



PJM Western Sub-Regional RTEP Committee Dayton Supplemental Upgrades

March 25, 2019

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

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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



Dayton Transmission Zone: Supplemental Bethel Township, Ohio

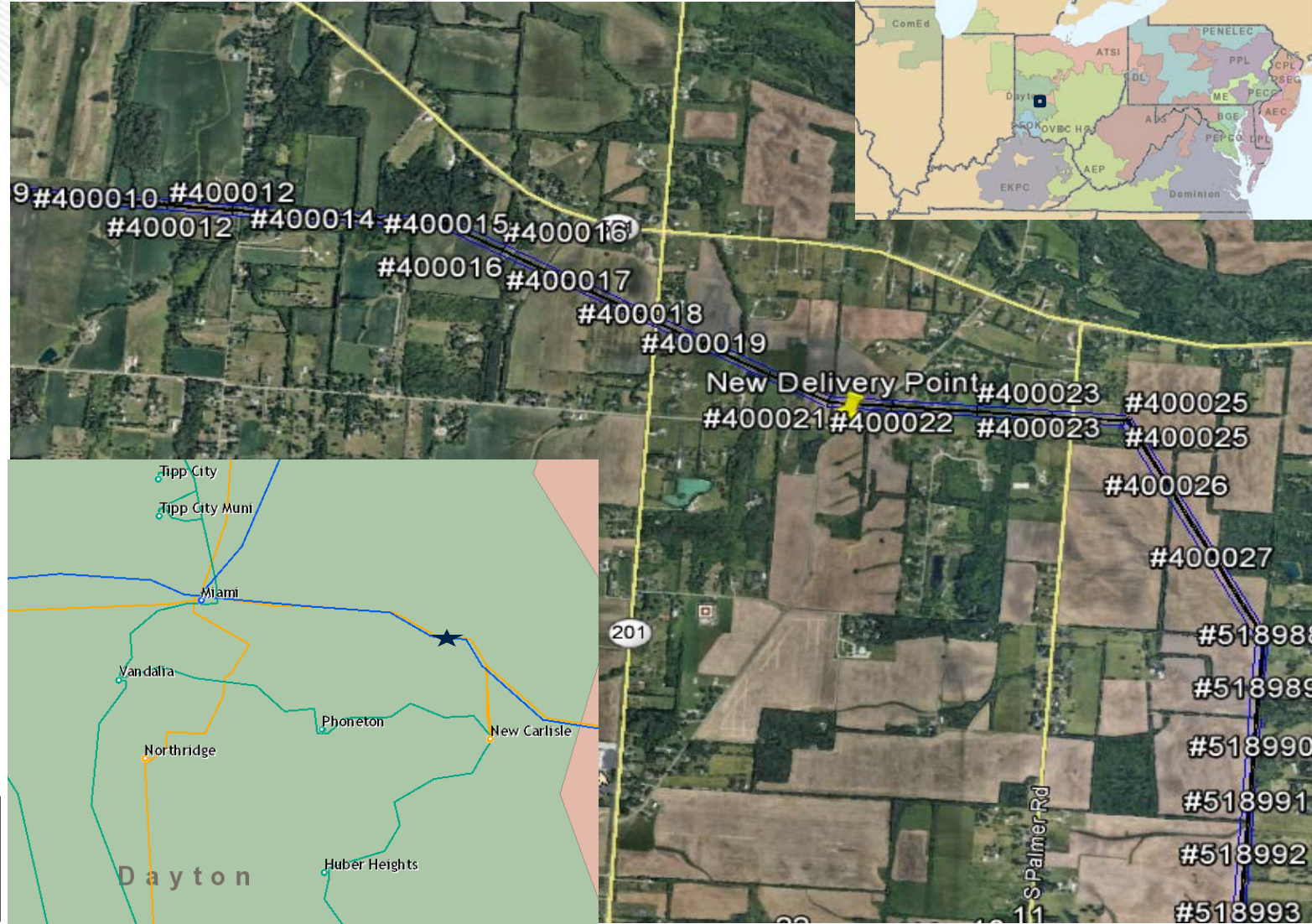
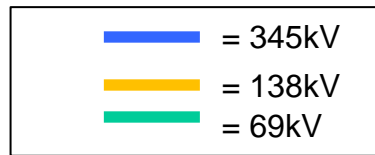
Need Number: Dayton-2019-007
 Process Stage: Solutions Meeting 3/25/2019
 Process Chronology:
 Need Meeting: 2/20/2019

