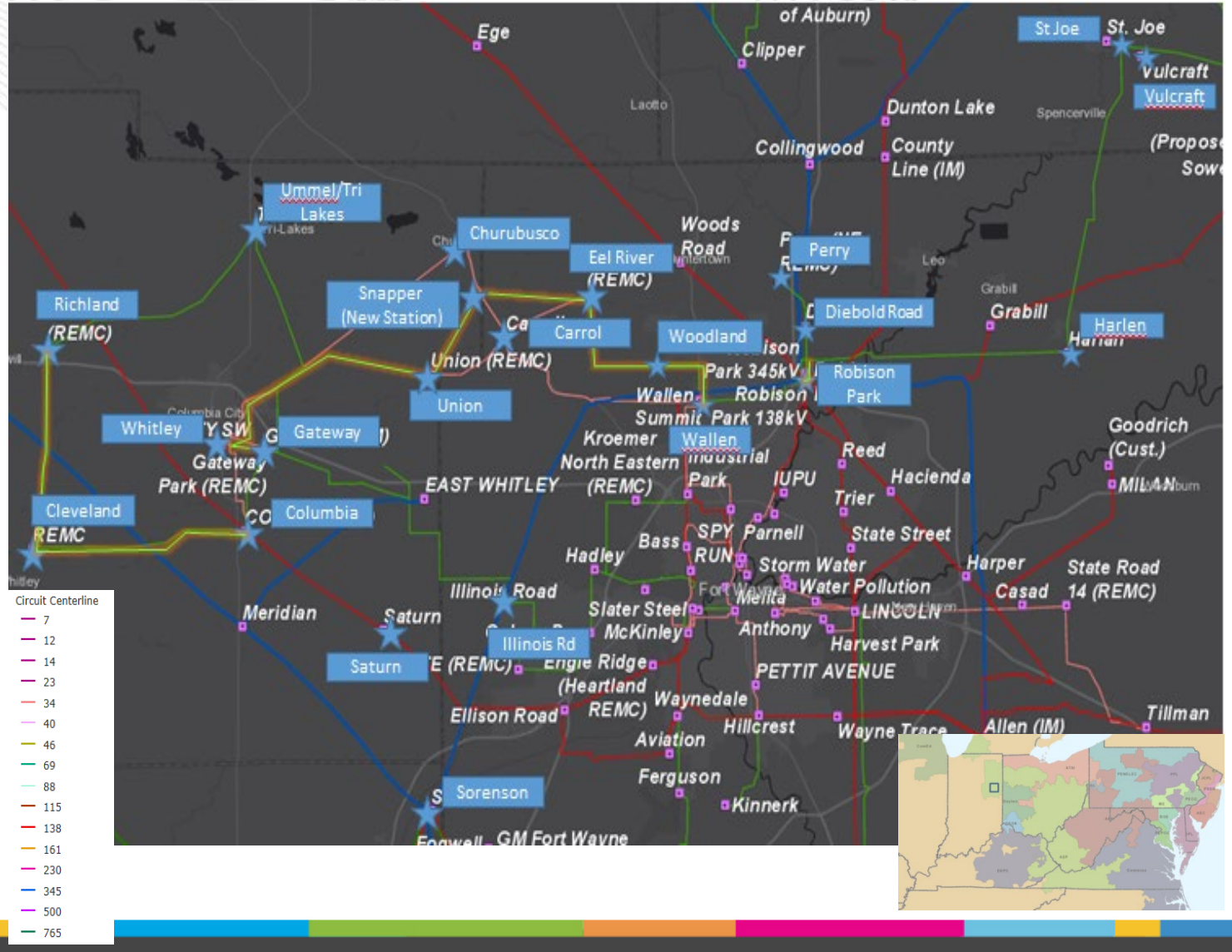

AEP Transmission Zone: Baseline Western Fort Wayne Improvements

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Existing Facility Rating:

Gateway-Whitley 34.5kV circuit: 27/35/36/41 MVA for SN/SE/WN/WE

Whitley-Churubusco-Carroll-Wallen34.5kV circuit: 17/17/24/24 for SN/SE/WN/WE

Columbia 138/69/34.5kV transformer: 67/74/67/74 MVA for SN/SE/WN/WE

Columbia – Gateway 69KV circuit: 75/75/94/94 MVA for SN/SE/WN/WE

Columbia – Clevland – Richland 69KV circuit:34/34/42/42 MVA for SN/SE/WN/WE

Diebold – Robison NP 69KV circuit: 50/50/63/63 MVA for SN/SE/WN/WE

Preliminary Facility Rating:

Gateway - Whitley – Union8 SS – Snapper – Eel RV8 SS – Bobay SS - Wallen 69kV circuit: 102/102/129/129 MVA for SN/SE/WN/WE

Columbia 138/69kV transformer #1 and #2: 90/90/90/90 MVA for SN/SE/WN/WE

Columbia – Gateway 69KV circuit:102/102/129/129 MVA for SN/SE/WN/WE

Columbia – Clevland – Richland 69KV circuit:102/102/129/129 MVA for SN/SE/WN/WE

Diebold – Robison NP 69KV circuit:102/102/129/129 MVA for SN/SE/WN/WE

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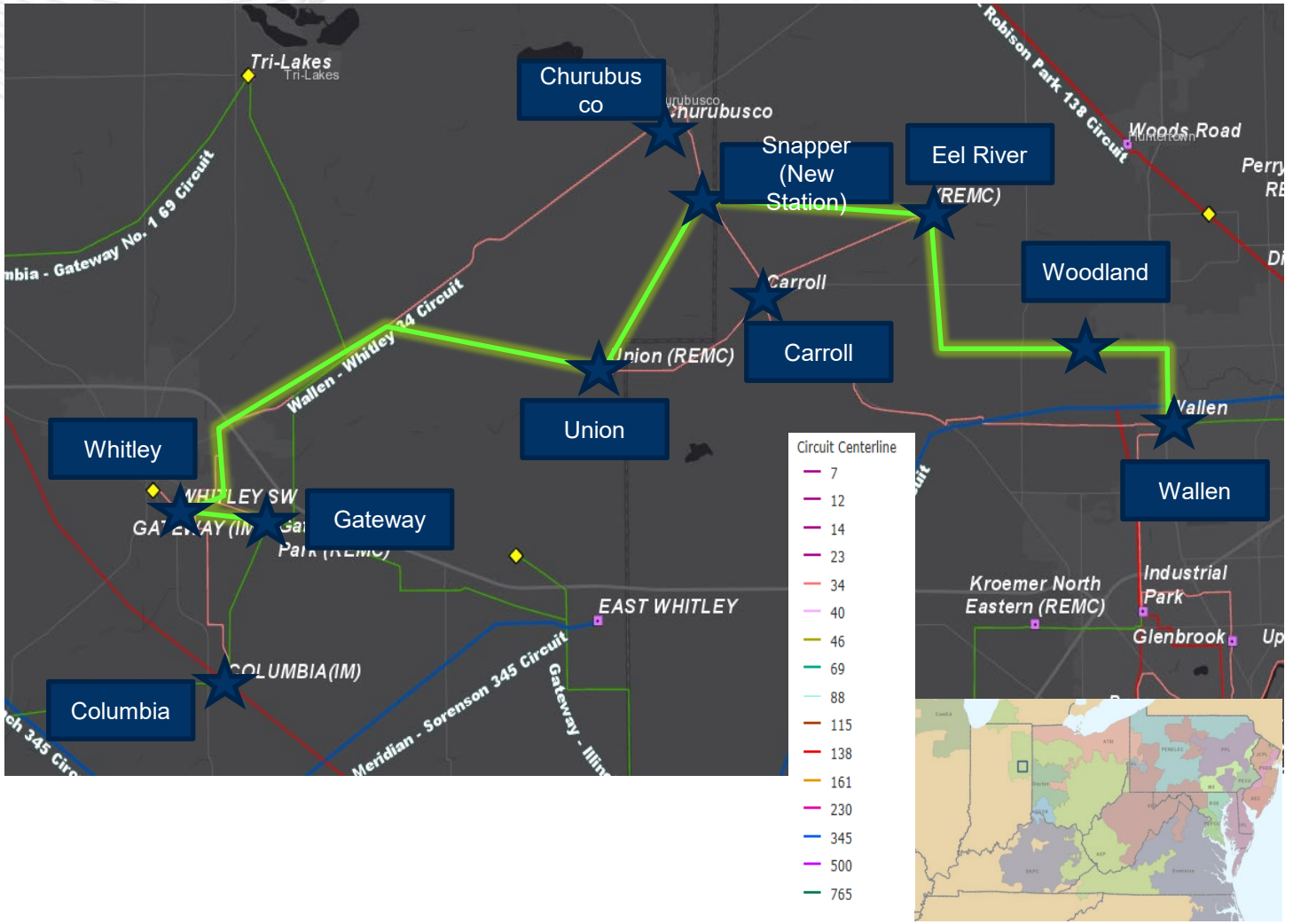

