



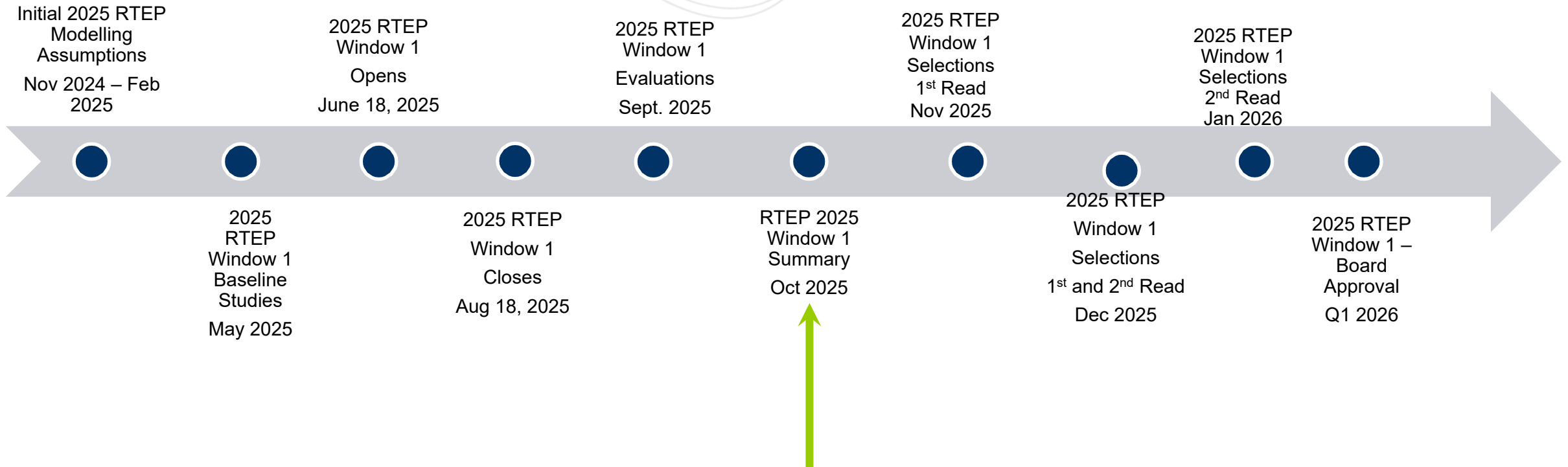
# Reliability Analysis Update

Transmission Expansion Advisory Committee  
October 8, 2025

# 2025 RTEP Window 1 Update



# 2025 RTEP Window 1 – Timeline



# First Read – 2025 Window 1

## Baseline Reliability Projects

**Process Stage:** First Read

**Criteria:** Generator Deliverability

**Assumption Reference:** 2025 RTEP assumptions

**Model Used for Analysis:** 2030 RTEP winter base case

**Proposal Window Exclusion:** None

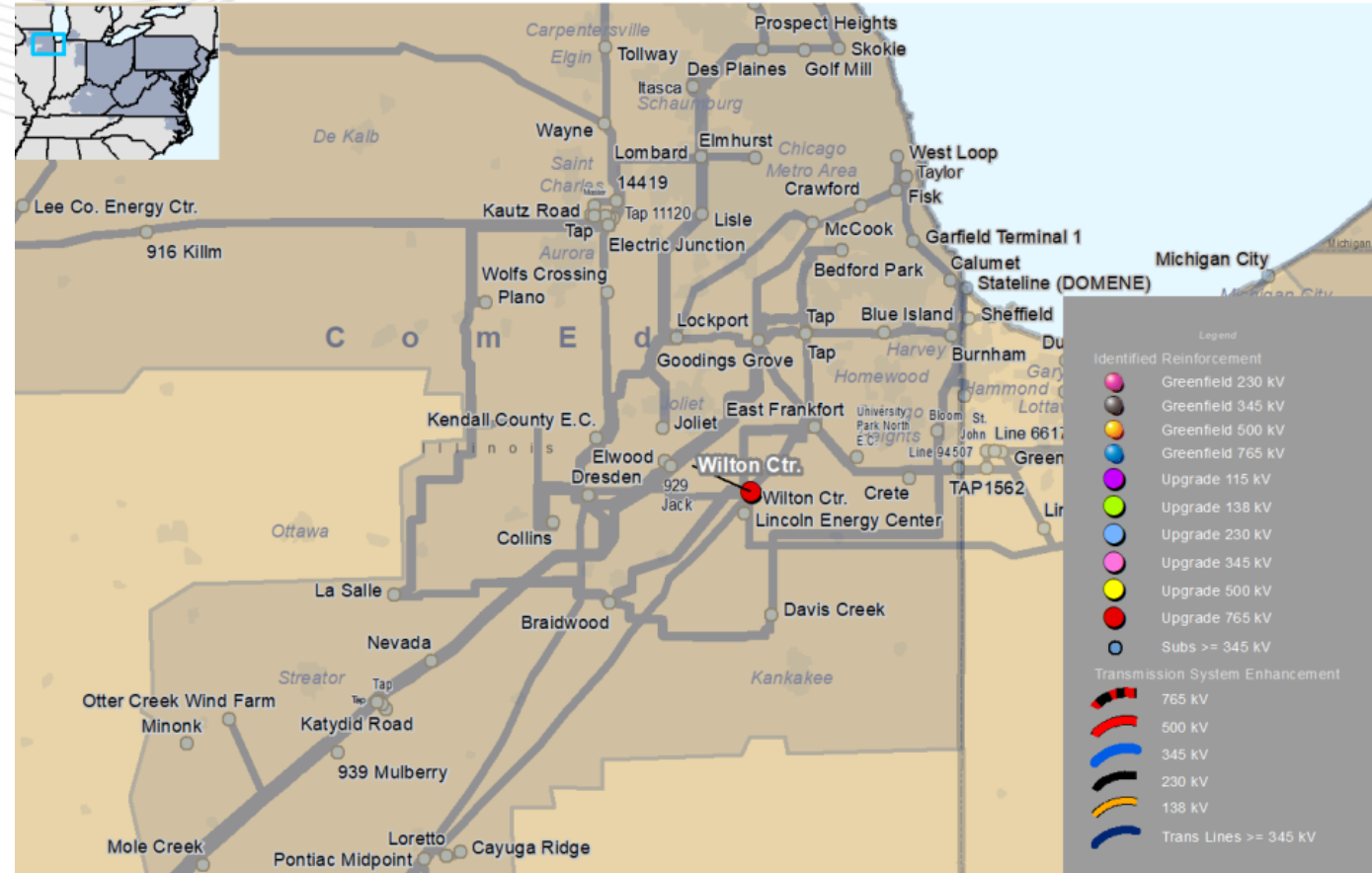
## Problem Statement:

FG: 2025W1-GD-W177, 2025W1-GD-W178, 2025W1-GD-W185, 2025W1-GD-W186, 2025W1-GD-W175, 2025W1-GD-W189, 2025W1-GD-W176, 2025W1-GD-W27, 2025W1-GD-W28, 2025W1-GD-W38, 2025W1-GD-W39, 2025W1-GD-W188

In the 2030 RTEP winter case, the Wilton Center 765/345 kV transformers TR 93 and TR 94 are overloaded for N-1 and N-2 outages.

## Existing Facility Rating:

Branch	SN/SLTE/SSTE/SLD WN/WLTE/WSTE/WLD (MVA)
Wilton Center 765/345 kV TR 93	1200/1379/1469/1601 1200/1379/1469/1601
Wilton Center 765/345 kV TR 94	1200/1379/1469/1601 1200/1379/1469/1601



**Recommended Solution:** Install a new 765/345 kV TR91 transformer at Wilton Center substation.

**Estimated Cost:** \$45.81 M

**Preliminary Facility Rating:**

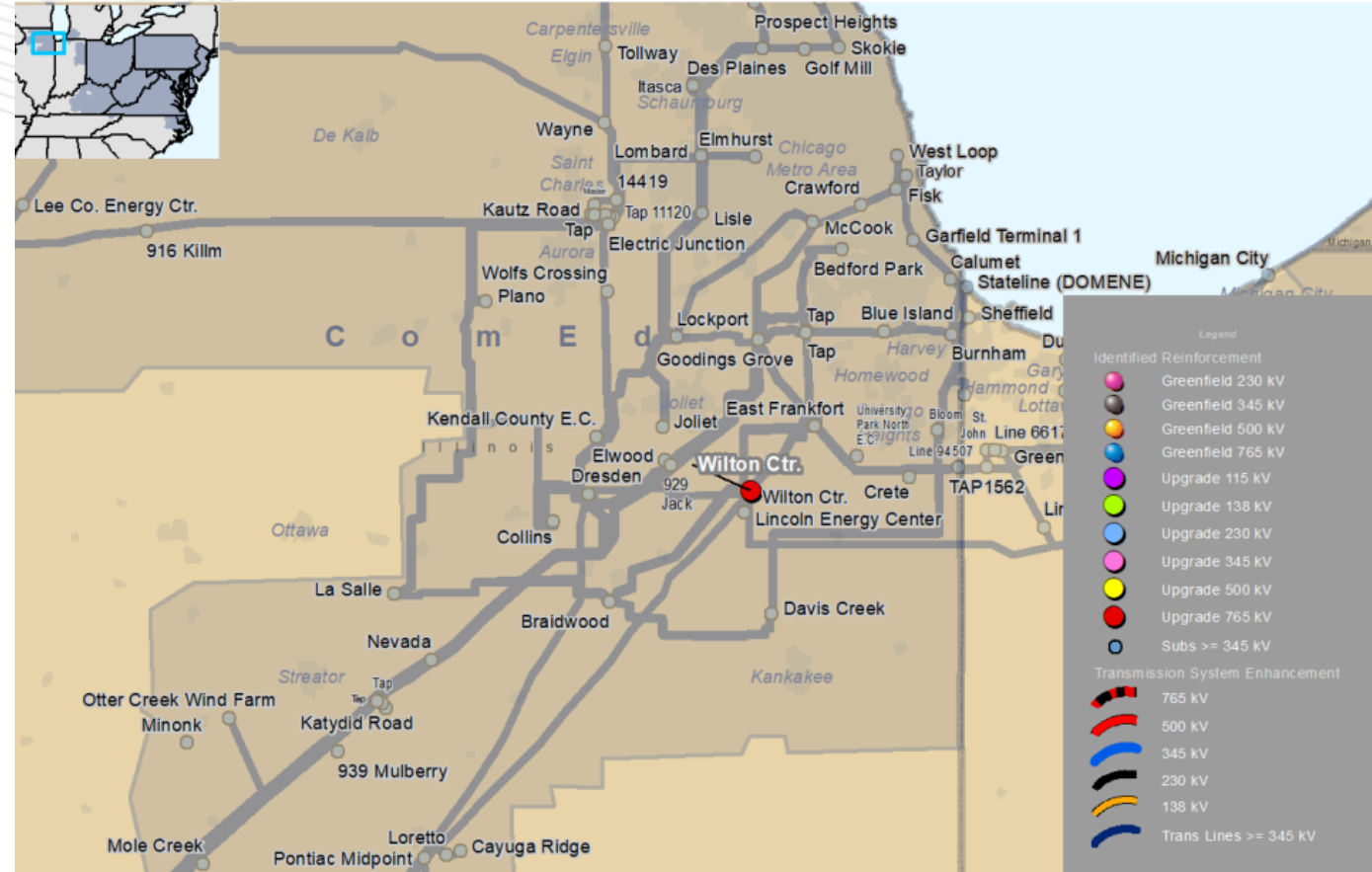
Branch	SN/SLTE/SSTE/SLD WN/WLTE/WSTE/WLD (MVA)
Wilton Center 765/345 kV TR 91	1200/1379/1469/1601 1200/1379/1469/1601

**Alternatives:** N/A

**Ancillary Benefits:** Improves reliability and resilience.

**Required In-Service Date:** 12/1/2030

**Projected In-Service Date:** 12/1/2030





# APS Transmission Zone: Baseline McCanns Rd 138 kV Switching Station

**Process Stage:** First Read

**Criteria:** N-1-1

**Assumption Reference:** 2025 RTEP assumptions

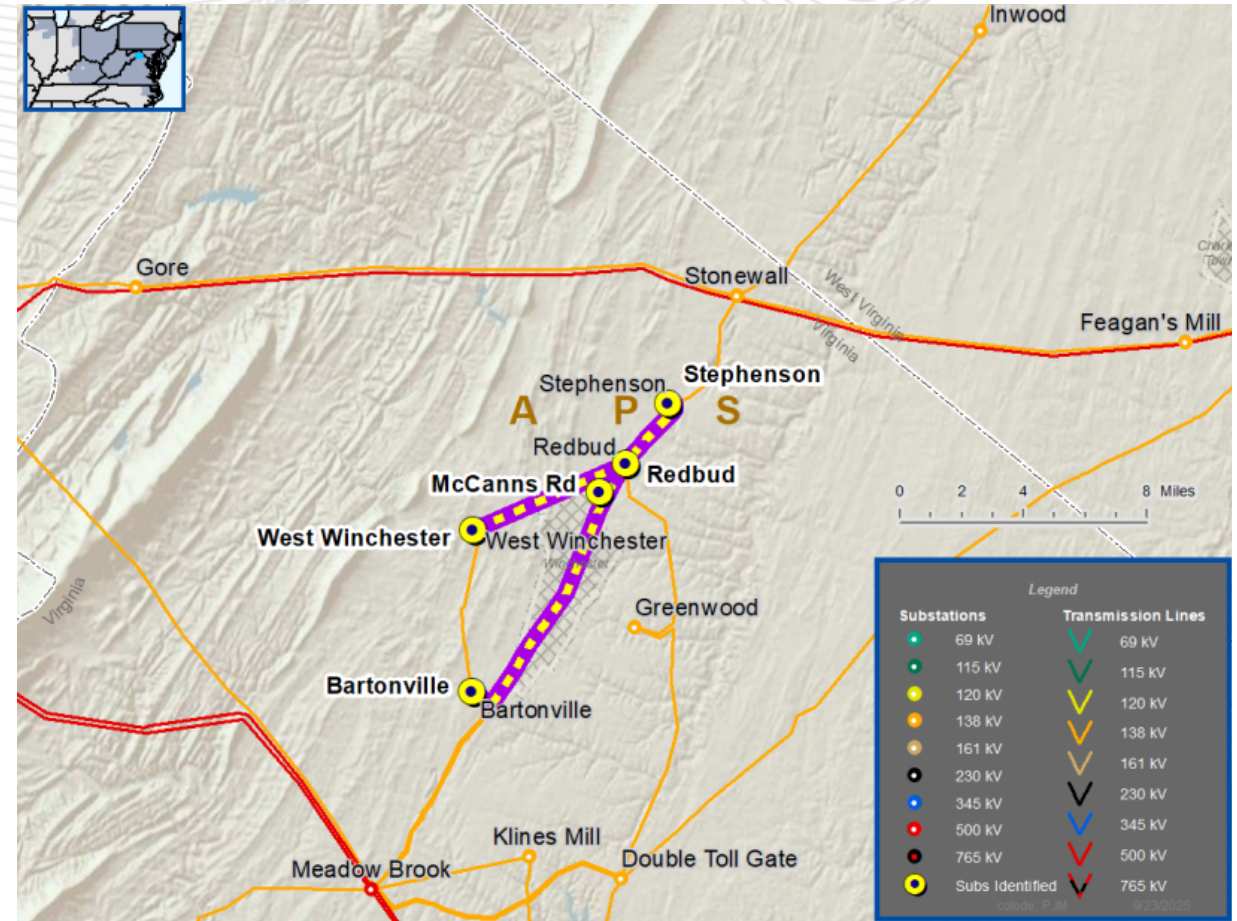
**Model Used for Analysis:** 2030 RTEP Summer and Winter base case

**Proposal Window Exclusion:** None

## Problem Statement:

2025W1-N11-WT24, 2025W1-N11-WT23, 2025W1-N11-ST7, 2025W1-N11-ST8, 2025W1-N11-WLD1 and 2025W1-N11-WLD2

In the 2030 RTEP Summer and Winter case, the Redbud to West Winchester and Double Toll Gate to Greenwood 138 kV lines are overloaded for N-1-1 contingencies. In addition, PJM also observed greater than 300 MW load loss in the winter case for N-1-1 contingencies.



# APS Transmission Zone: Baseline McCanns Rd 138 kV Switching Station

## Recommended Solution:

- Construct the McCanns Rd 138 kV Switching Station and interconnect the existing Redbud – West Winchester 138 kV Line and Bartonville – Stephenson 138 kV Line. Install OPGW for the static & install one new SCADA controlled 2000 A disconnect with whips
- Reconductor new Redbud McCanns Rd 138 kV Line with 795 KCMIL 45/7 ACSS for 0.5 miles from Redbud 138 kV Substation to Str. 175 of the existing Redbud - West Winchester 138 kV Line

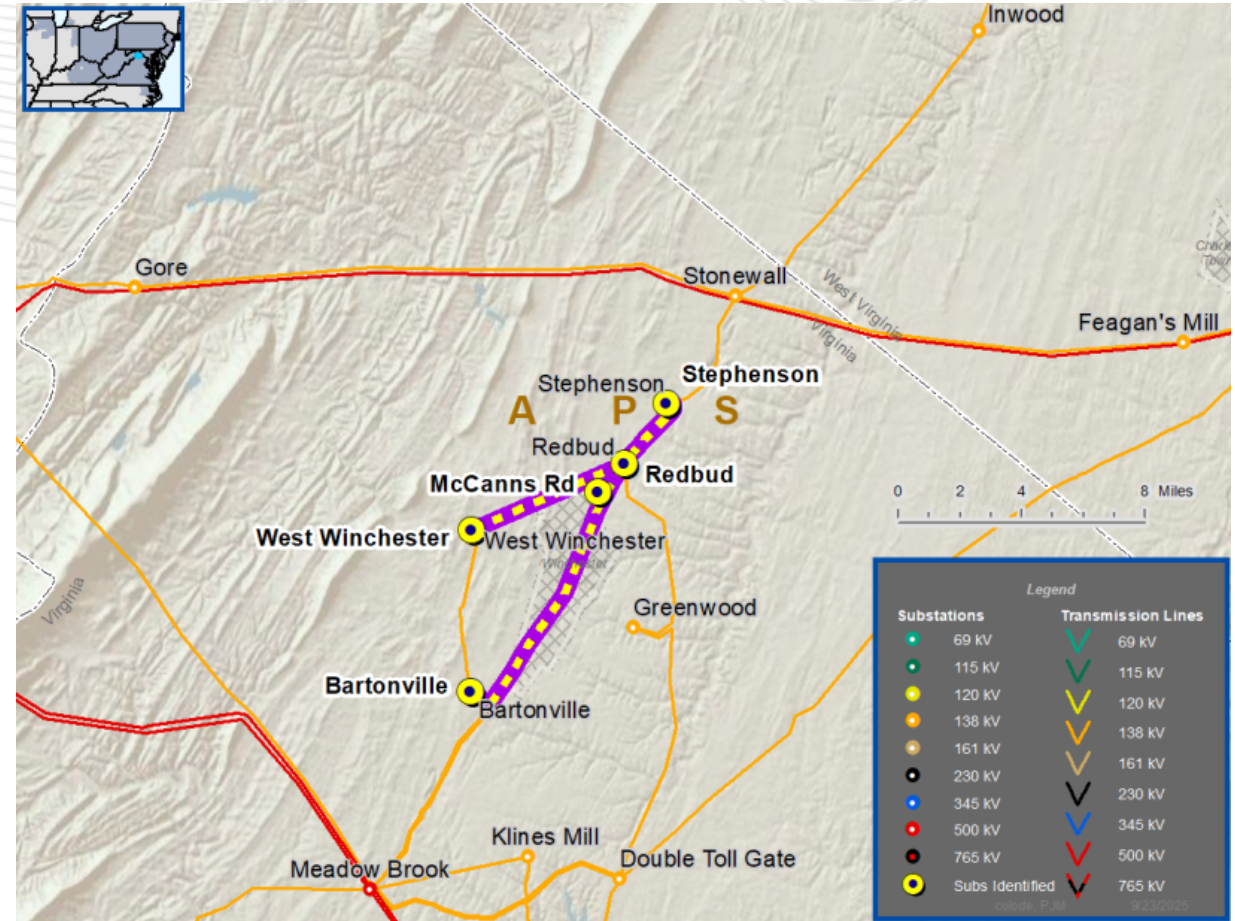
**Estimated Cost:** \$23.87 M

**Alternatives:** N/A

**Ancillary Benefits:** N/A

**Required In-Service Date:** 6/1/2030

**Projected In-Service Date:** 6/1/2030





# APS/PN Transmission Zone: Baseline Garrett – Garrett Tap 115 kV

**Process Stage:** First Read

**Criteria:** Generator Deliverability

**Assumption Reference:** 2025 RTEP assumptions

**Model Used for Analysis:** 2030 RTEP Light Load base case

**Proposal Window Exclusion:** None

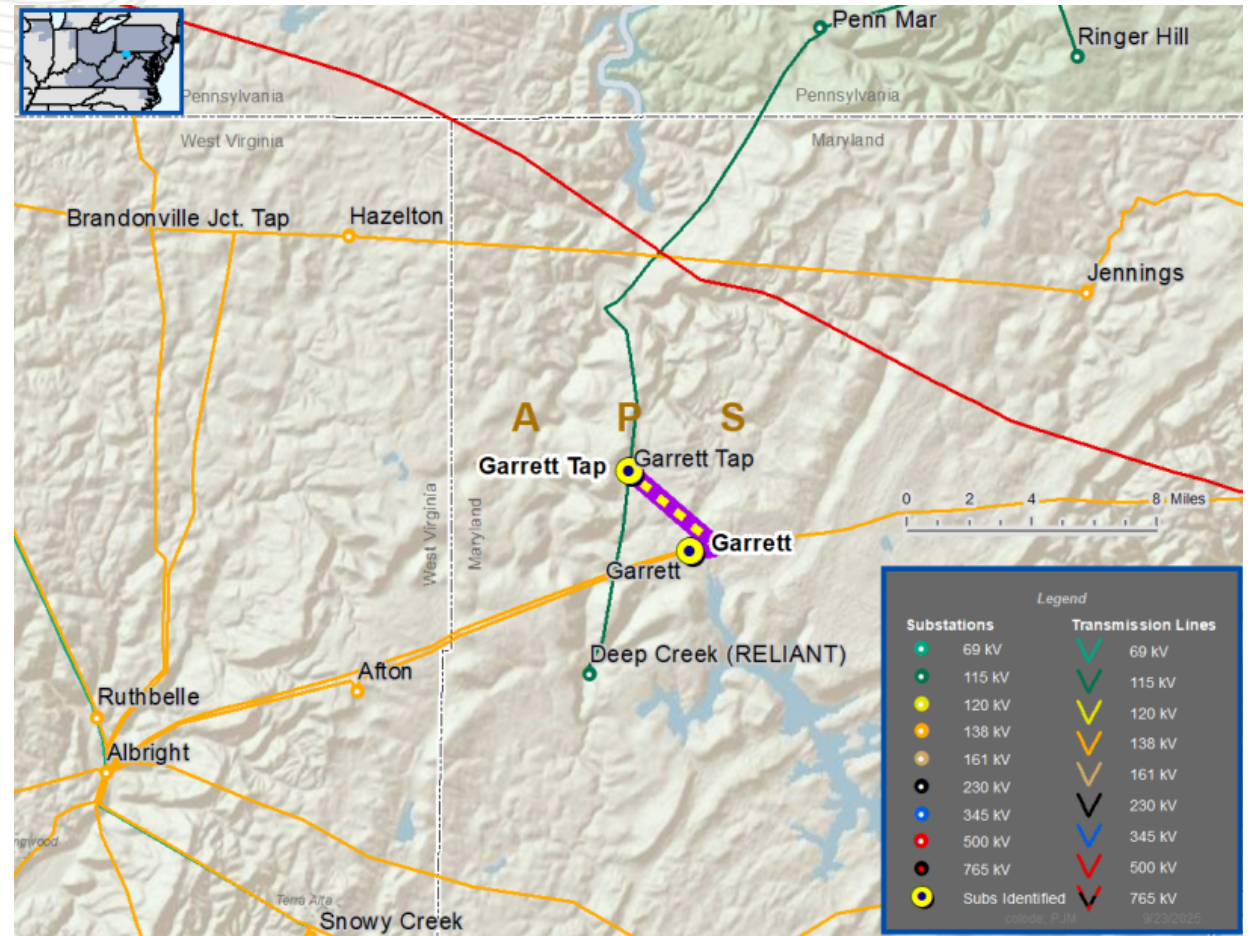
**Problem Statement:**

2025W1-GD-LL136, 2025W1-GD-LL180, 2025W1-GD-LL28 & 2025W1-GD-LL32

In the 2030 RTEP Light Load case, the Garrett to Garrett Tap 115 kV is overloaded for N-1 and N-2 outages.

**Existing Facility Rating:**

Branch	SN/SE/WN/WLD (MVA)
Garrett – Garrett Tap 115 kV	133/160/150/190



# APS/PN Transmission Zone: Baseline

## Garrett – Garrett Tap 115 kV

### Recommended Solution:

- Rebuild approximately 1.9 miles of 115 kV line with larger conductor
- Install OPGW for the static & install one new SCADA controlled 2000 A disconnect with whips
- Adjust the relay settings at Penn Mar, Garrett, and Deep Creek substations to accommodate the new ratings and impedance changes associates with the Garrett- Garrett Tap 115 kV Line rebuild.

**Estimated Cost:** \$9.15 M

### Preliminary Facility Rating:

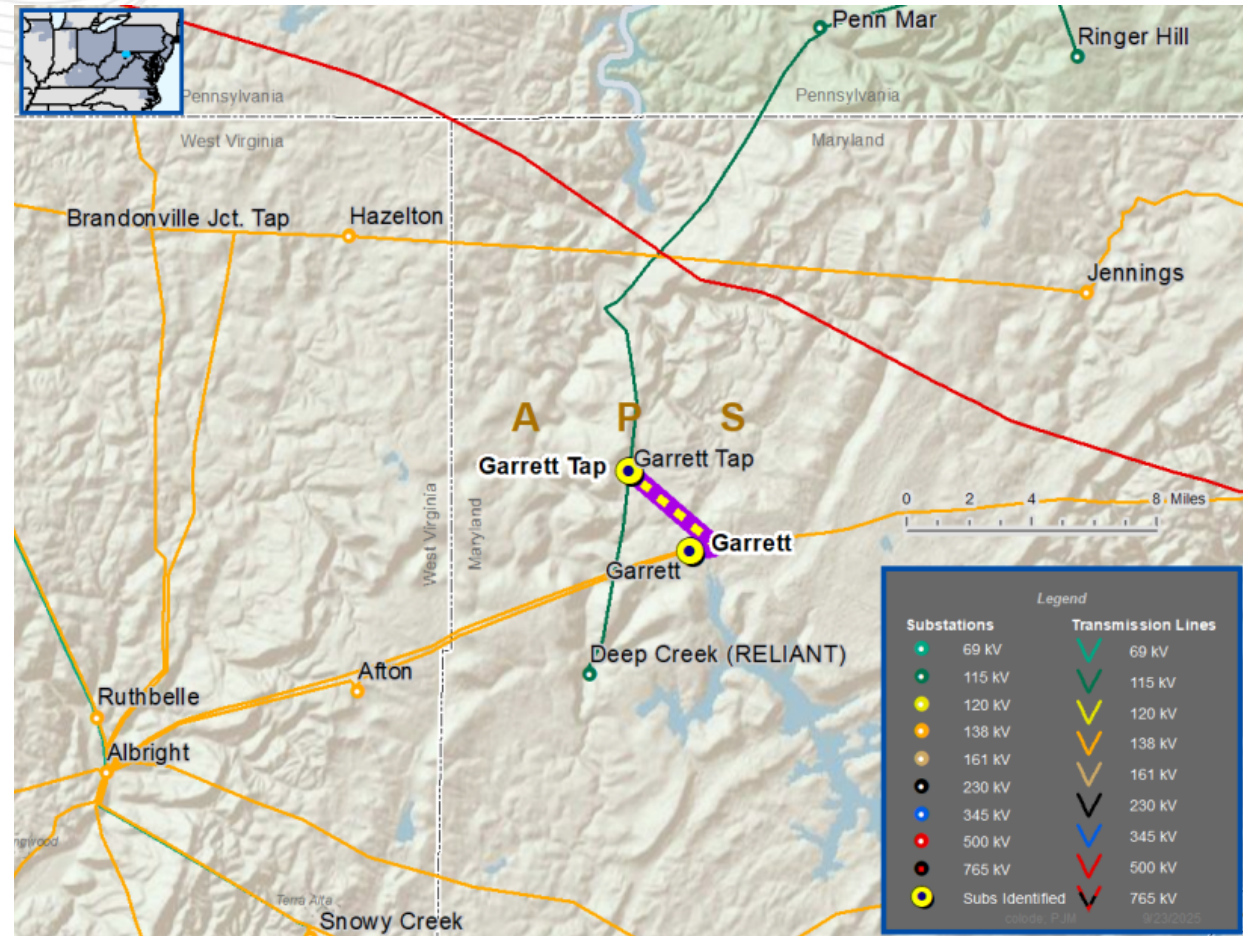
Branch	SN/SE/WN/WLD (MVA)
Garrett – Garrett Tap 115 kV	417/480/417/506

**Alternatives:** N/A

**Ancillary Benefits:** Address 2024/2025 ME window violation, Addressed EOL Facility

**Required In-Service Date:** 4/15/2030

**Projected In-Service Date:** 6/1/2029





# DEOK Transmission Zone: Baseline 138 kV line College Corner - Collinsville

**Process Stage:** First Read

**Criteria:** Generator Deliverability

**Assumption Reference:** 2025 RTEP assumptions

**Model Used for Analysis:** 2030 RTEP summer base case

**Proposal Window Exclusion:** None

**Problem Statement:**

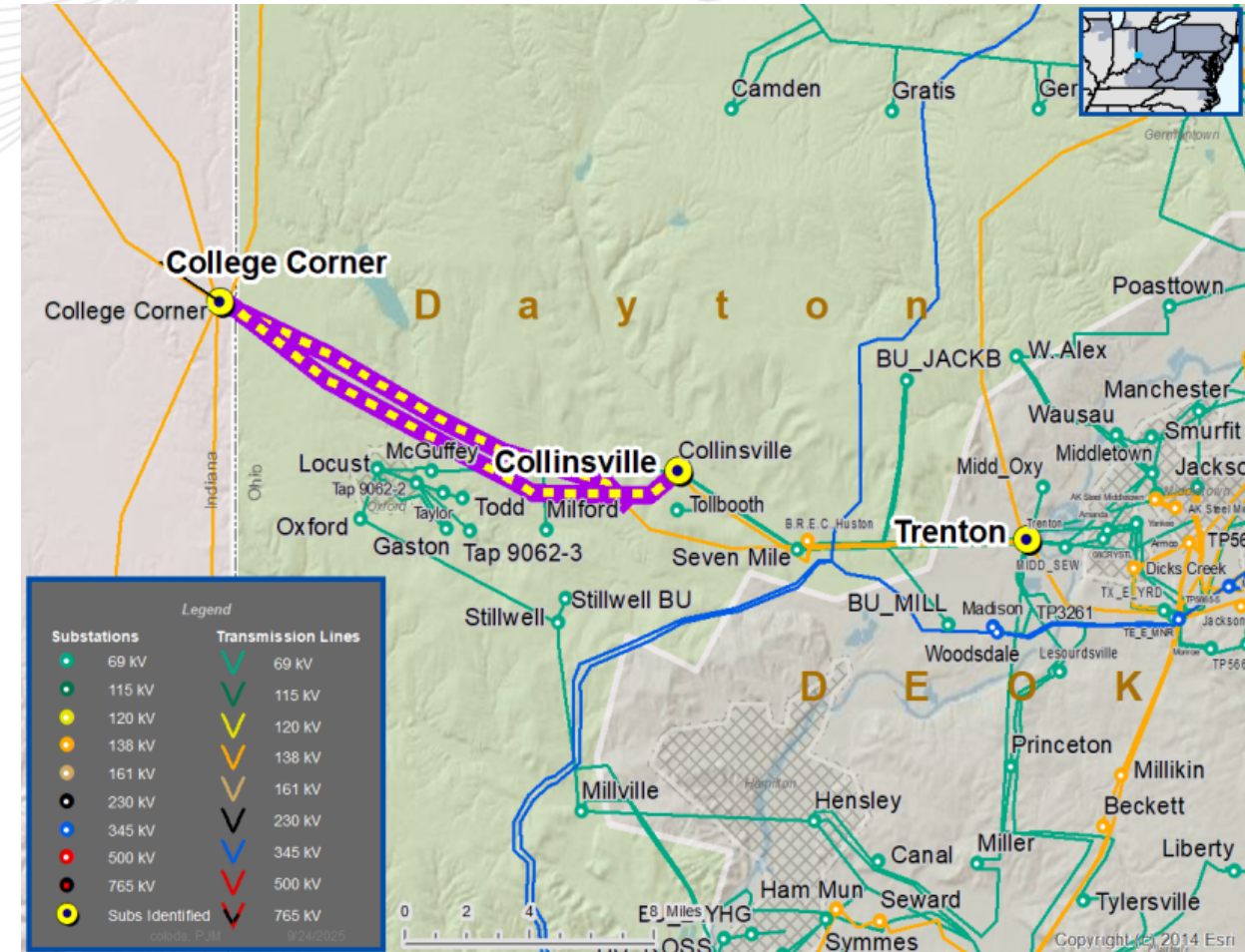
FG: 2025W1-GD-S208, 2025W1-GD-S184, 2025W1-GD-S206, 2025W1-GD-S472

138 kV line College Corner (AEP)– Collinsville (DEOK) is ~ 11.90 miles which shares common tower with 138 kV line College Corner – Trenton (DEOK).

In the 2030 RTEP summer case, 138 kV line College Corner – Collinsville is overloaded in the Generator Deliverability for N-2 outages.

**Existing Facility Rating:**

Branch 138 kV	SN/SE/WN/WE (MVA)
College Corner - Collinsville	167/178/210/224
College Corner - Trenton	185/198/234/249



Rebuild the College Corner – Collinsville 138 kV line from the OH/IN State Line to Collinsville Substation (~11.90 miles). Rebuild the 138 kV line College Corner – Trenton with common tower section (~ 11.90 miles).

**Estimated Cost: \$58.471 M**

Branch 138 kV	SN/SE/WN/WE (MVA)
College Corner - Collinsville	167/245/210/271
College Corner - Trenton	185/198/234/249

**Ancillary Benefits: N/A**

**Required In-Service Date: 06/2030****Projected In-Service Date: 06/2030**



# DEOK Transmission Zone: Baseline Miami Fort 345 kV Reliability

**Process Stage:** First Read

**Criteria:** Generator Deliverability & N-1 Thermal

**Assumption Reference:** 2025 RTEP assumptions

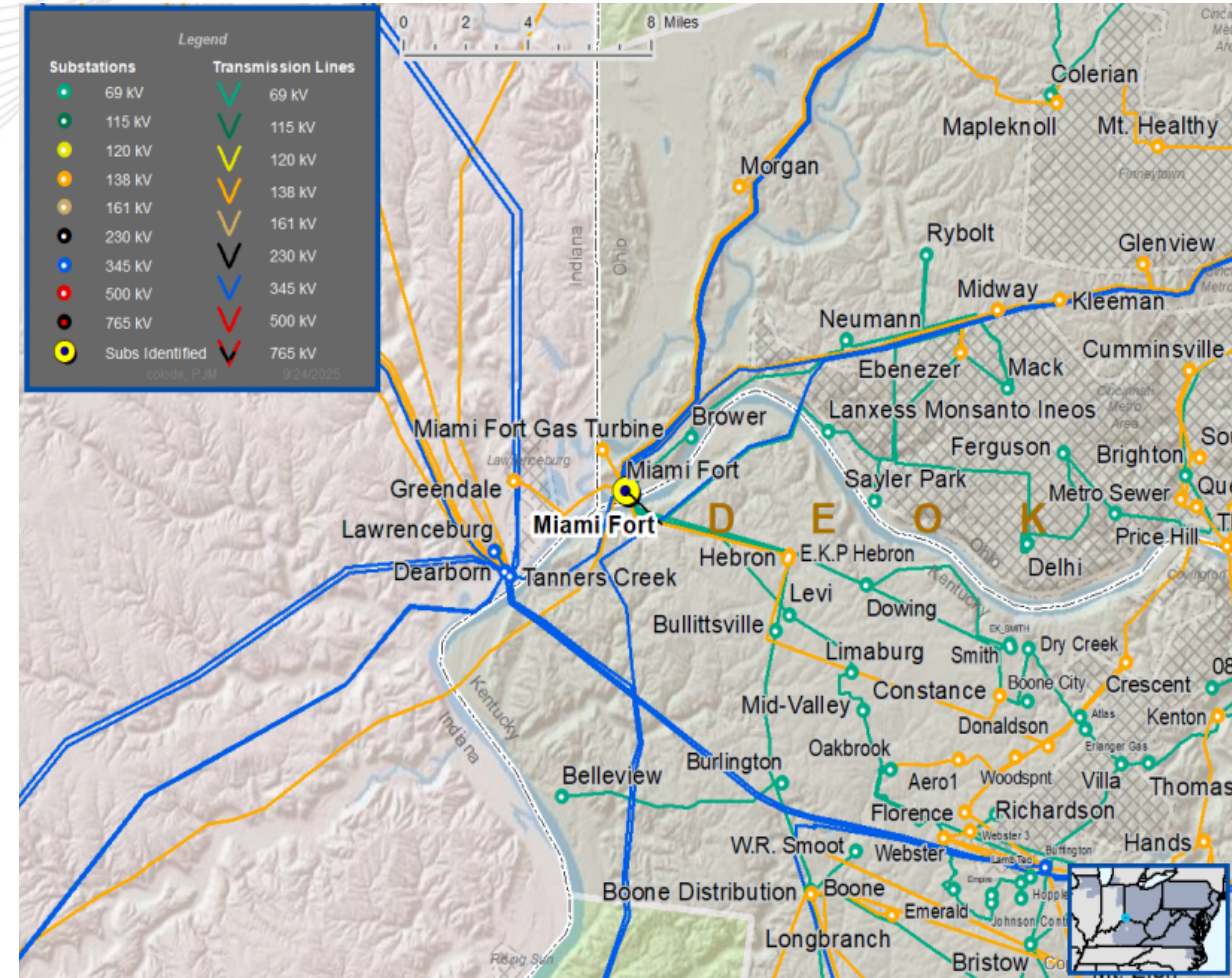
**Model Used for Analysis:** 2030 RTEP summer base case

**Proposal Window Exclusion:** Below 200 kV

**Problem Statement:**

FG: 2025-W1-GD-S189, 2025-W1-N1-ST72

In the 2030 RTEP summer case, Miami Fort TB-10 transformer (345/138 kV) is overloaded in the Generator Deliverability for a N-2 outages and thermal overload for a N-1 outage.





# DEOK Transmission Zone: Baseline Miami Fort 345 kV Reliability

## Recommended Solution:

Insert a ninth 345 kV breaker into the 8-breaker ring bus at Miami Fort substation. This new breaker will be a 4000A & 63 kA breaker and will go in between the Miami Fort - Terminal 345 kV feed and CB1418 at Miami Fort. One of the disconnect switches for CB1418 will be moved to be in between the new breaker and the Miami Fort - Terminal feed. Double 2500 kcmil AL bus conductor will connect the new circuit breaker and CB1418.

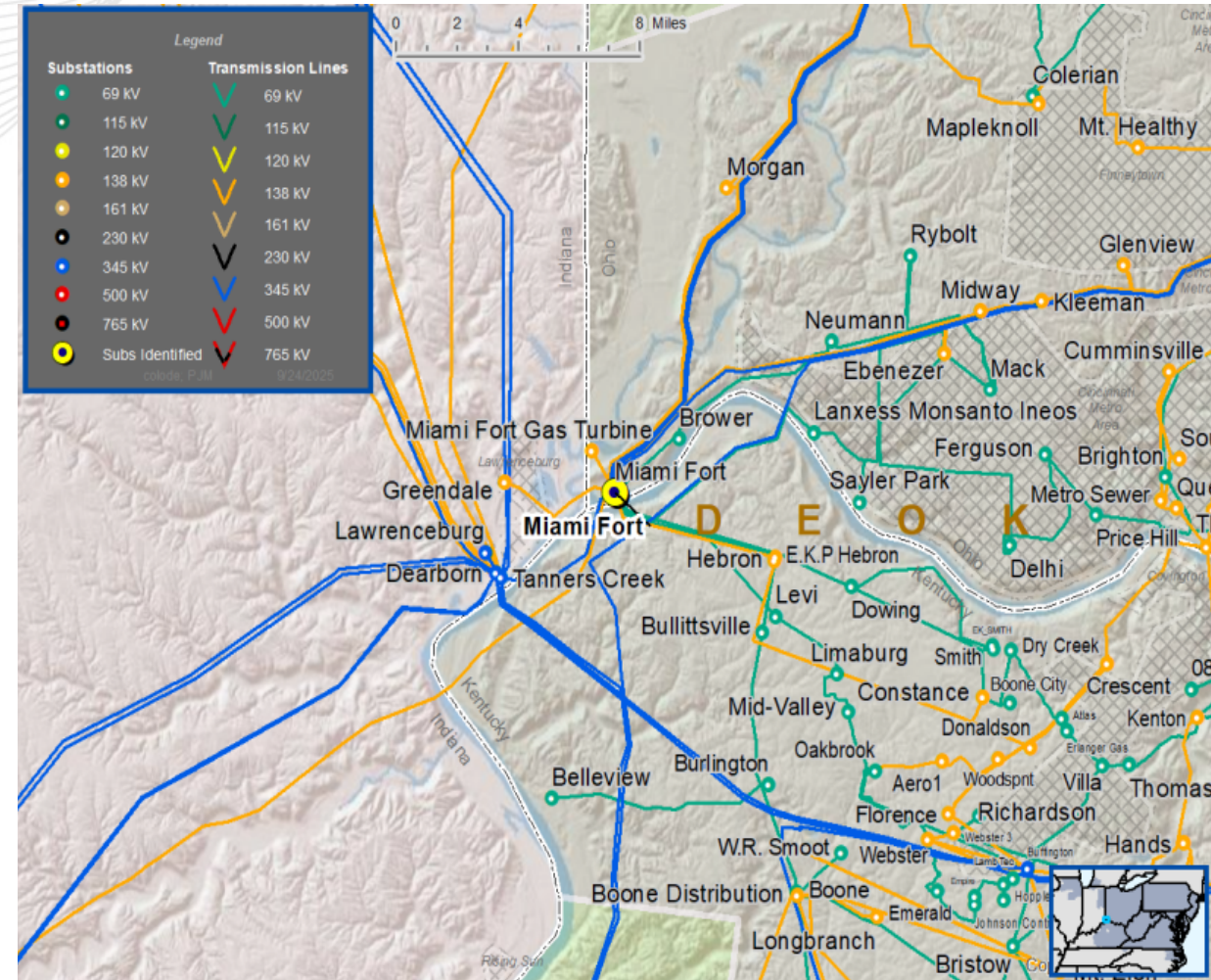
**Estimated Cost:** \$2.337 M

**Alternatives:** N/A

**Ancillary Benefits:** N/A

**Required In-Service Date:** 06/01/2030

**Projected In-Service Date:** 06/01/2030



# First Read – 2025 Window 1

## Mid Atlantic & South

### Baseline Reliability Projects



**Process Stage:** First Review

**Criteria:** Baseline Load Growth Deliverability & Reliability

**Assumption Reference:** 2030 RTEP Assumption

**Model Used for Analysis:** 2030 RTEP Summer

**Proposal Window Exclusion:** Substation Equipment Exclusion

**Problem Statement:** In the 2030 RTEP Summer Baseline analysis there was an overload observed on Claymont – Linwood 230kV circuit. The violation was posted as part of the 2025 Window 1: 2025-W1-GD-S39

**Existing Facility Rating:** 654SN/800SE, 748WN/892WE MVA

**Proposed Facility Rating:** 654SN/809SE, 753WN/911WE MVA

## Proposed Solution:

Upgrade existing 1590 ACSR stranded bus at Claymont substation to increase the rating on the Claymont – Linwood 230 kV circuit.

