Sub Regional RTEP Committee
Western Region
Dayton

February 20, 2019

Dayton 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

Dayton Transmission Zone: Supplemental
South Dayton Metro

Need Number: Dayton-2019-002

Process Stage: Needs Meeting

Date: 2/20/2019

Supplemental Project Driver(s):

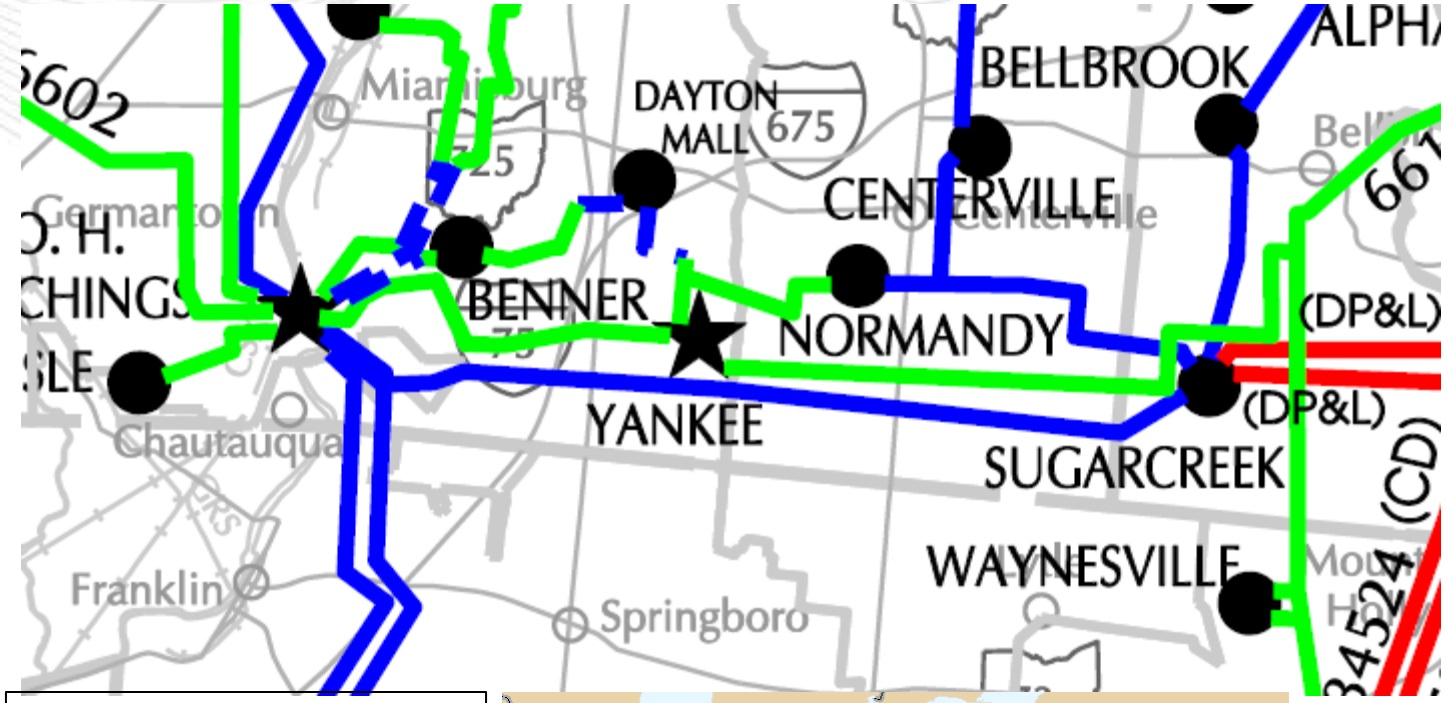
-Source for Underlying Distribution

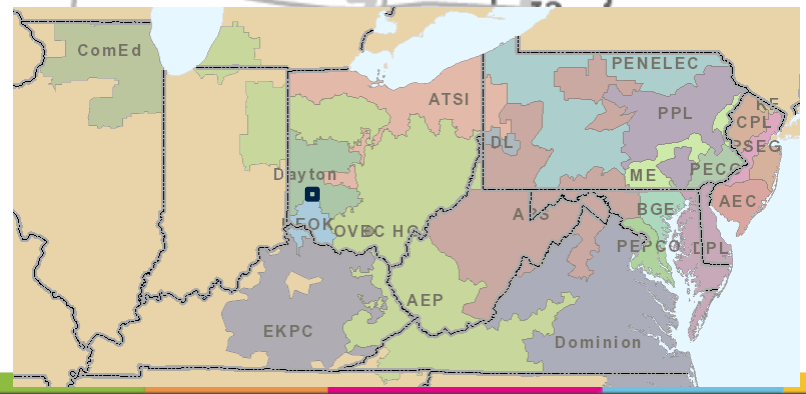
Specific Assumption Reference(s): -

DPL Local Plan Assumptions (Slide 5)

Problem Statement:

- Significant load growth in the area east of I-75 and south of I-675
- Distribution Circuit RH1211 served from Yankee Substation exceeded its thermal rating this past summer and RH1204 from Yankee Substation is approaching its rated capacity. There are no ties in the vicinity of the load center with sufficient capacity to serve growing loads.
- DP&L must develop a solution immediately to have capacity to serve distribution load in this load center or risk overloading existing equipment and not having sufficient distribution capacity to serve growing load. There is a need for a new distribution source closer to the load center.
- DP&L must offload the Yankee and Normandy circuits to ensure sufficient capacity to serve growing load centers in Centerville and Waynesville.





Dayton Transmission Zone: Supplemental Urbana, Ohio

Need Number: Dayton-2019-003

Process Stage: Needs Meeting

Date: 2/20/2019

Supplemental Project Driver(s):