AEP Transmission Zone: Baseline Western Fort Wayne Improvements

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Recommended Solution:

(B3151.1) Rebuild the ~30 mile Gateway – Wallen 34.5kV circuit as the ~27 mile Gateway – Wallen 69kV circuit.
Estimated Cost: $43.3M

(B3151.2) Retire the ~3 miles Columbia – Whitley 34.5kV line.
Estimated Cost: $0.5M

(B3151.3) At Gateway station, remove all 34.5kV equipment and install a 69kV CB for the new Whitley line entrance.
Estimated Cost: $1M

(B3151.4) Rebuild Whitley as a 69kV station with 2 line CB's and a bus tie CB. **Estimated Cost: $4.2M**

(B3151.5) Replace the Union 34.5kV Switch with a 69kV Switch structure. Estimated **Cost: $0.6M**

(B3151.6) Replace the Eel River 34.5kV Switch with a 69kV Switch structure. Estimated **Cost: $0.6M**

(B3151.7) Install a 69kV Bobay Sw at Woodland Station.
Estimated Cost: $0.6M

(B3151.8) Replace Carroll and Churubusco 34.5kV stations with the 69kV Snapper station. Snapper will have 2 line CB's, a bus tie CB and a 14.4 Mvar cap bank. **Estimated Cost: $8.7M**

(B3151.9) Remove 34.5 kV CB AD at Wallen station.
Estimated Cost: $0.3M

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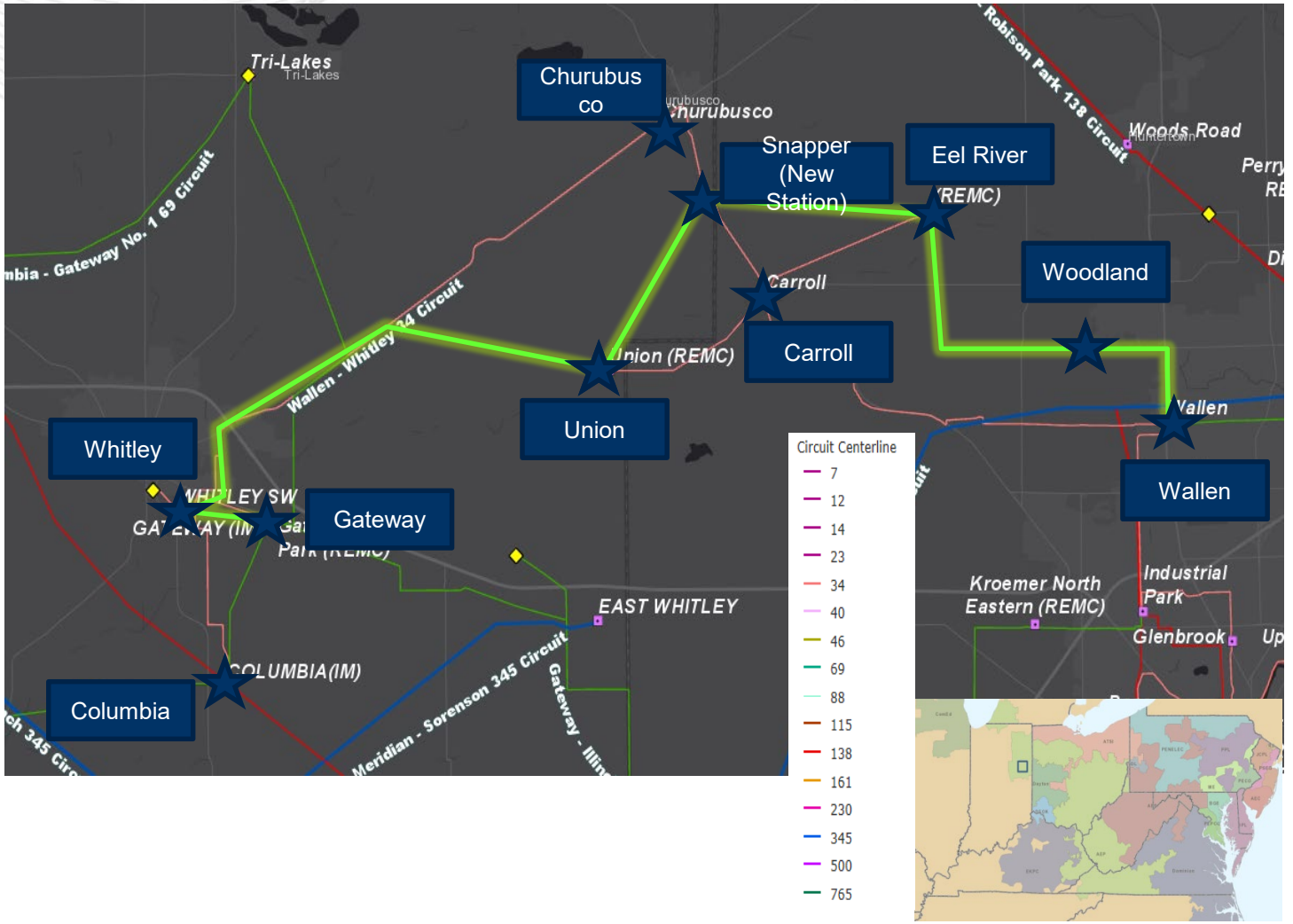