**Estimated Cost:** \$0.031M

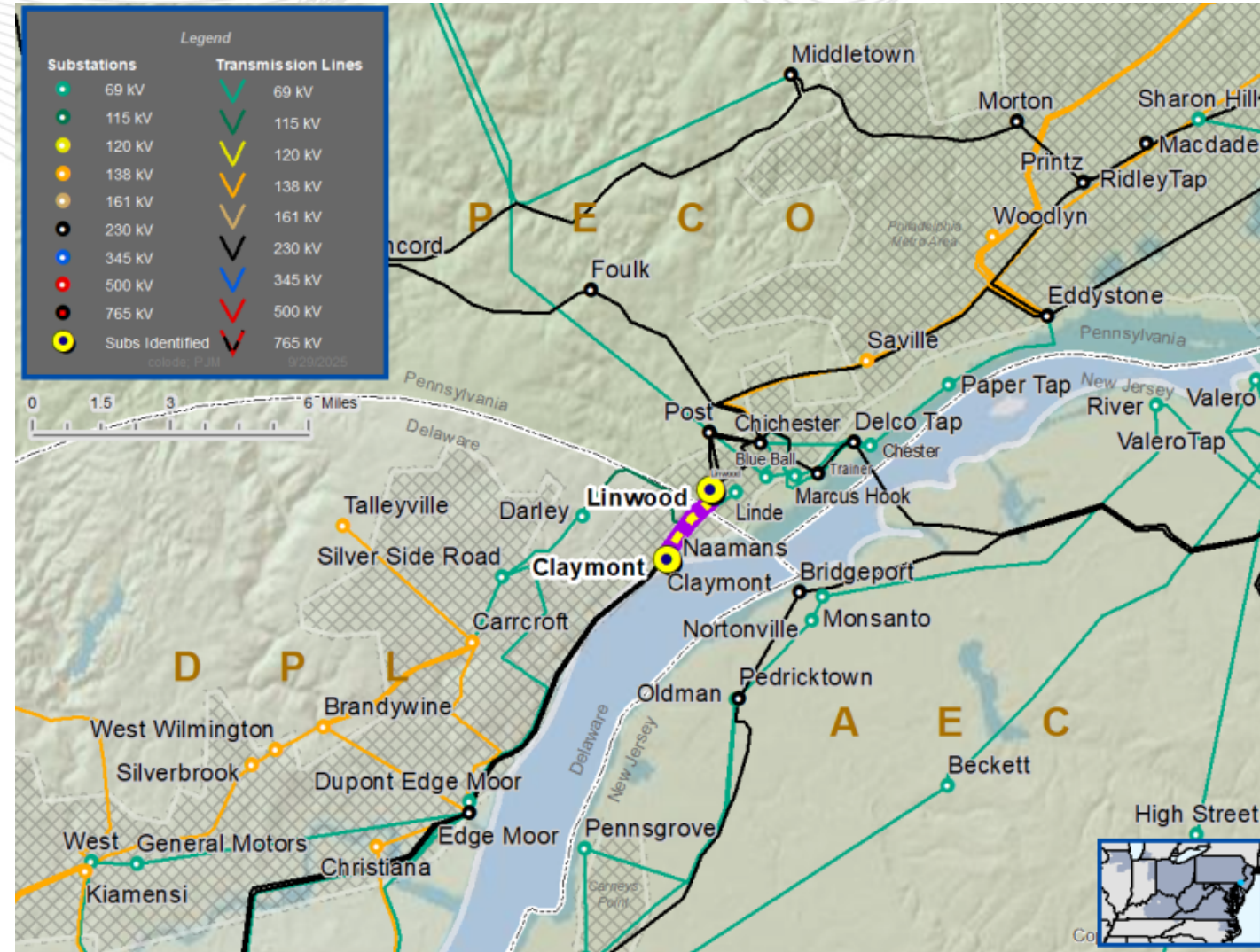
## Alternatives

Proposal 2025-W1-579 (to rebuild the Claymont – Linwood) is proposed to address violations identified in the 2032 analysis and subsequently addresses the flowgate listed above. However, the upgrade doesn't require a long lead time and PJM will revisit the area in future as need.

## Ancillary Benefits:

N/A

**Required In-Service:** 06-01-2030





**Process Stage:** First Review

**Criteria:** Baseline Load Growth Deliverability & Reliability

**Assumption Reference:** 2030 RTEP Assumption

**Model Used for Analysis:** 2030 RTEP Summer

**Proposal Window Exclusion:** Substation Equipment Exclusion

**Problem Statement:** In the 2030 RTEP Summer baseline analysis there were multiple overloads observed on Chichester – Trainer 230kV circuit. The violations were posted as part of the 2025 Window 1: 2025-W1-GD-S220, 2025-W1-GD-S221, 2025-W1-GD-S222, 2025-W1-GD-S223, 2025-W1-GD-S224, 2025-W1-GD-S225, 2025-W1-GD-S411, 2025-W1-GD-S412

**Existing Facility Rating:** 721SN/772E, 756WN/772WE MVA

**Proposed Facility Rating:** 721SN/841E, 756WN/877WE MVA

**Proposed Solution:**

Replace existing and install new relays at Chichester 230 kV substation to increase the rating on Chichester – Trainer 230 kV circuit.

**Estimated Cost:** \$0.031M

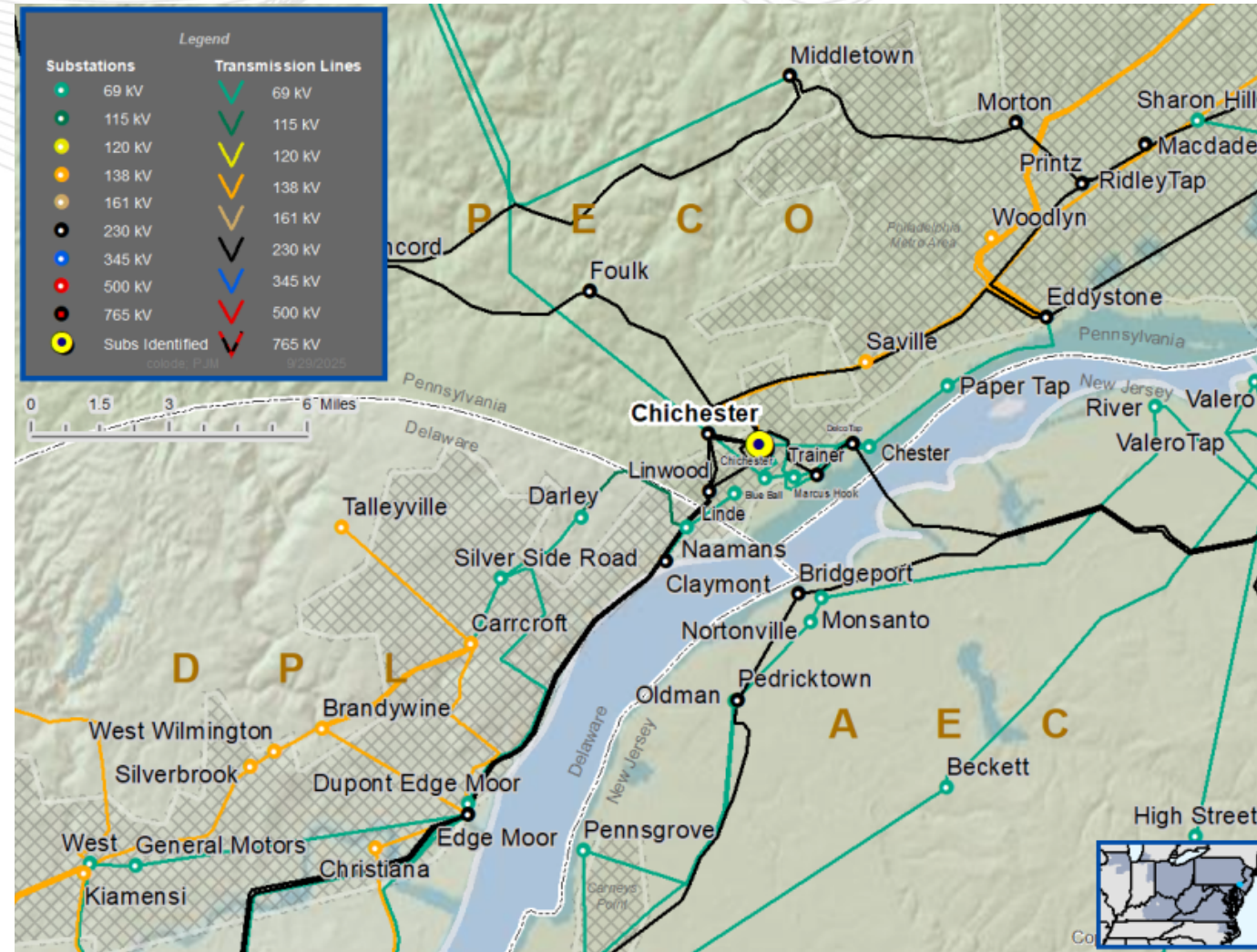
**Alternatives**

N/A

**Ancillary Benefits:**

N/A

**Required In-Service:** 06-01-2030



**Process Stage:** First Review

**Criteria:** Baseline Load Growth Deliverability & Reliability

**Assumption Reference:** 2030 RTEP Assumption

**Model Used for Analysis:** 2030 RTEP Summer

**Proposal ID:** 2025 –W1-656

**Problem Statement:** In the 2030 RTEP Summer N-1-1 and IPD analysis, there were multiple overloads observed on Roseland – Livingston 230kV and Roseland – Laurel 230kV. The violations were posted as part of the 2025 Window 1: 2025-W1-N11-ST158, 2025-W1-N11-ST159, 2025-W1-N11-ST160, 2025-W1-N11-ST161, 2025-W1-N11-ST156, 2025-W1-N11-ST157, 2025-W1-IPD-S185, 2025-W1-IPD-S188

**Existing Facility Rating:** 731SN/885SE, 821WN/978WE MVA

**Proposed Facility Rating:** 934SN/1080SE, 999WN/1143WE MVA

#### Proposed Solution:

Replace the existing 1590 ACSR single conductor on the Roseland to Livingston 230kV line with a 1590 ACSS single conductor. Replace the existing 1590 ACSR single conductor on the Roseland to Laurel Ave 230kV line with a 1590 ACSS single conductor.

**Estimated Cost:** \$9.93M

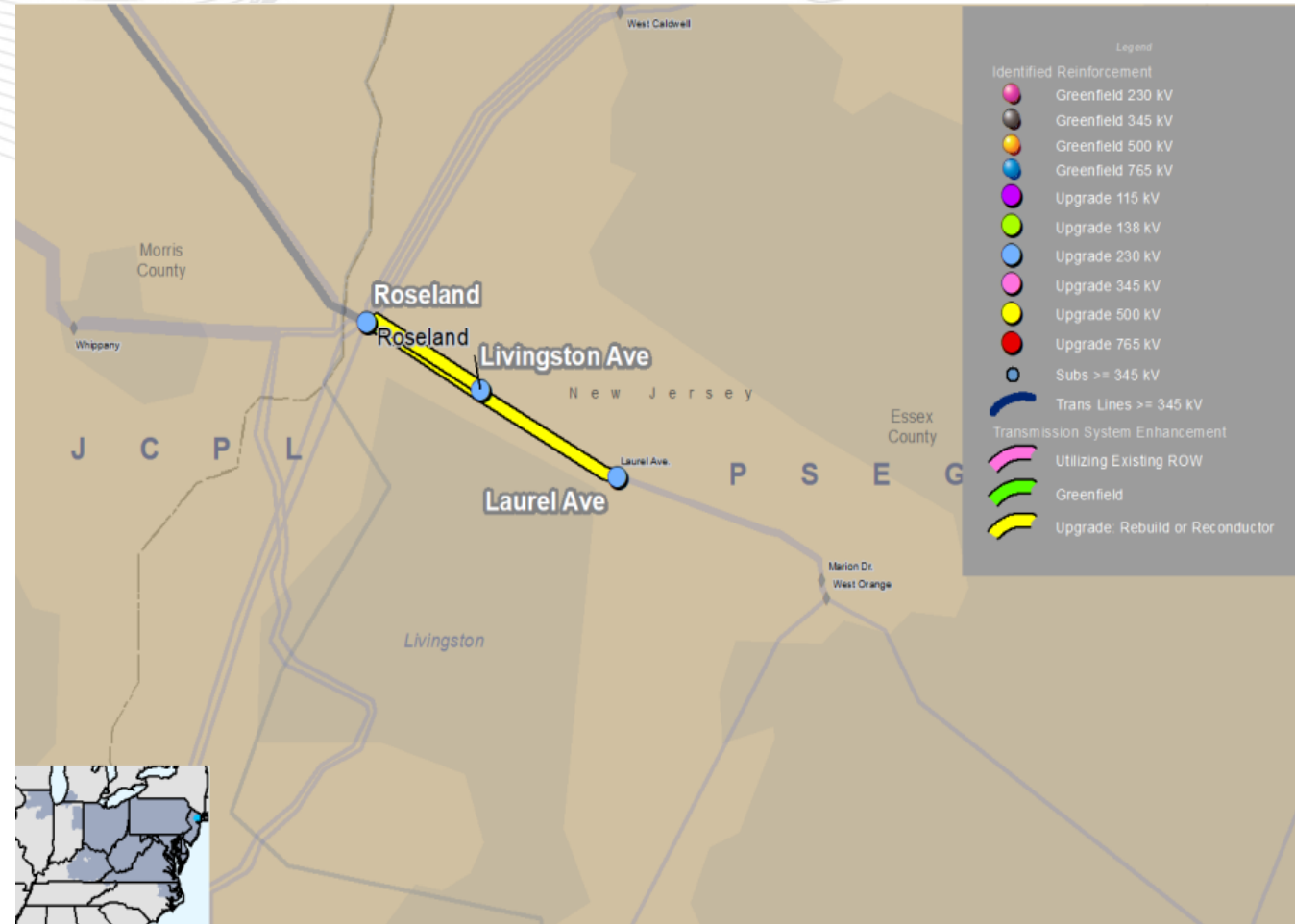
#### Alternatives

N/A

#### Ancillary Benefits:

The project will install an advanced power conductor with high temperature rating. This conductor provides greater capacity for an existing transmission corridor.

**Required In-Service:** 06-01-2030





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## Reliability Analysis Update



### Member Hotline

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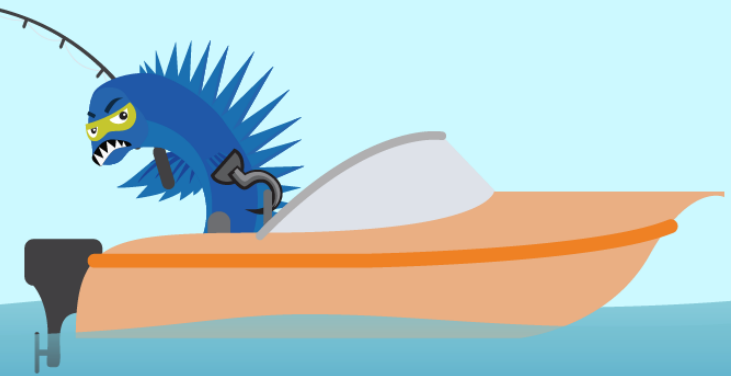
Version No.	Date	Description
1	Oct. , 2025	<ul style="list-style-type: none"><li>Initial slides posted</li></ul>

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Call (610) 666-2244 or email [it\\_ops\\_ctr\\_shift@pjm.com](mailto:it_ops_ctr_shift@pjm.com)

# Appendix

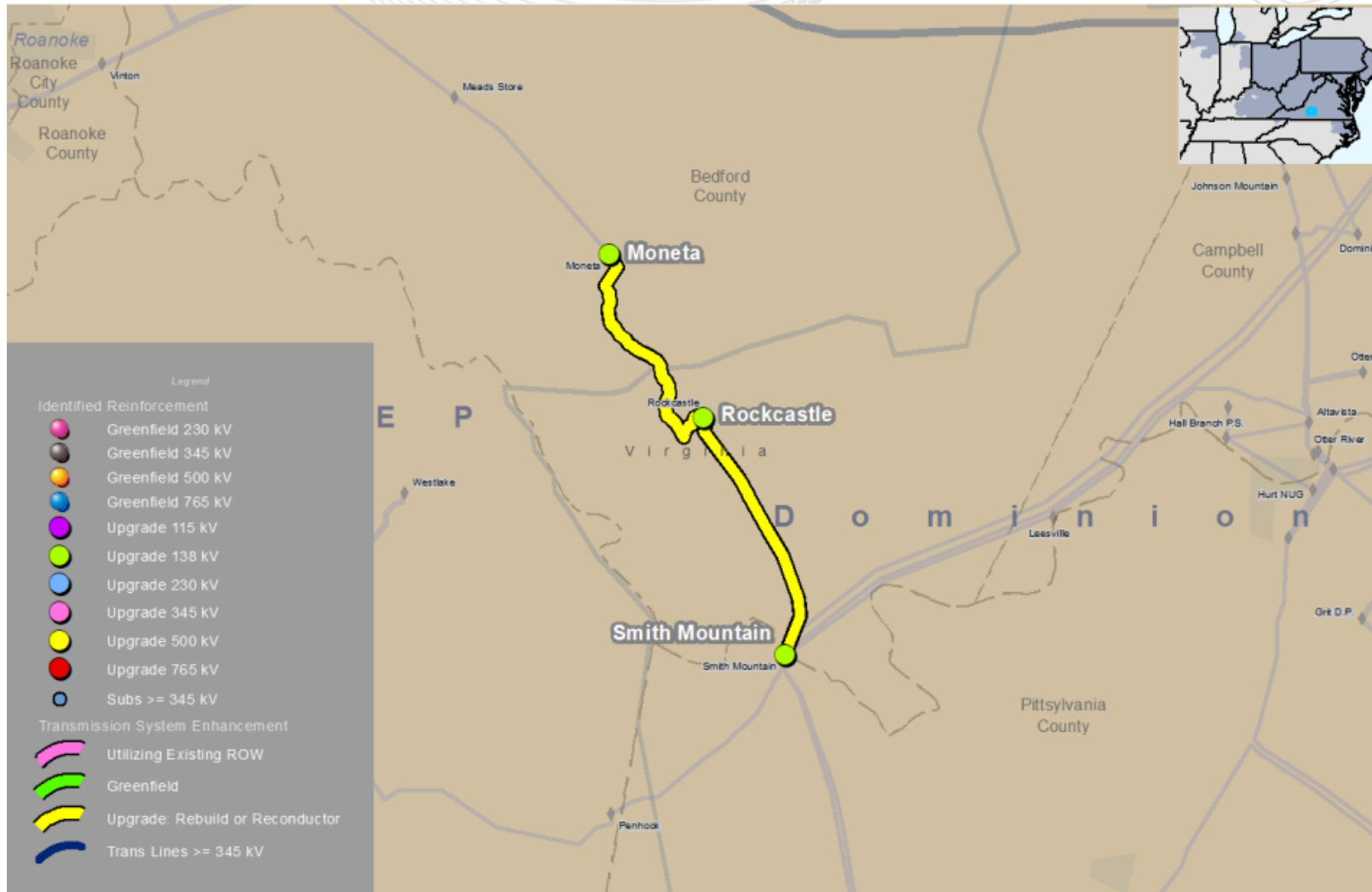
## Proposal Maps

Note: These maps are only intended to illustrate the general electrical connectivity of the projects and should not be relied upon for exact geographical substation locations, line routes, or scope of work.

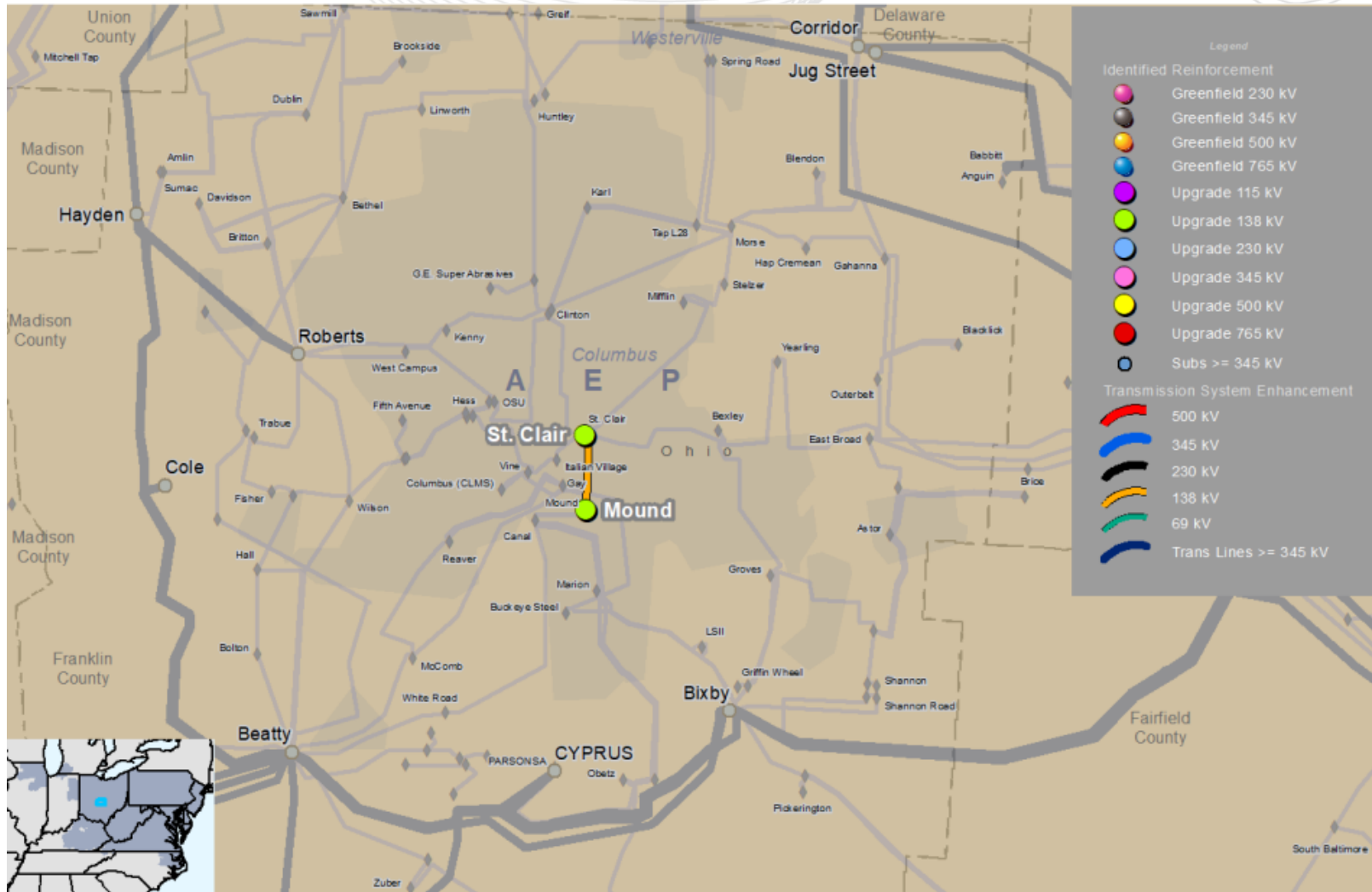
# AEPSCT (AEP)



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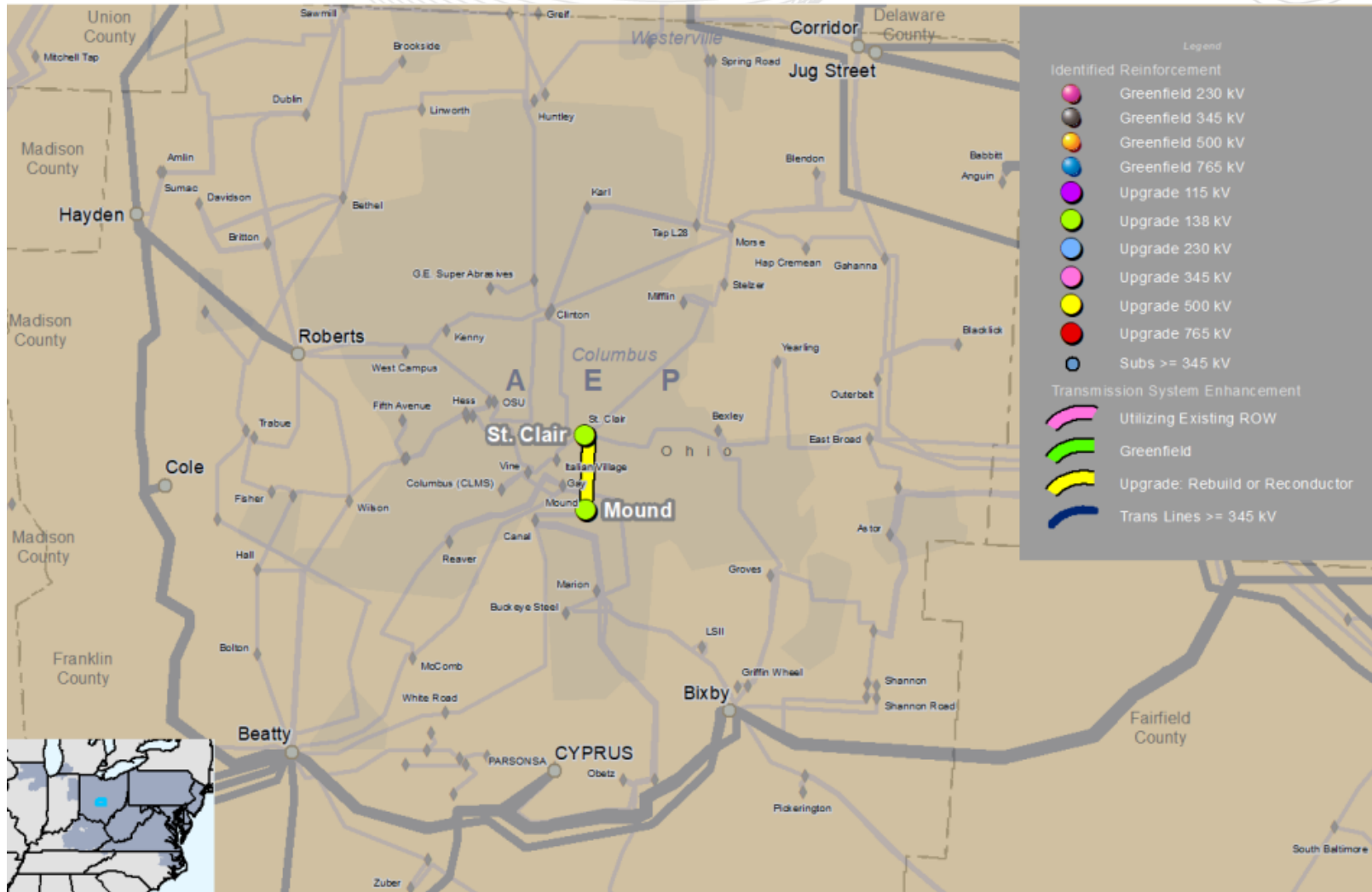


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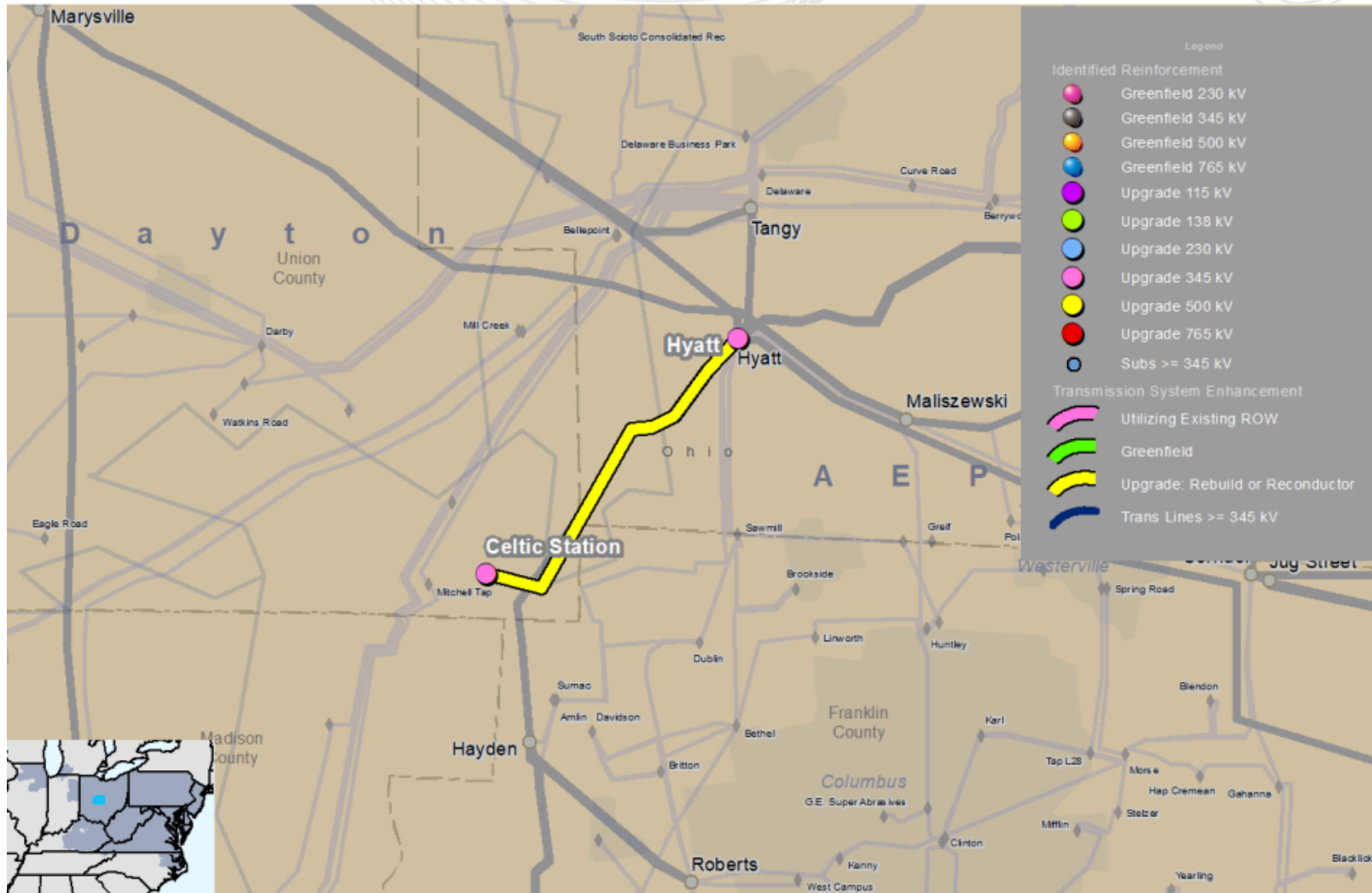




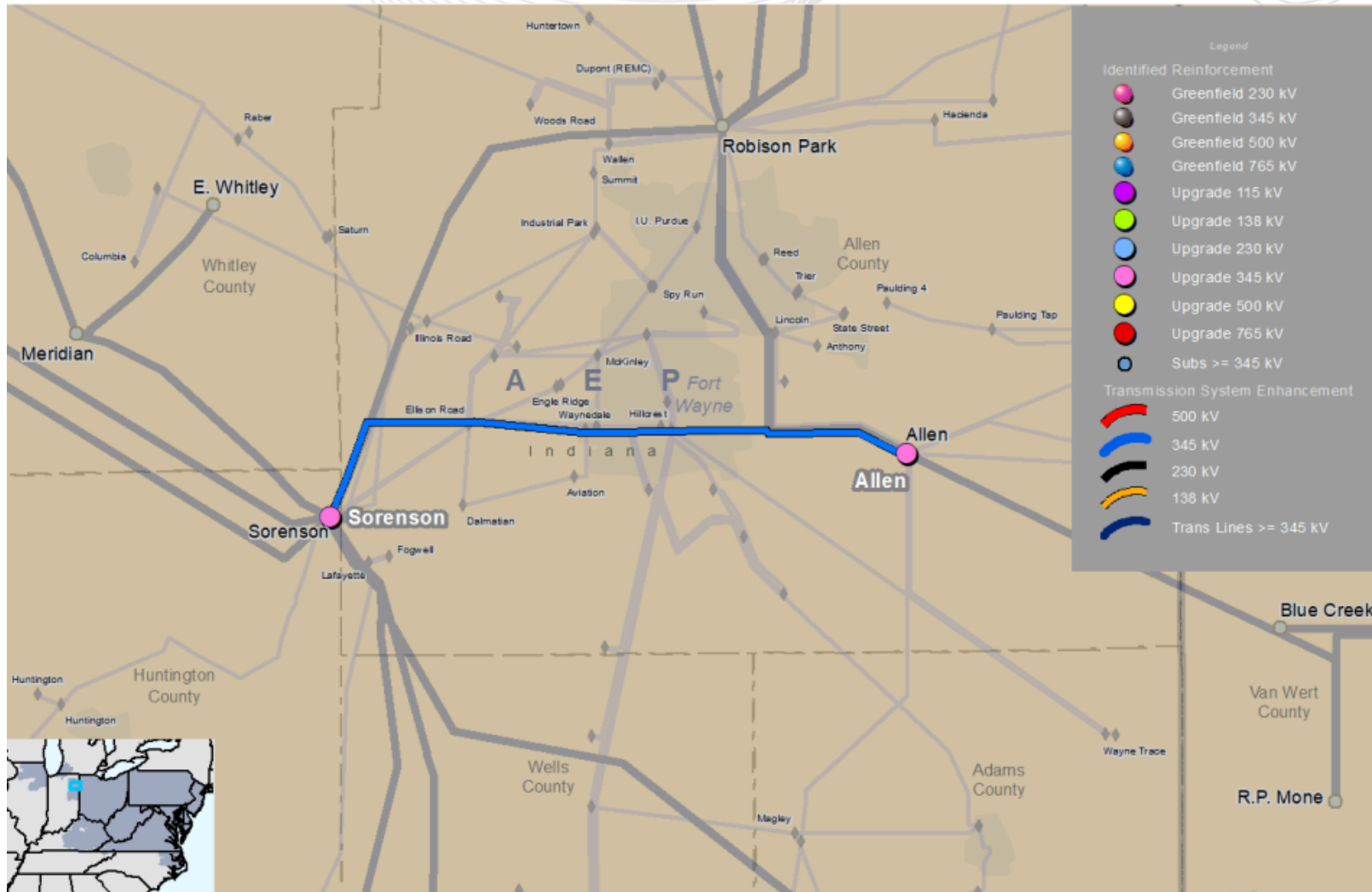
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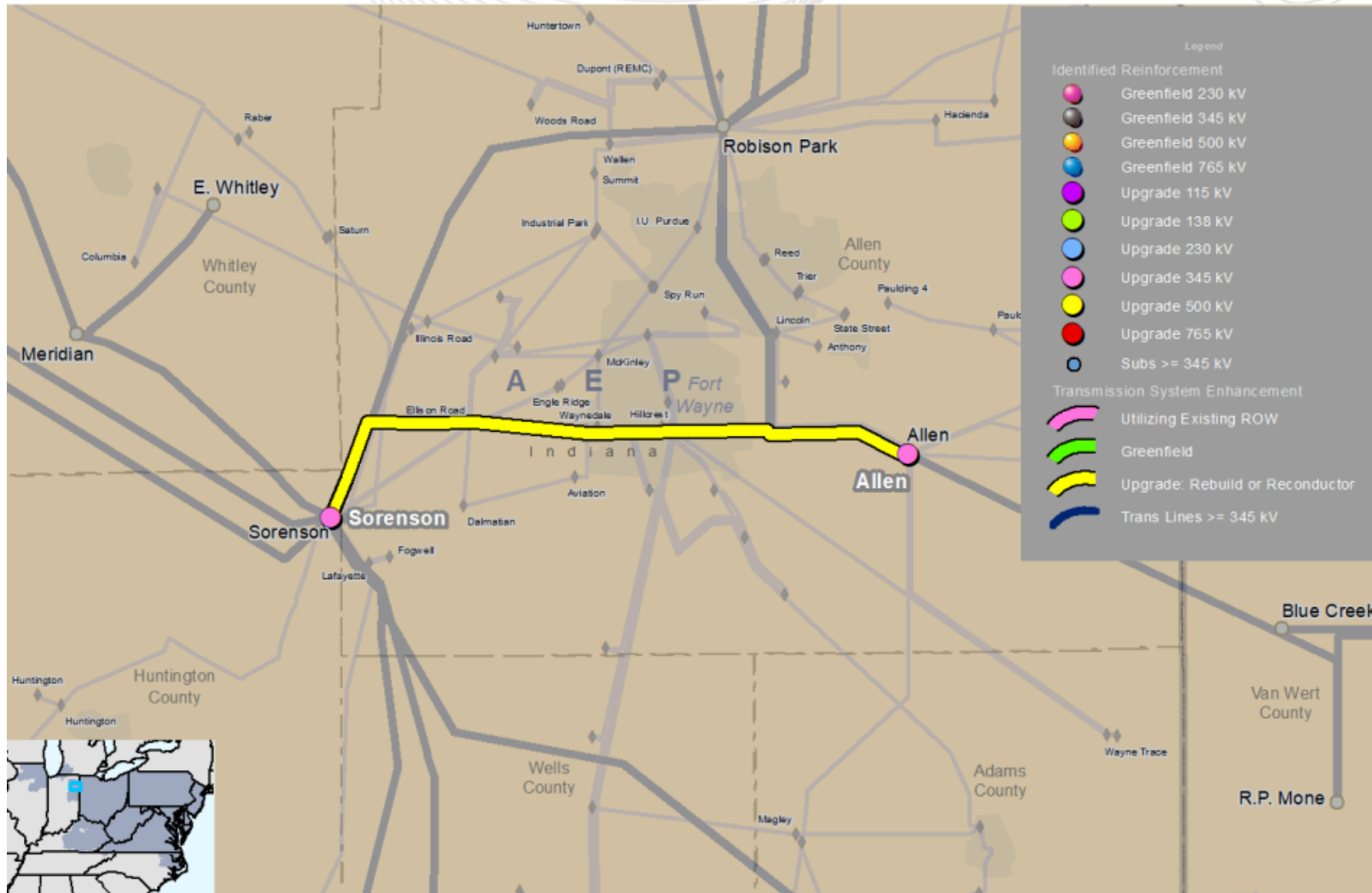
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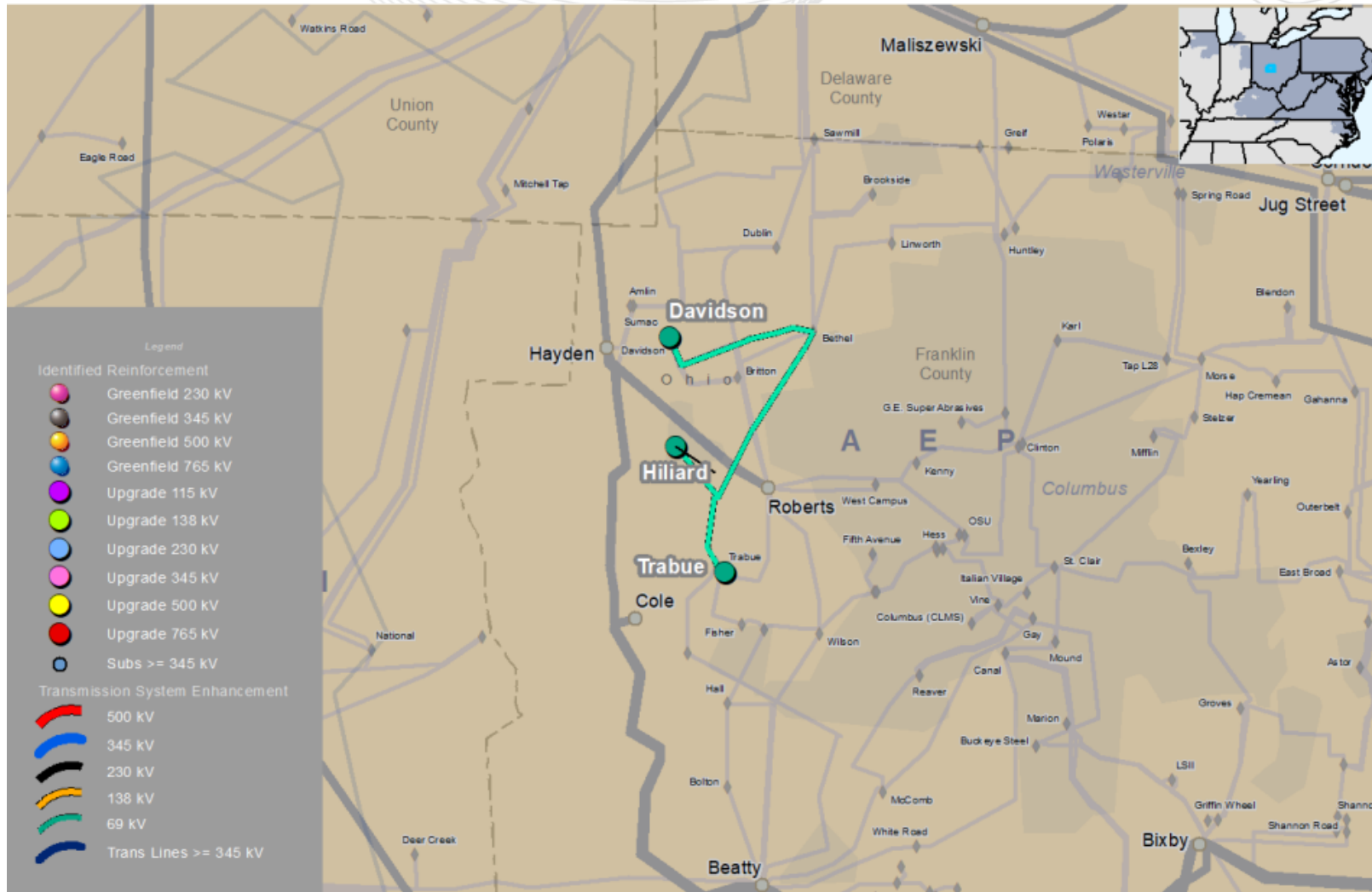