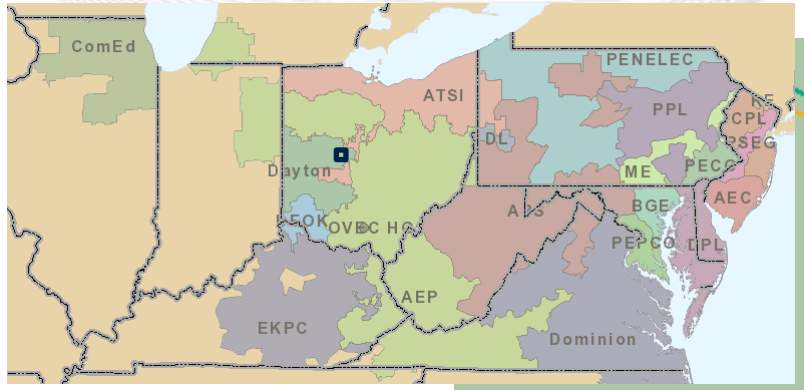
-Source for Underlying Distribution

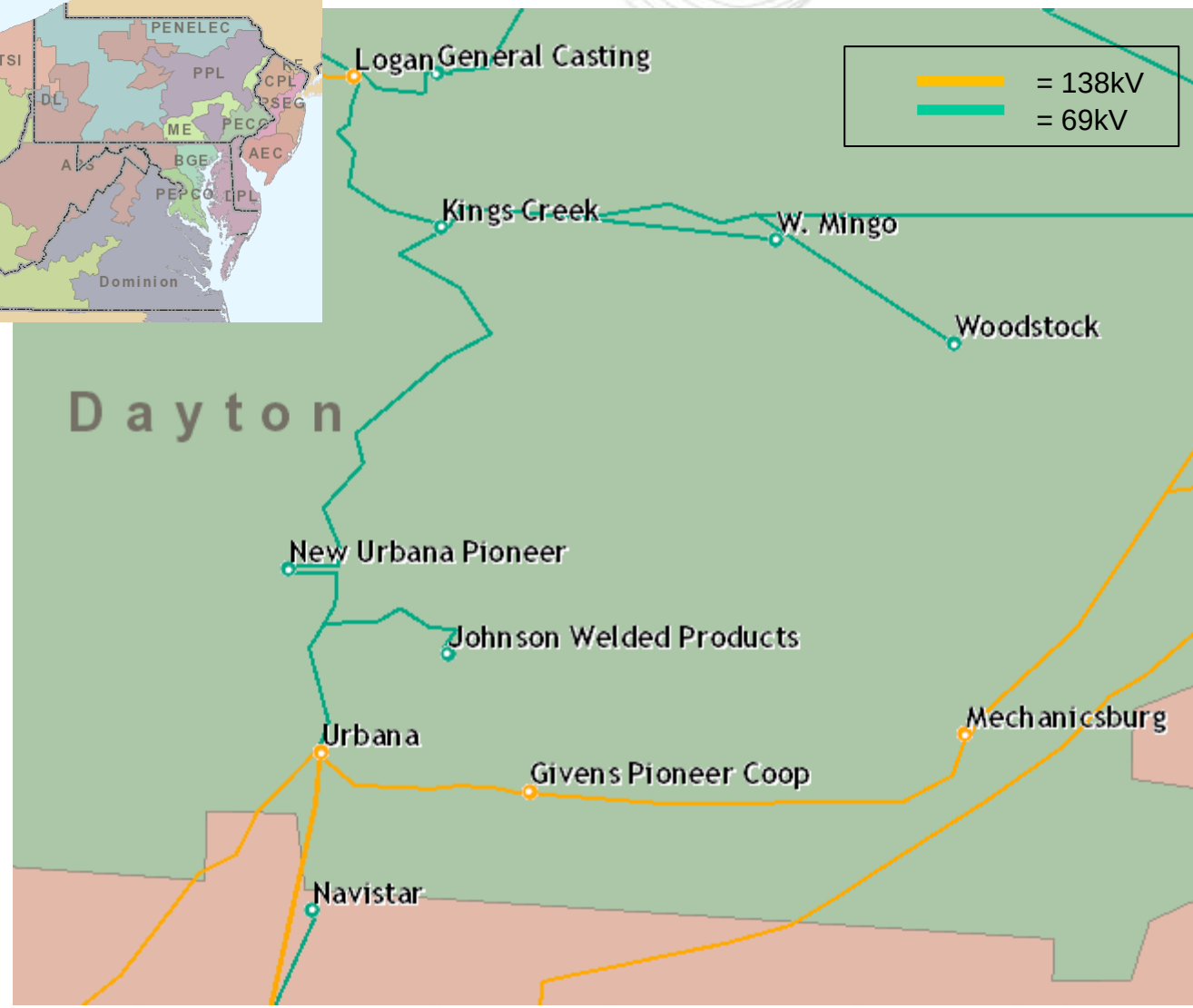
Specific Assumption Reference(s): -

DP&L Local Plan Assumptions (Slide 5)

Problem Statement:

- The loads at the existing Urbana Substation have grown beyond the capacity of the existing distribution transformers and DP&L has utilized a mobile transformer at the Urbana substation to take load off of the distribution banks that would otherwise be pushed beyond their thermal limits.
- The existing Urbana and Kingscreek substations are not centrally located to the growing load center which makes load transfers to and from either sub nearly impossible.
- Distribution 12.47KV circuits DB1205 and DB1206 from Urbana Substation both reached their peak circuit capacities this past summer.
- There is a need for a new distribution source closer to the load center to provide loading relief on the Urbana Substation transformers and circuits.