AEP Transmission Zone: Baseline Western Fort Wayne Improvements

Continued from previous slide…

Proposed Solution:

(B3151.10) Rebuild the 2.5 mile Columbia – Gateway 69kV line.
Estimated Cost: $6.2M

(B3151.11) Rebuild Columbia station in the clear as a 138/69kV station with 2 138/69kV XFR's and a 4 CB ring on the high and low side. Station will re-use breaker's 69kV breakers "J", "K" and 138kV breaker "D".
Estimated Cost: $15M

(B3151.12) Rebuild the 13 mile Columbia – Richland 69kV line.
Estimated Cost: $29.3M
(B3151.13) Rebuild the .5 mile Whitley – Columbia city 1 line as 69kV.
Estimated Cost: $1.0M
(B3151.14) Rebuild the .5 mile Whitley – Columbia city 2 line as 69kV.
Estimated Cost: $0.7M

(B3151.15) Rebuild the .6 mile double circuit section of the Rob Park – South Hicksville/Rob Park – Diebold Road as 69kV.
Estimated Cost: $1.0M

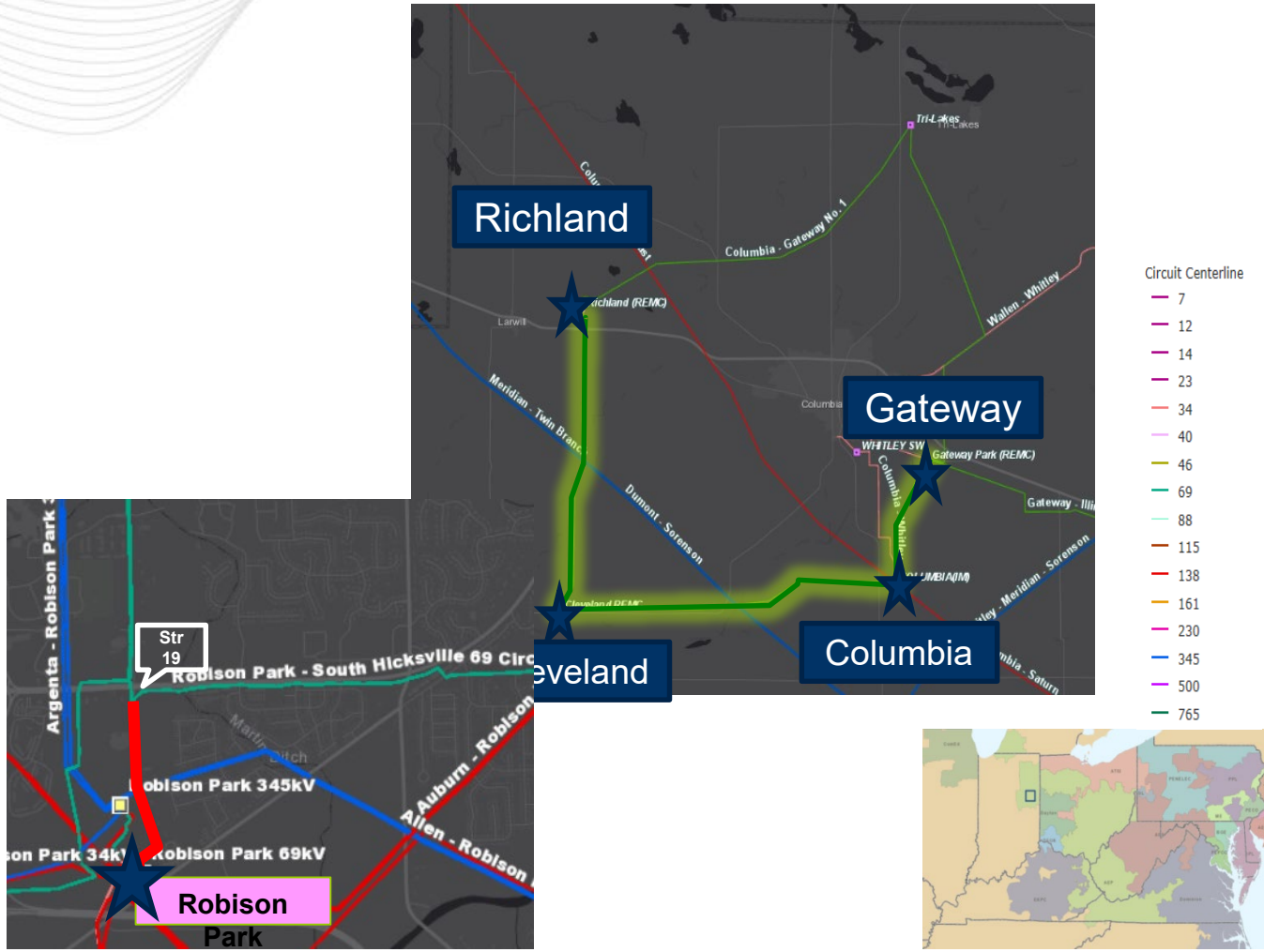
Total Estimated Transmission Cost: $113M

Ancillary Benefits: This project addresses the asset renewal needs presented as need number AEP-2019-IM020 presented on 11/22/2019

Required In Service Date: 6/1/2024

Projected IS Date: 3/4/2022

Previously Presented: 11/22/2019



AMPT: Baseline Amherst

Process Stage: Recommended Solution

Criteria: TO Planning Criteria

Assumption Reference: FERC 715

Model Used for Analysis: RTEP 2024 Summer Base Case

Proposal Window Exclusion: FERC 715 (TO Criteria)

Problem Statement: Amherst #2 – Amherst #1 – Nordson Line Tap topology violates AMPT TO Criteria for Single point radial exposure (Currently 39.29 MW-mile, Limit is set to 30 MW-mile in AMPT TO guidelines). Note: ATSI-2019-004 (added to local plan 10/2019) revises the MW-Mile calculation, violation still valid)

Existing Facility Rating: N/A

Proposed Solution:

Construct a greenfield 0.3 mile 138kV double circuit line tapping the Beaver-Black River (ATSI) 138 kV line; Install five monopole 138kV double circuit steel structures with concrete foundations and string 1590 ACSR conductor. ($1.3M)
Expand the Amherst #2 Substation with the installation of three 138kV circuit breakers; one138/69/12kV 130 MVA transformers; two 69kV circuit breaker ($5.7M).
Install One 69kV breaker towards Nordson ($0.5M)