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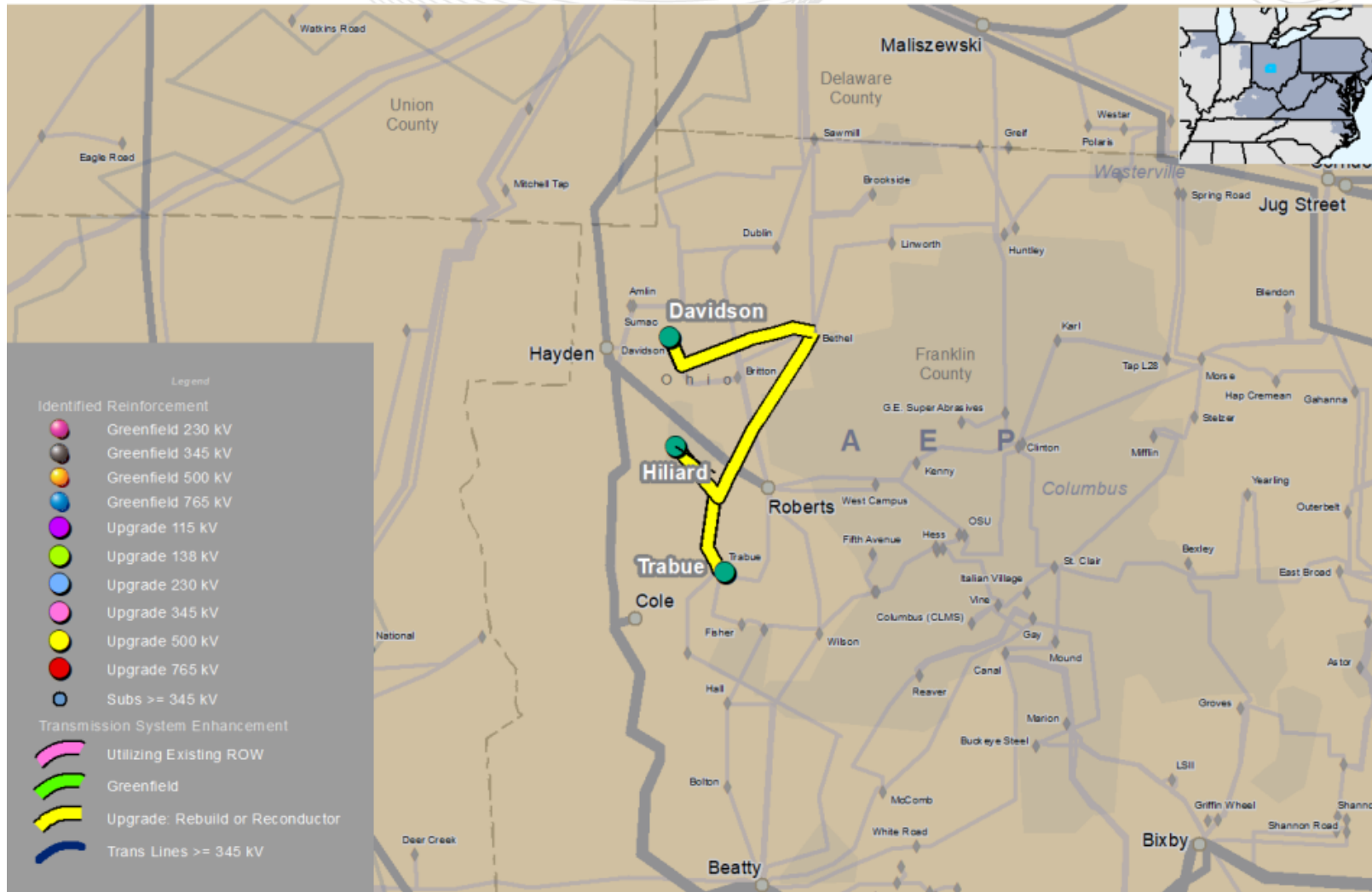


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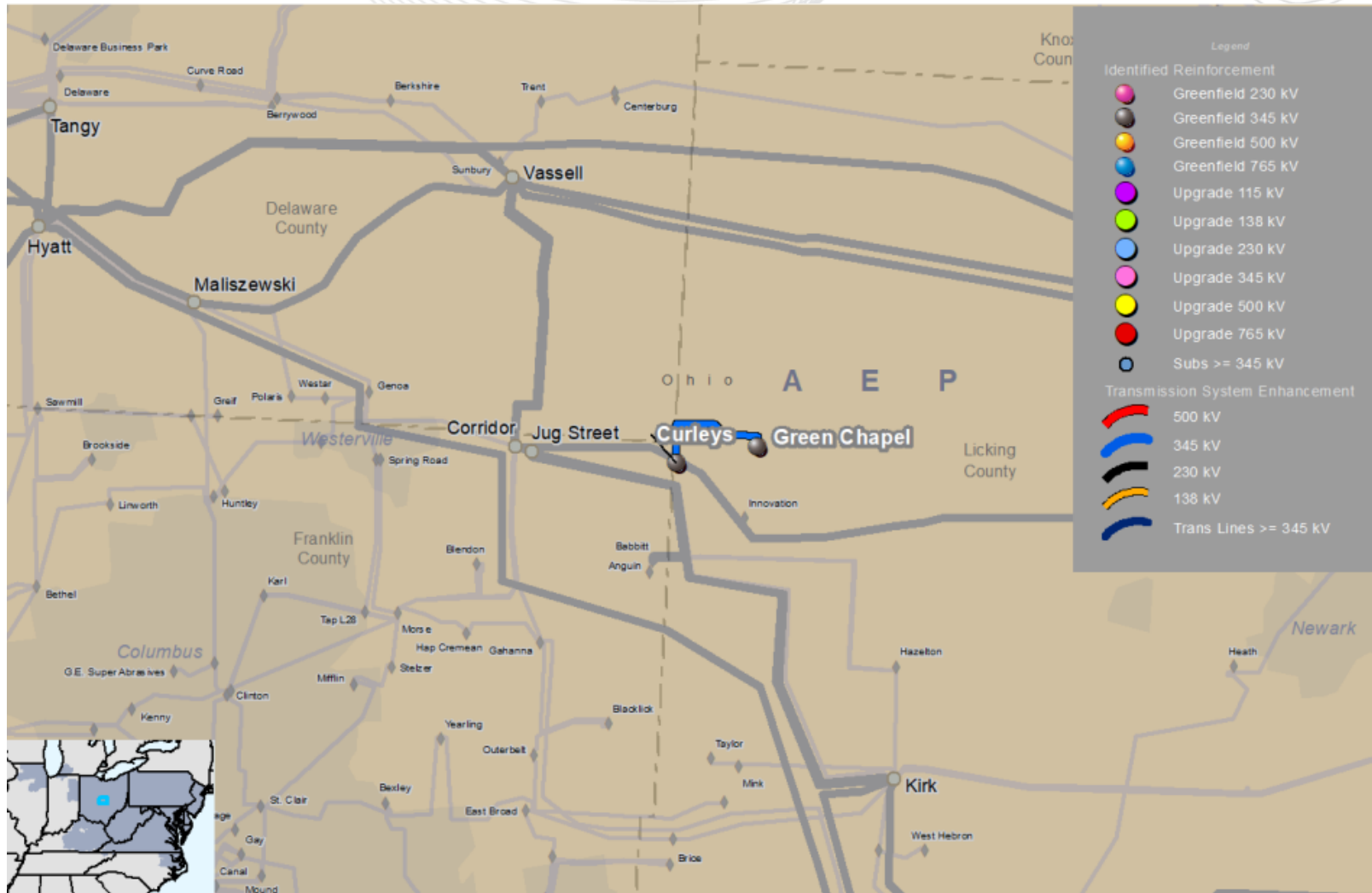




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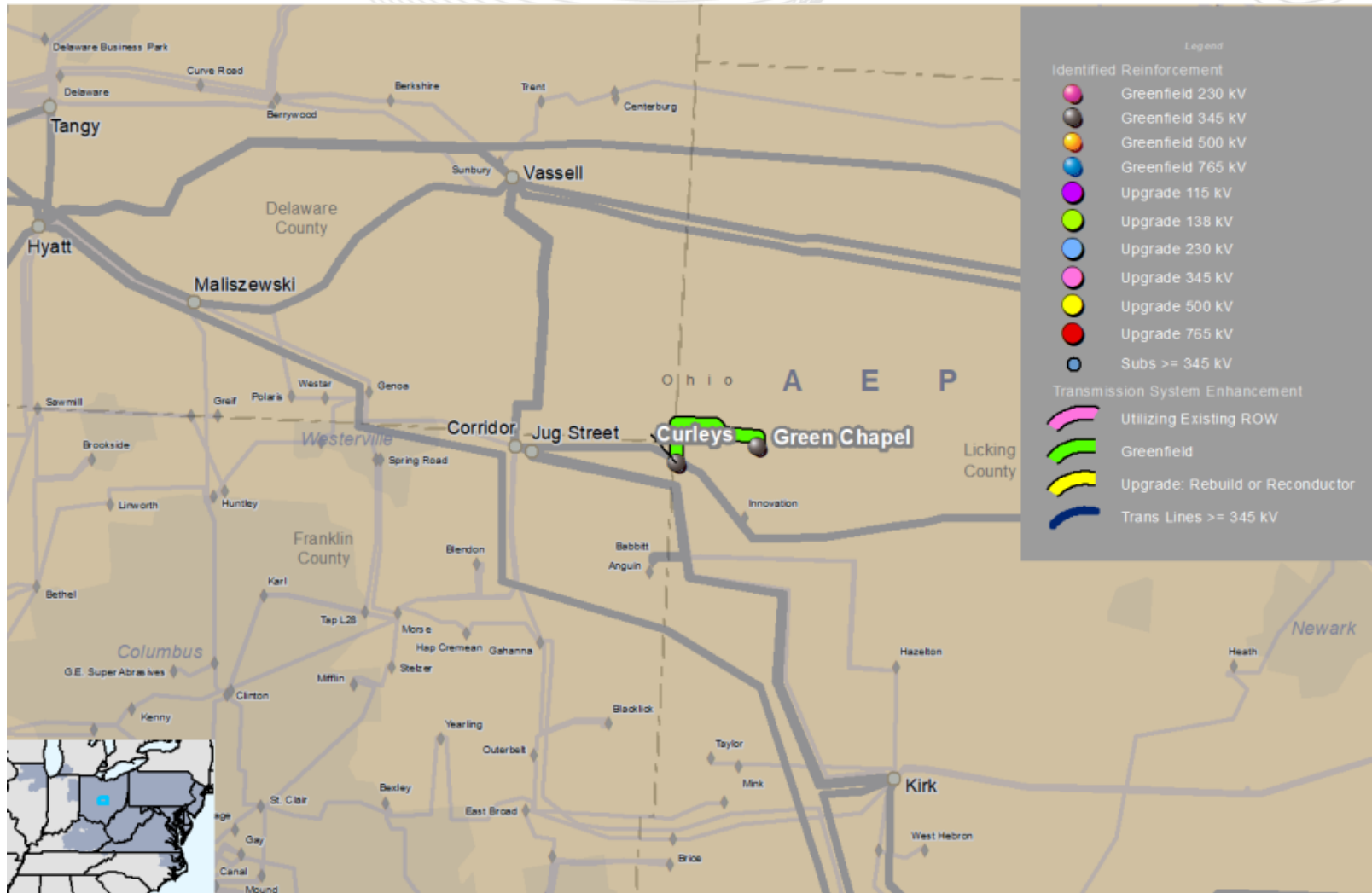


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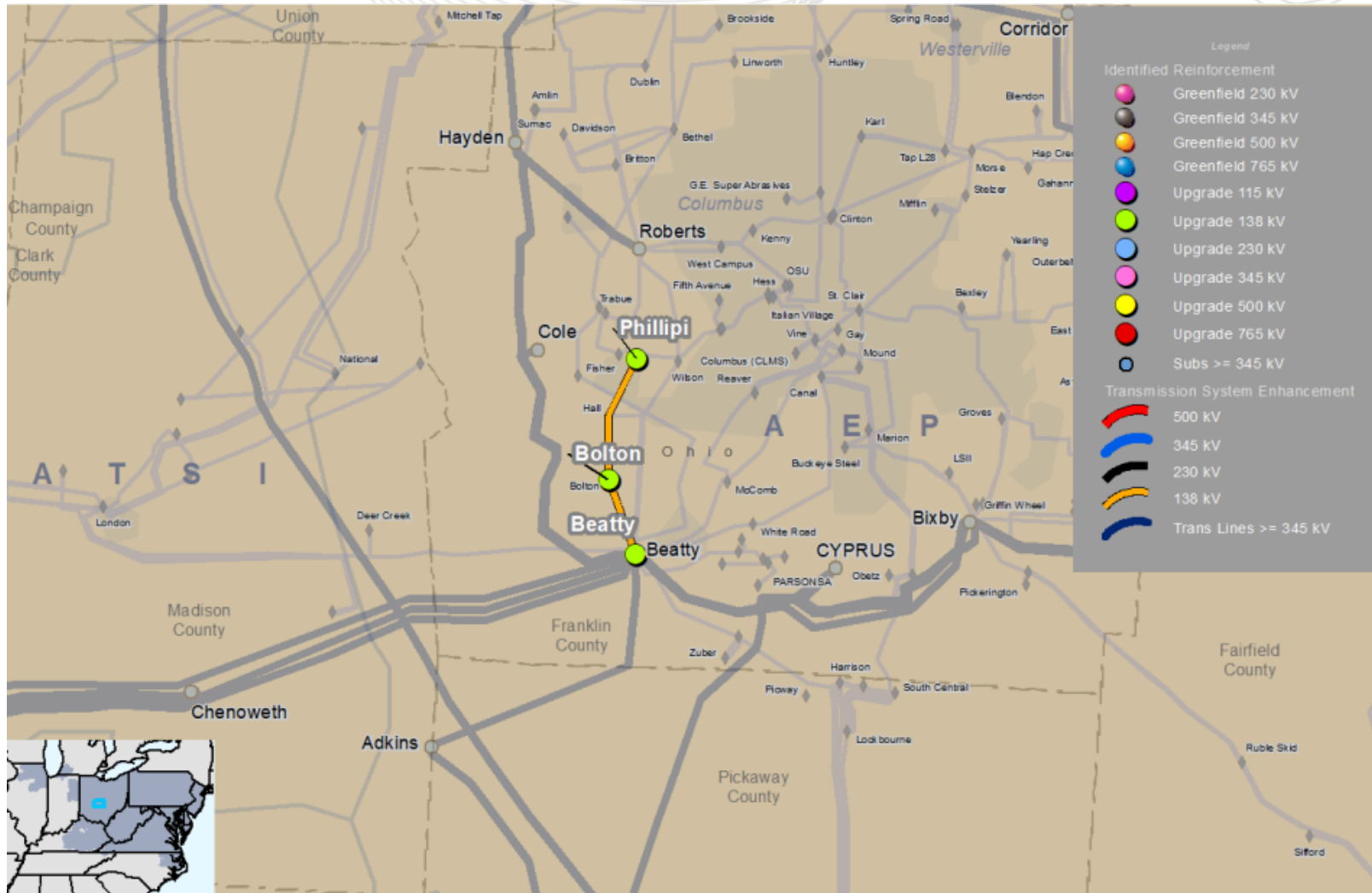


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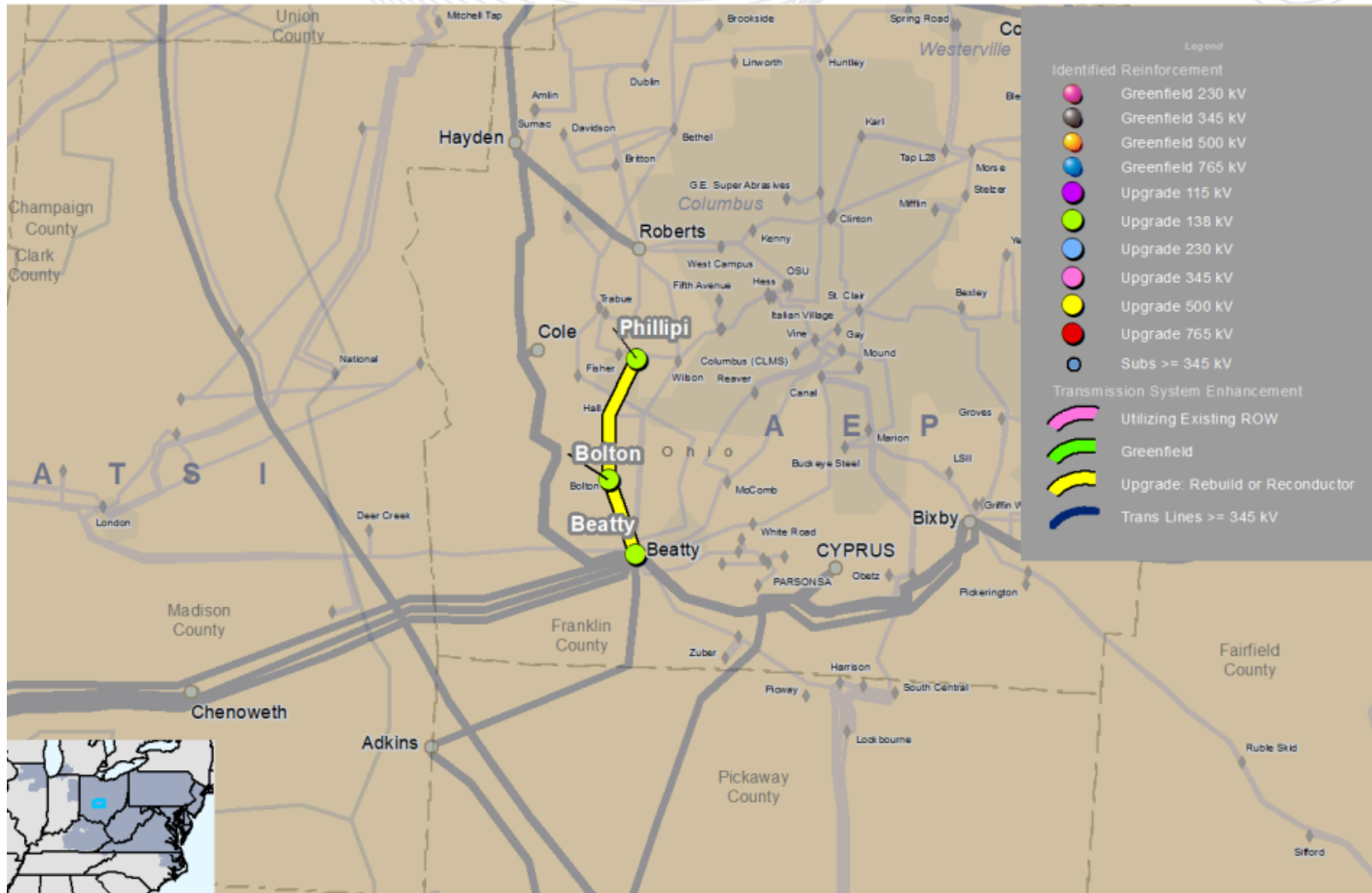




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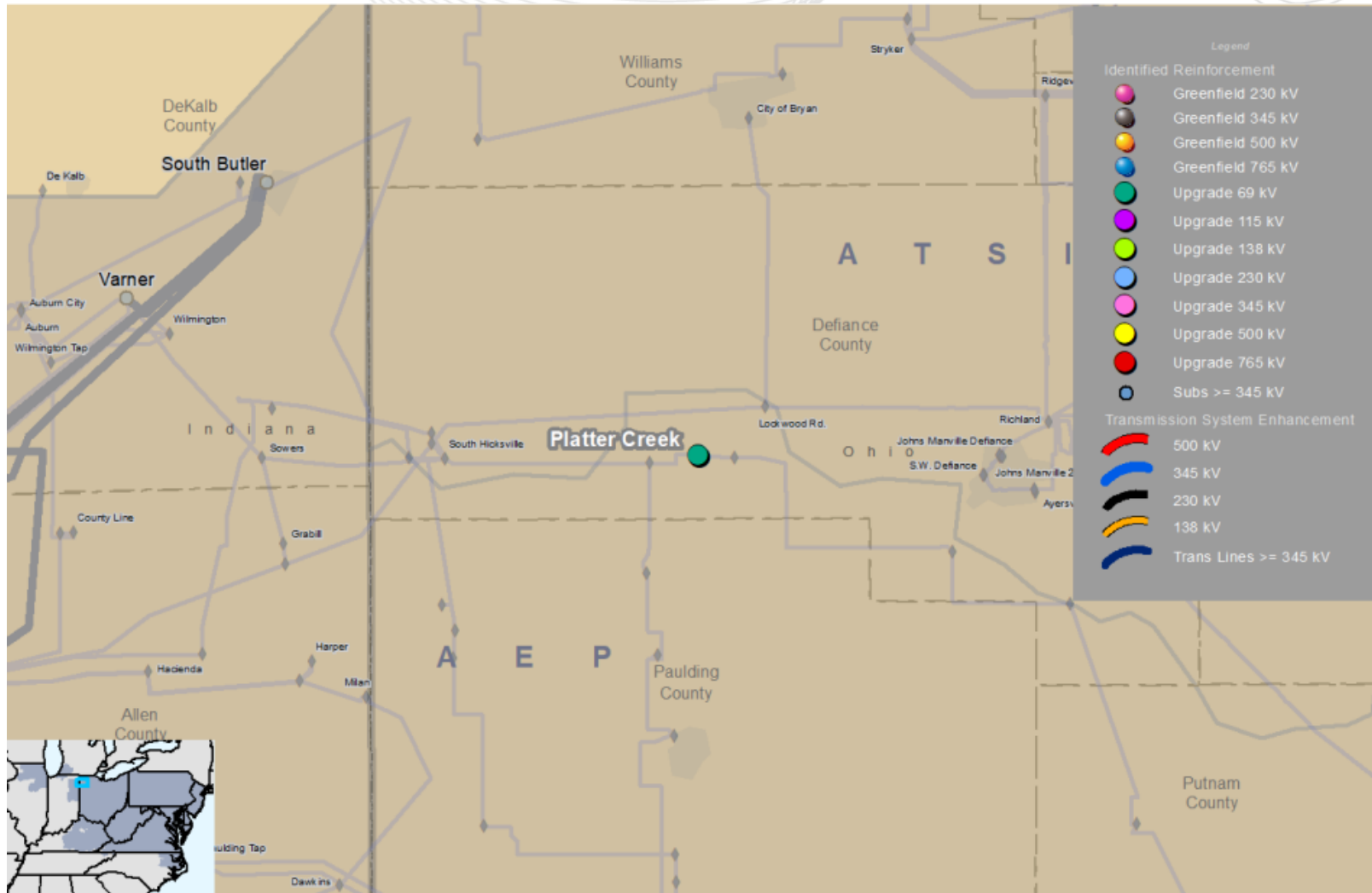


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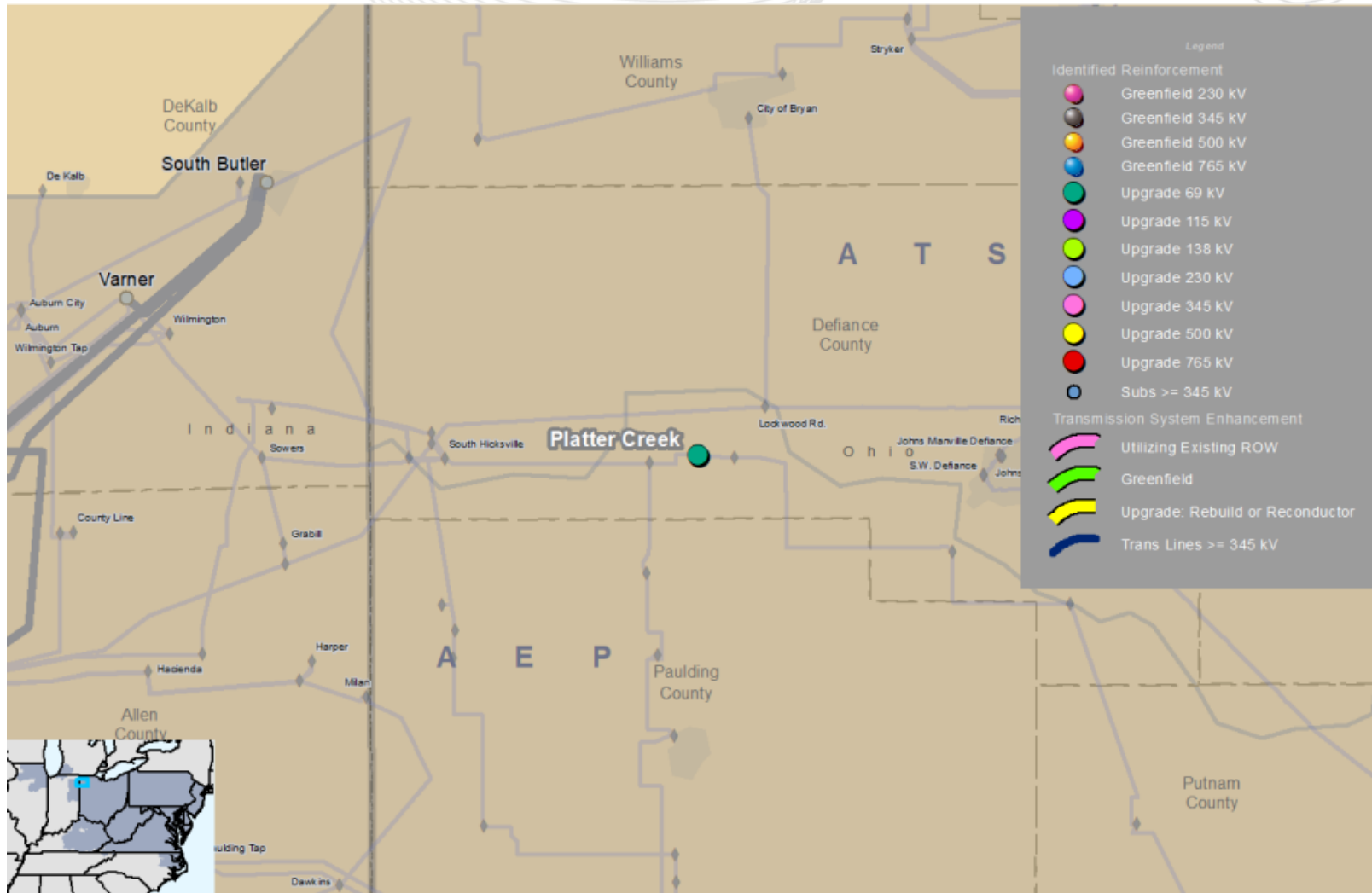


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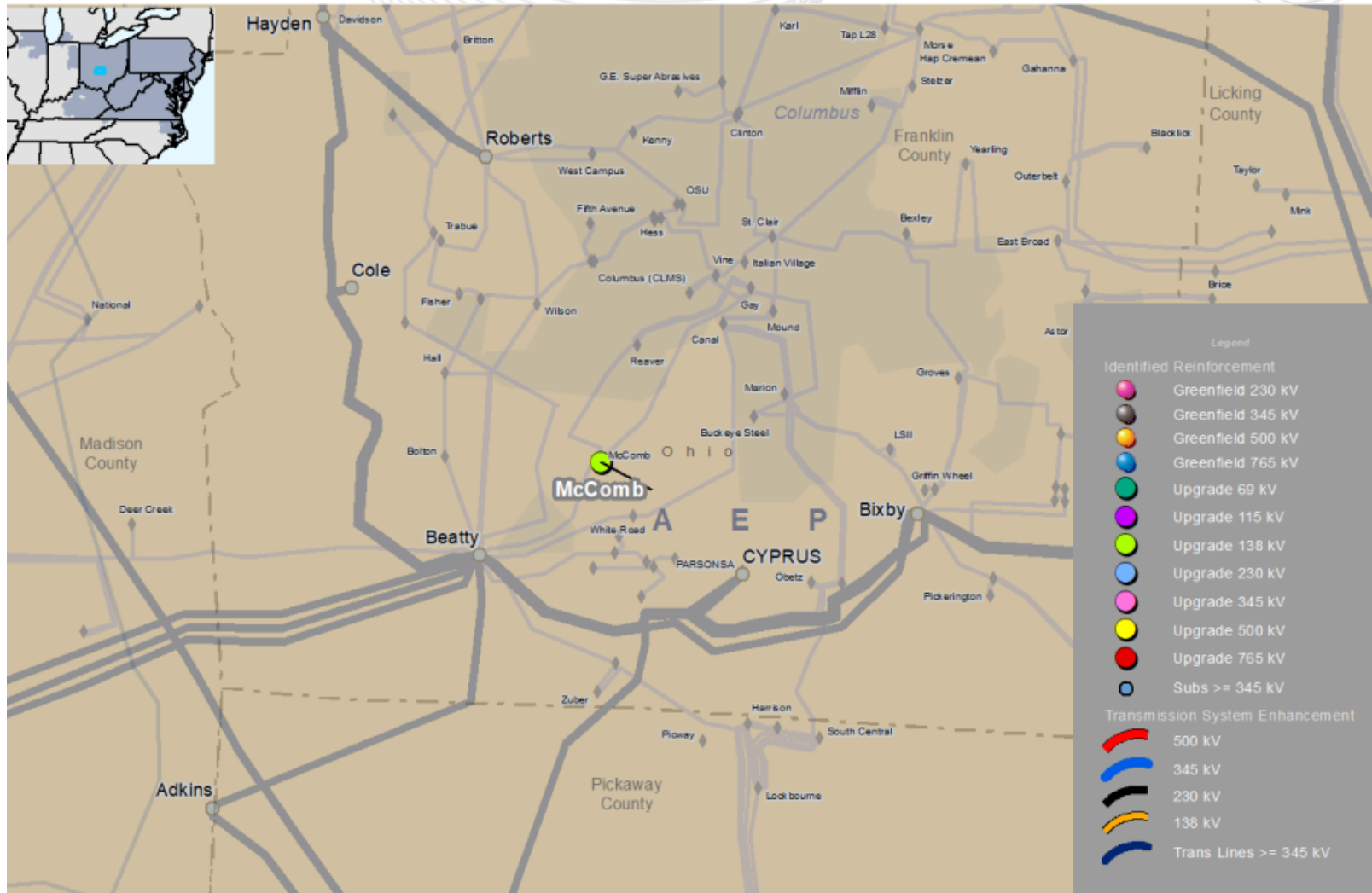




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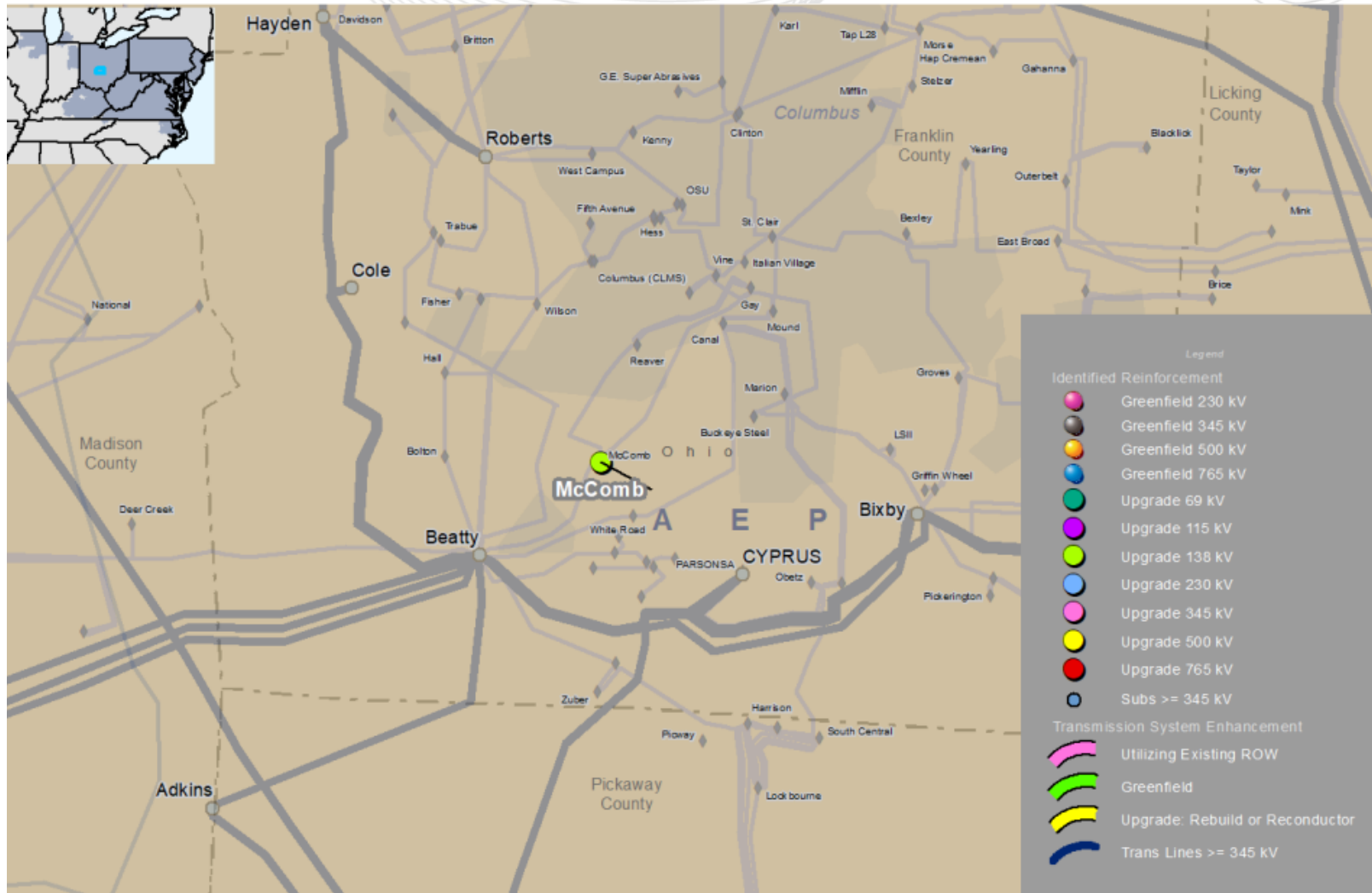


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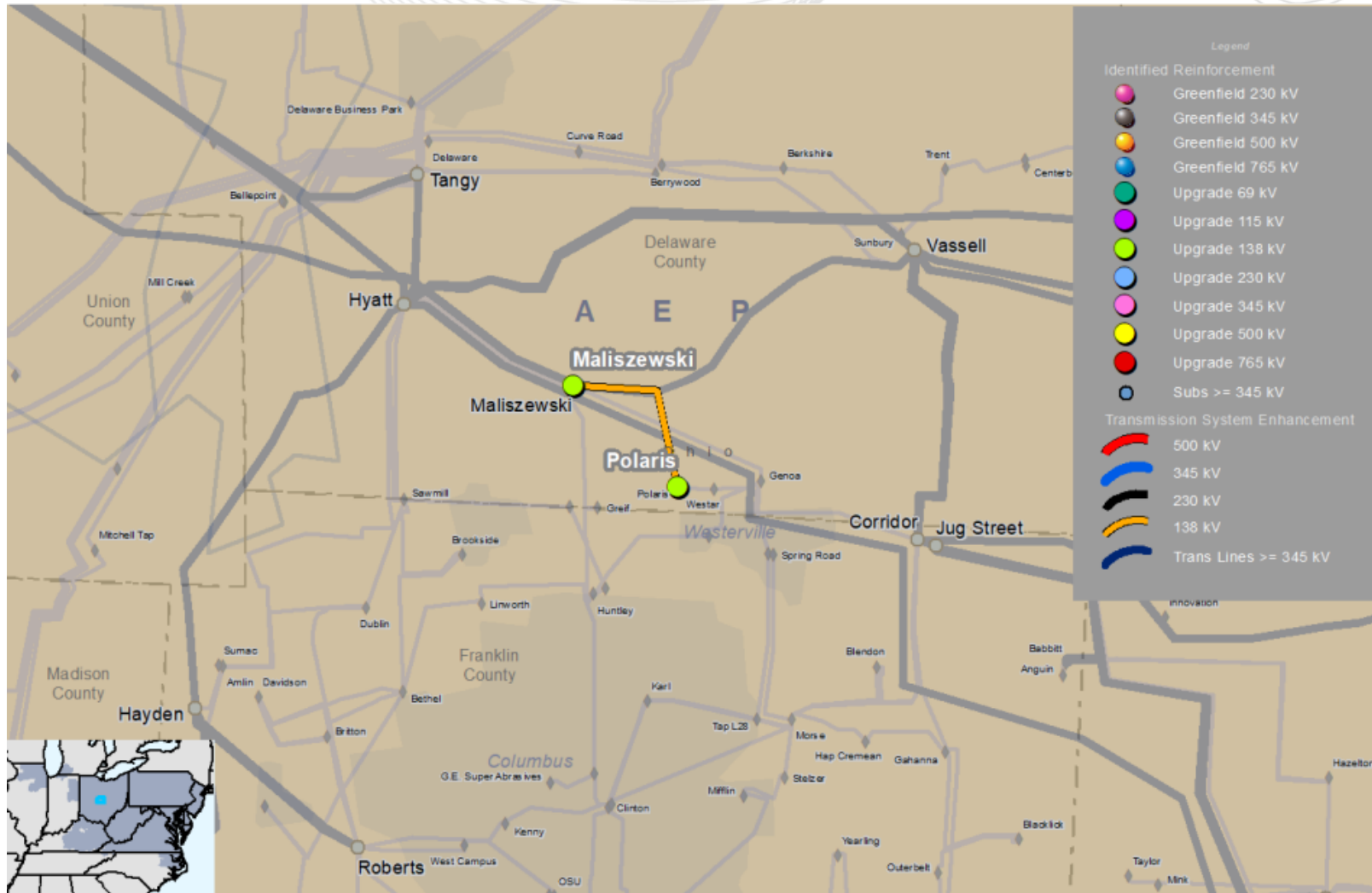


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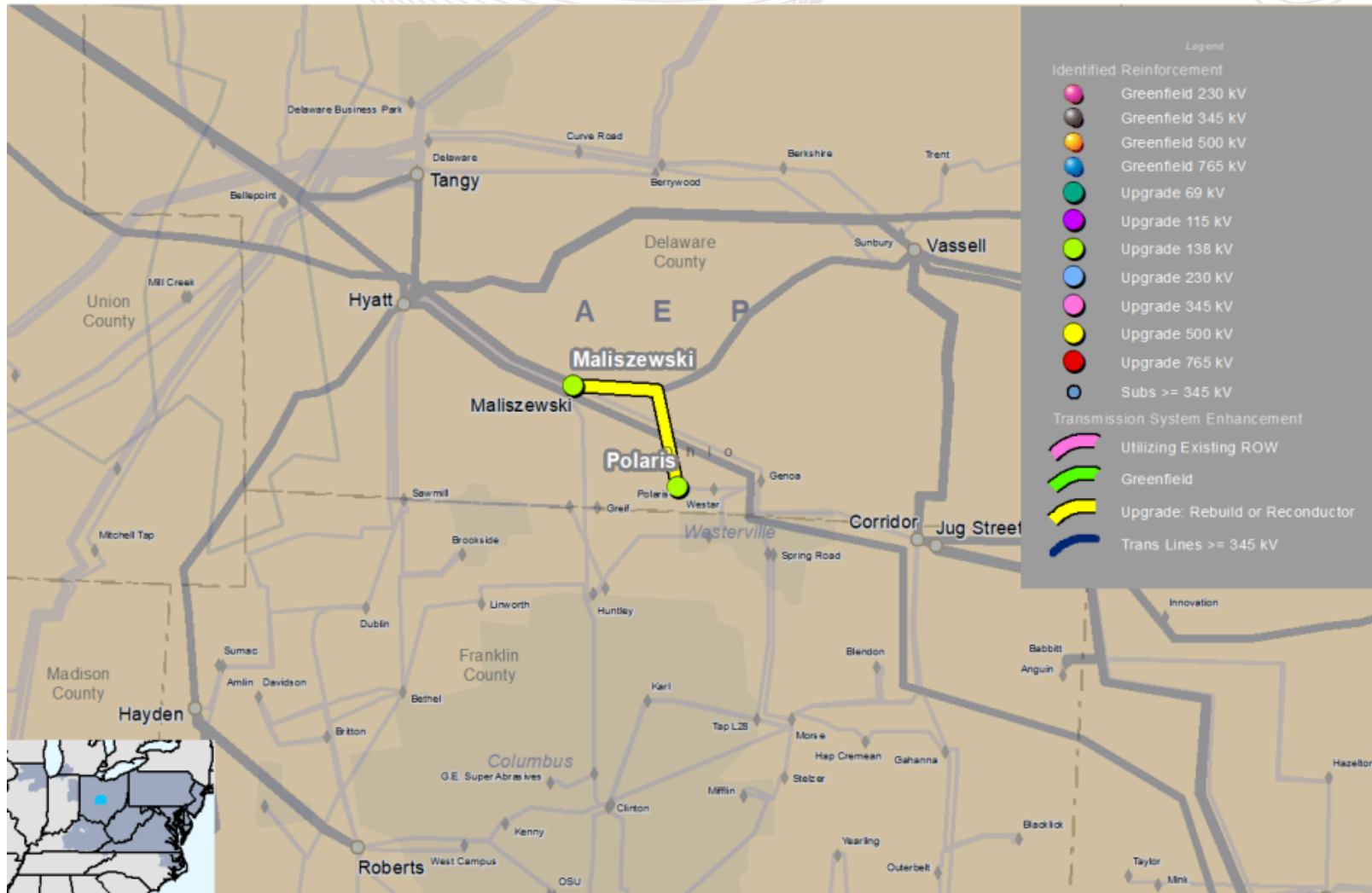