Dayton Transmission Zone: Supplemental South Dayton Metro

Need Number: DAYTON-2019-004

Process Stage: Needs Meeting

Date: 2/20/2019

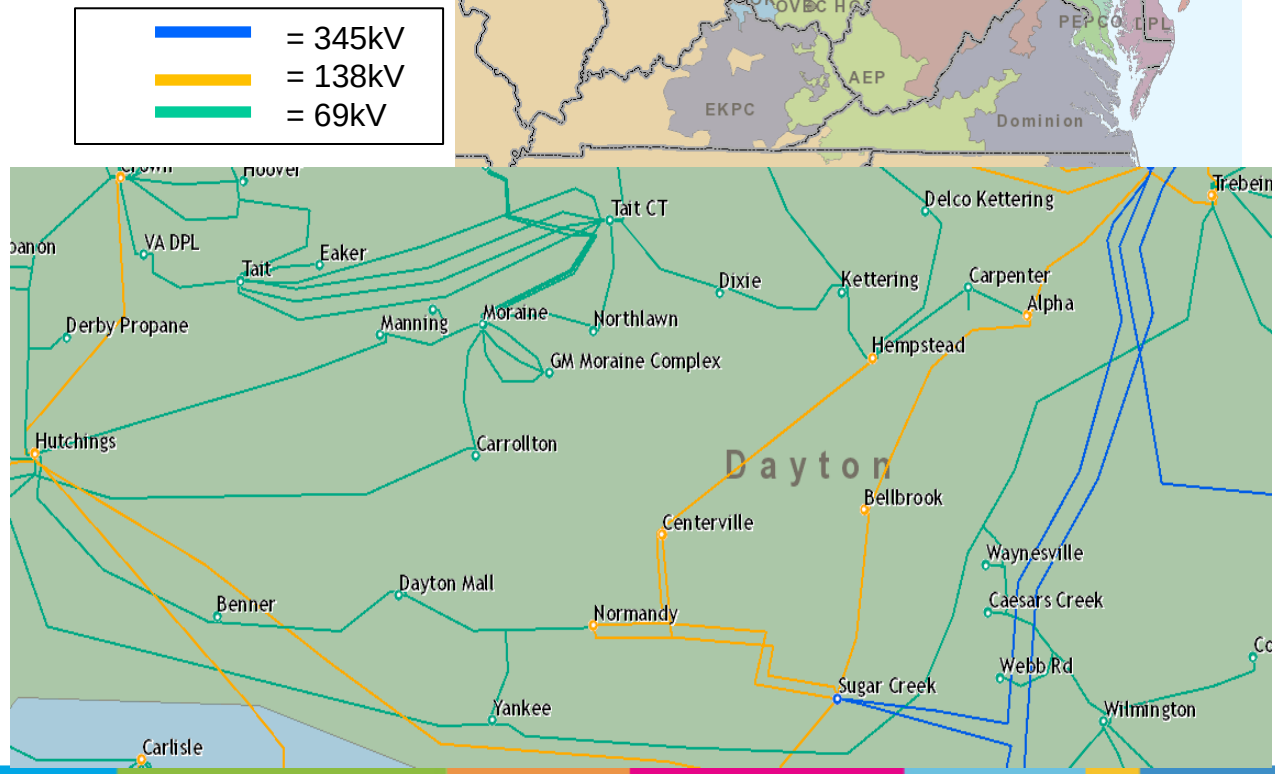
Supplemental Project Driver(s): Operational Performance

Specific Assumption Reference(s):

- DPL Local Plan Assumptions (Slide 5)

Problem Statement:

- The Dayton 138kV system regularly experiences real-time loading issues on the Hutching-Sugarcreek 138kV 13805 line during peak and shoulder peak times. Dayton System Operations works with PJM and frequently switches the Crown 138/69kV transformer out of service to avoid a PCLLRW but in some instances, this is not a possibility. Also, this switching and segmentation of the system is not a good practice for the equipment and reliability of the system. Dayton has a plan to help solve this issue by installing a 138/69kV transformer at Normandy Substation but we have concerns this could shift the operational loading issues from the Sugarcreek-Hutchings 138kV line to the Sugarcreek to Normandy 138kV line with the growth in this area. Also, Normandy Substation has space limitations for a 138kV transformer. If this issue is not addressed immediately, it could lead to more real-time issues and further degradation to the equipment that is switched out in this quickly growing load center.
- In addition to the 138kV loading issues in this area, this growing load center is served by three 69kV sources with limited capacity and a performance issue. These factors make performing regular maintenance more difficult and puts the reliability of the system at risk. In the event of a single outage (planned for maintenance or unplanned due to system events) to one of the three sources, a subsequent 69kV outage would lead to severe reliability implications including loadings in excess of the emergency line ratings. The 6610 Yankee-Caesars-Trebein 69kV line is one of the three 69kV lines supplying the load center and it is a 31 mile line, three terminal line constructed in 1950 with wood poles that has experienced 7 permanent and 16 momentary outages the past 5 years.



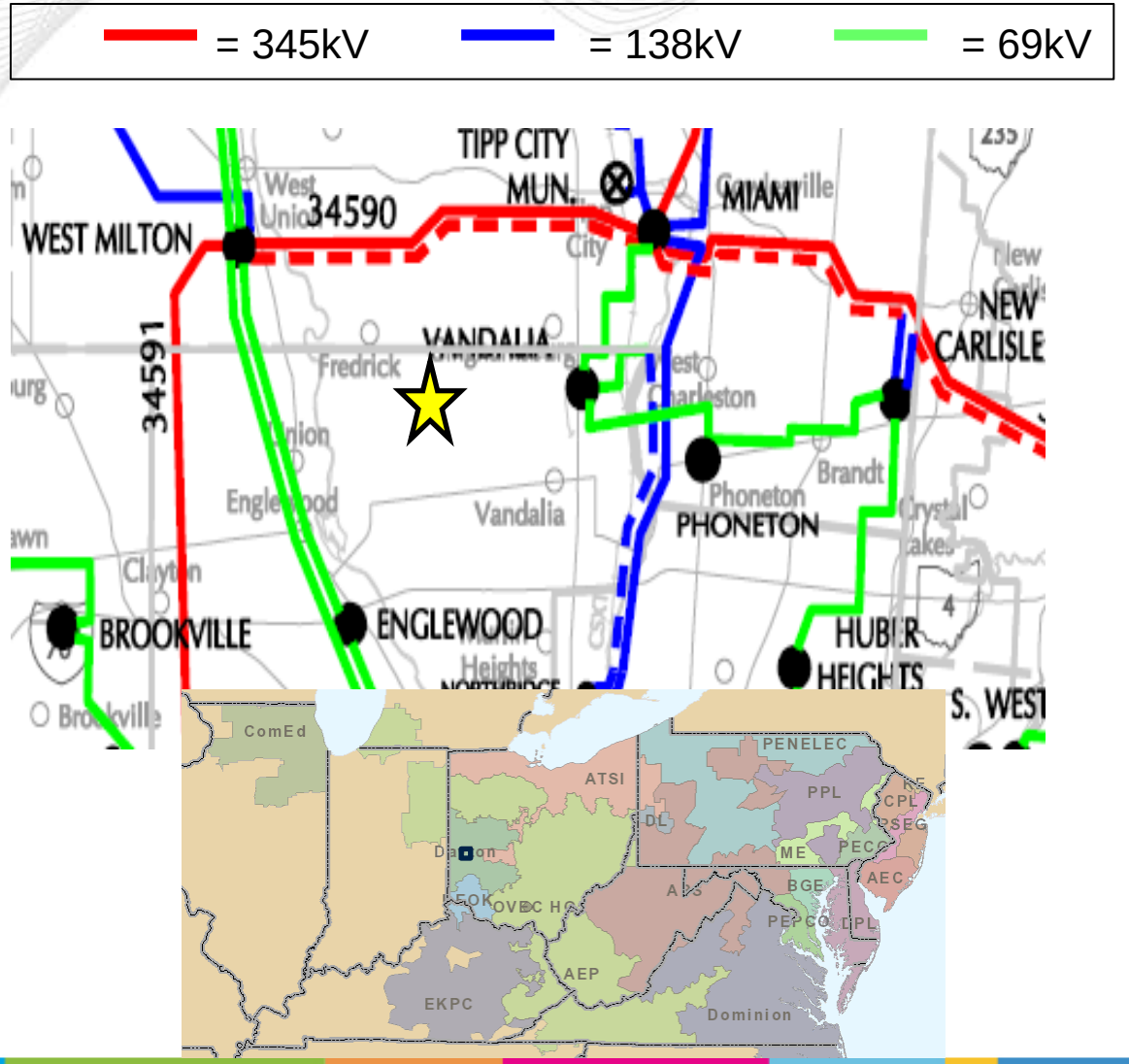
Dayton Transmission Zone: Supplemental
Monroe Township, Ohio