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%





Dayton Transmission Zone: Supplemental Bethel Township, Ohio

Need Number: Dayton-2019-007

Process Stage: Solutions Meeting 3/25/2019

Proposed Solution:

- This project will tap the Miami-New Carlisle 138kV line with sectionalizing switches on each side of the delivery point and provide a short 138kV service to the proposed customer substation in near proximity to the existing transmission line. This project is estimated to cost \$850k.

Alternatives:

1 – Construction of a three breaker 138kV ring bus along the Miami-New Carlisle 138kV line that would serve the new customer delivery point. This project was estimated to cost approximately \$3.9M. This was not selected due to cost and minimal distance between the tap and customer substation.

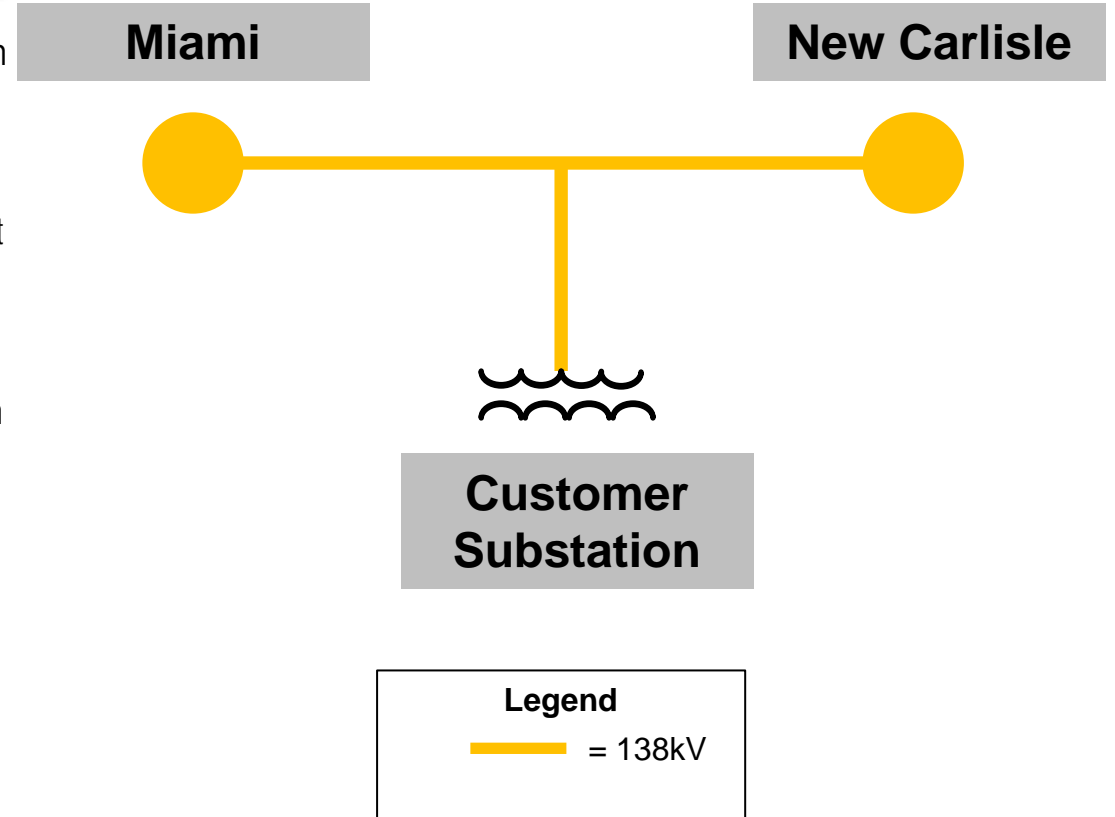
2 – Install a 69kv breaker at New Carlisle Substation and construct a 2.5 mile 69kV transmission line to the new delivery point. This project was estimated to cost approximately \$2.2M. This alternative was not selected due to the higher cost and additional system exposure.