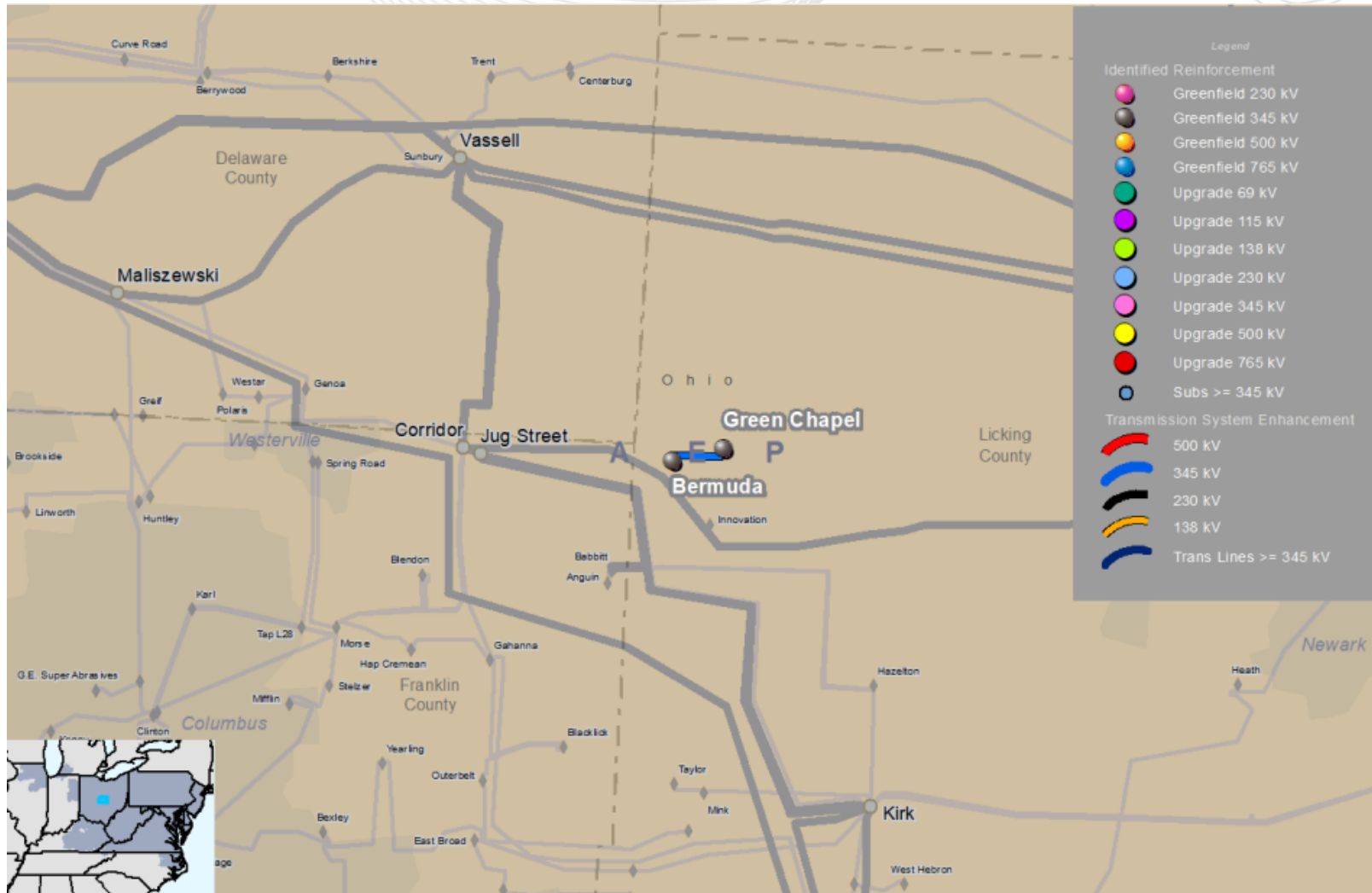
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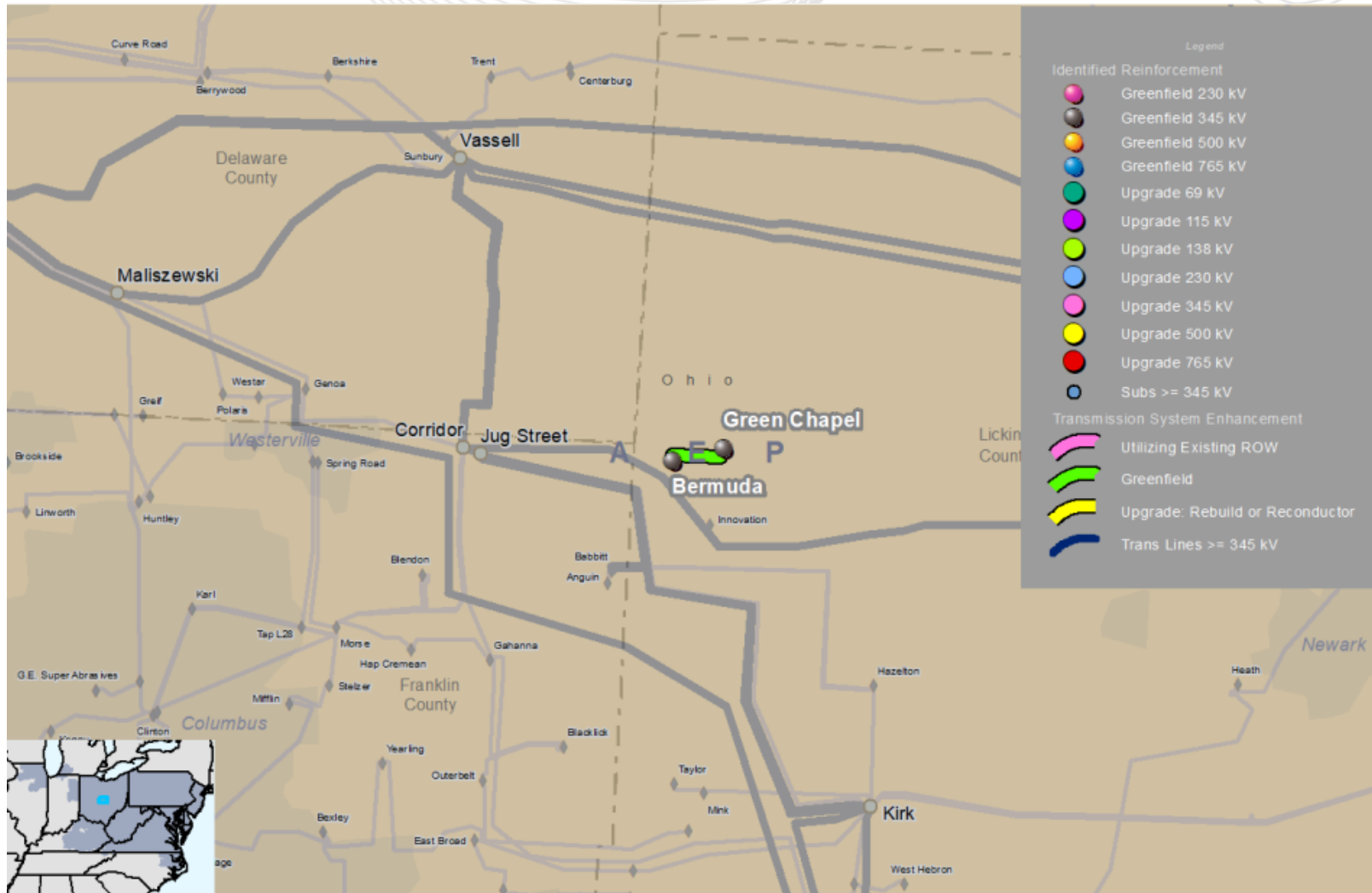


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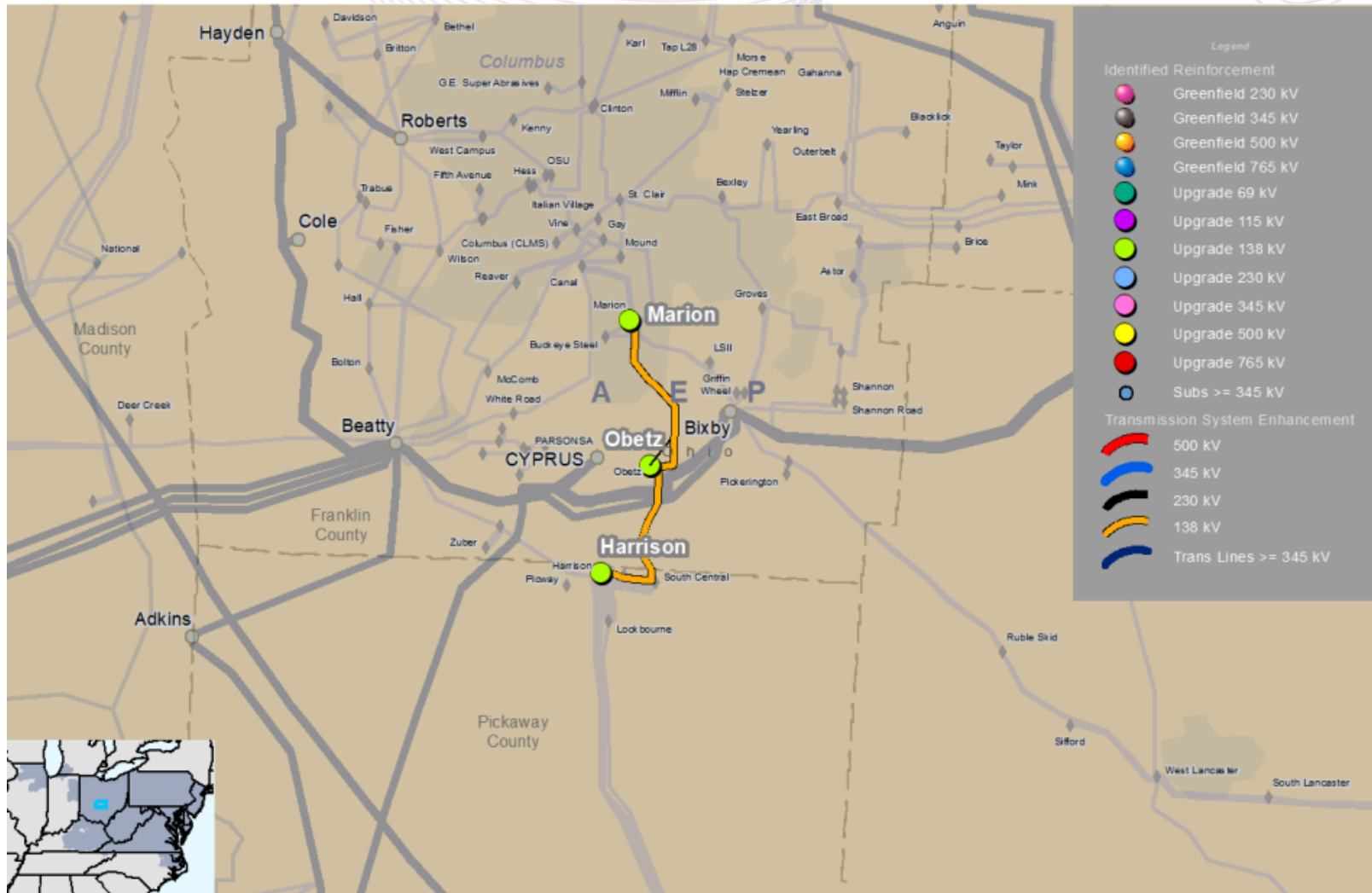


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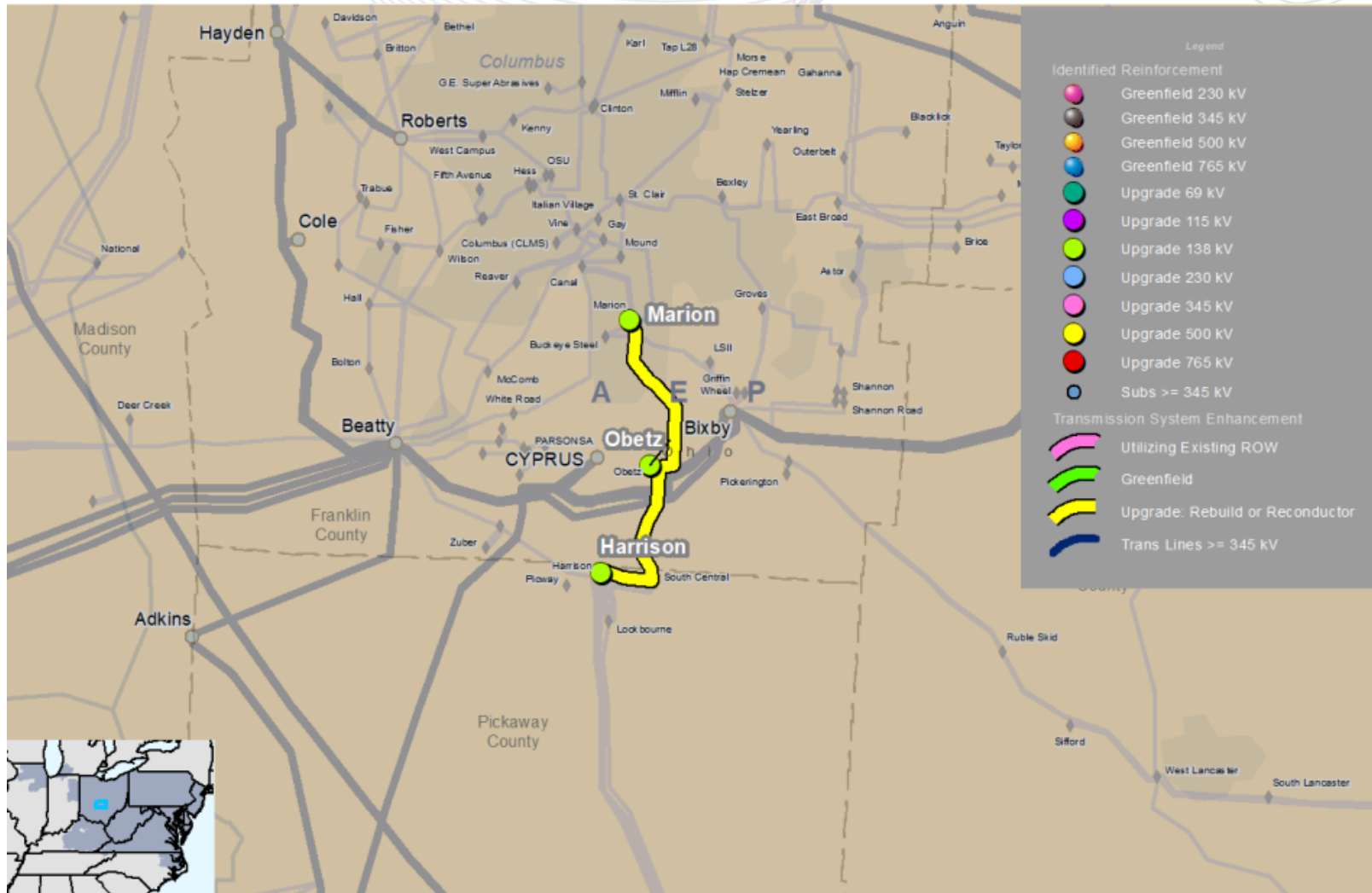




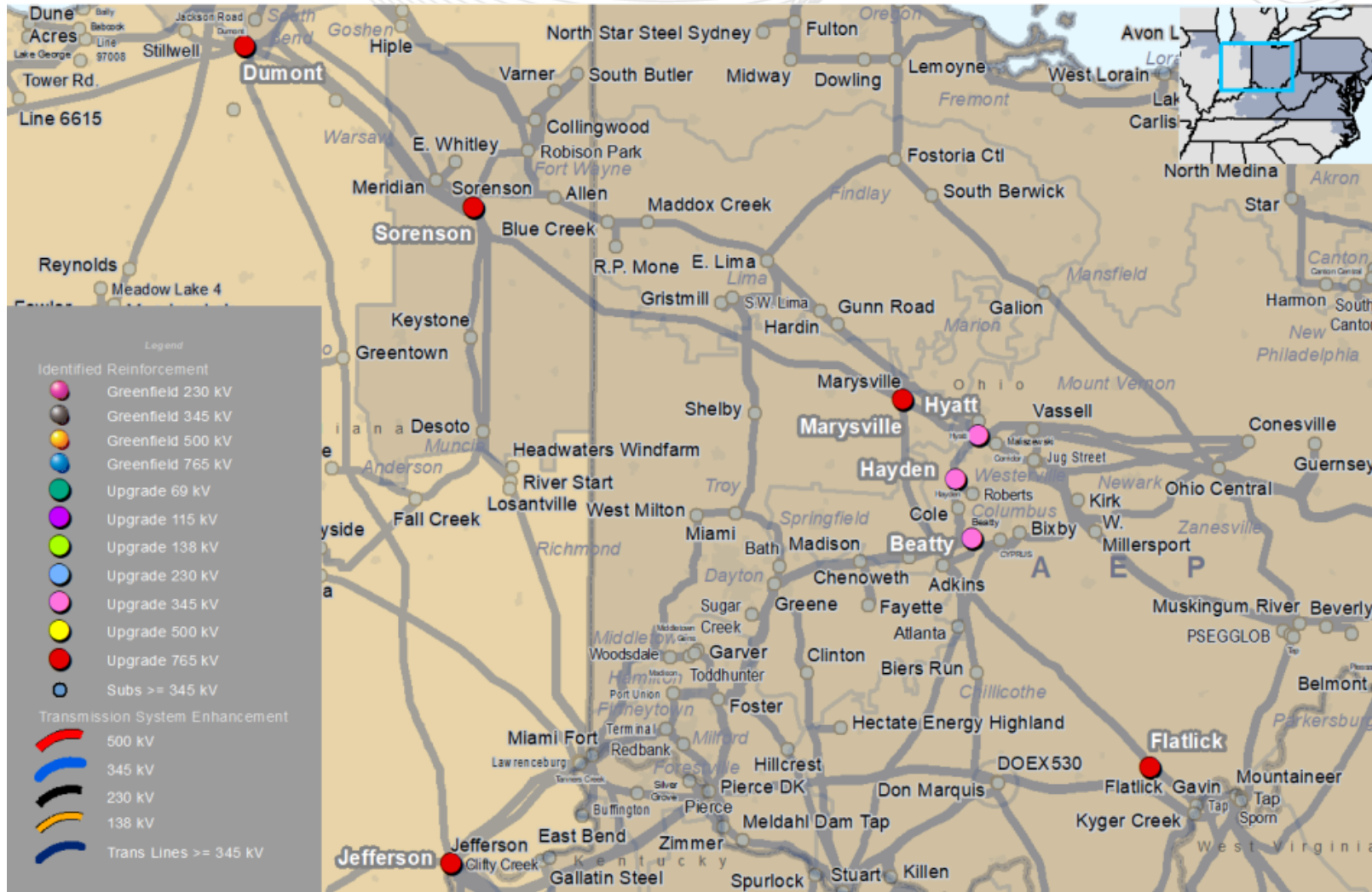
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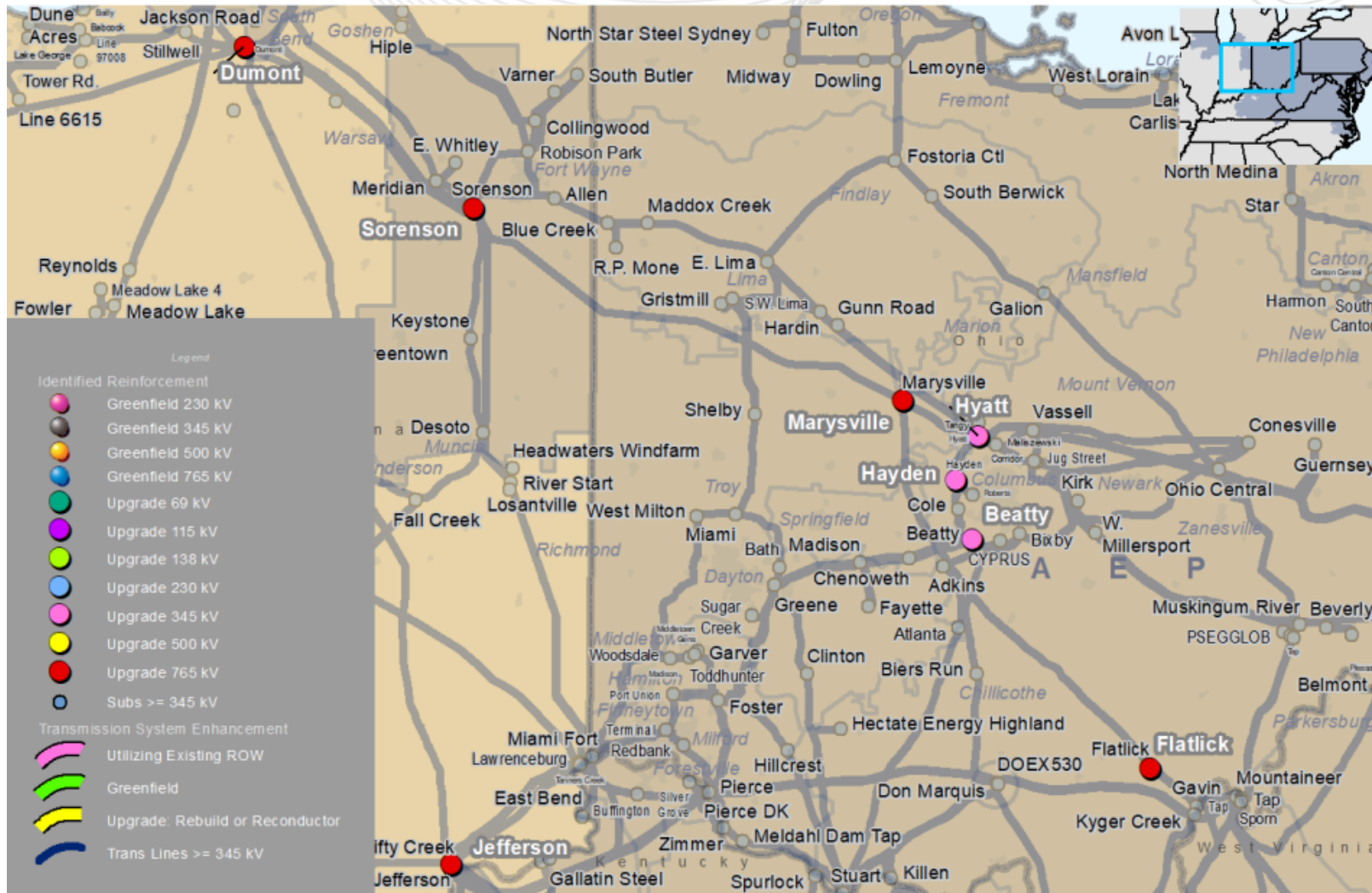


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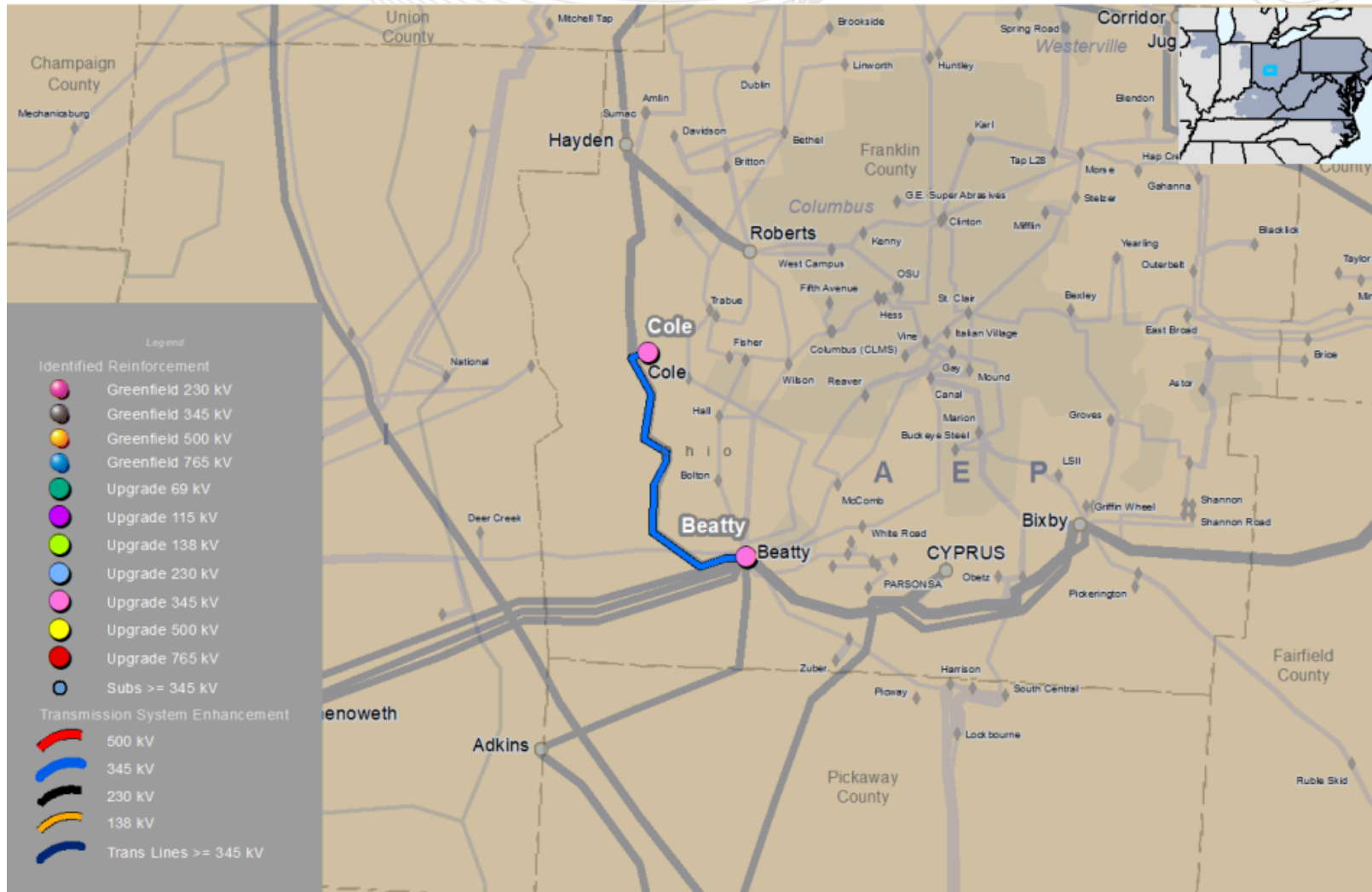


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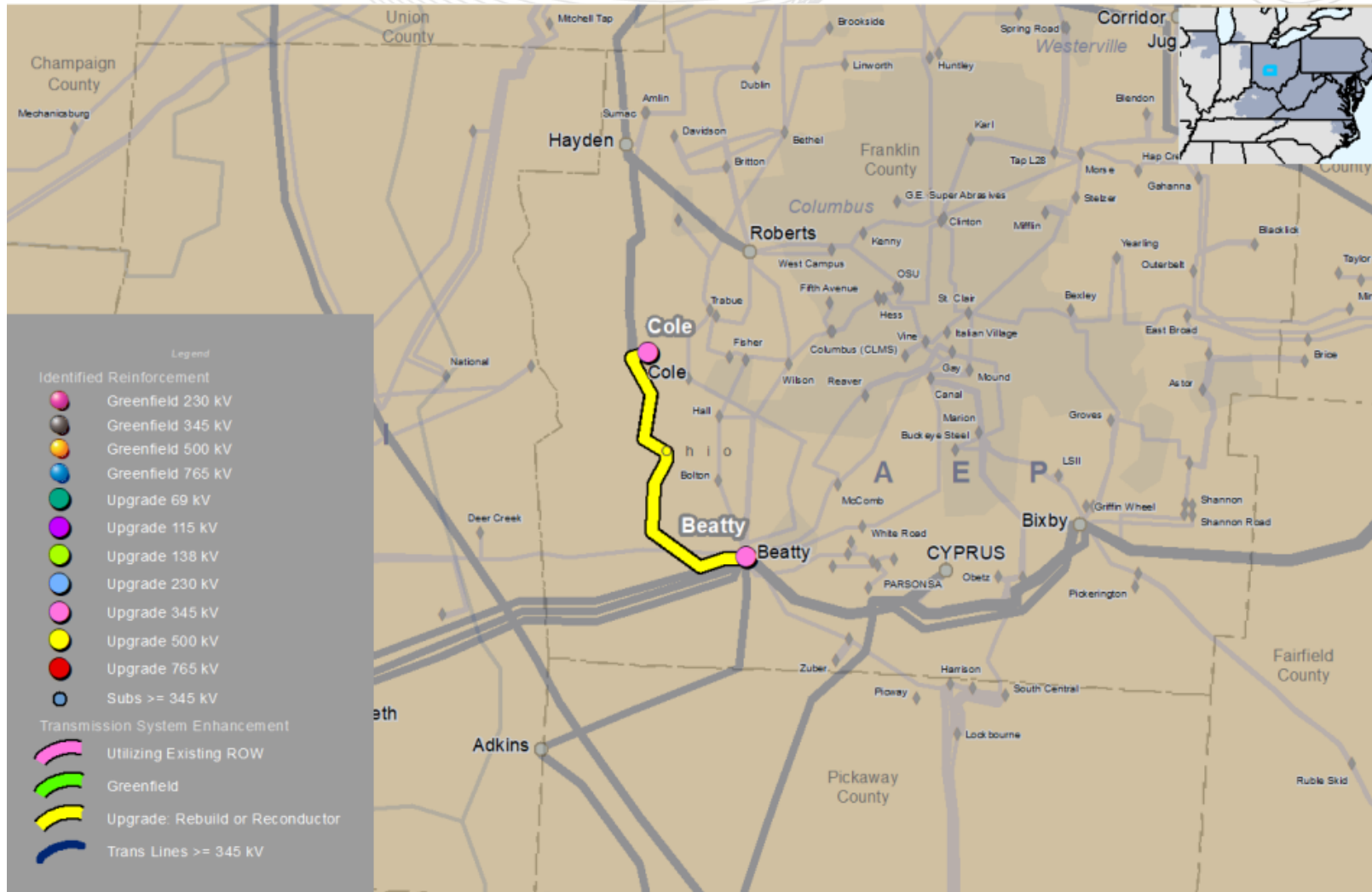




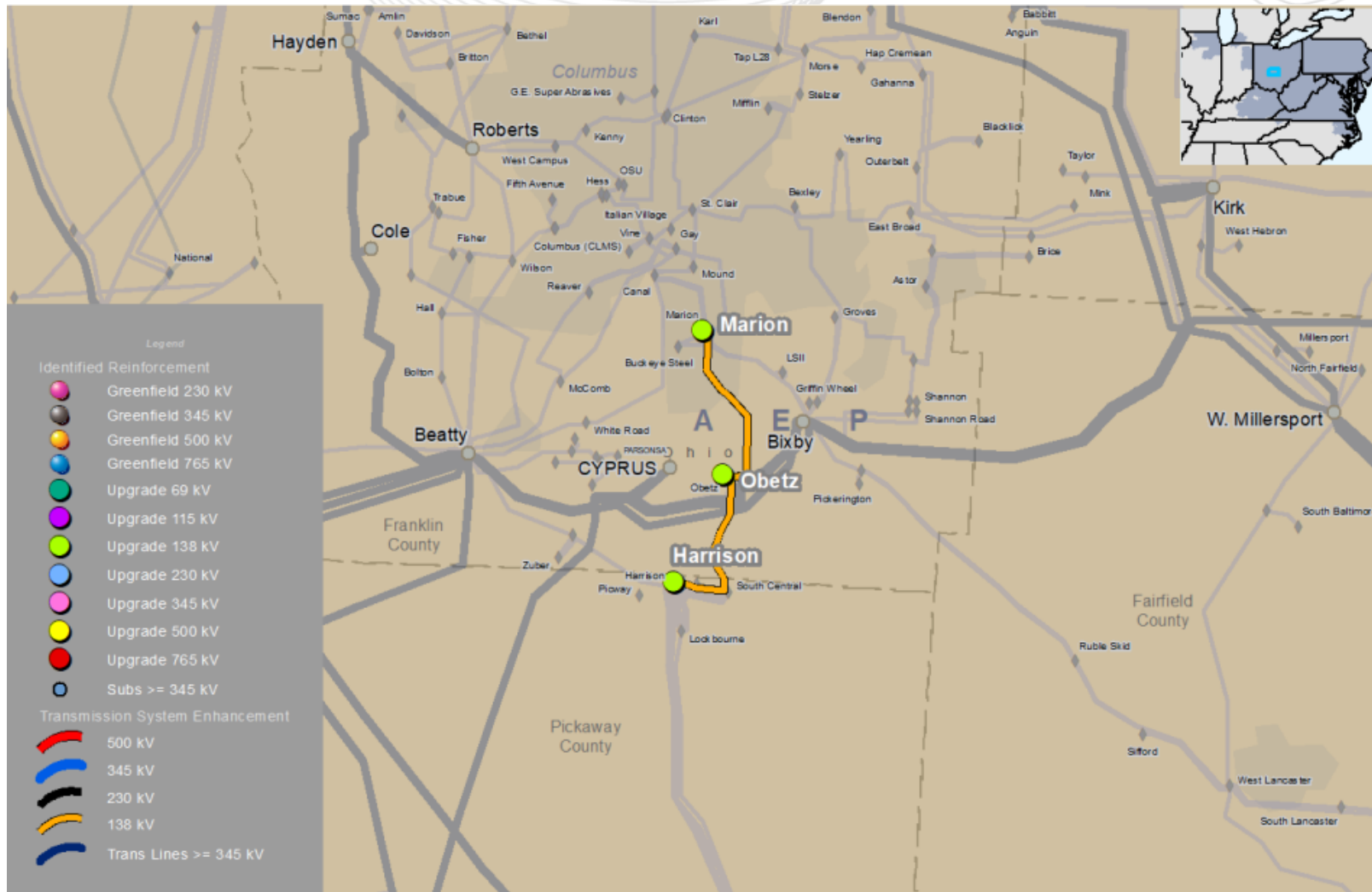
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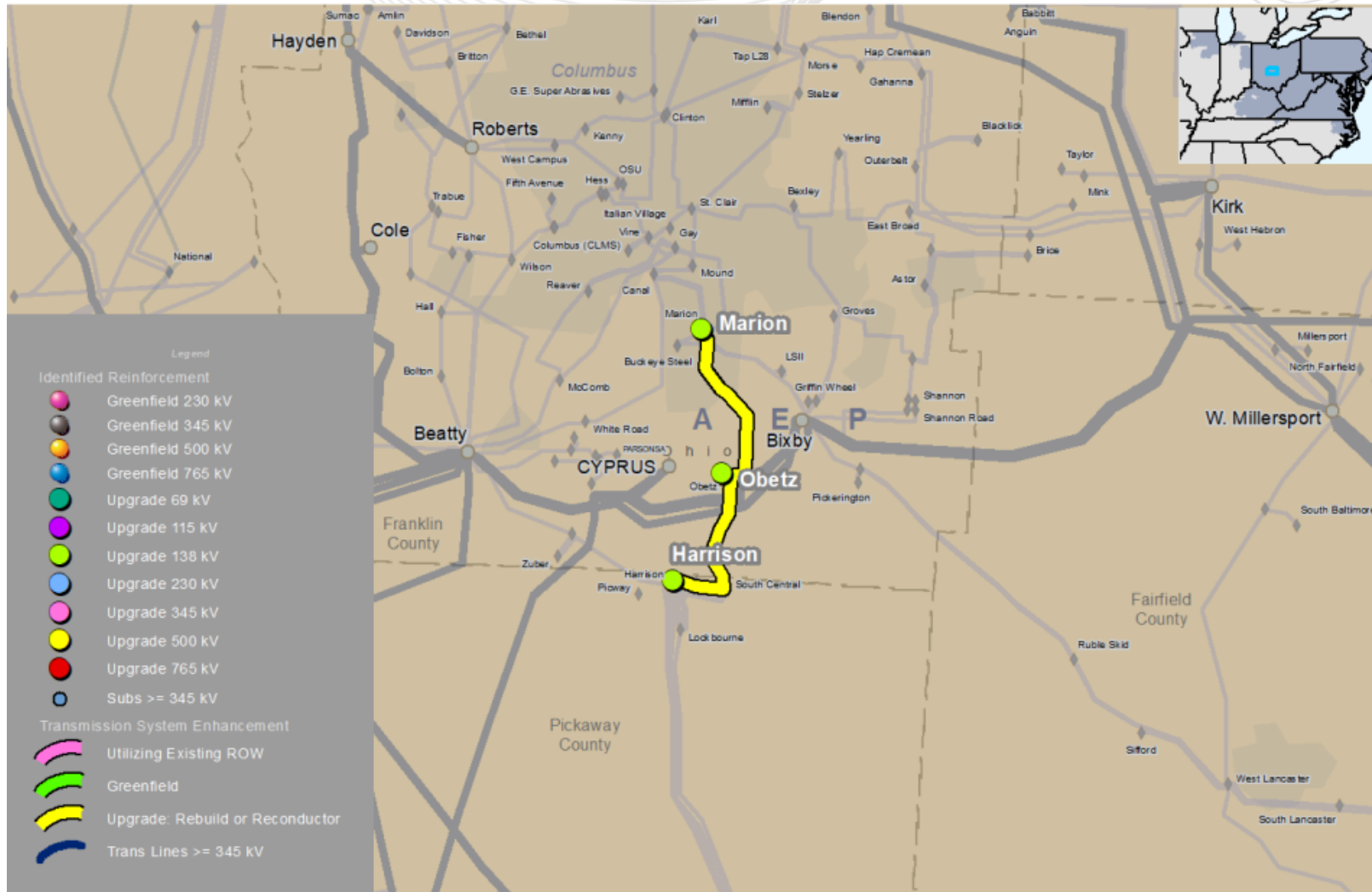


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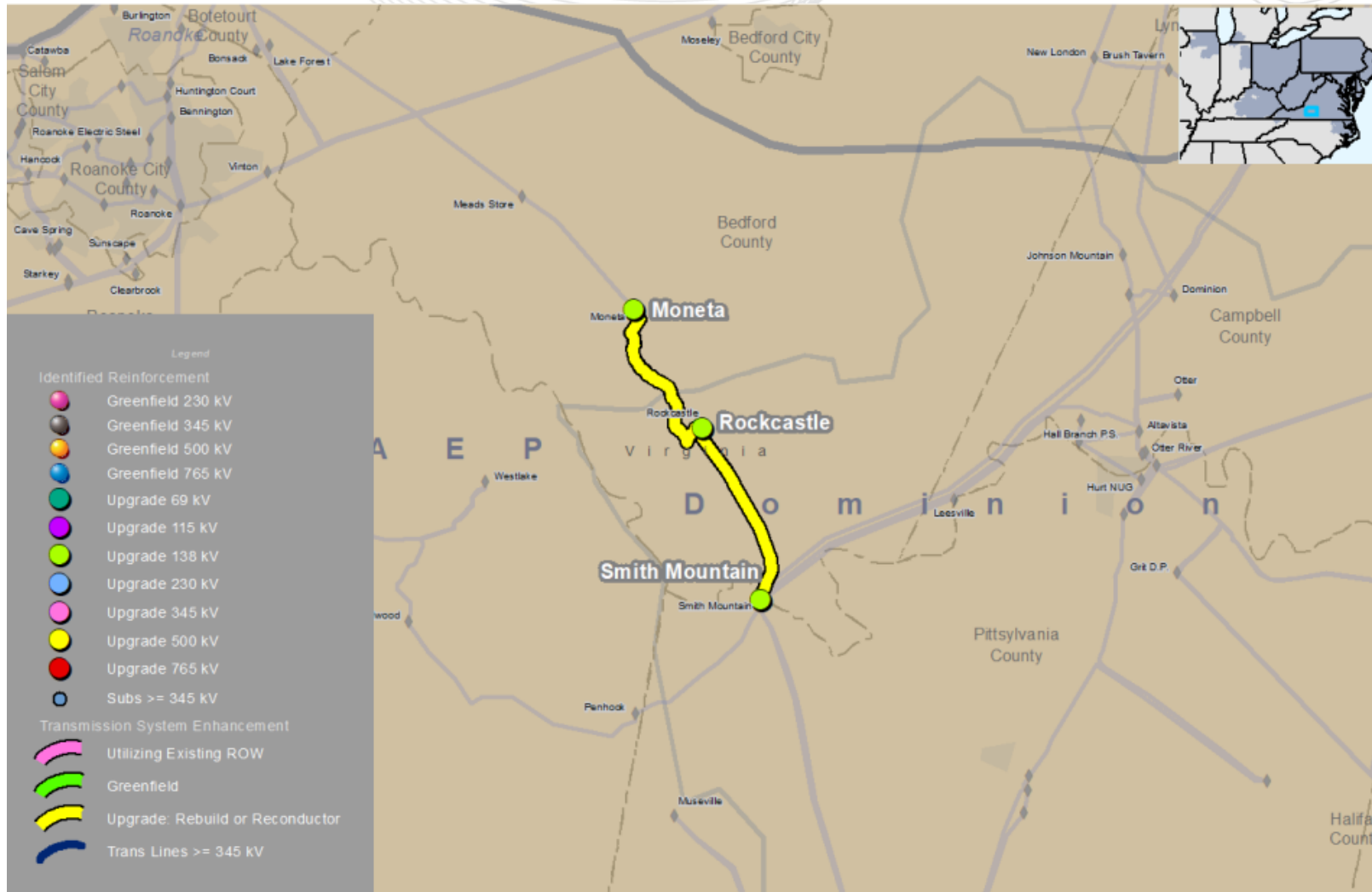