Need Number: Dayton-2019-005
Process Stage: Needs Meeting
Date: 2/20/2019

Supplemental Project Driver(s):
-Source for Underlying Distribution

Specific Assumption Reference(s): -
DPL Local Plan Assumptions (Slide 5)

Problem Statement:
- Existing distribution 12.47KV circuits AZ1210 and AZ1205 from Vandalia Substation exceeded their thermal rating this past summer. There continues to be strong load growth in this area with multiple transmission and distribution customer requests.
- Distribution circuits that supply the growing load center emanate from distant substations and end-use customers are beginning to see voltage issues. Specifically this has been an issue on distribution circuit OC1204 from West Milton.
- There are critical customers served in this area and there is a need to supply sufficient capacity and diversity to ensure continued reliable operations amid the rapid load growth.



Dayton Transmission Zone: Supplemental Greenville 138/69kV Transformer

Need Number: Dayton-2019-006

Process Stage: Needs Meeting

Date: 2/20/2019

Supplemental Project Driver(s):

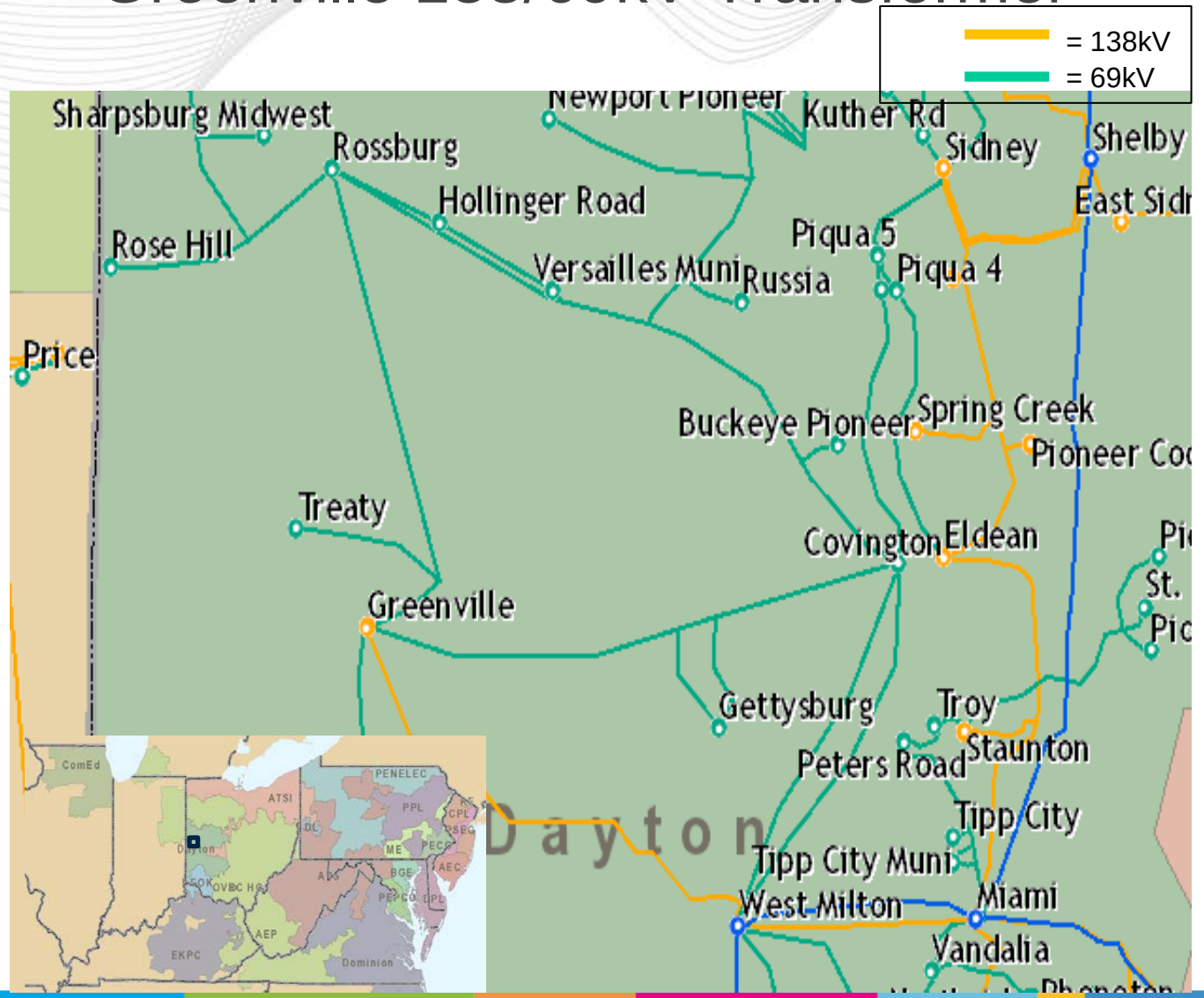
Operational performance

Specific Assumption Reference(s): -

DPL Local Plan Assumptions (Slide 5)

Problem Statement:

- Greenville 138/69kV transformer was built in 1978
- Failed, repaired, and placed back in-service in 2009
- In the summer of 2018, this transformer experienced issues evidenced by rising transformer temperatures, generation had to be called on to relieve the loading constraint on several occasions.
- This transformer is undersized and routinely approaches its nameplate ratings as evidenced by frequent PCLLRW's issued on this facility. Due to the operational issues this past summer and regular loading near nameplate capacity, this transformer could fail or not be available during peak load conditions which potentially creates real-time issues. It is critical for real-time operations that this transformer issue be addressed in a planned manner to ensure reliability of the 138kV and 69kV system in this area.
- -The existing Greenville 138/69kV transformers is the only 150MVA transformer on the Dayton system, the standard 138/69kV transformer size is 200MVA. The extra capacity provided by a 200MVA transformer is needed in this area to account for the wide range of loading scenarios depending on the status of Greenville Generation.