3 – The third alternative considered tapping the New Carlisle-Phoneton 69kV line with a three way sectionalizing switch and building a 2 mile 69kV extension to the customer site. This project was estimated to cost approximately \$1.7M. This alternative was not selected due to the higher cost and additional system exposure.

Estimated Transmission Cost: \$850K

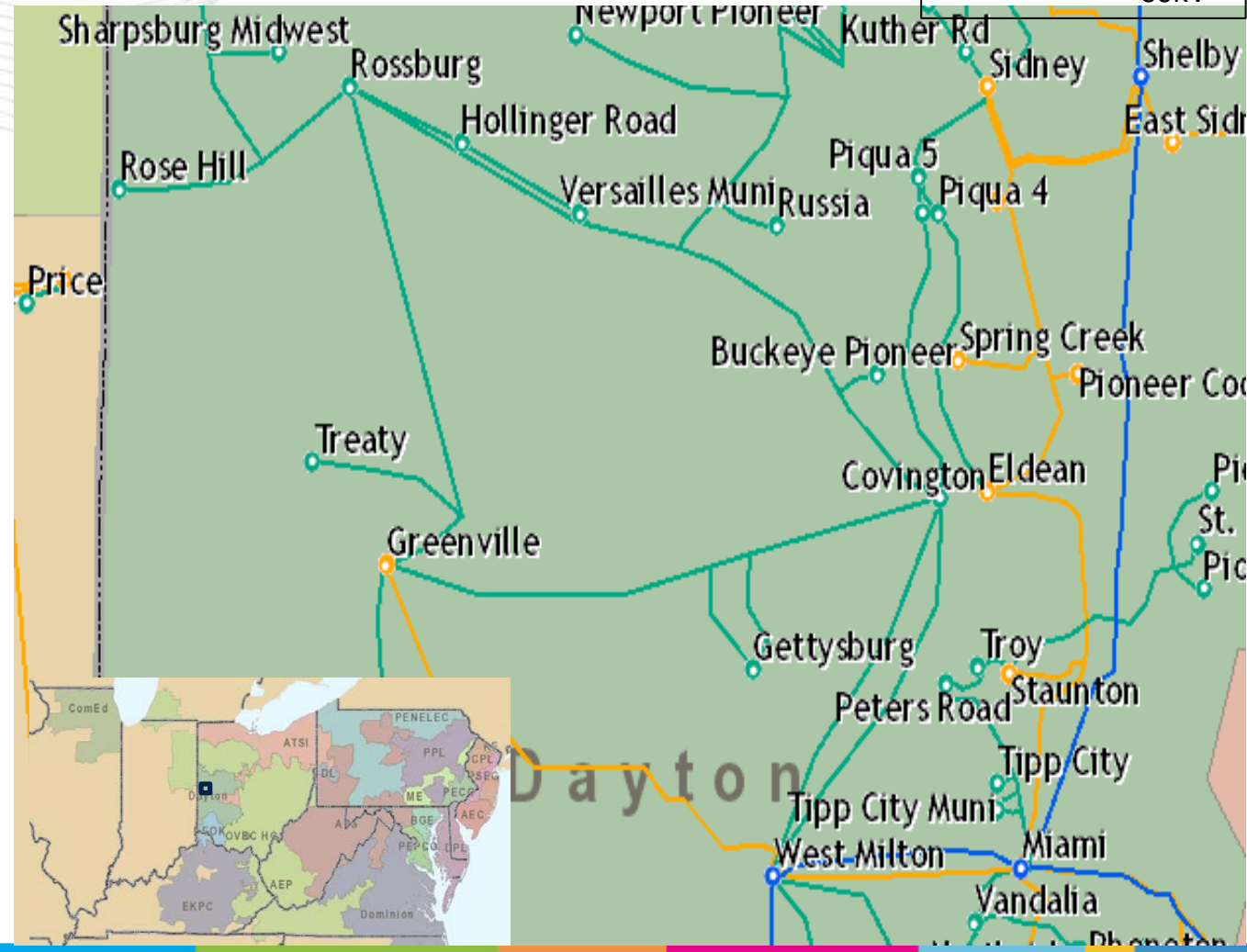
Projected In-Service: 12/31/19

Project Status: Conceptual





Dayton Transmission Zone: Supplemental Greenville 138/69kV Transformer



Need Number: Dayton-2019-006

Process Stage: Solutions Meeting 3/25/2019

Process Chronology:

Need Meeting: 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 Greenville 138/69kV Transformer

Need Number: Dayton-2019-006
Process Stage: Solutions Meeting 3/25/2019

Proposed Solution:

Replace the existing 150 MVA Greenville 138/69kV transformer with a single 200 MVA 138/69kV transformer. This will increase the rated capacity of the Greenville Transformer to perform with adequate capacity during shoulder peak times when Greenville Generation is offline and will address the equipment concerns associated with the existing transformer.

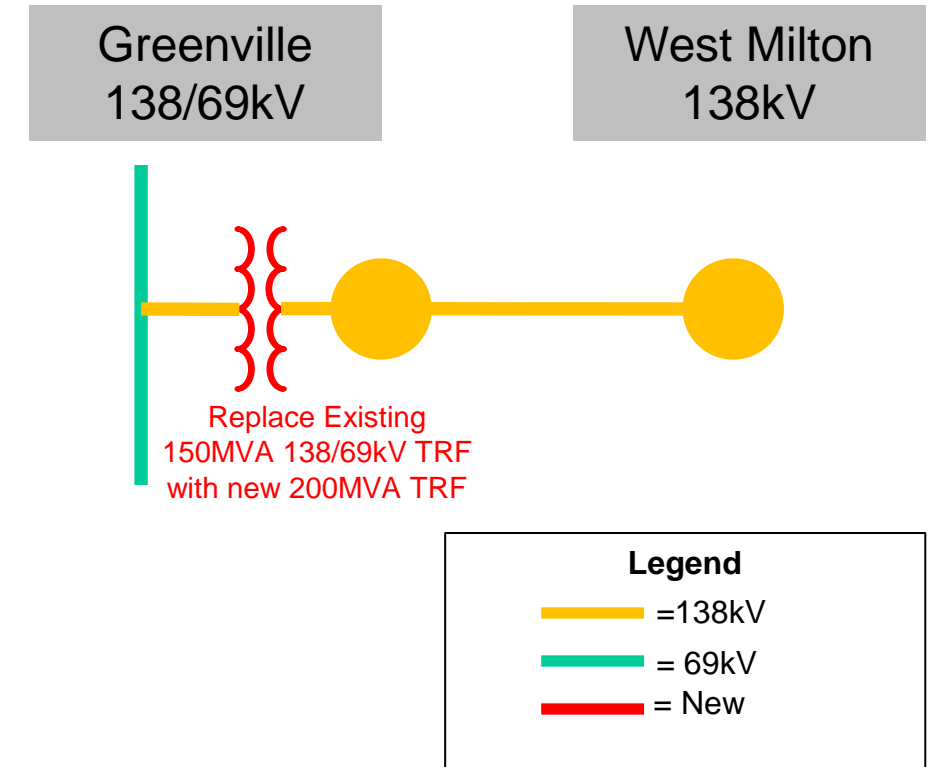
Alternatives:

- 1- Replace the existing Greenville 138/69kV transformer with a 150MVA transformer with an estimated cost of \$1.8M. This alternative was not selected because we have present day loading issues with a 150MVA transformer. When the generation at Greenville is offline, this transformer becomes heavily loaded as evidenced by the PCLLRW's that surface frequently with the existing 150MVA transformer in place.
- 2- Install two 150MVA transformers with an estimate cost of \$5M. This alternative was not selected due to cost and there will be adequate capacity with a single 200MVA transformer in place.

Estimated Transmission Cost: \$2M

Projected In-Service: 12/31/2020

Project Status: Conceptual



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

3/14/2019 – V1 – Original version posted to pjm.com

4/3/2019 – V2 – Remove Slide #3