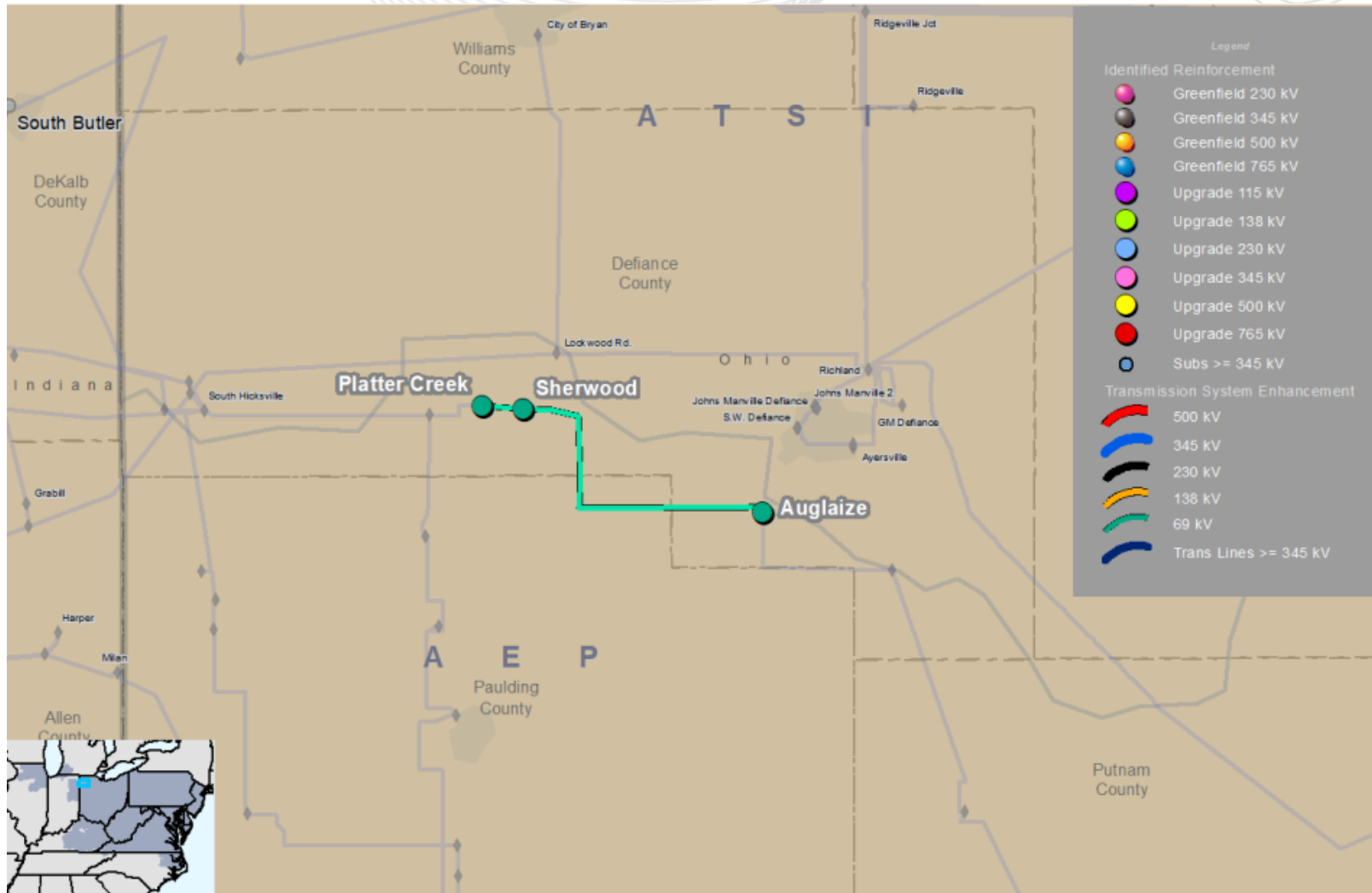
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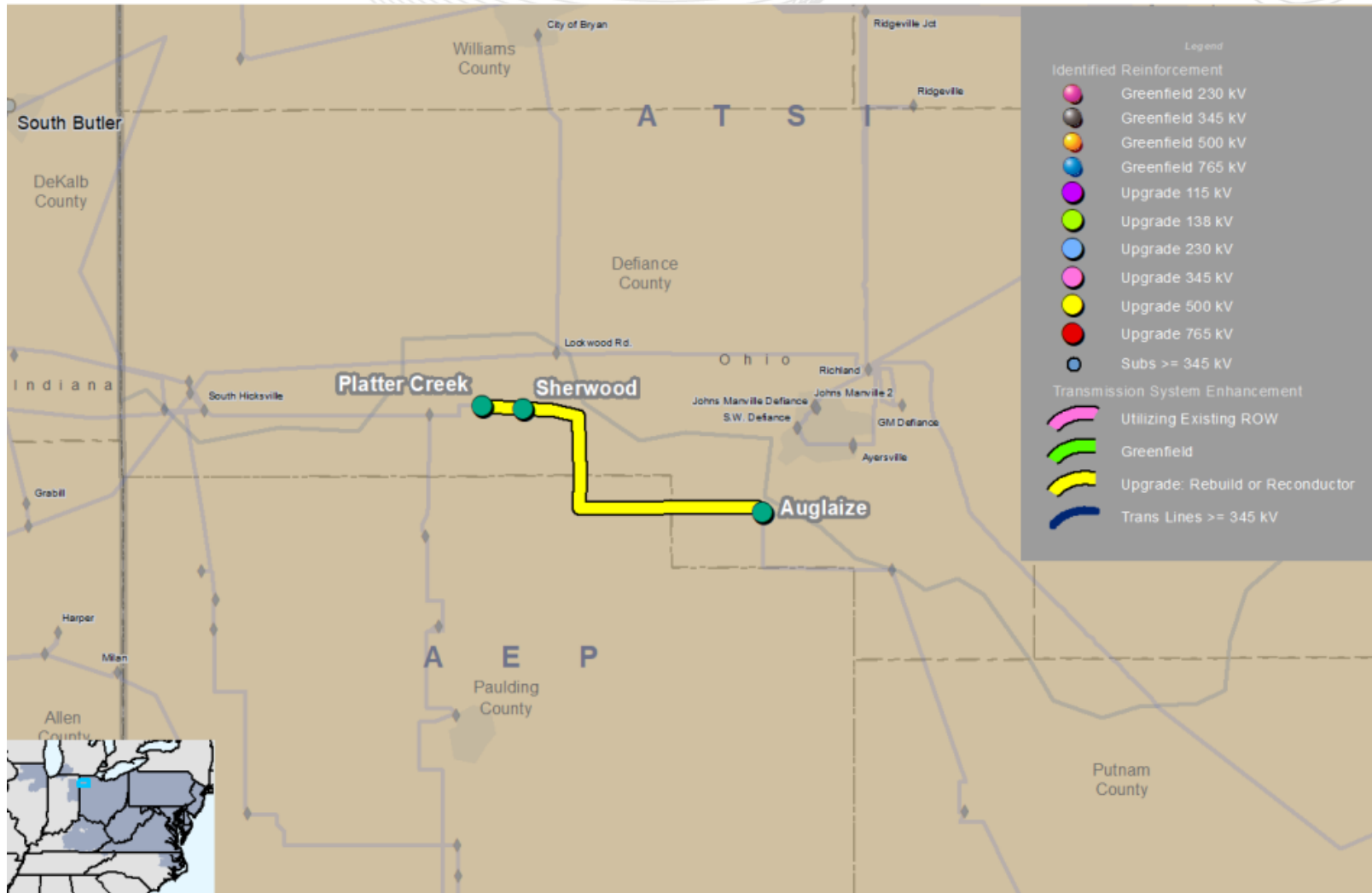


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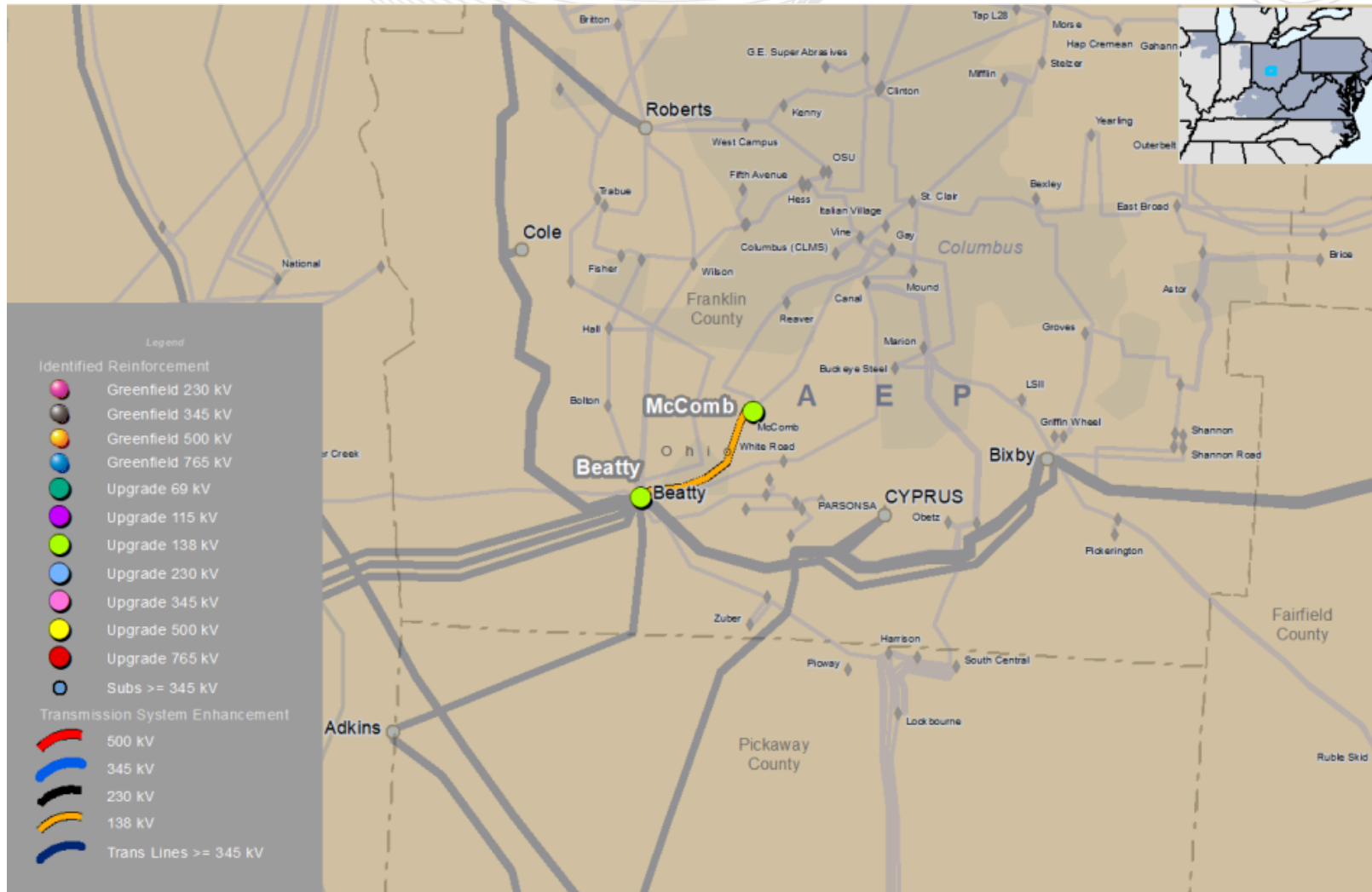


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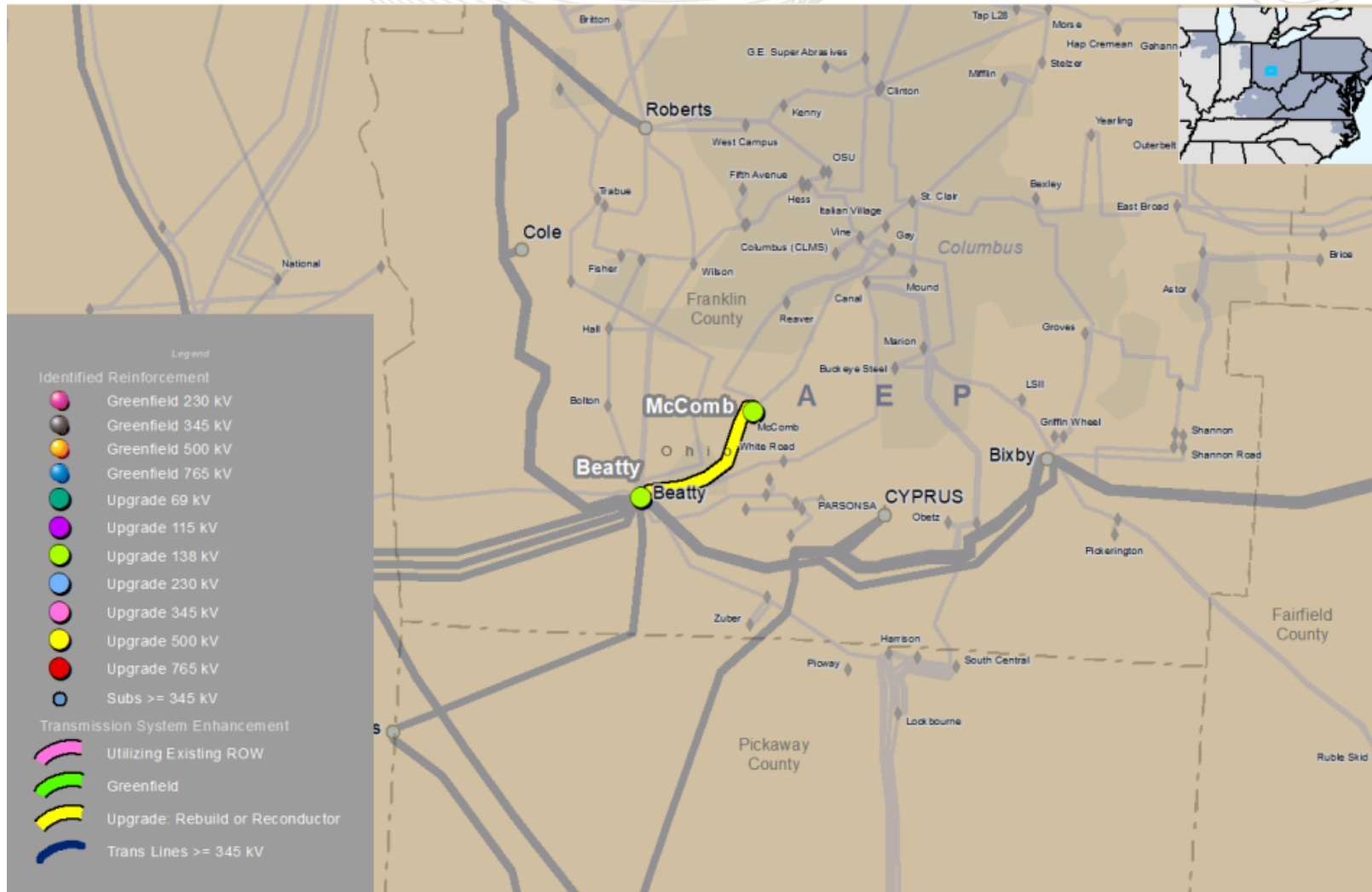




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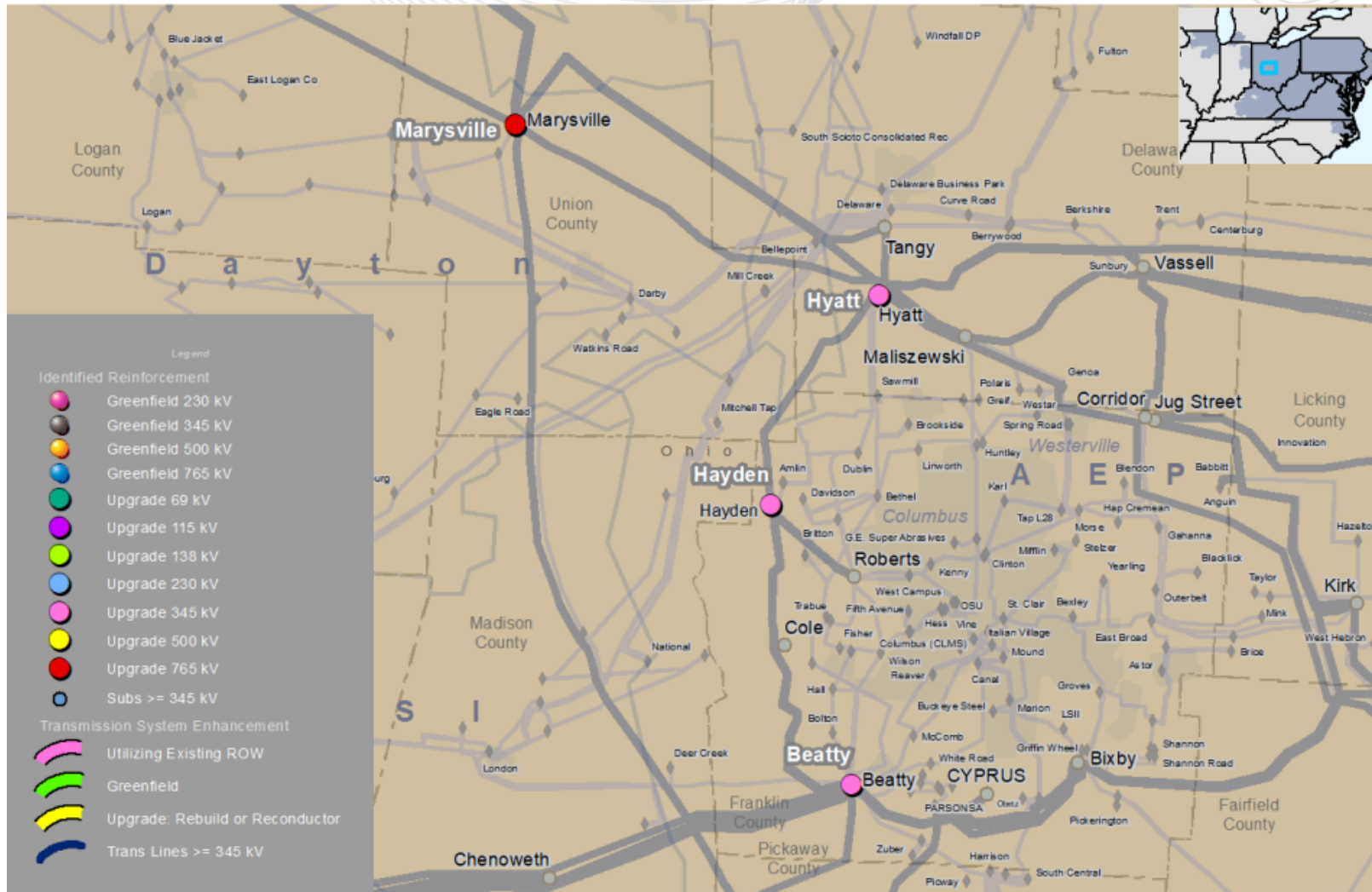


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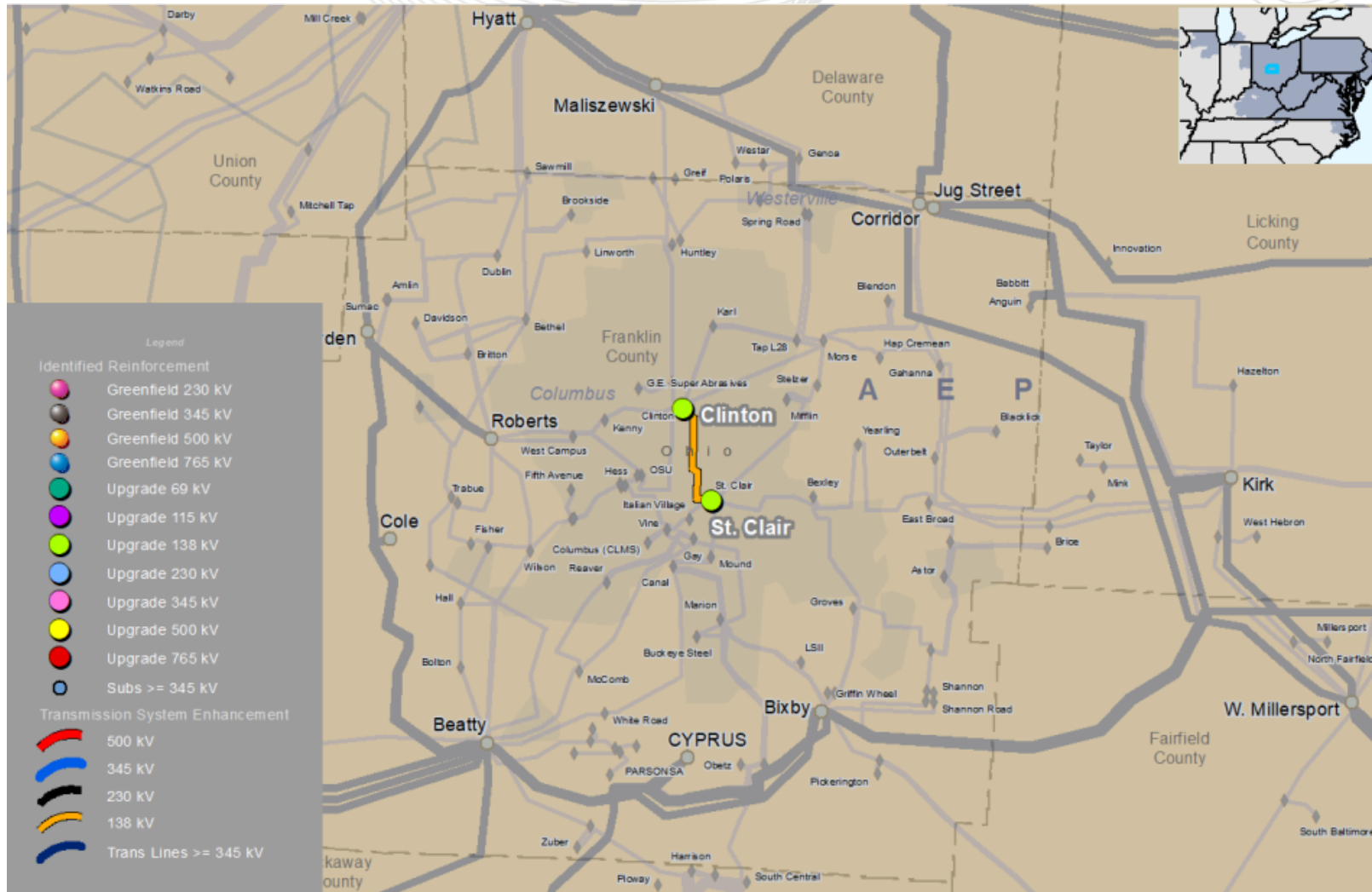


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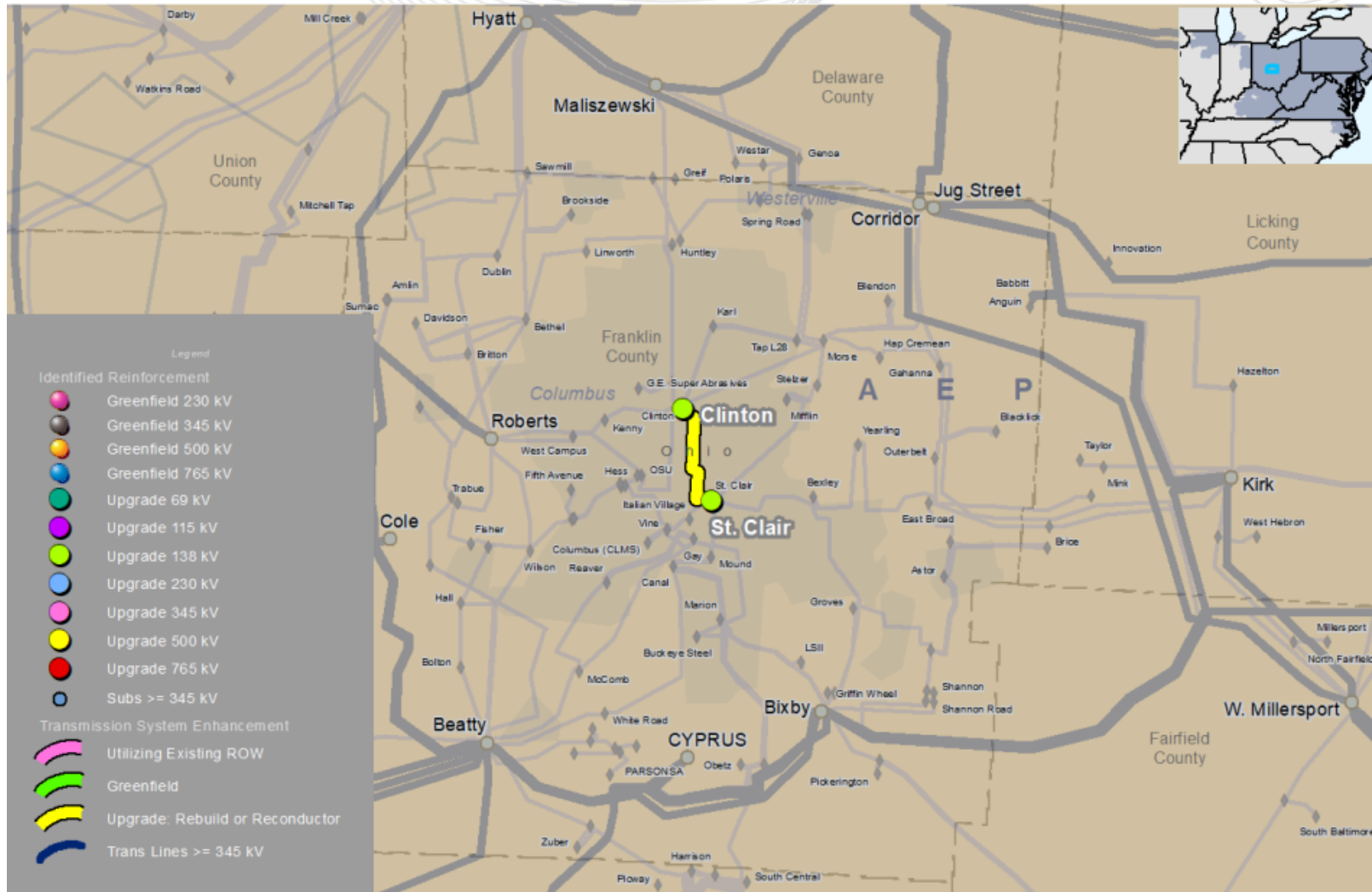




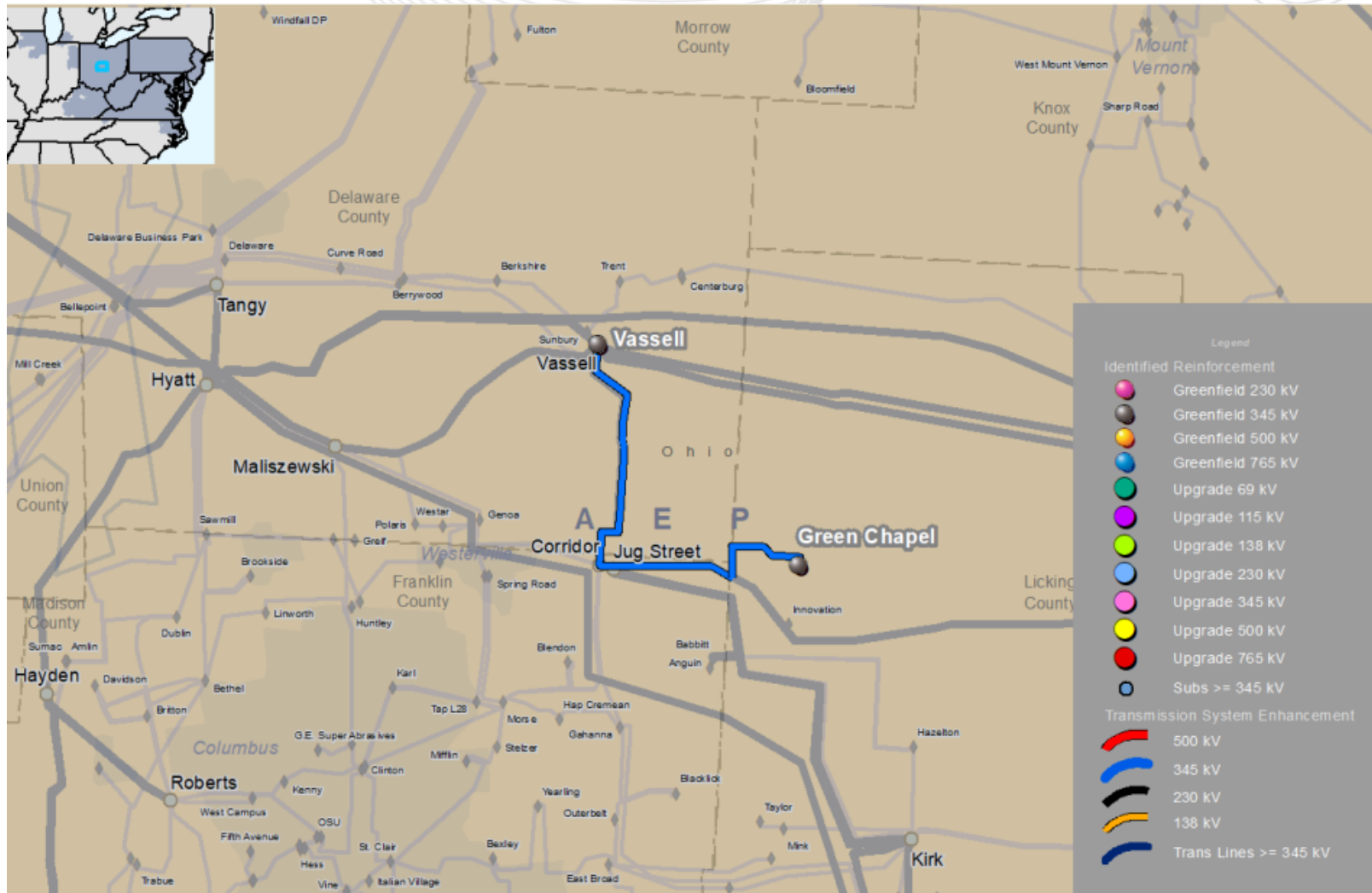
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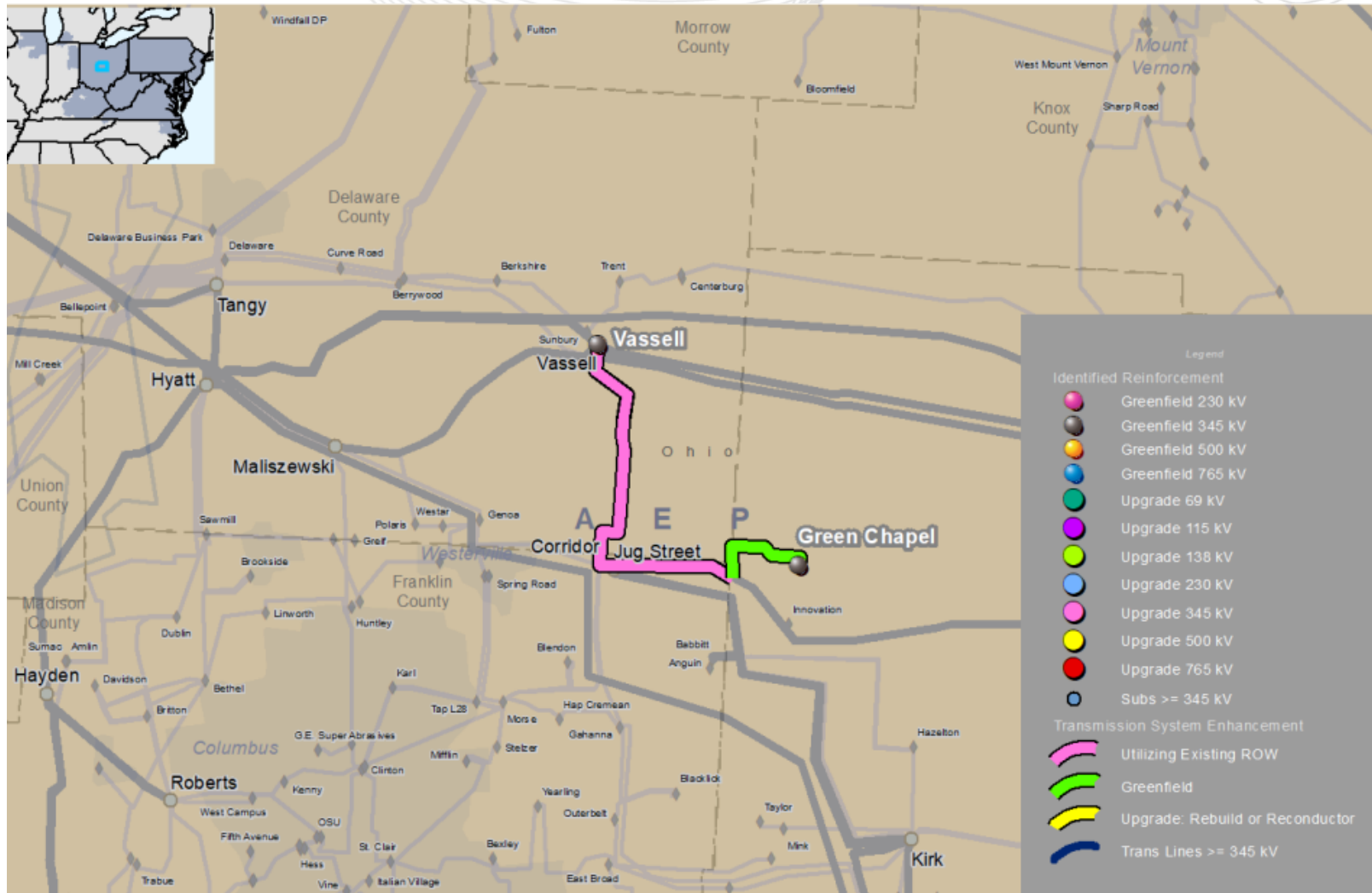


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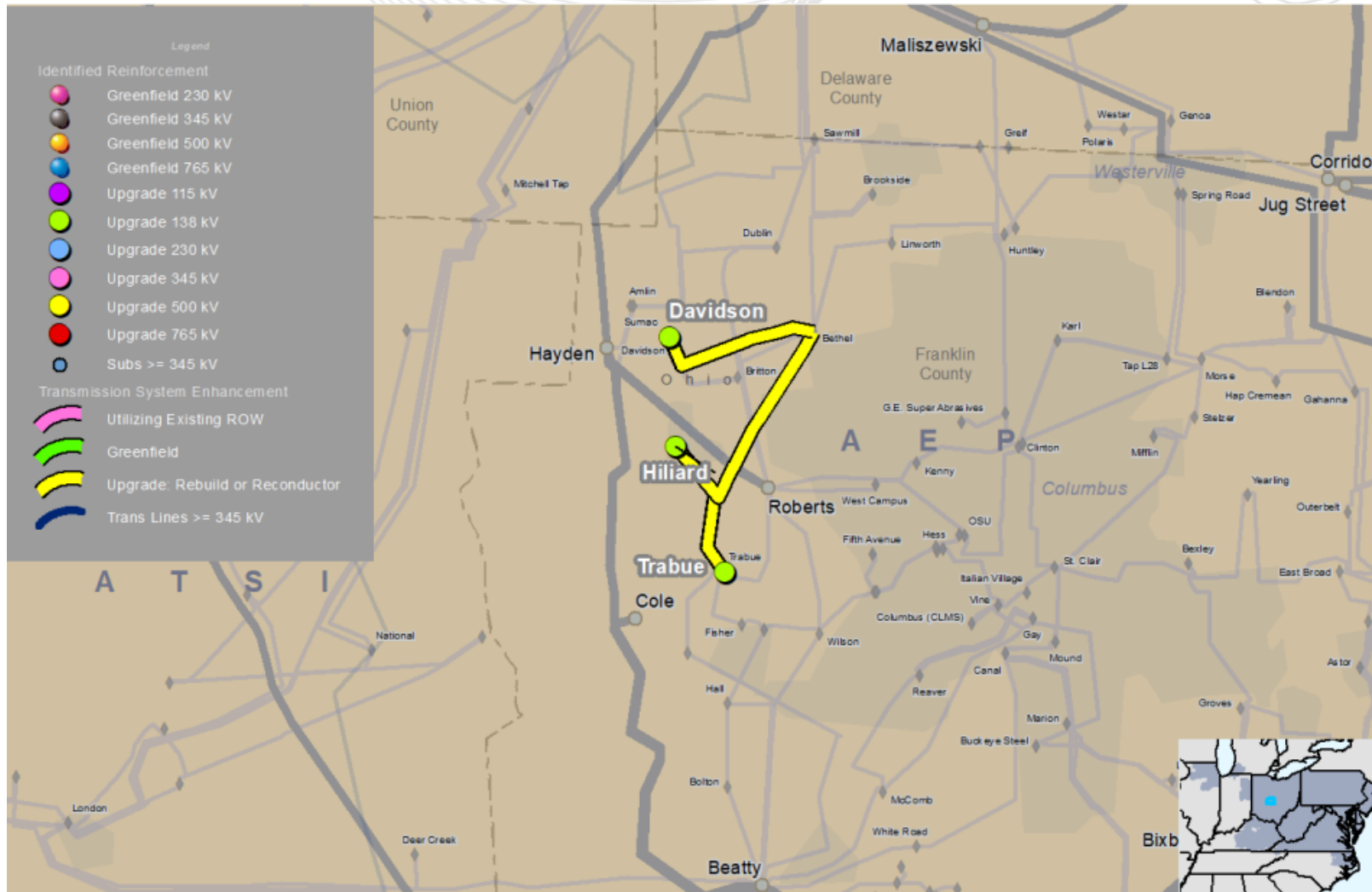




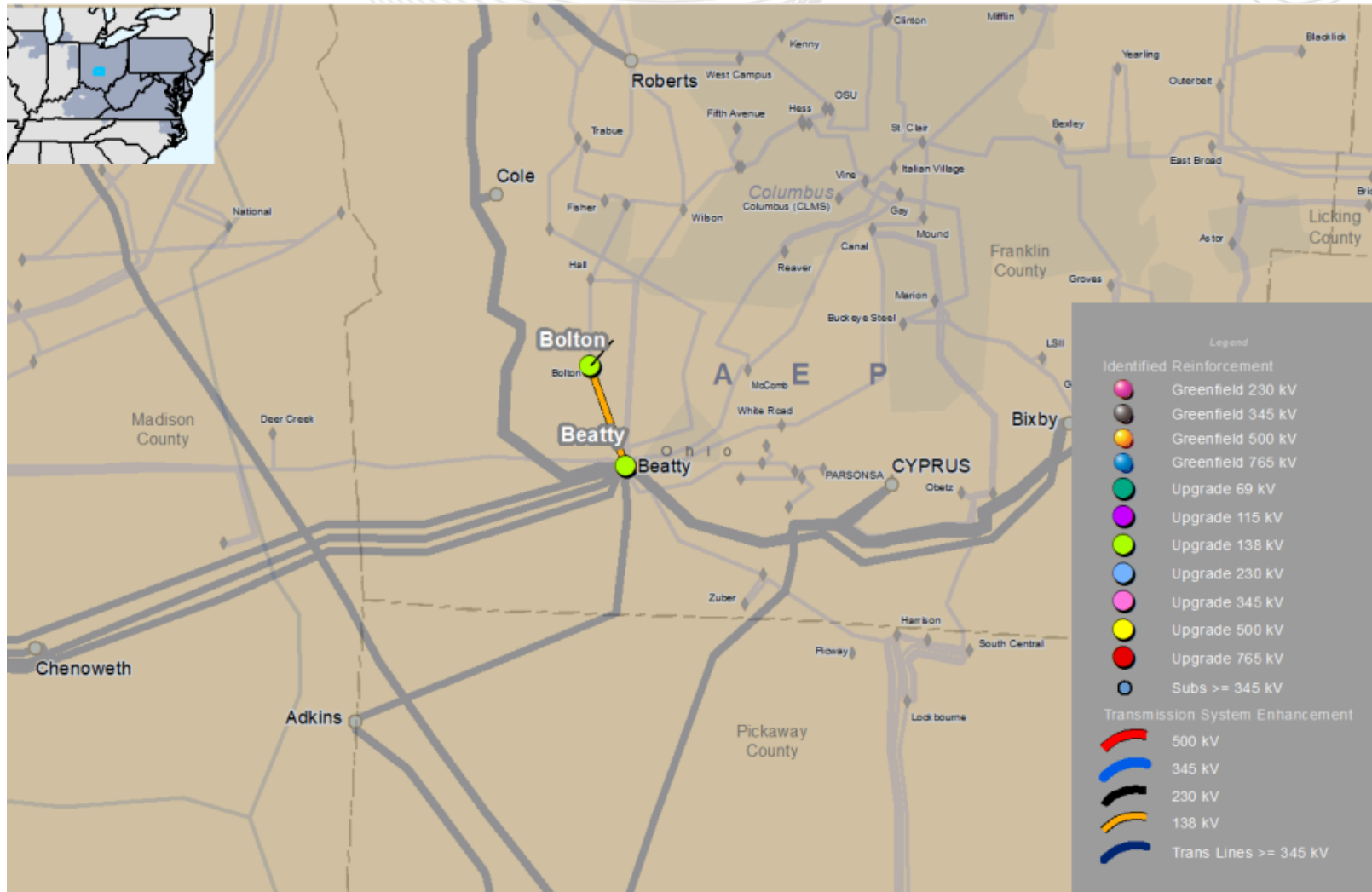
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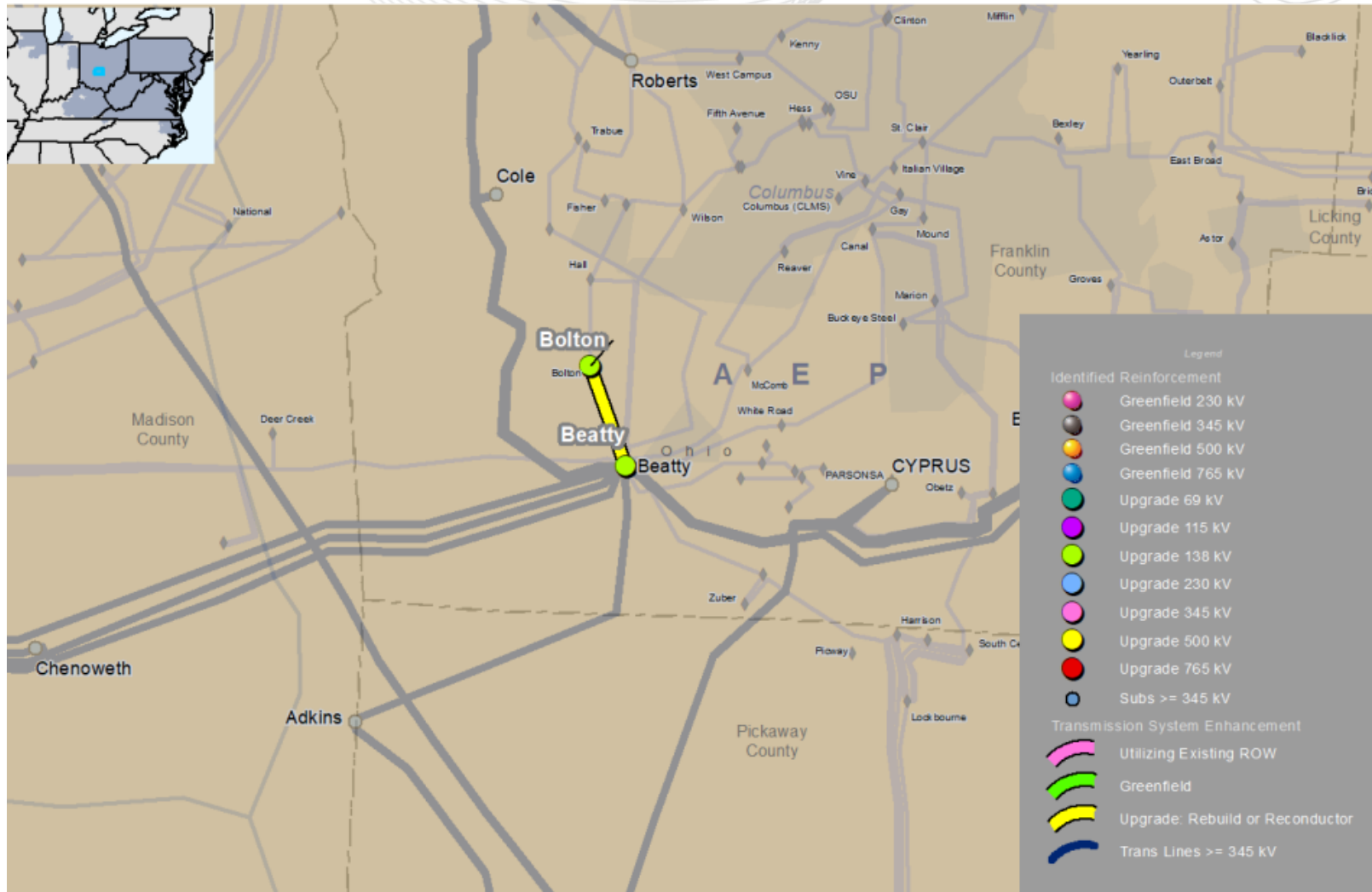