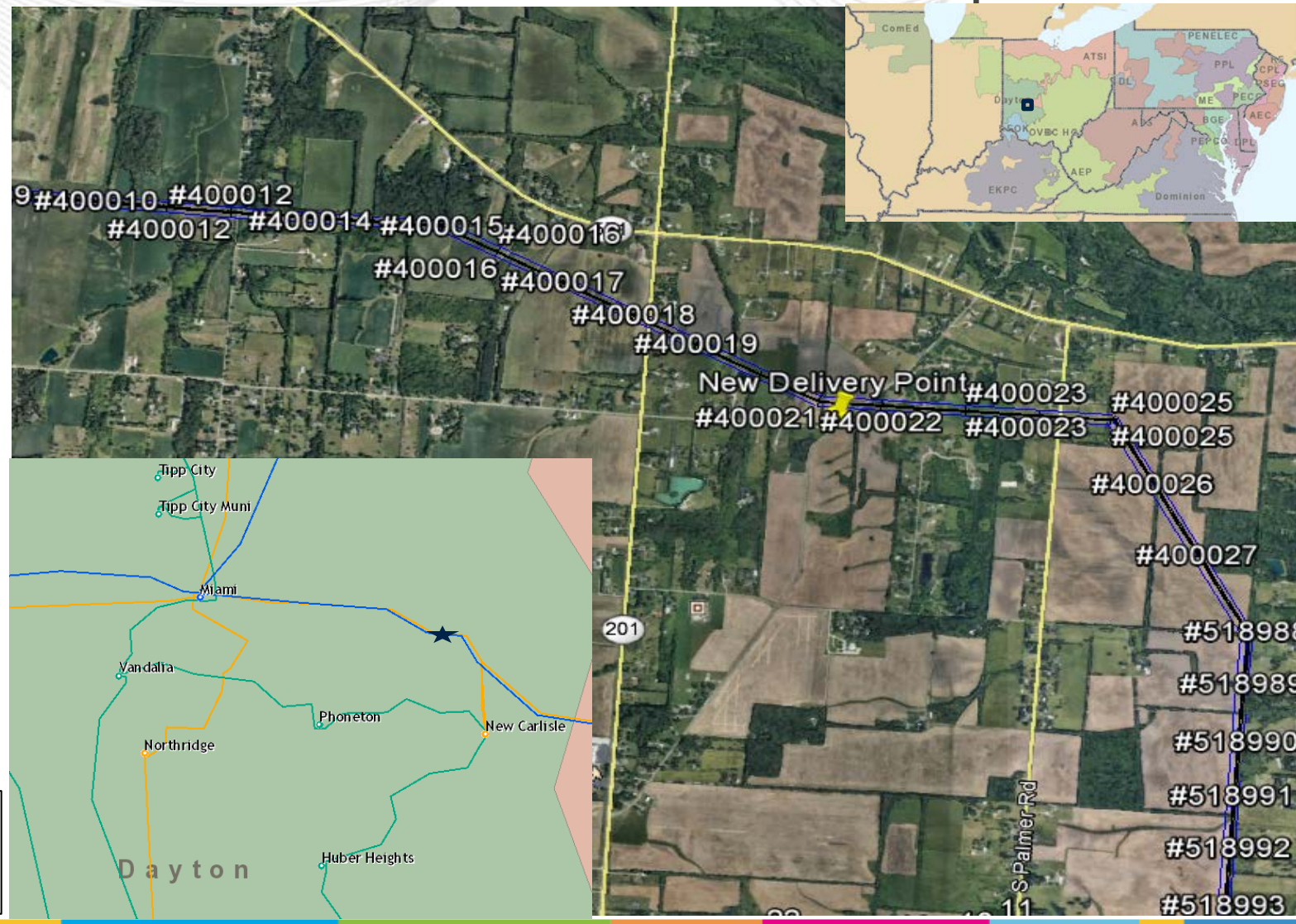
Dayton Transmission Zone: Supplemental
Bethel Township, Ohio

Need Number: Dayton-2019-007
Process Stage: Needs Meeting
Date: 2/20/2019

Supplemental Project Driver(s):
New customer delivery point

Specific Assumption Reference(s): -
DPL Local Plan Assumptions (Slide 5)

Problem Statement:
- Customer requested a new delivery point in Miami County, Ohio, within Bethel Township.
- Initial loading projected at ~5-7MW, with expected annual growth of 1.2%



= 345kV
= 138kV
= 69kV

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

2/8/2019 – V1 – Original version posted to pjm.com