Estimated Cost: $ 7.5M

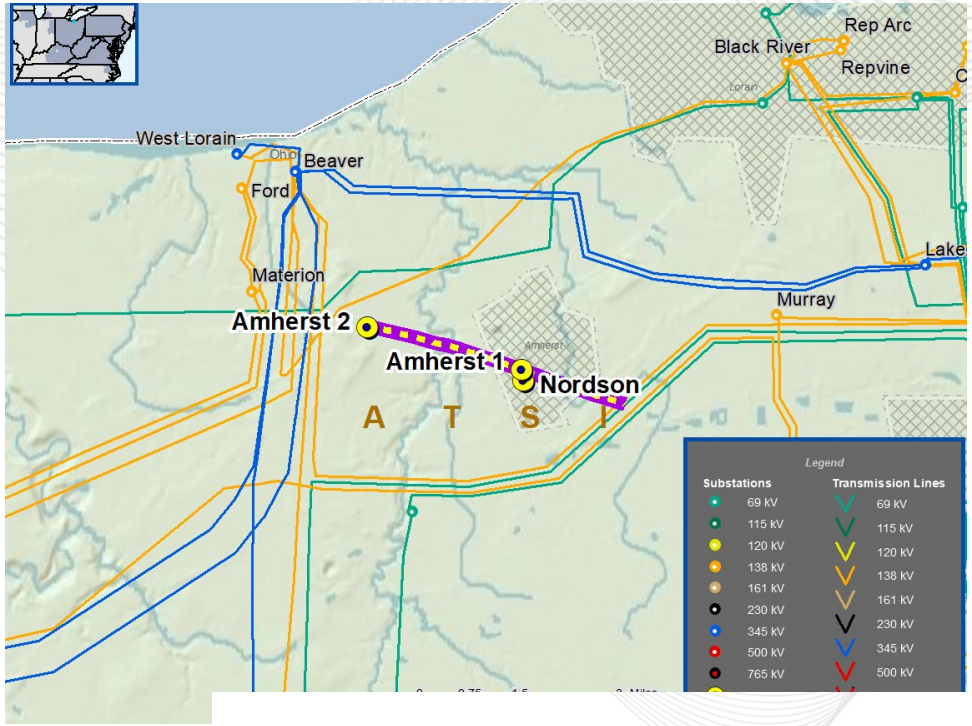
Alternatives:

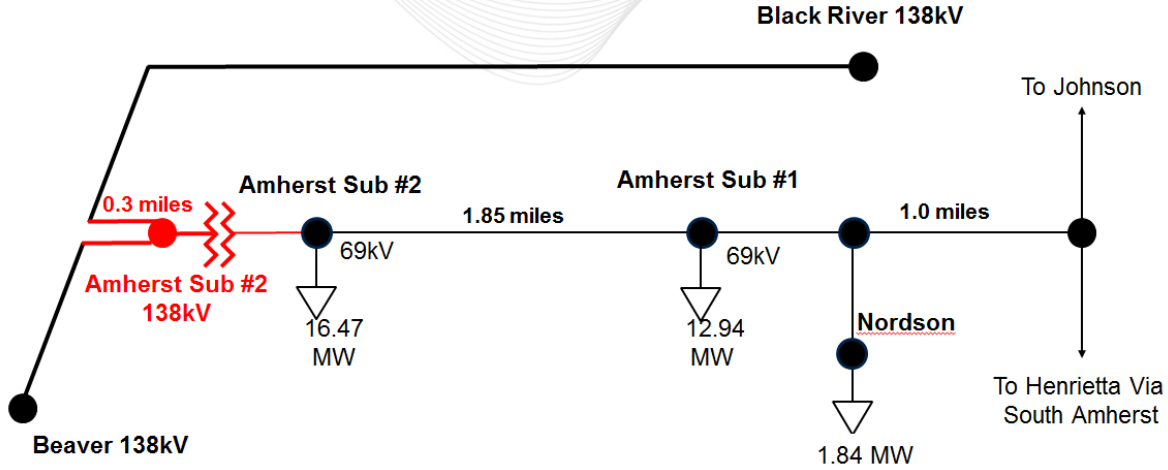
1) Rebuild existing 69 kV line to double ckt - $9.6M

2) New Amherst 2 – South Amherst 69 kV line – $10.7M

3) Same as proposed w/ different route - $8.4M

Required In-Service: 6/1/2020





Next Steps

Upcoming Western SRRTEP Dates

West	Start	End
1/16/2020	9:00	1:00

Questions?

Revision History

12/11/2019 – V1 – Original version posted to pjm.com

12/17/2019 – V2 – Added Slide #11

12/17/2019 – V3 – Updated map for Slide #7

12/19/2019 – V4 – Slides #12-22, changed Frist Read Review to “Recommended Solution”

–Slides #24, changed next meeting dates to 1/17/202

– Slides #7, fixed the typo “Simplicitz” to “Simplicity”

– Added Slide #12, which combined a separate presentation including bowling green overloads

-- Slide #25, corrected date of next meeting