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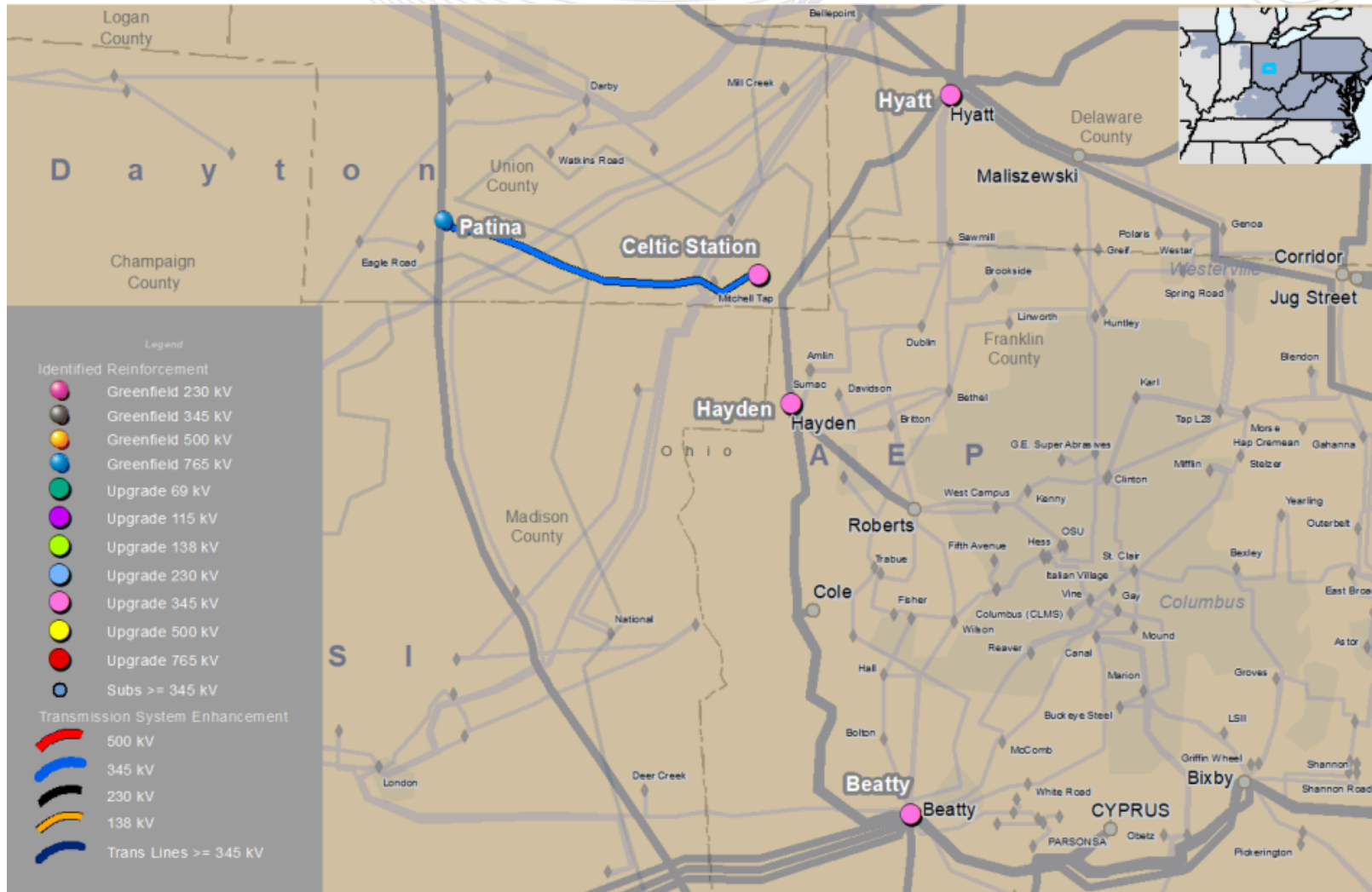


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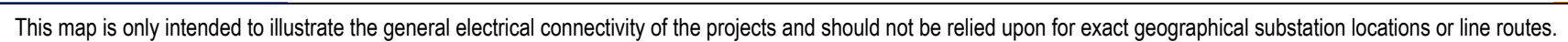


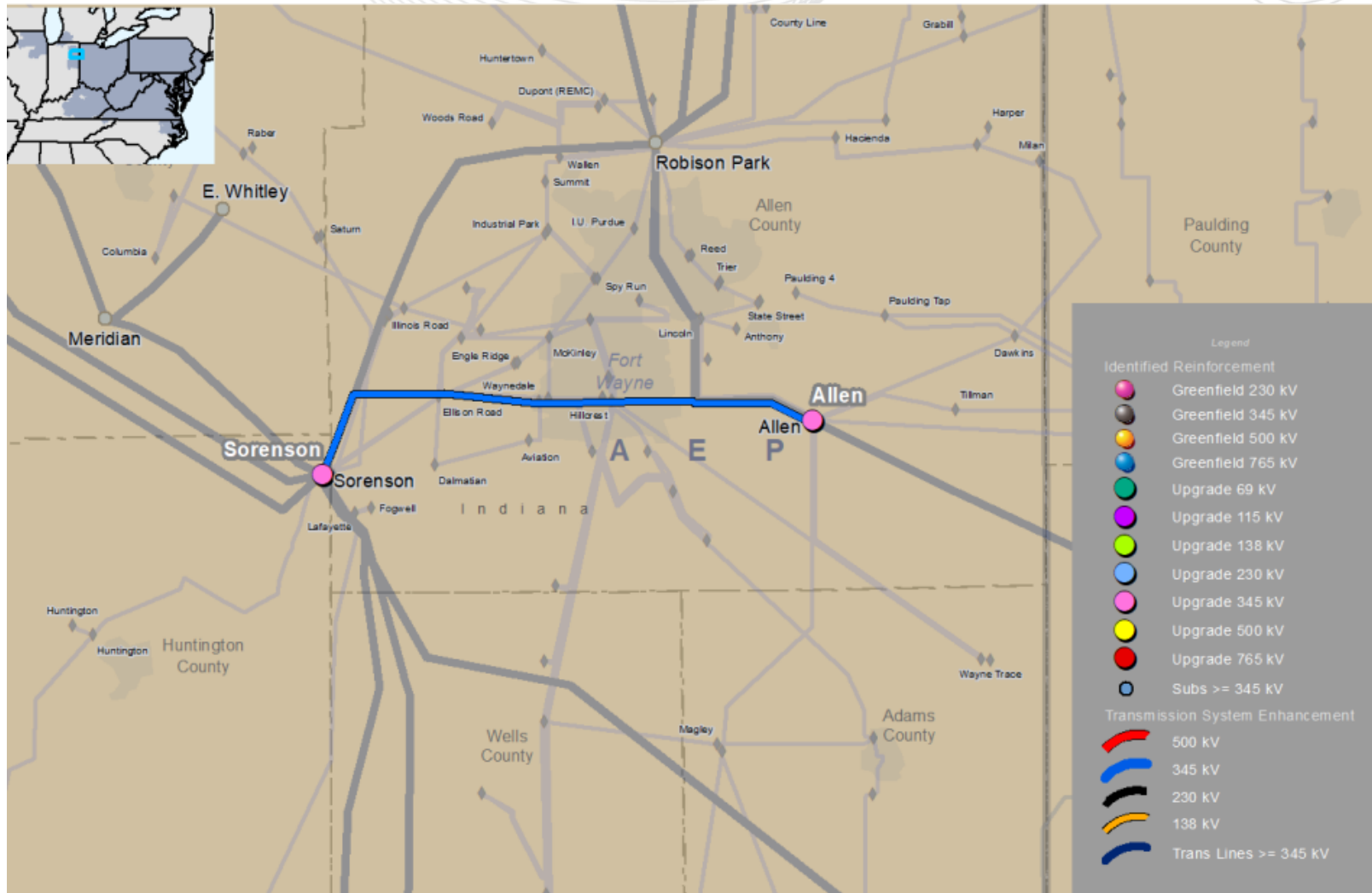


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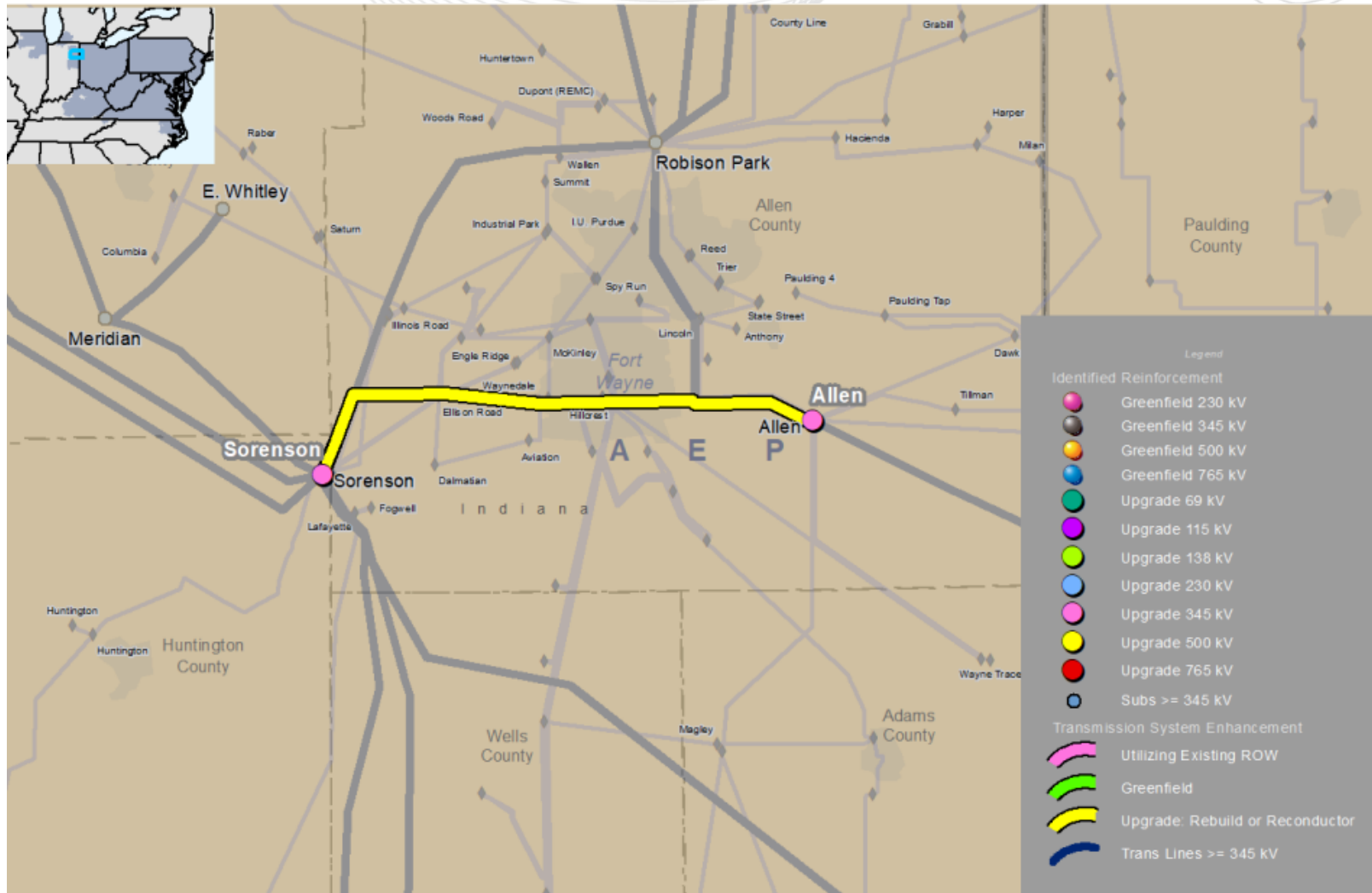
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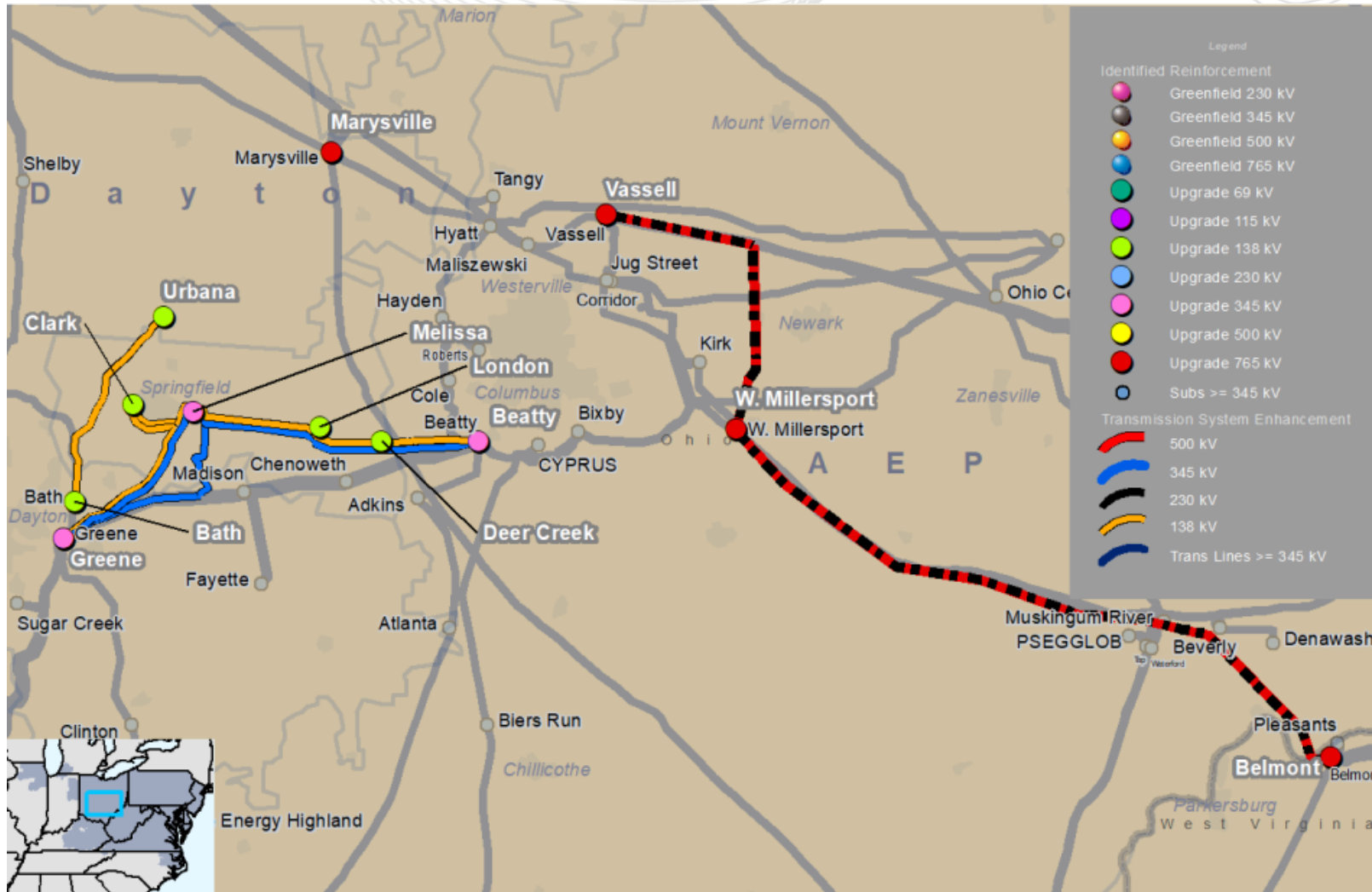
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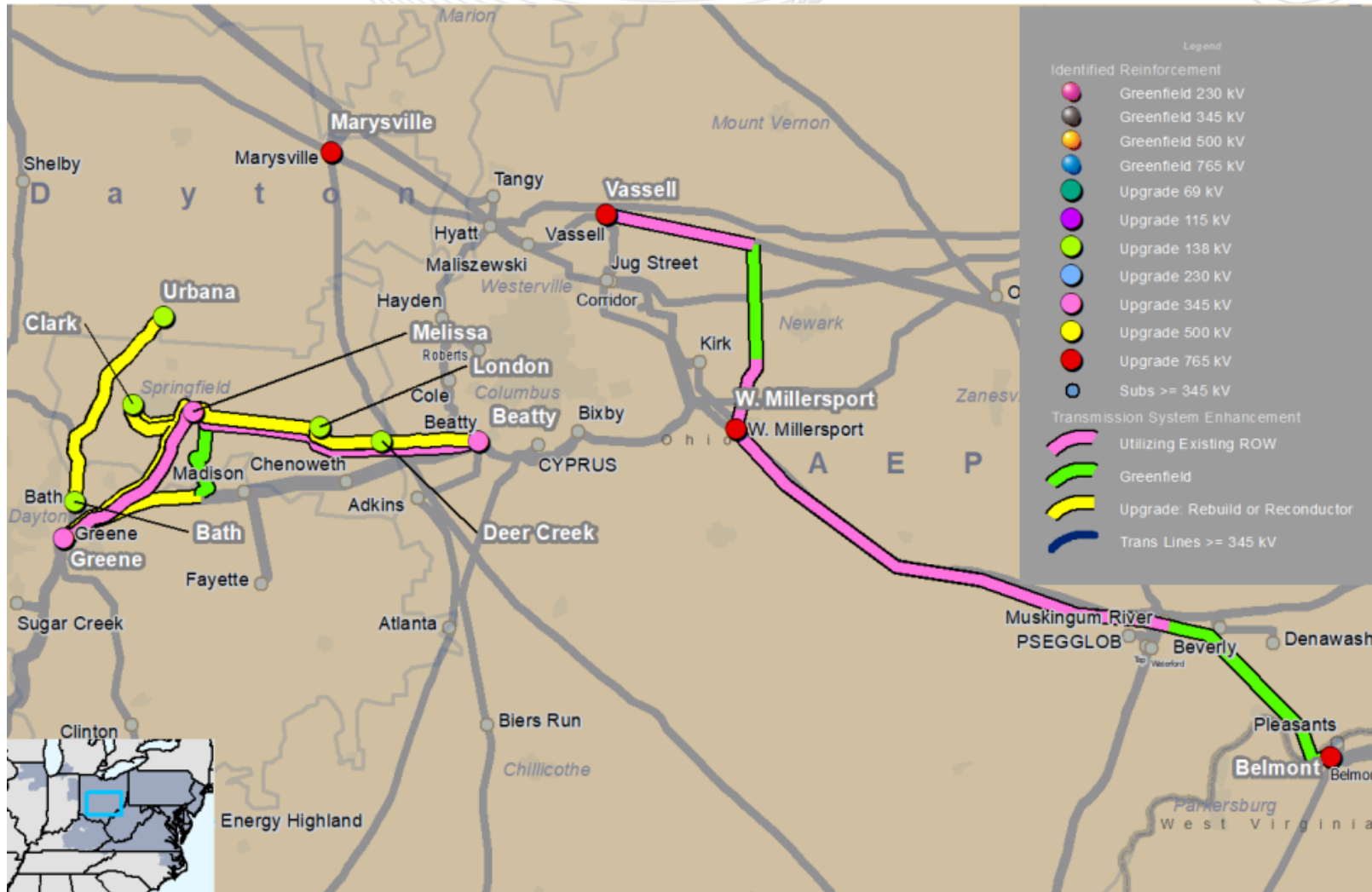


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# ATSI (FirstEnergy)

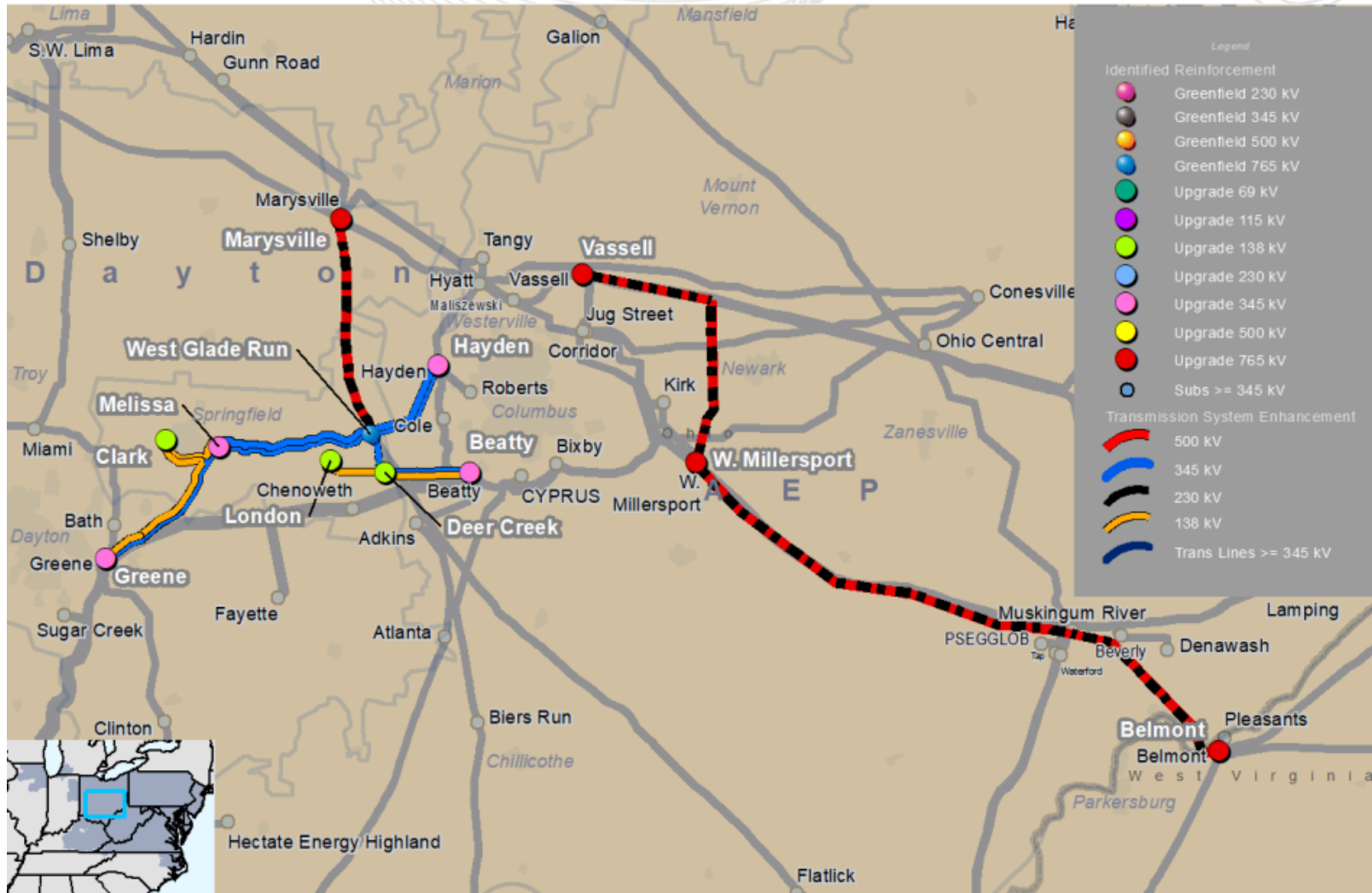


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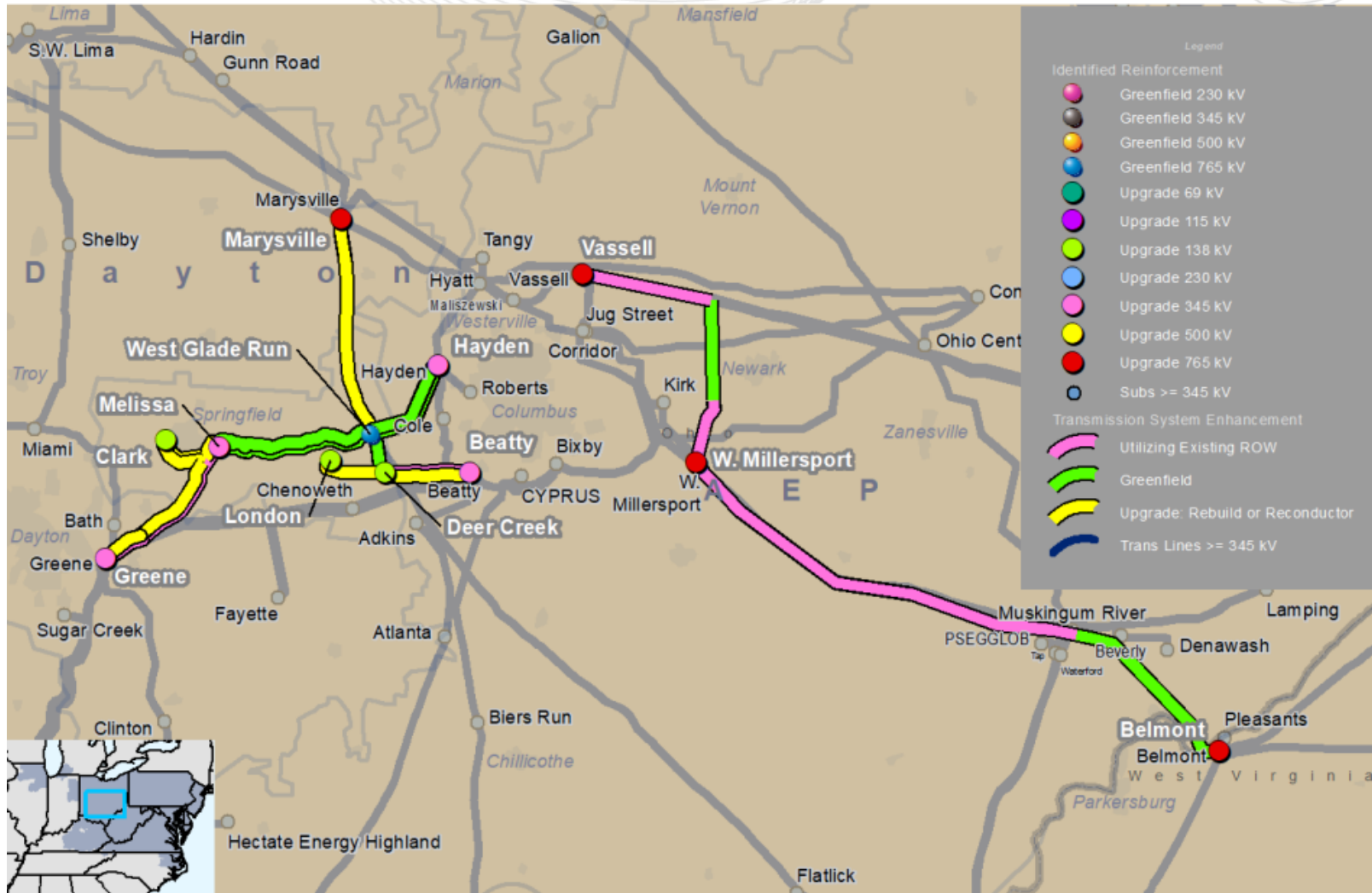


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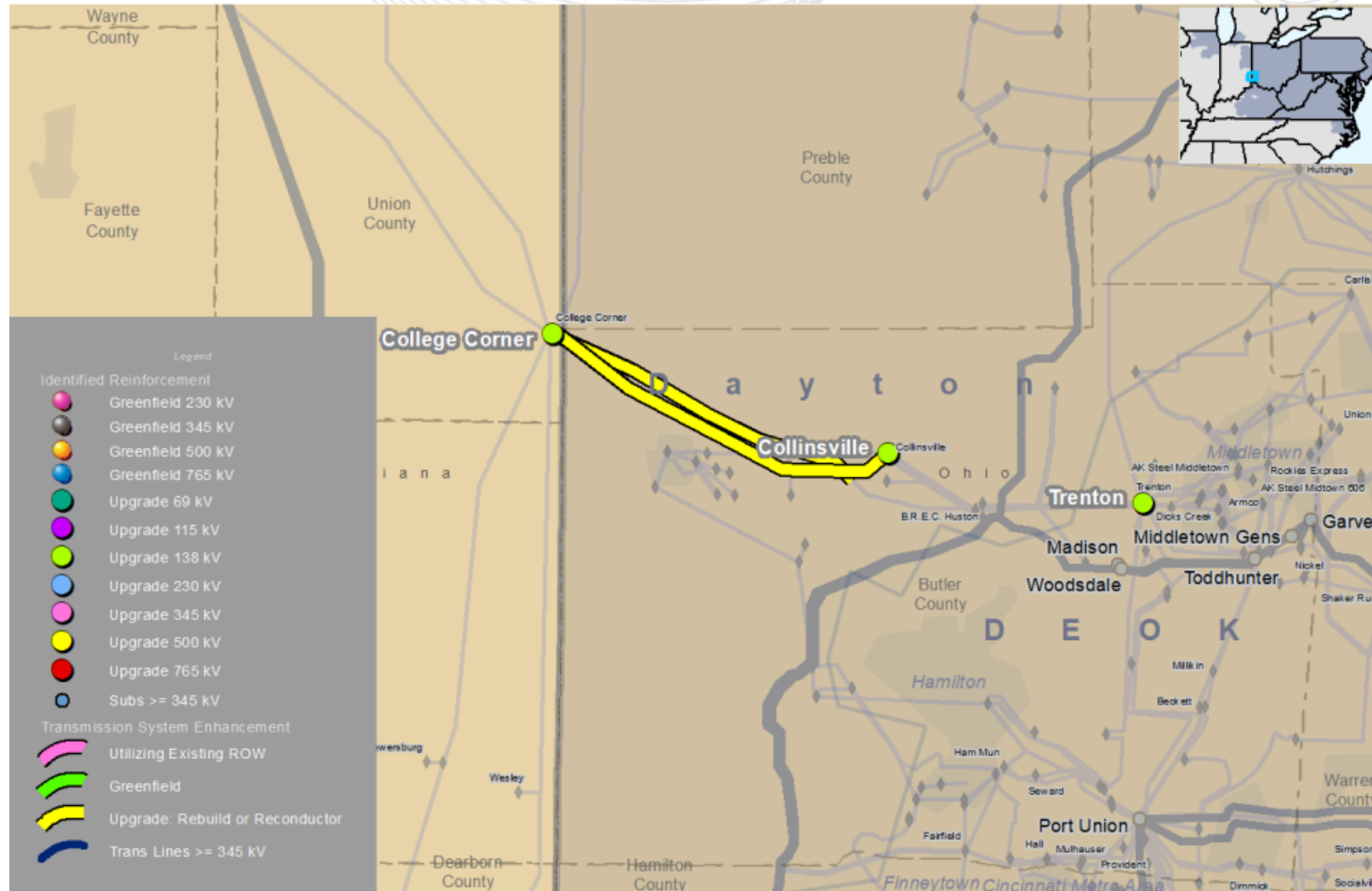
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# CINSI (DEOK)



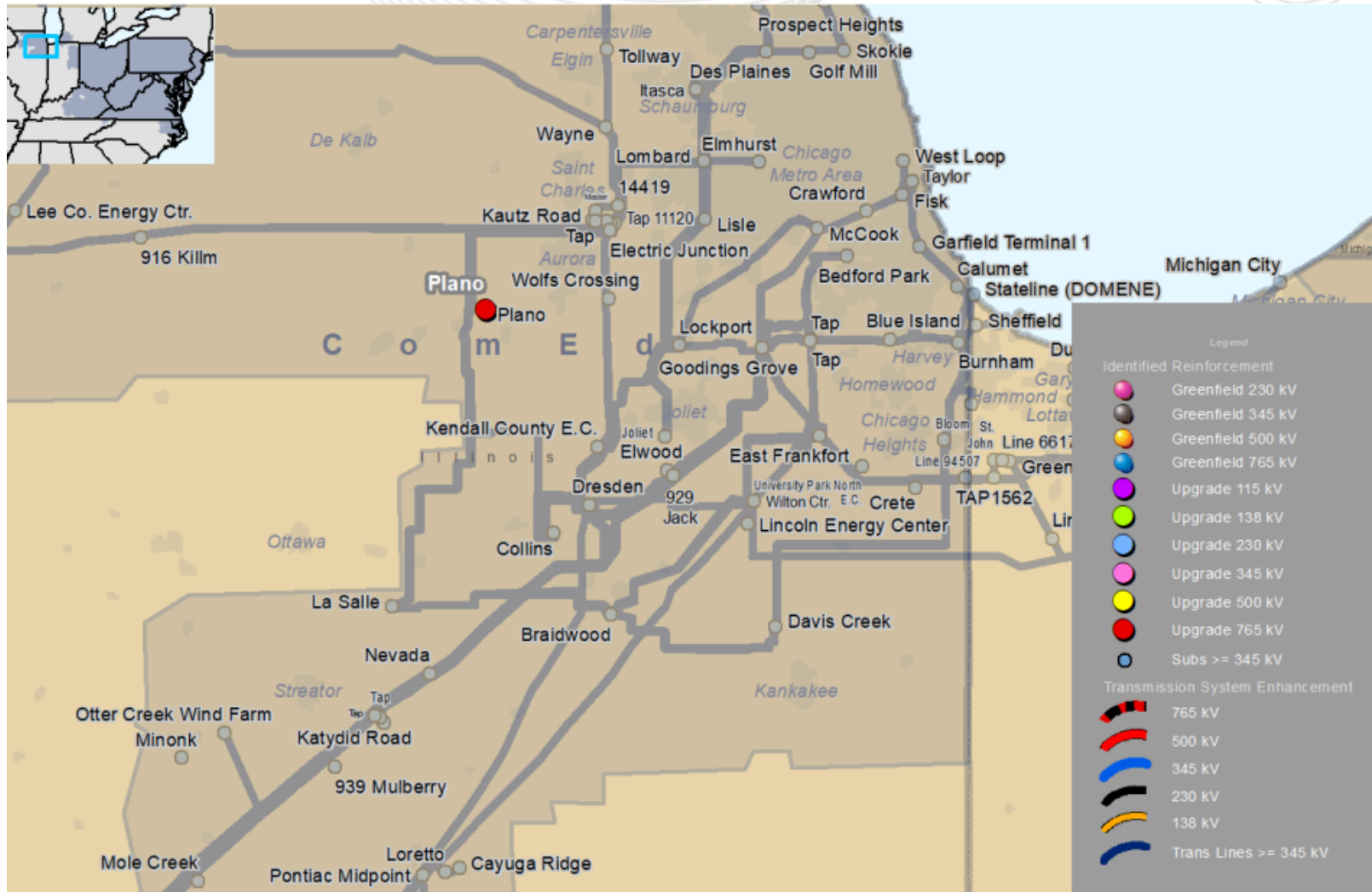
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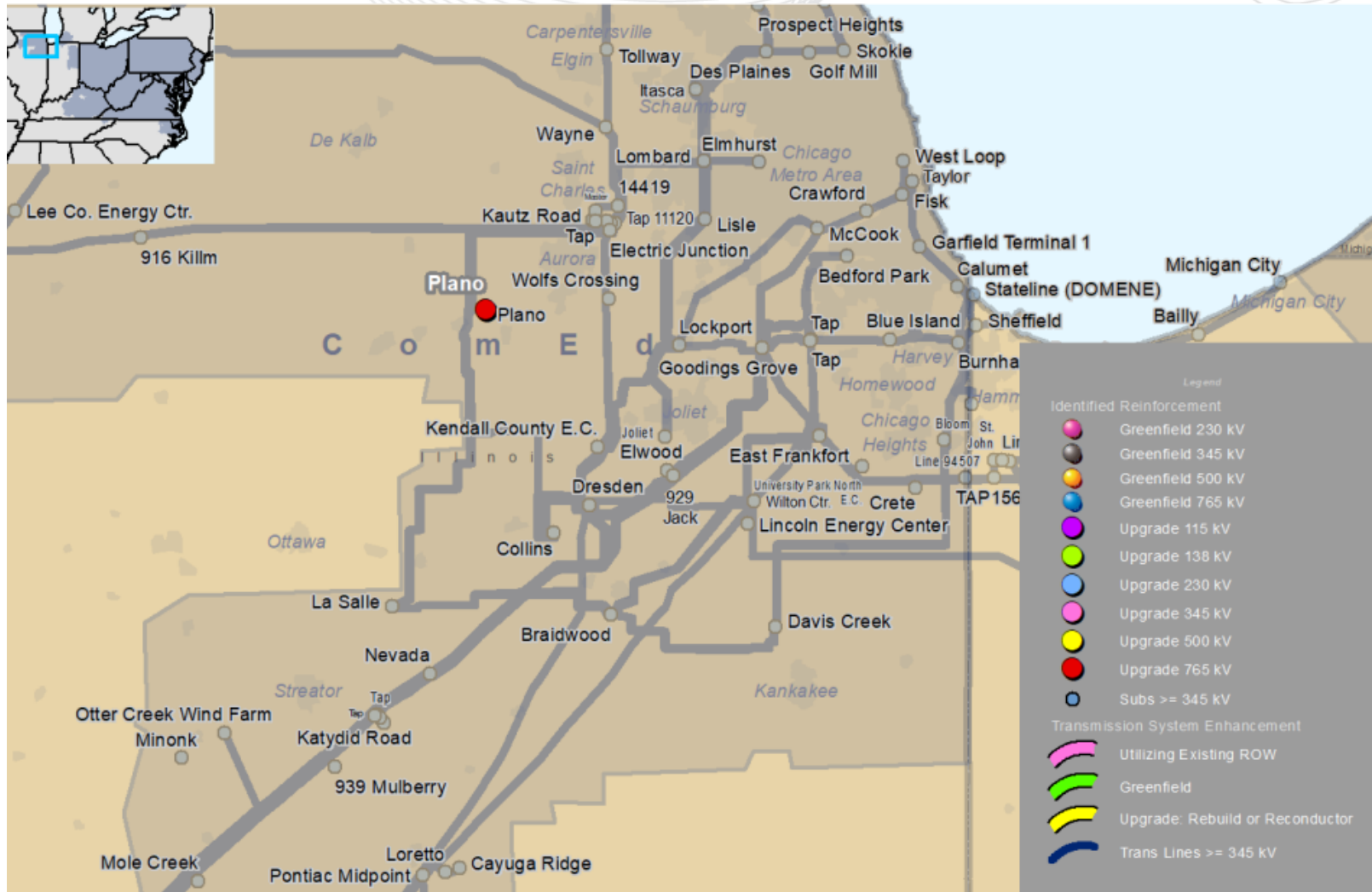


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# COMED (Exelon)

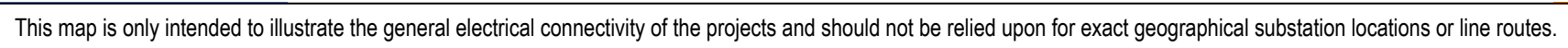


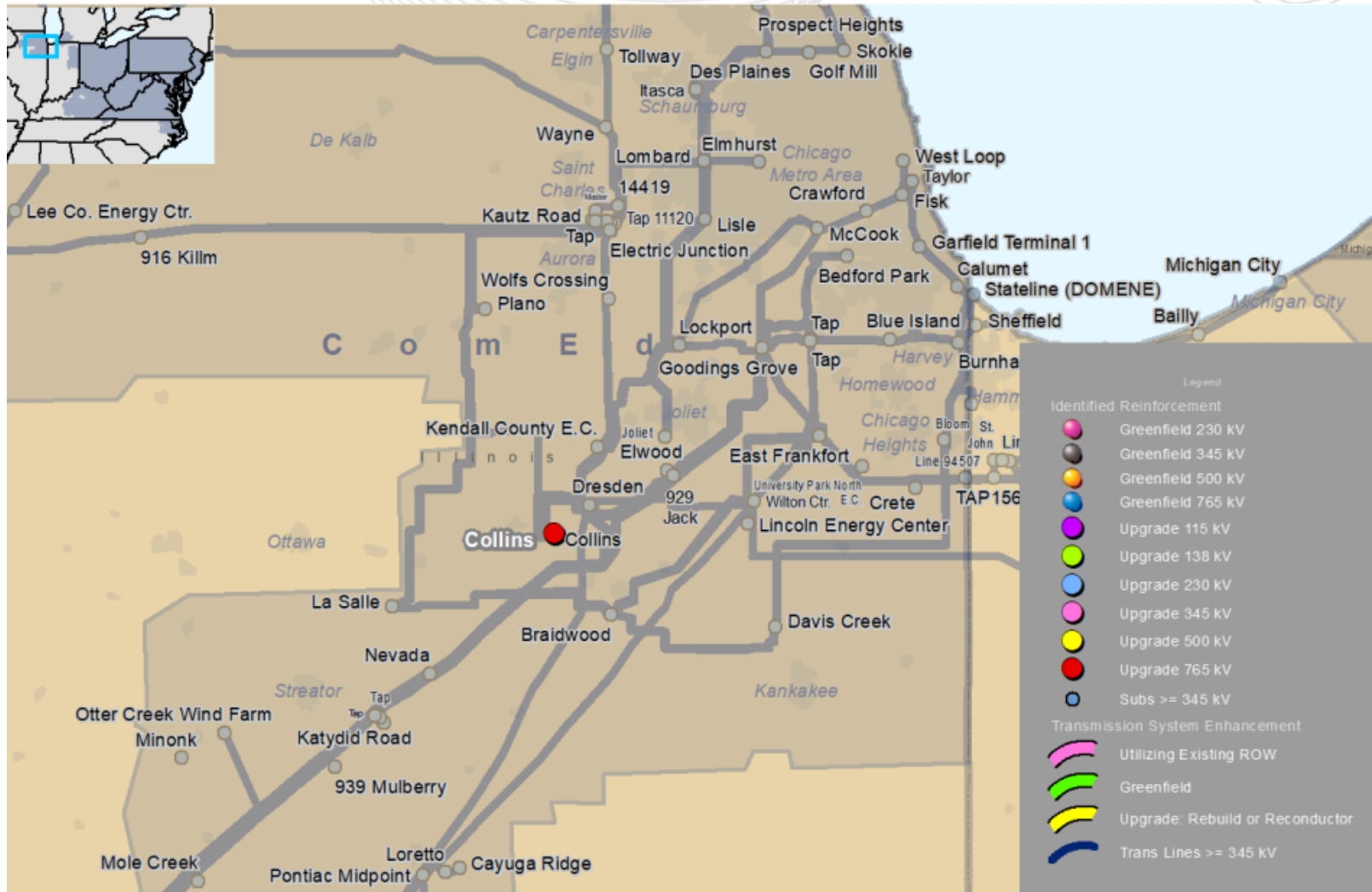
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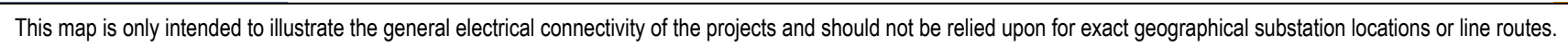
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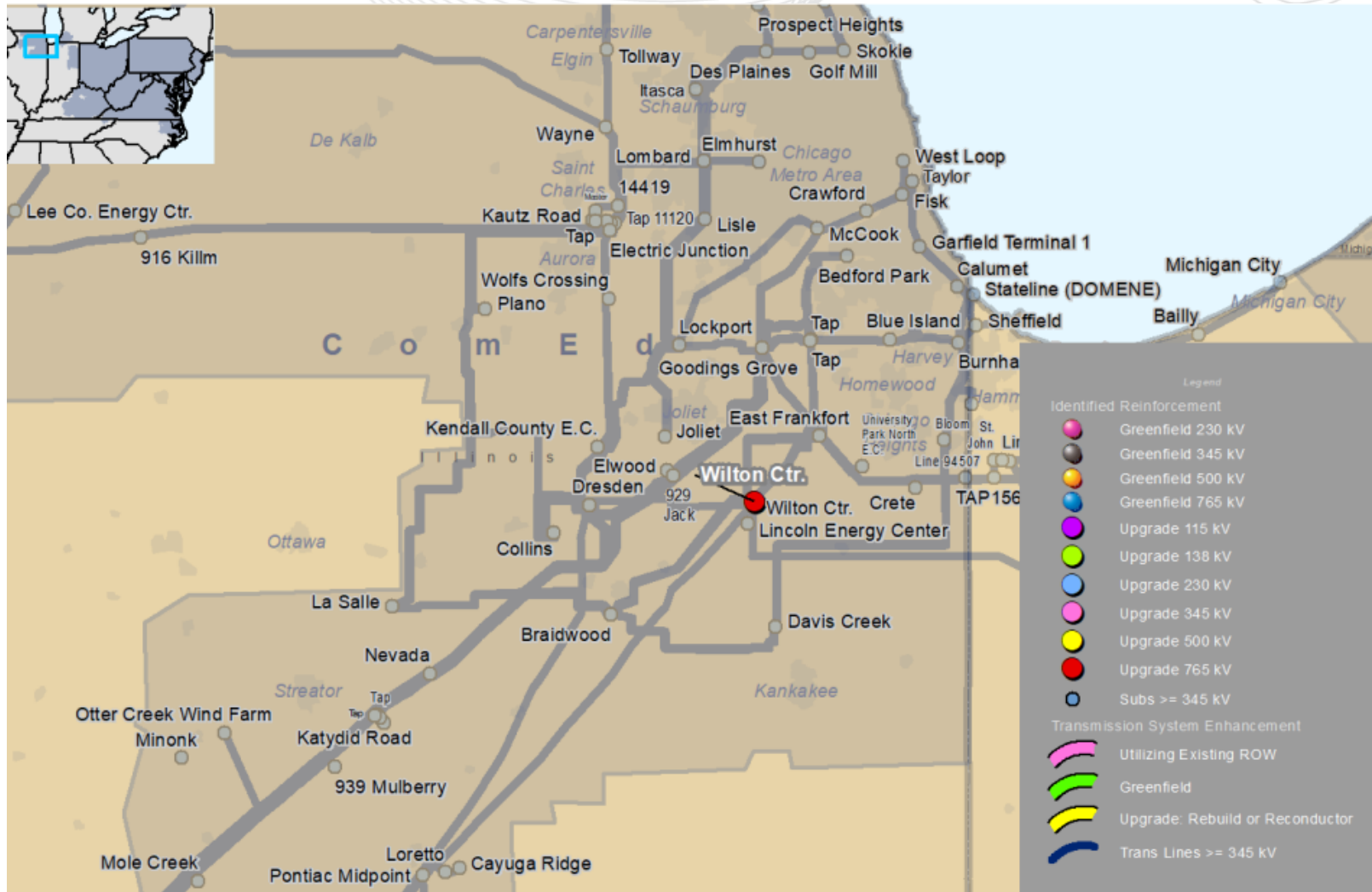






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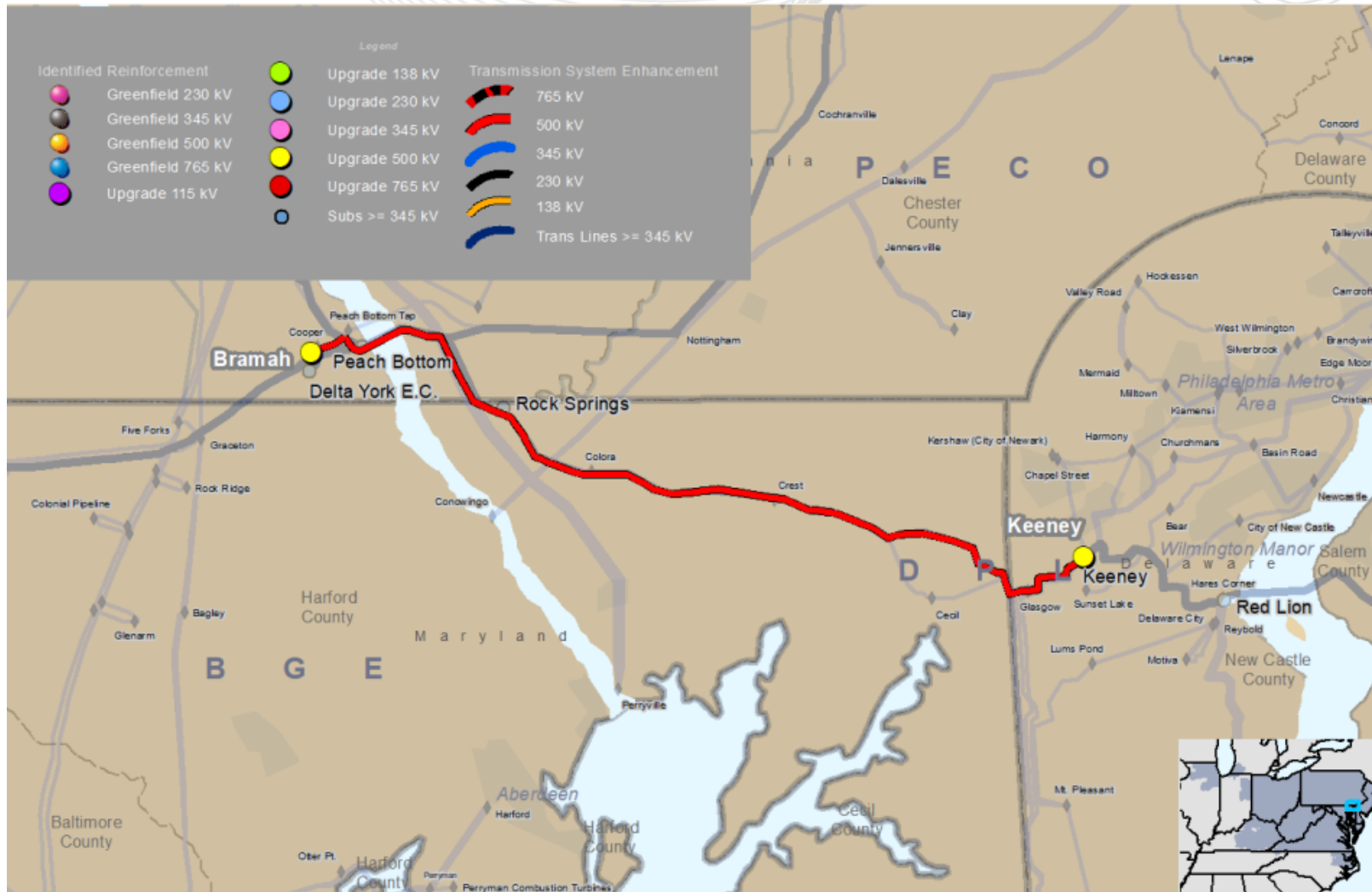




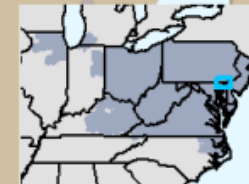
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# DPL (Exelon)



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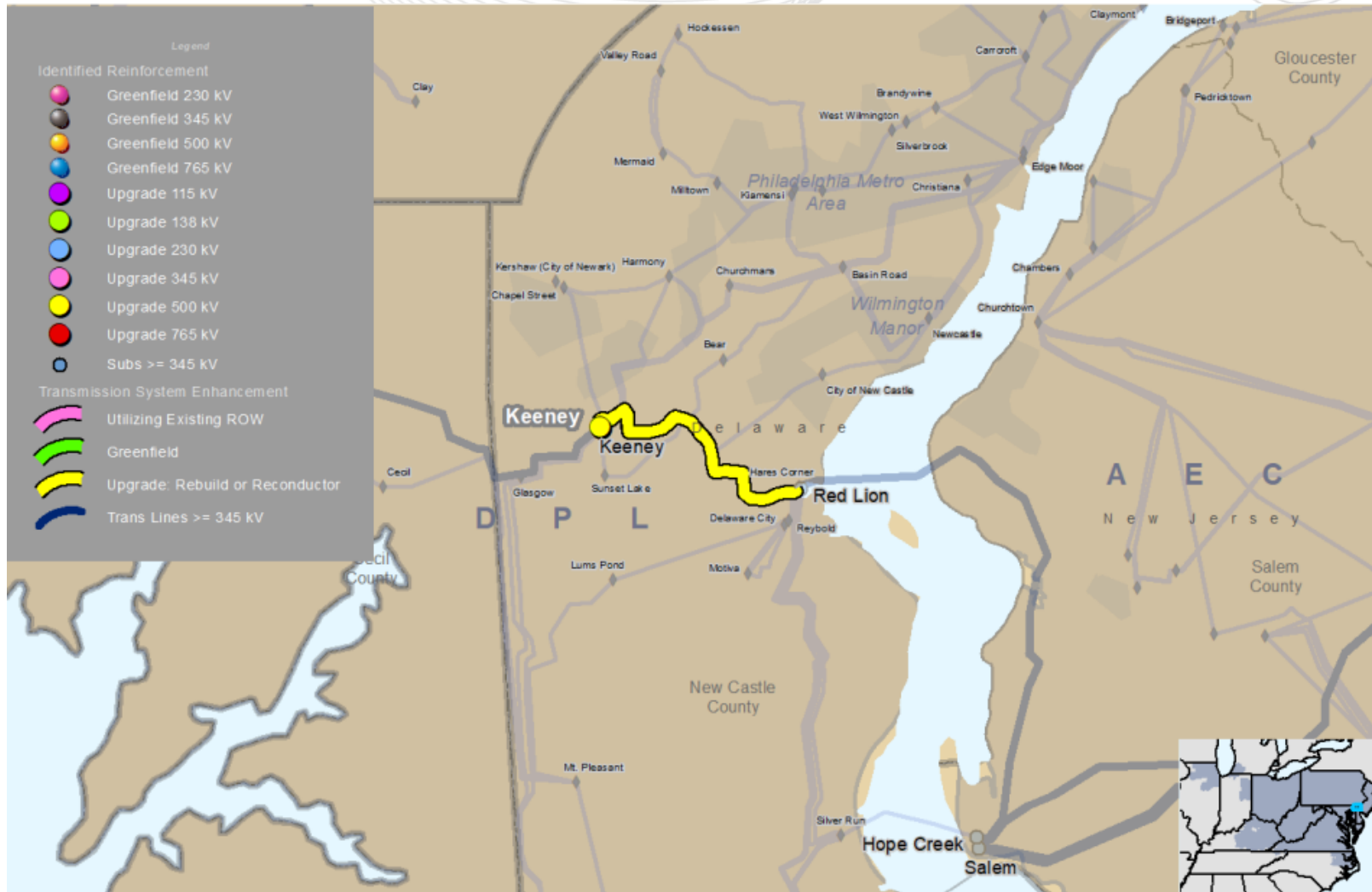


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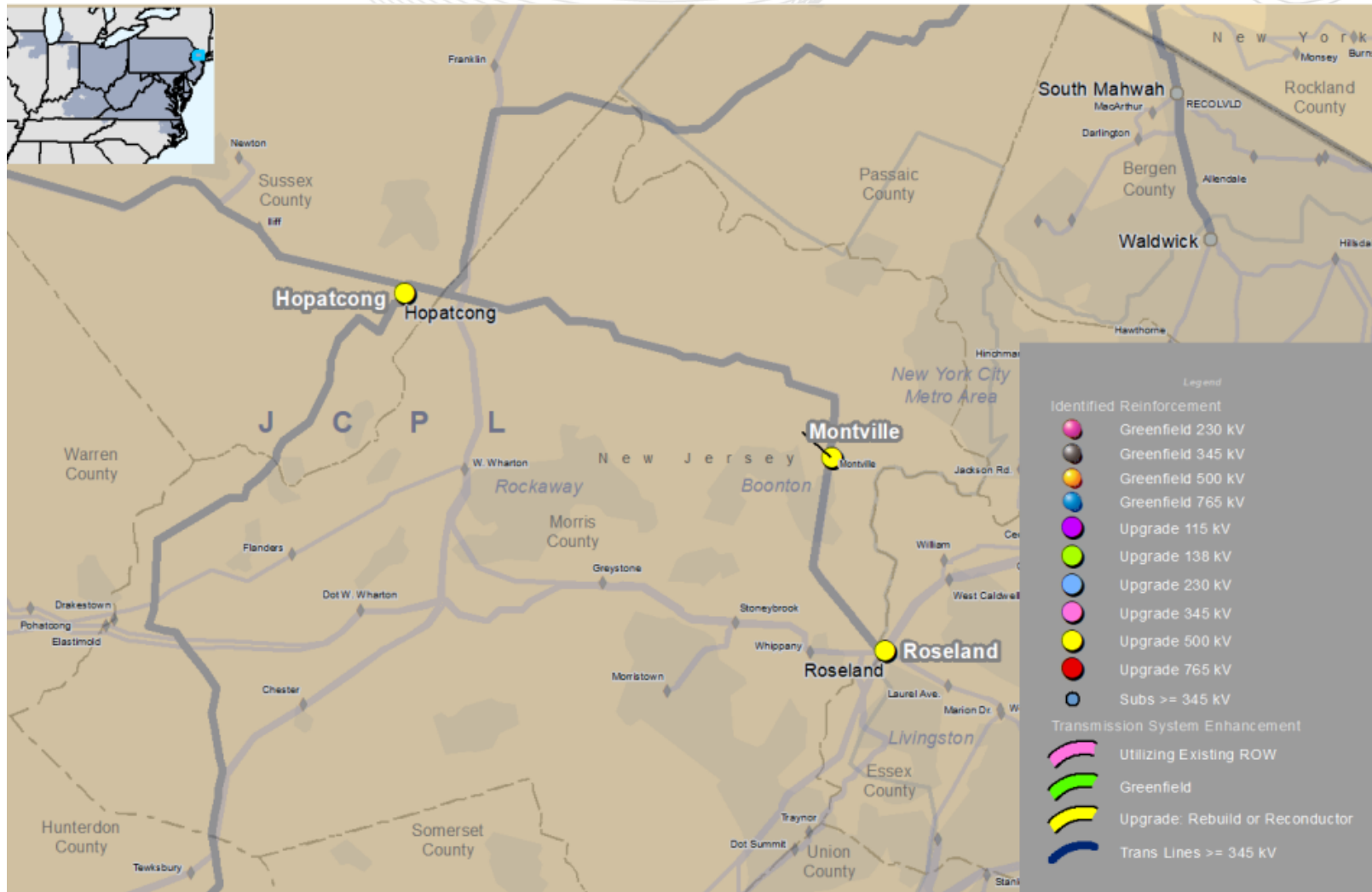


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# JCPL (FirstEnergy)



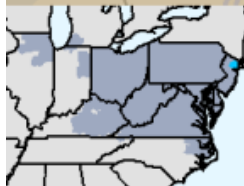
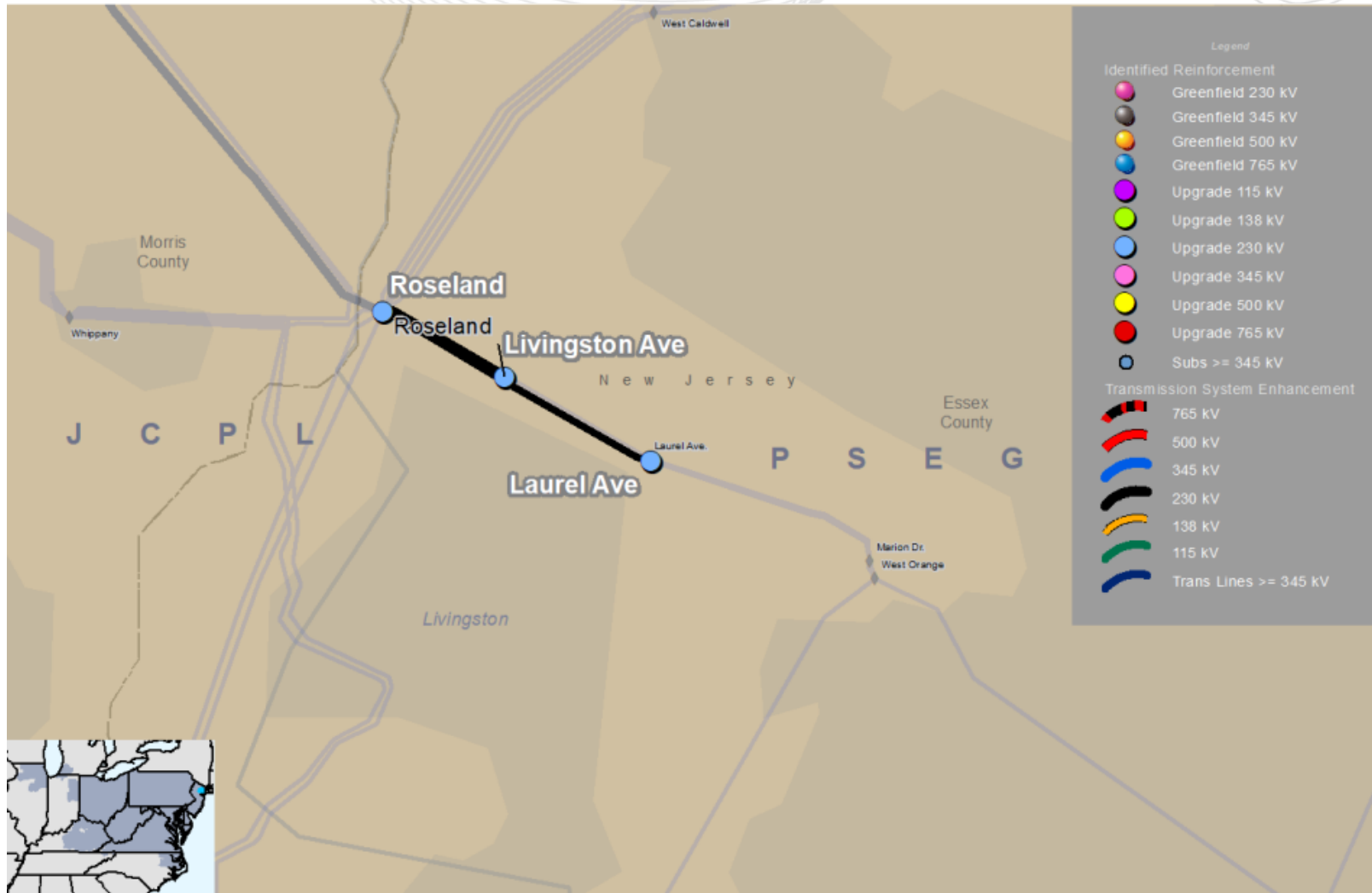
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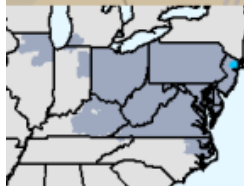
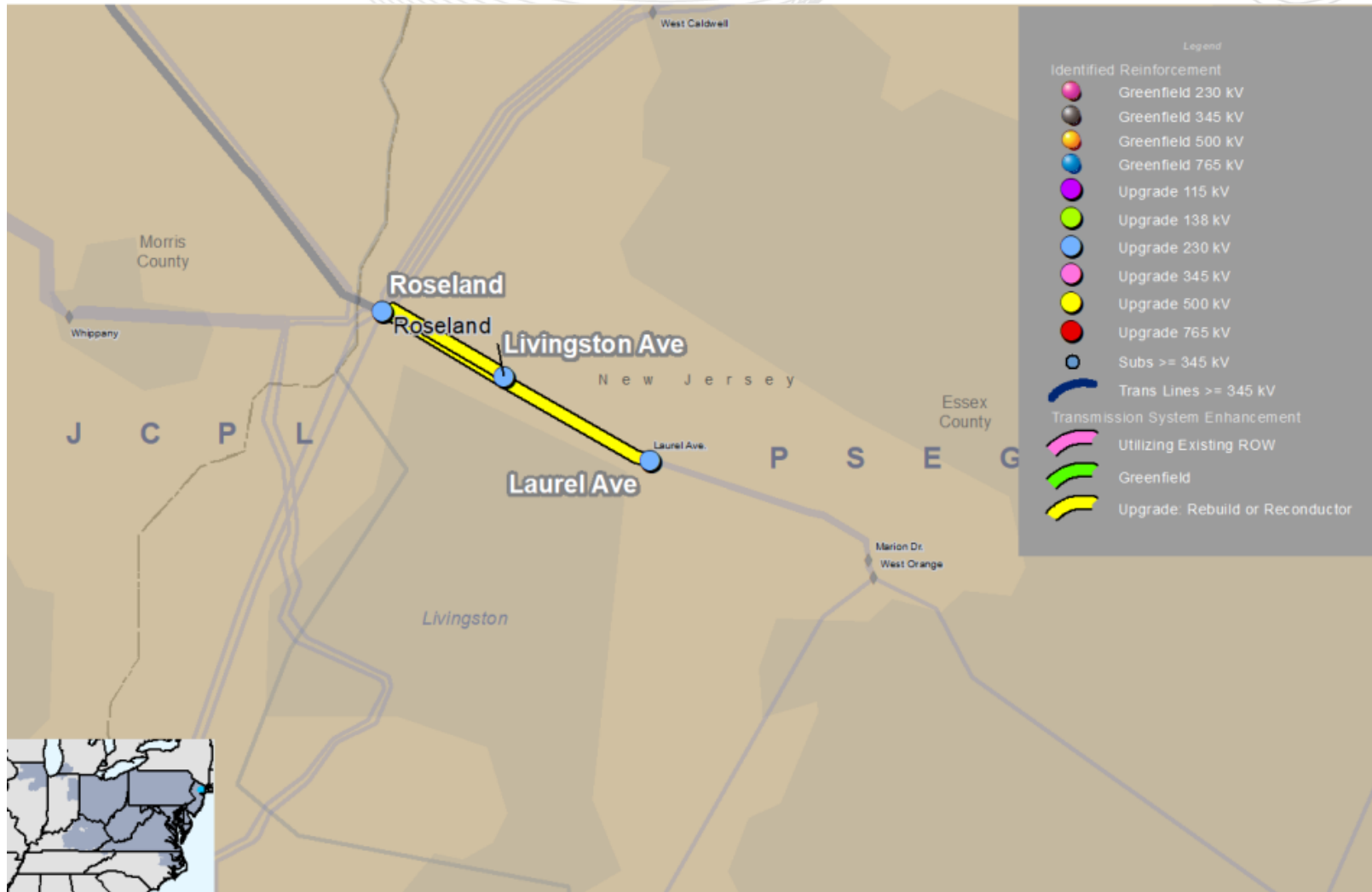
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# PSEG



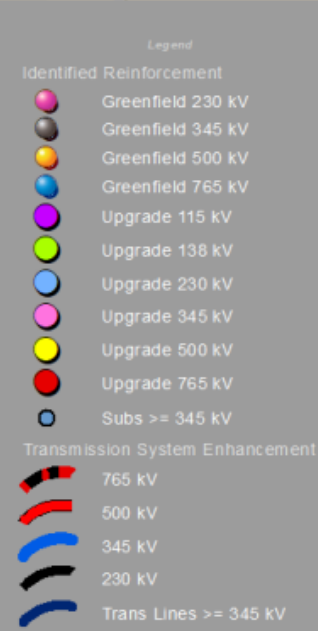
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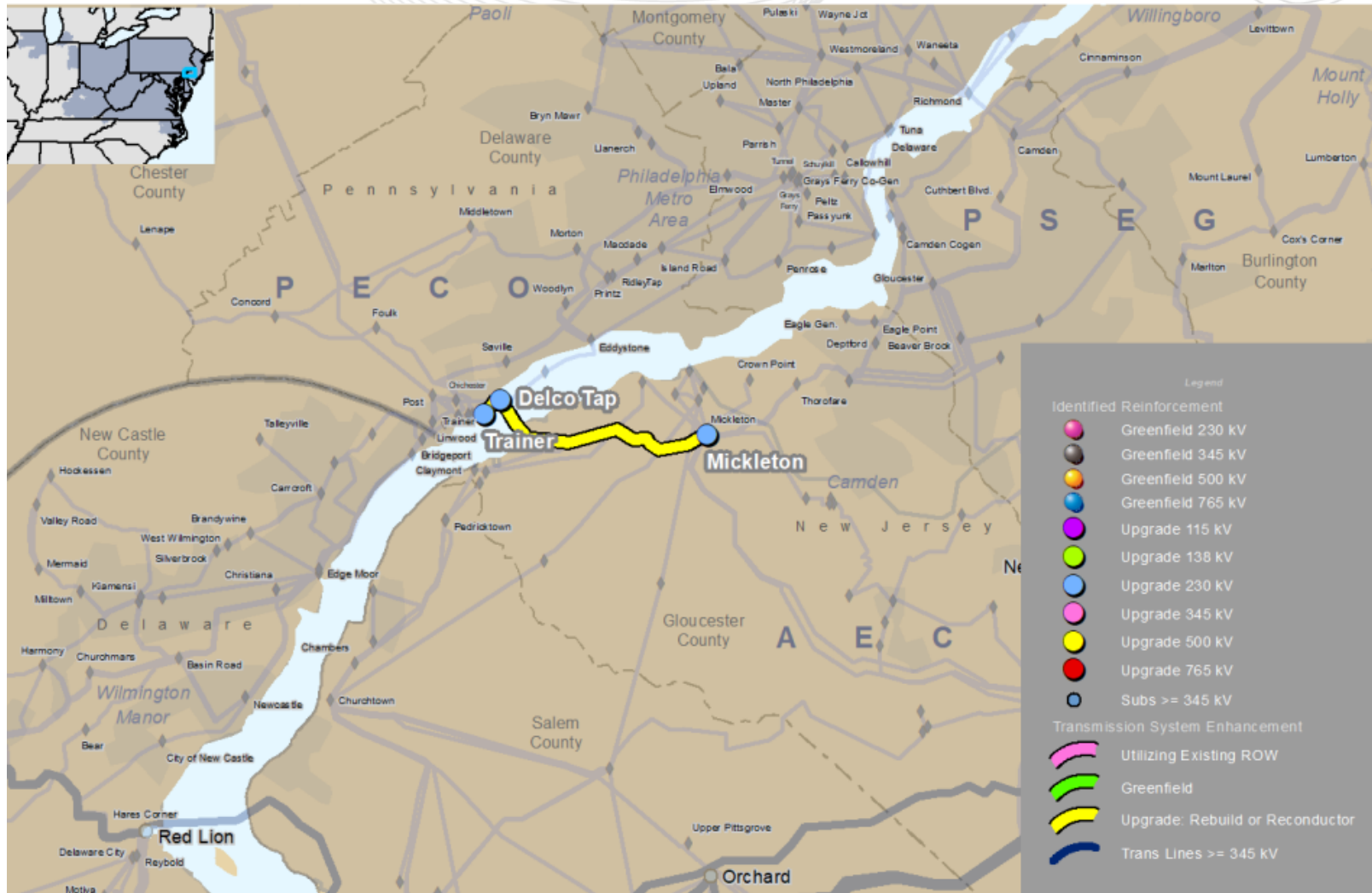
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# PECO (Exelon)





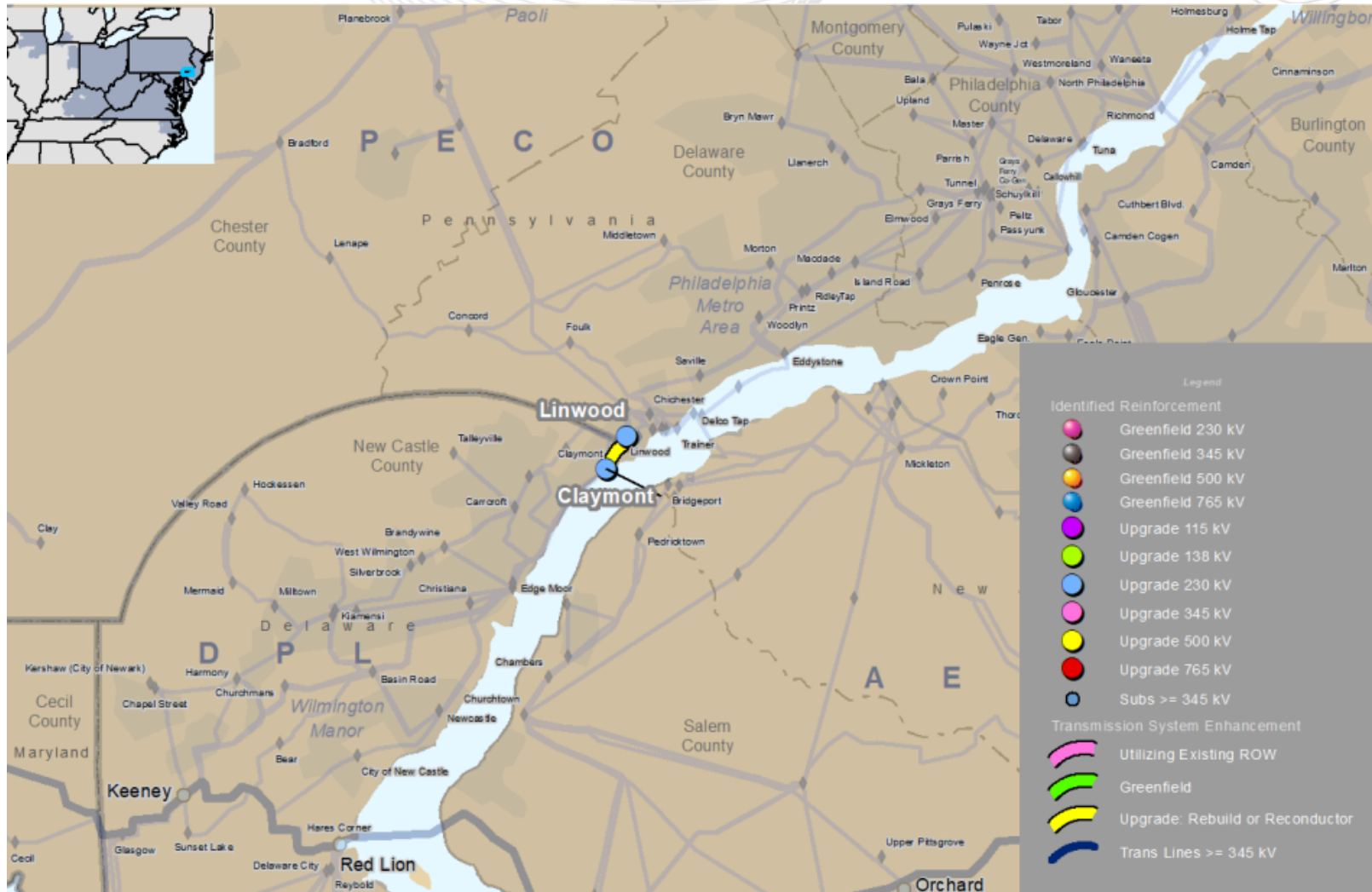
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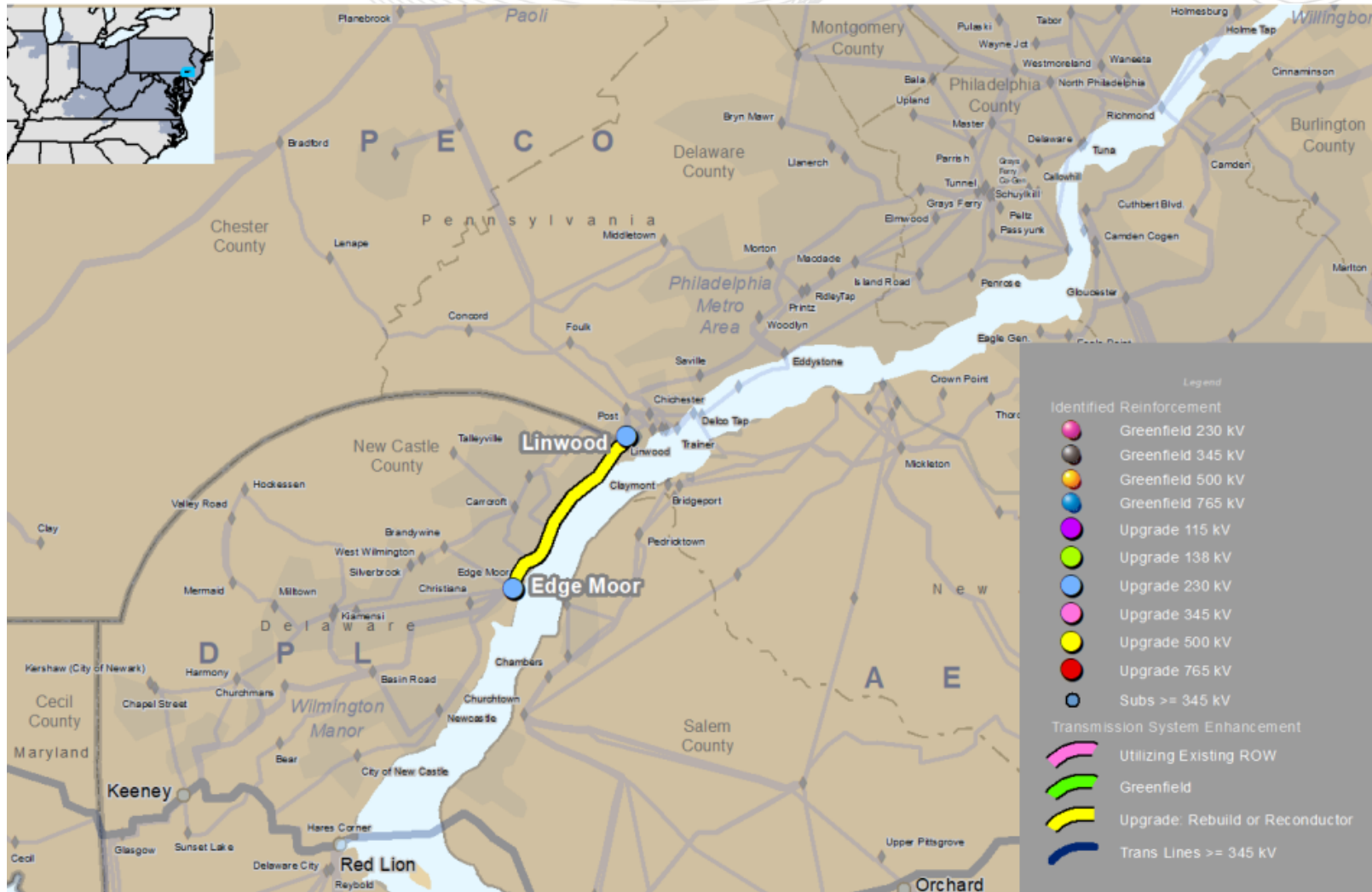


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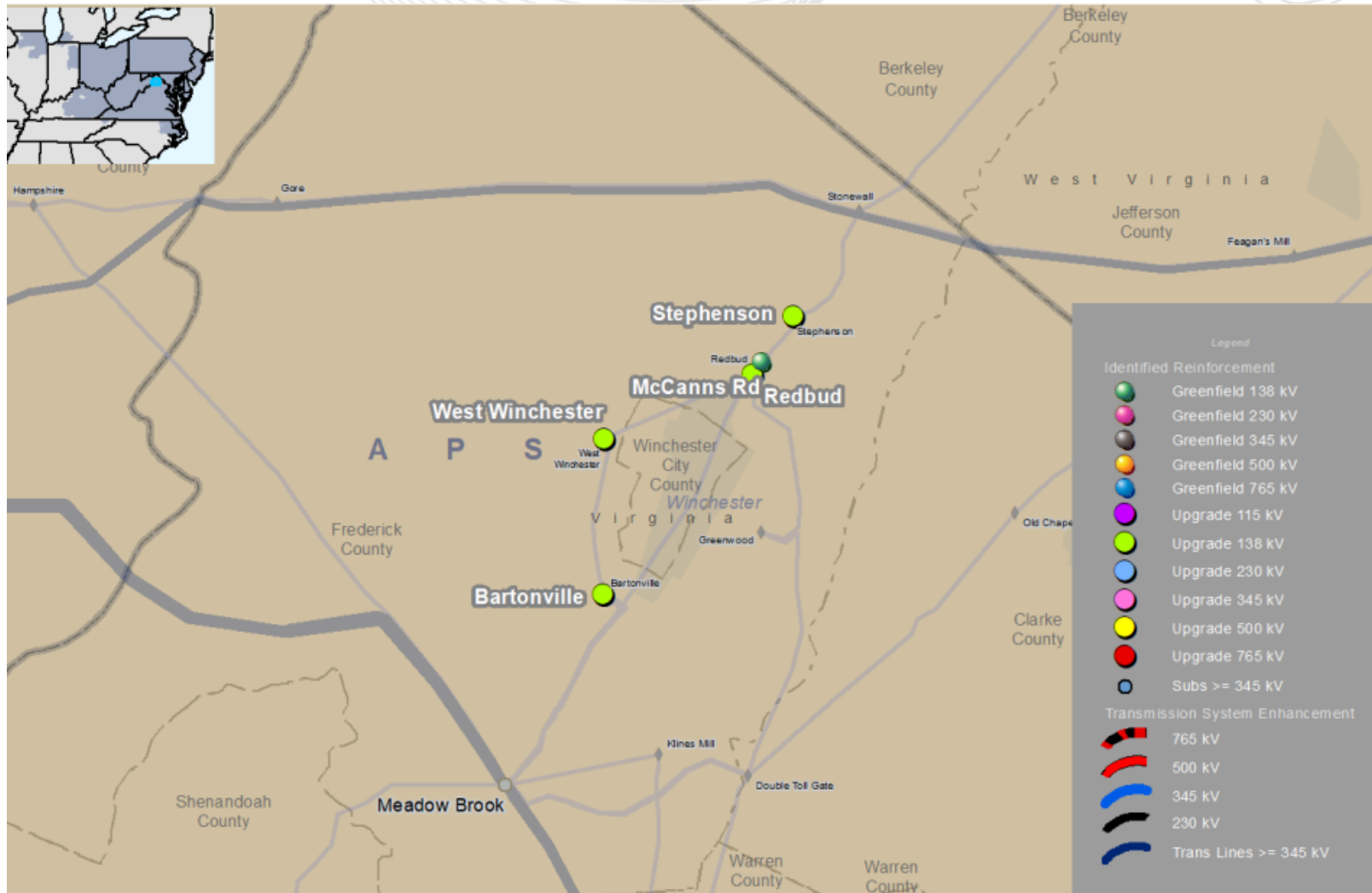


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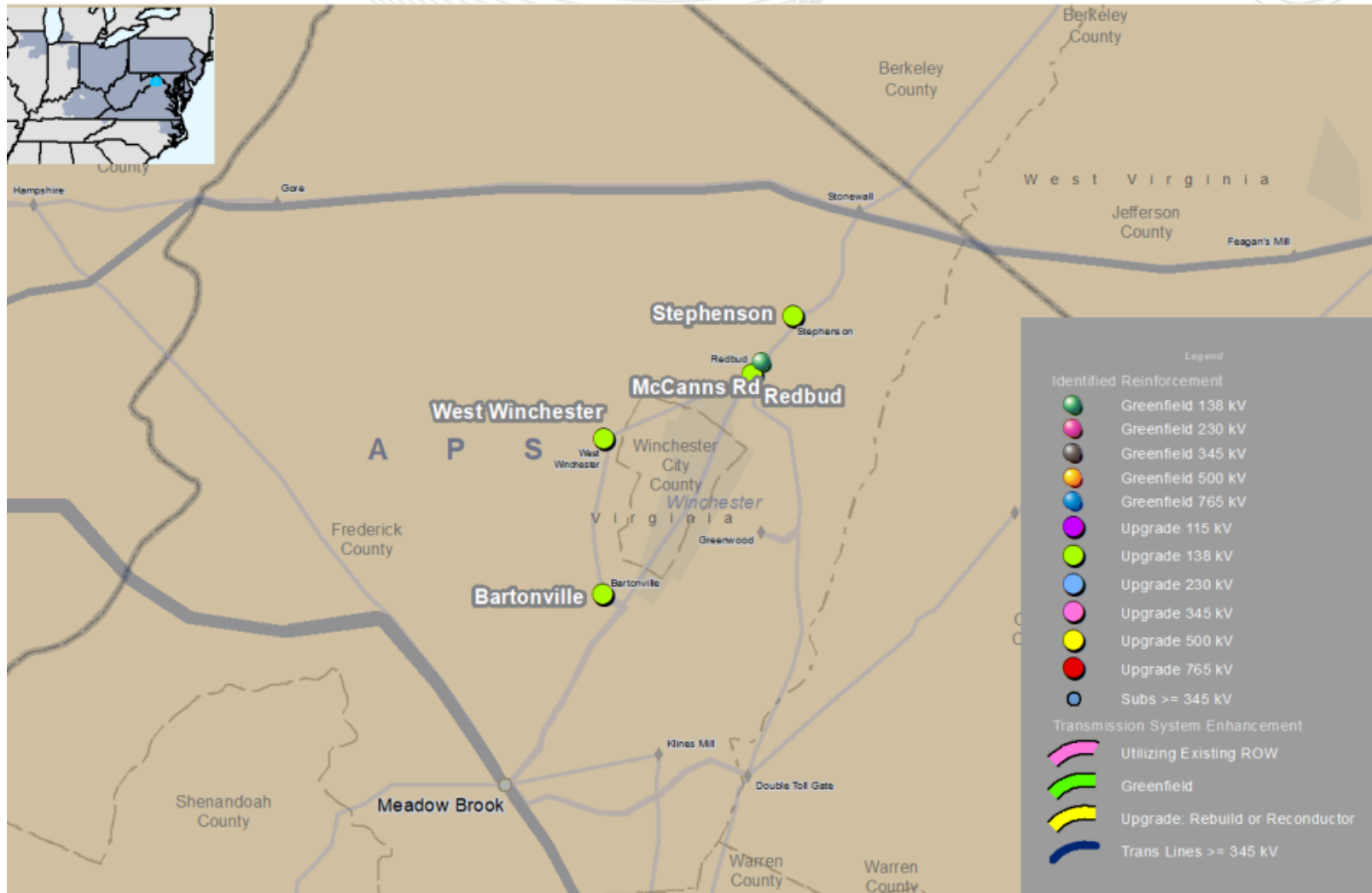
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# POTOED (FirstEnergy)

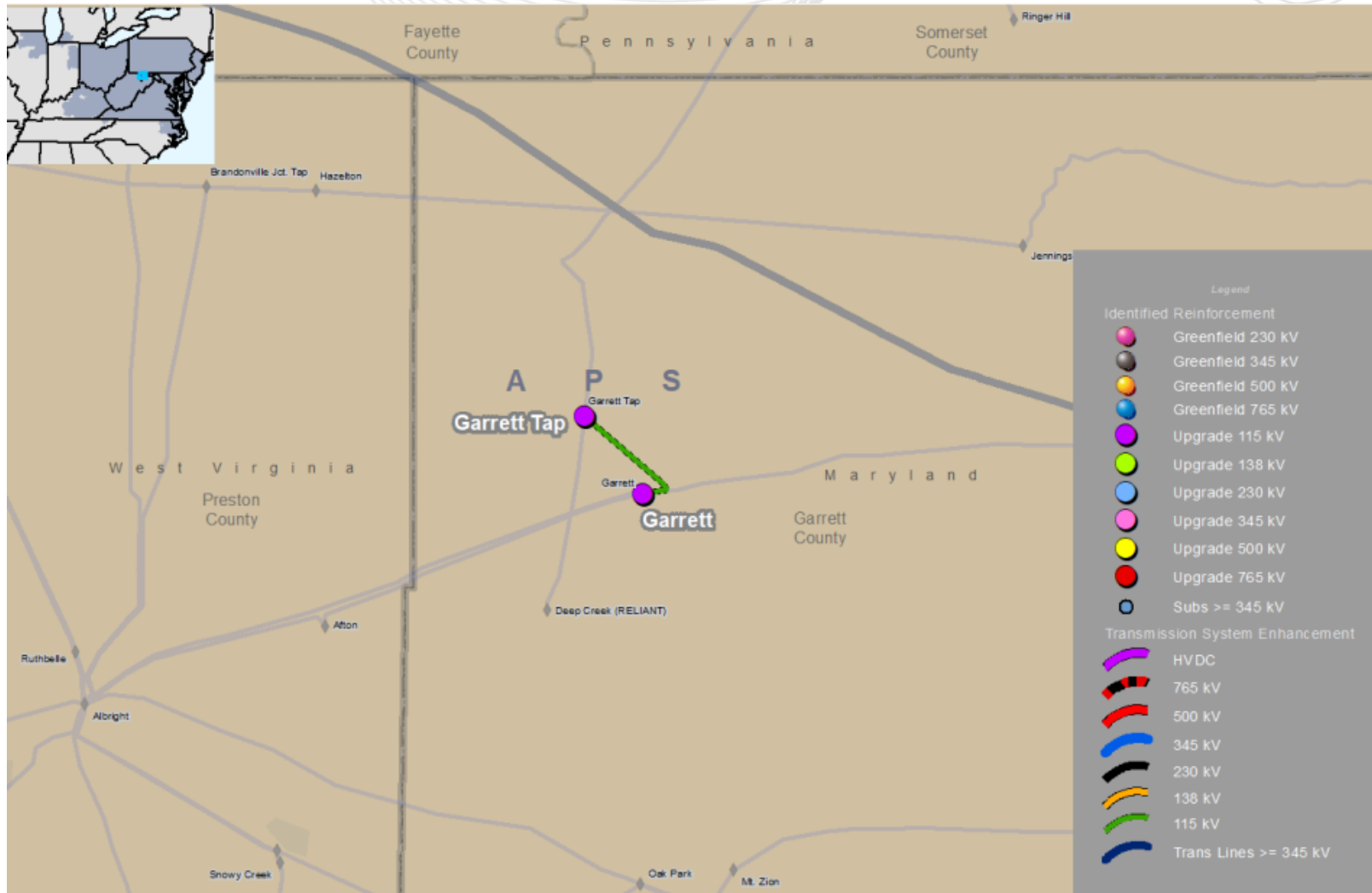


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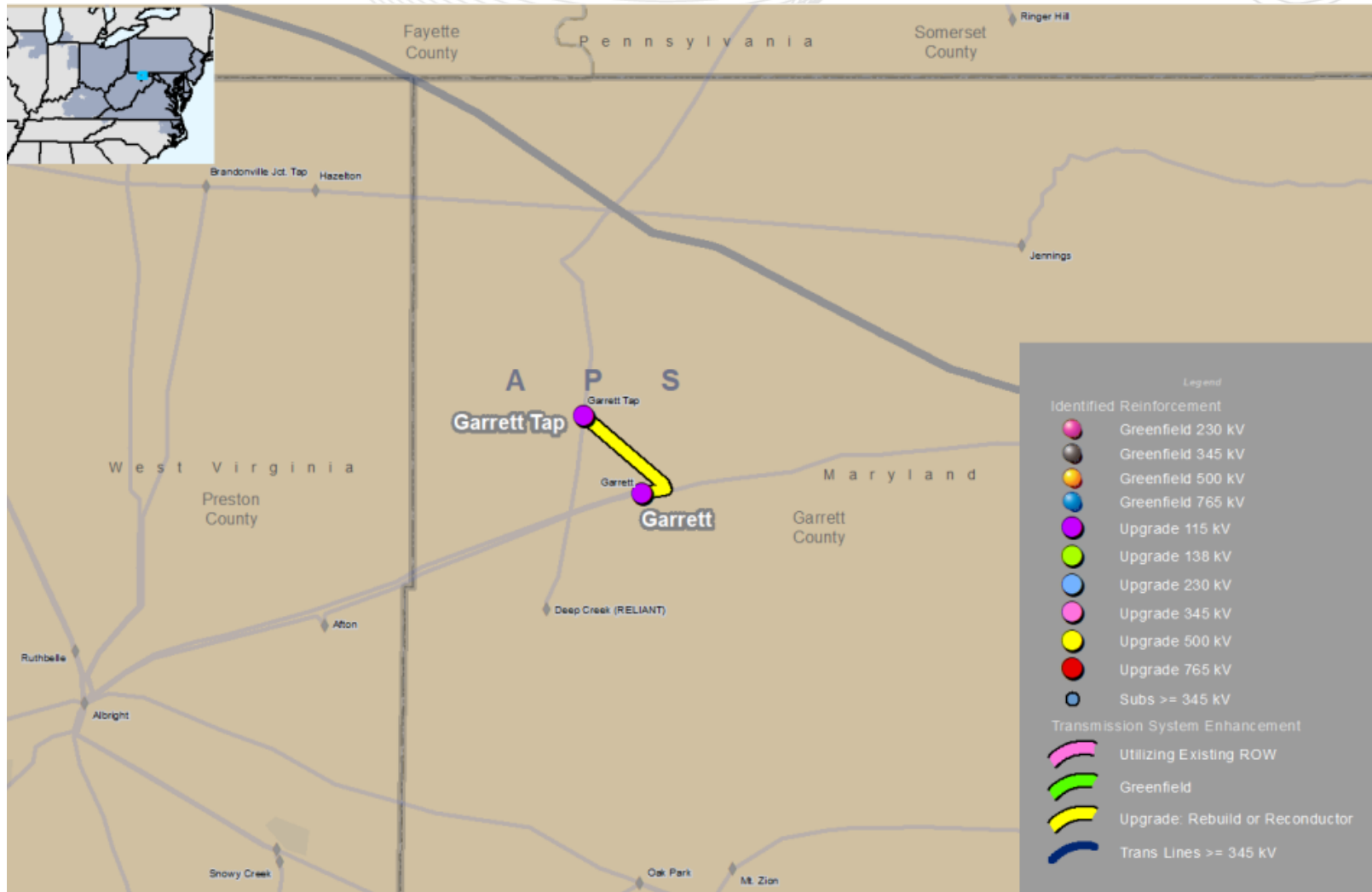




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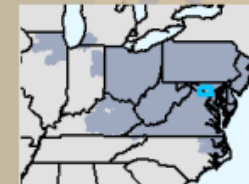
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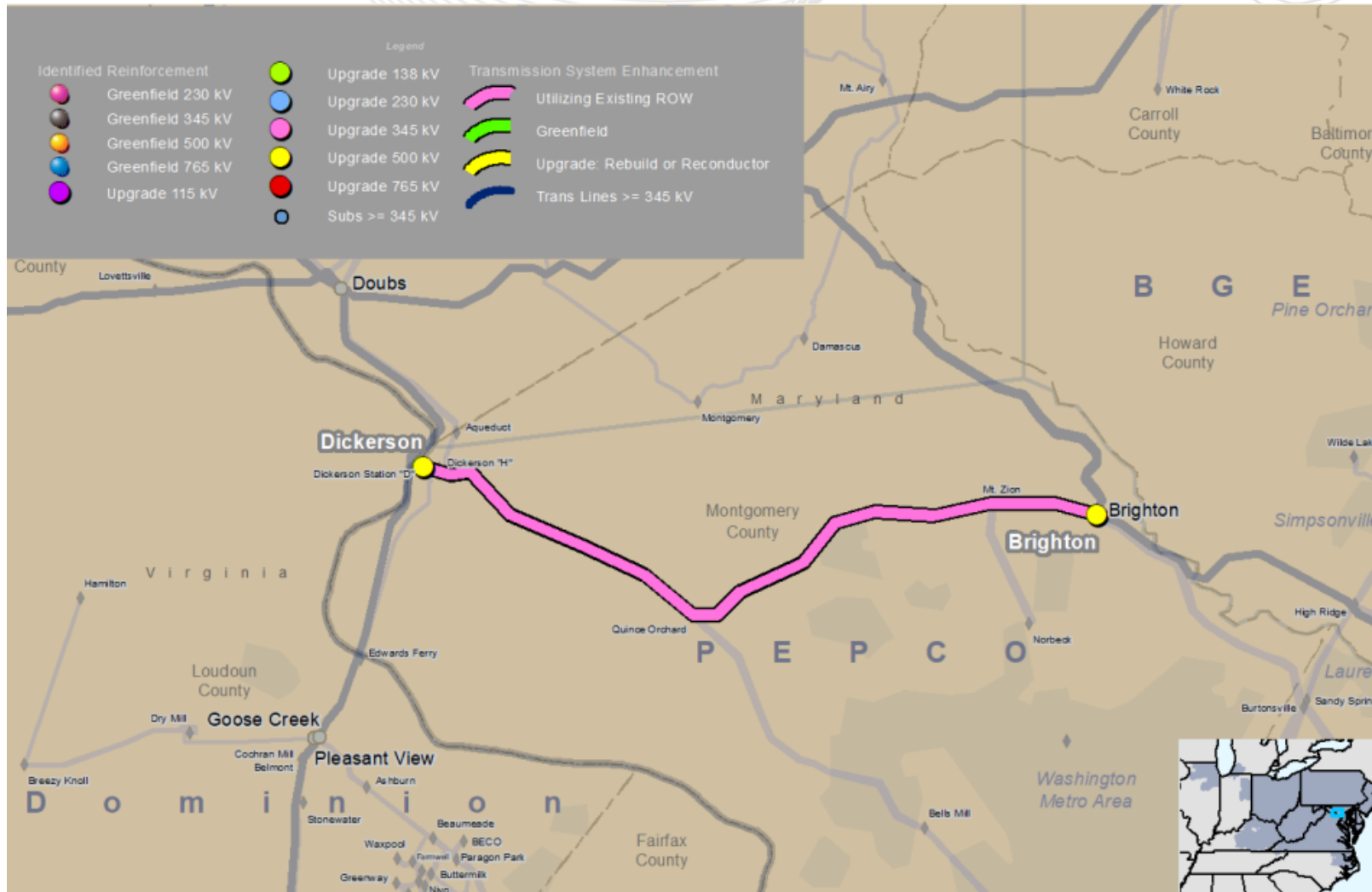
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# PEPCO (Exelon)

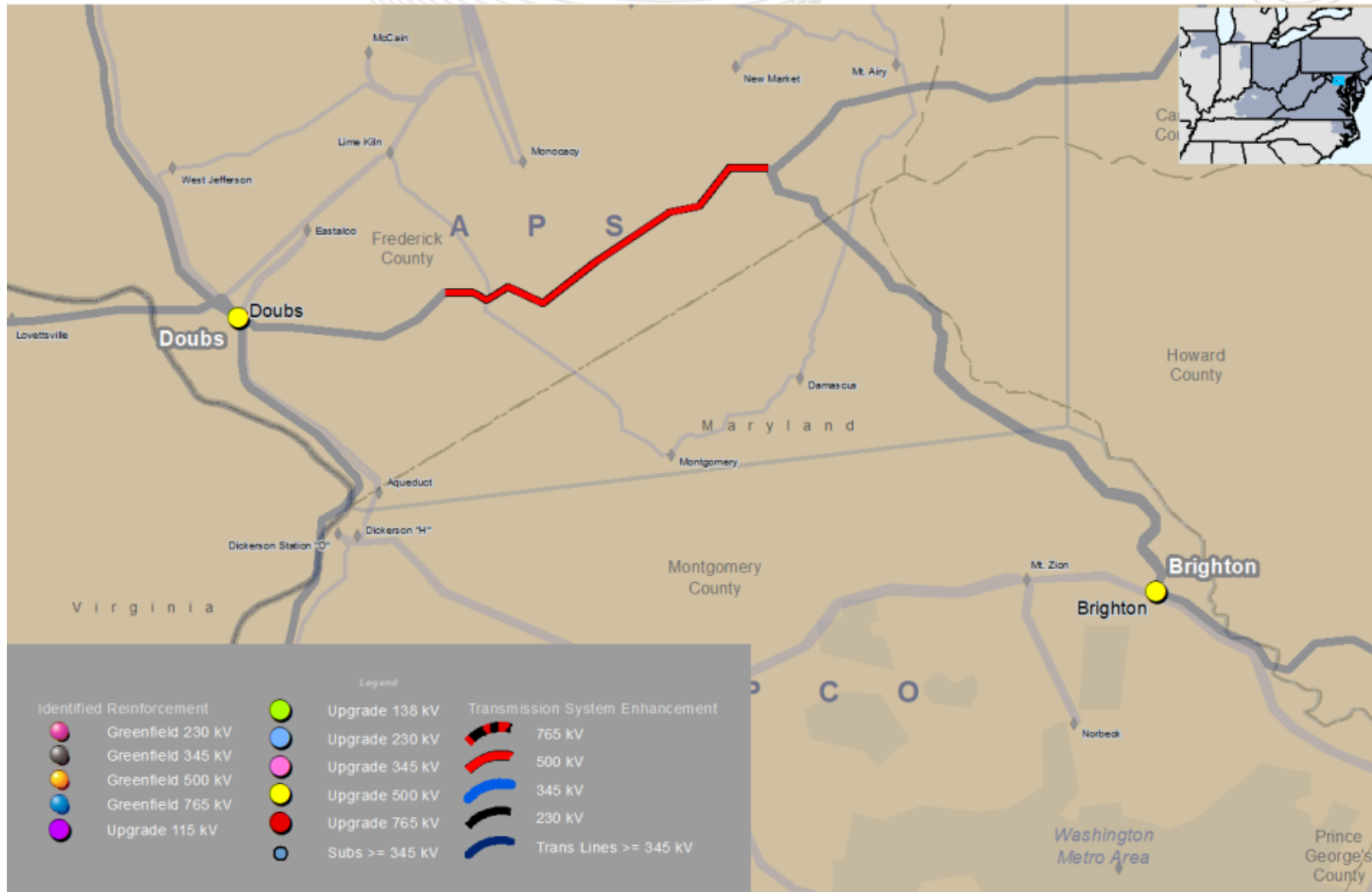




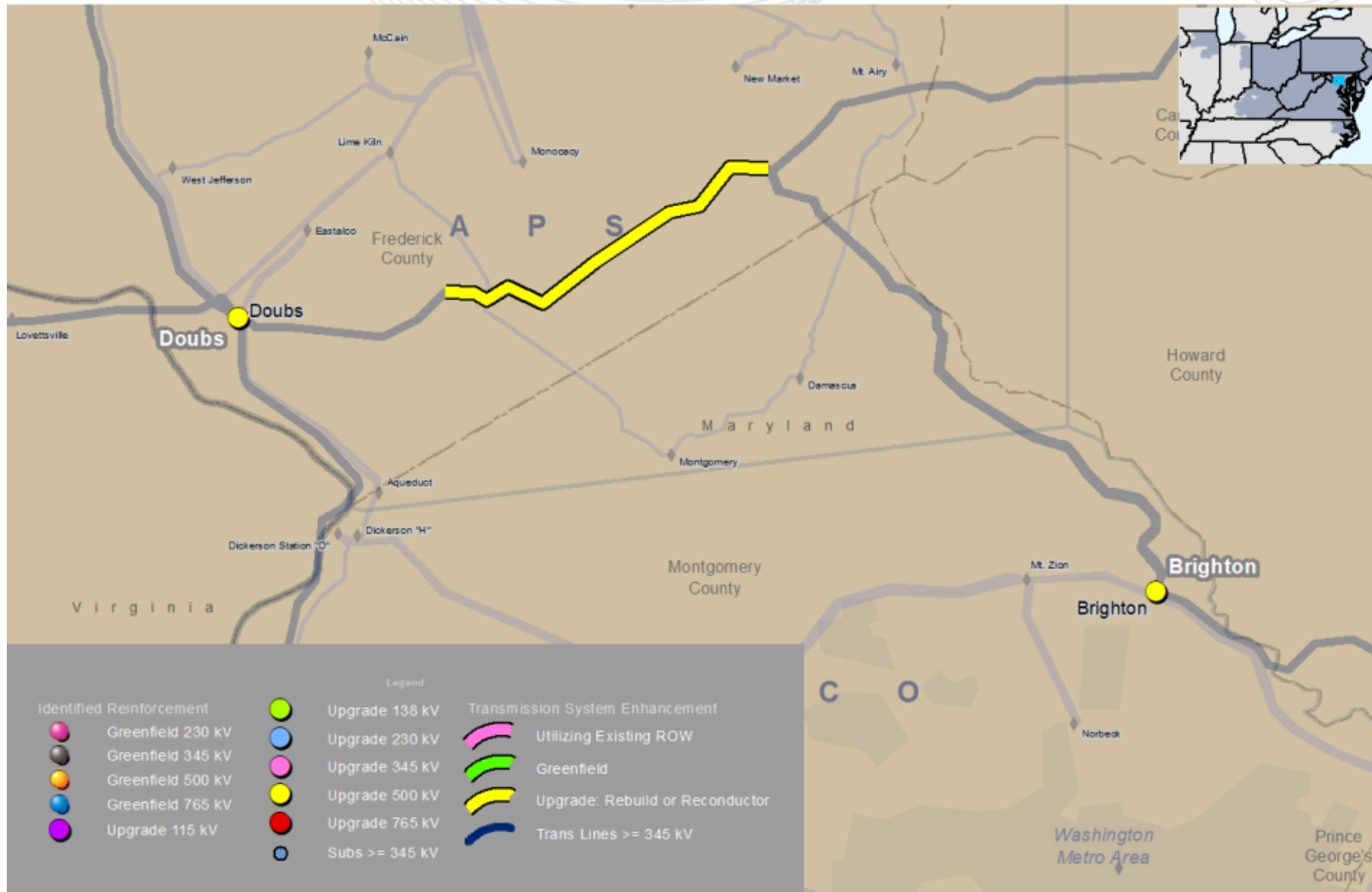
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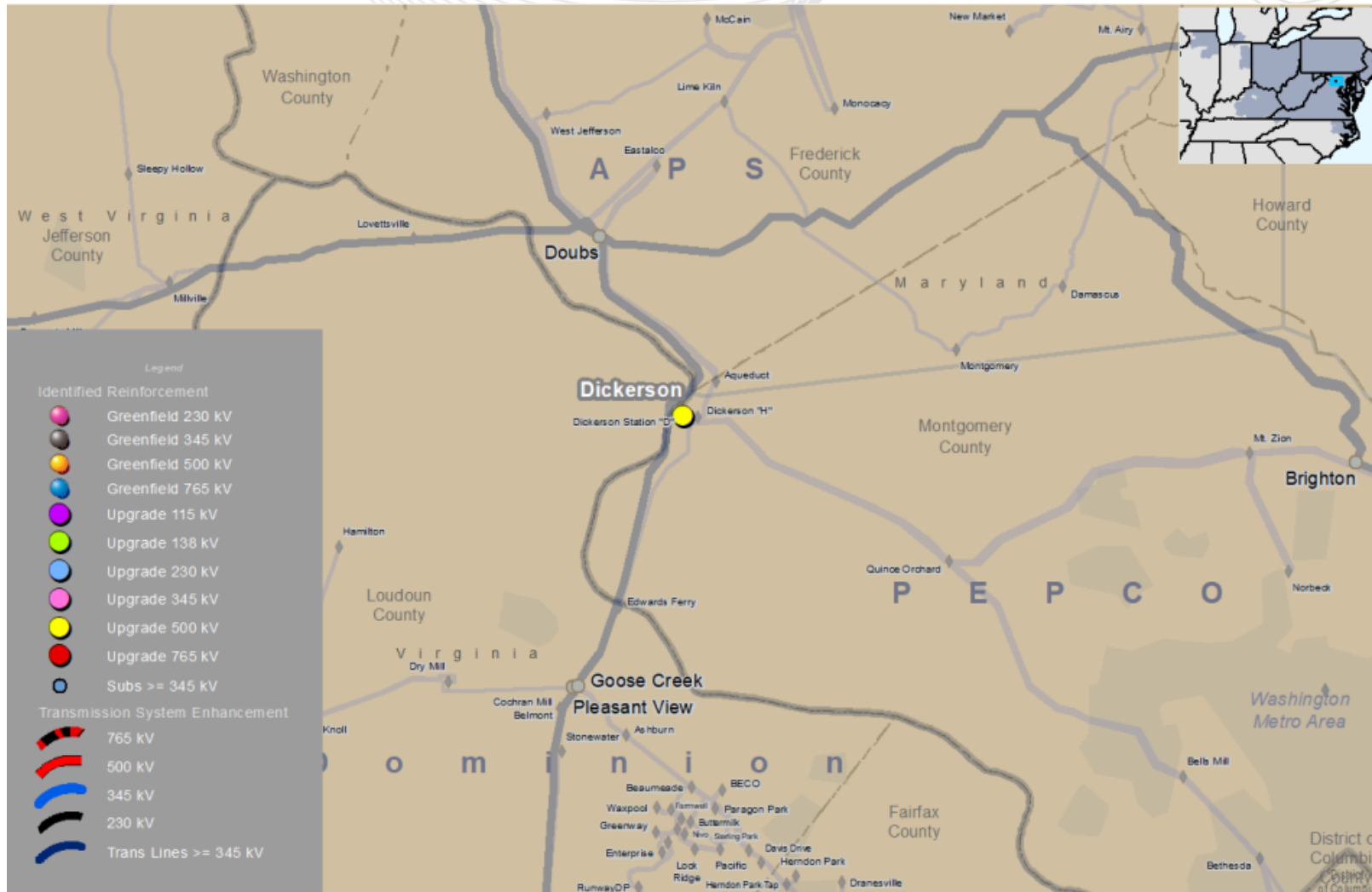


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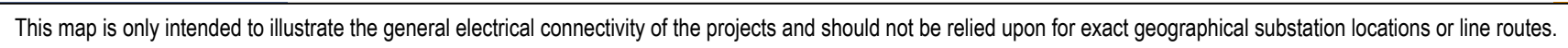


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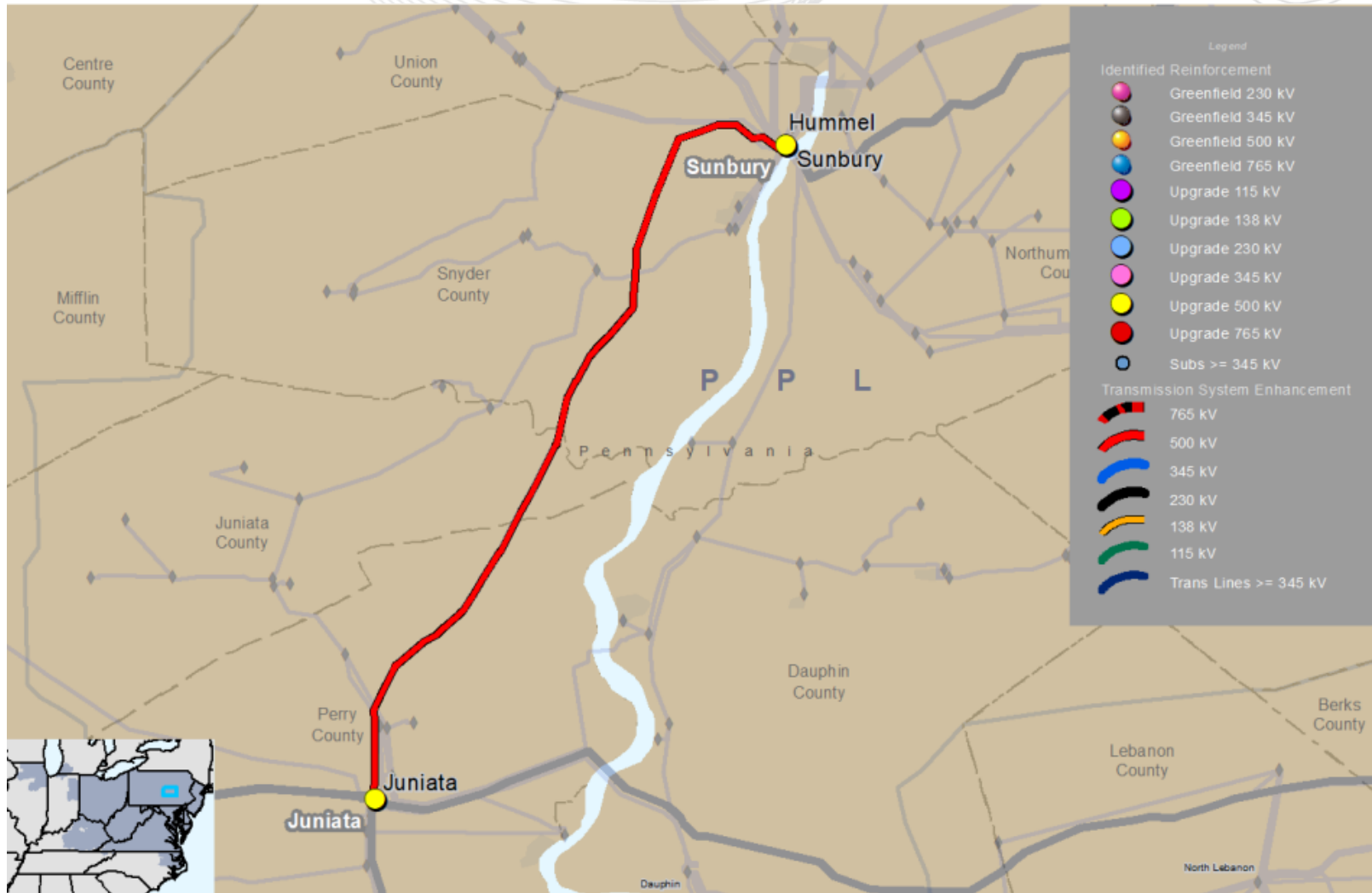




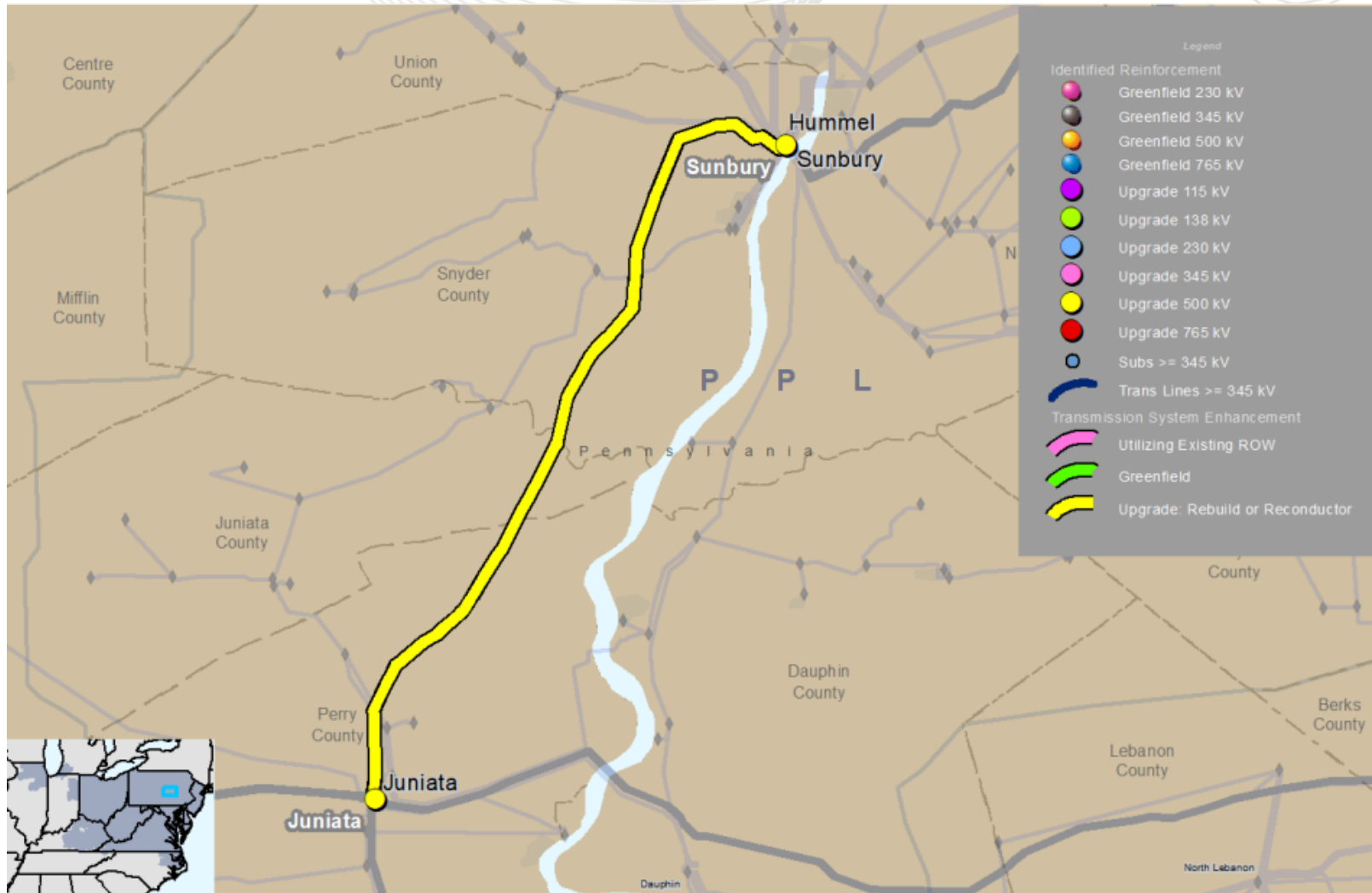
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# PPLTO (PPL)

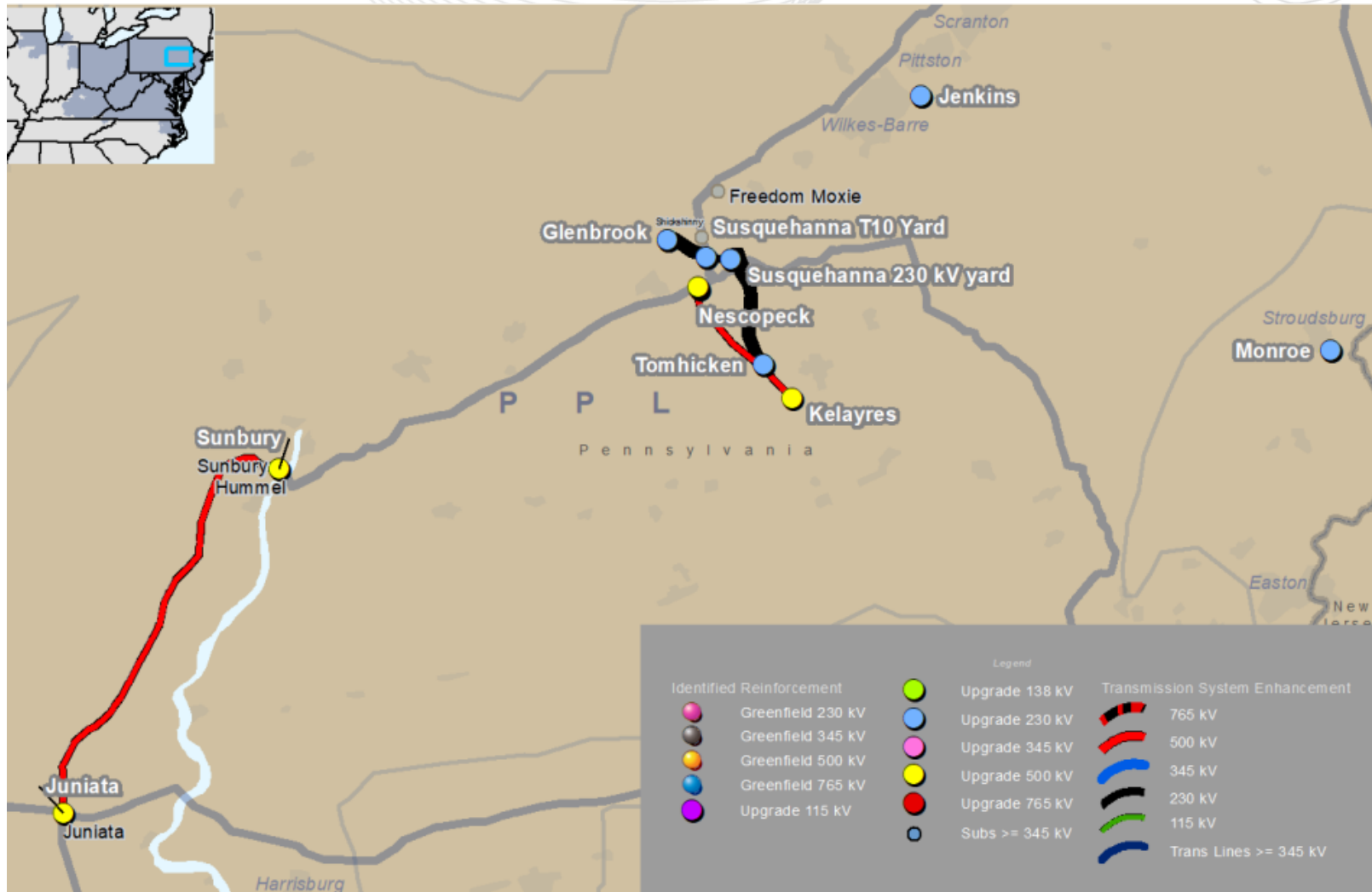


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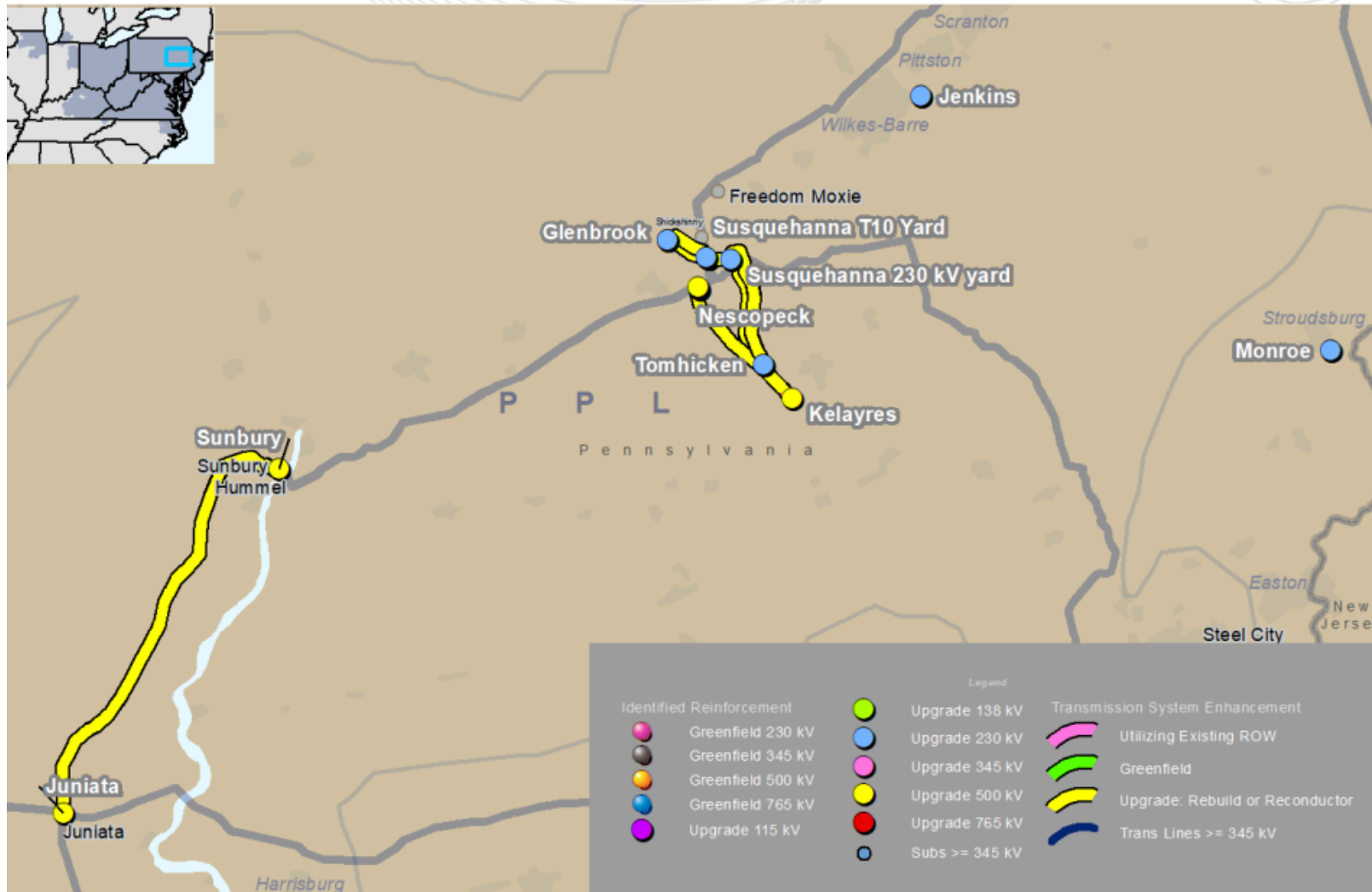


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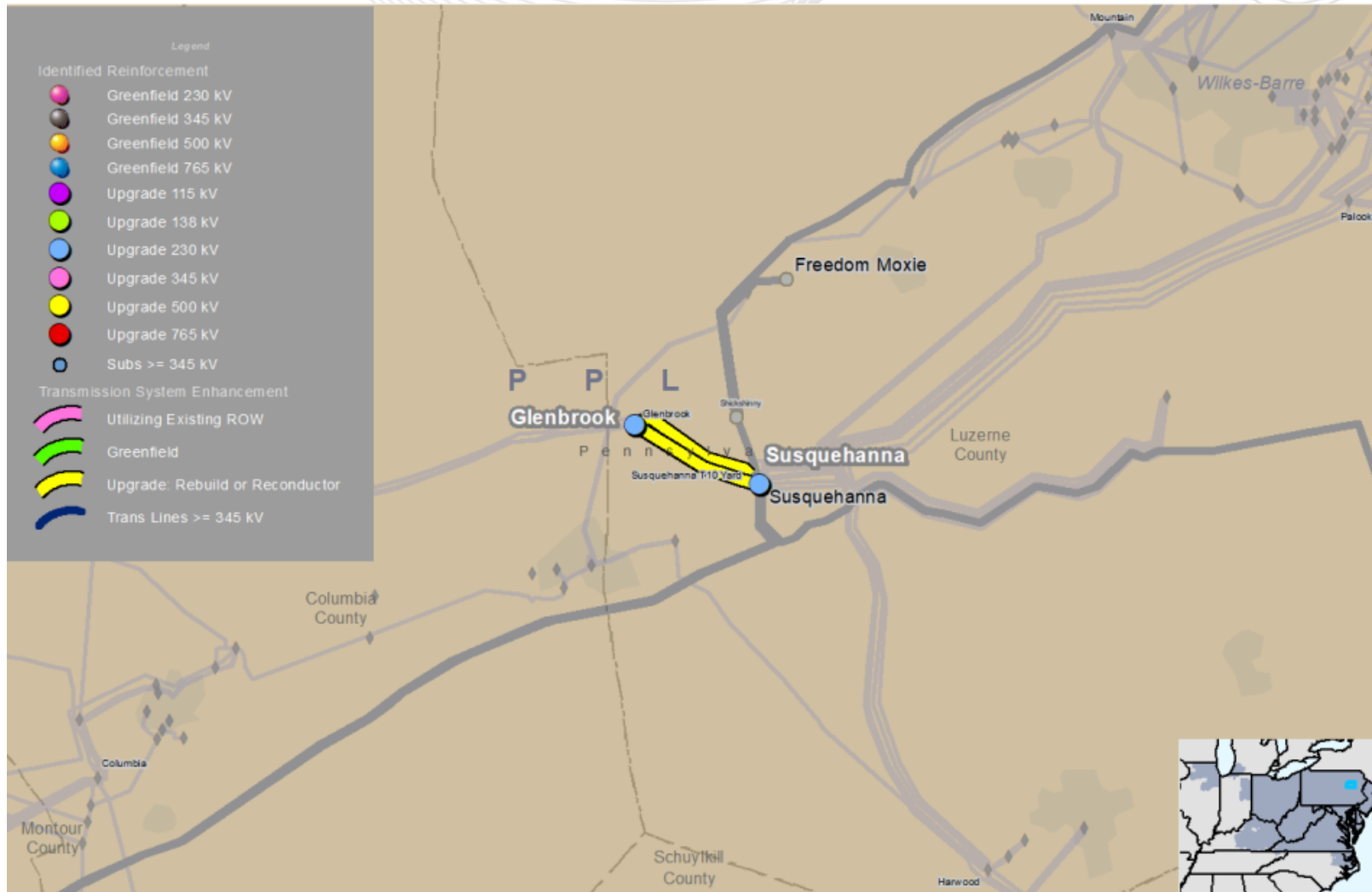
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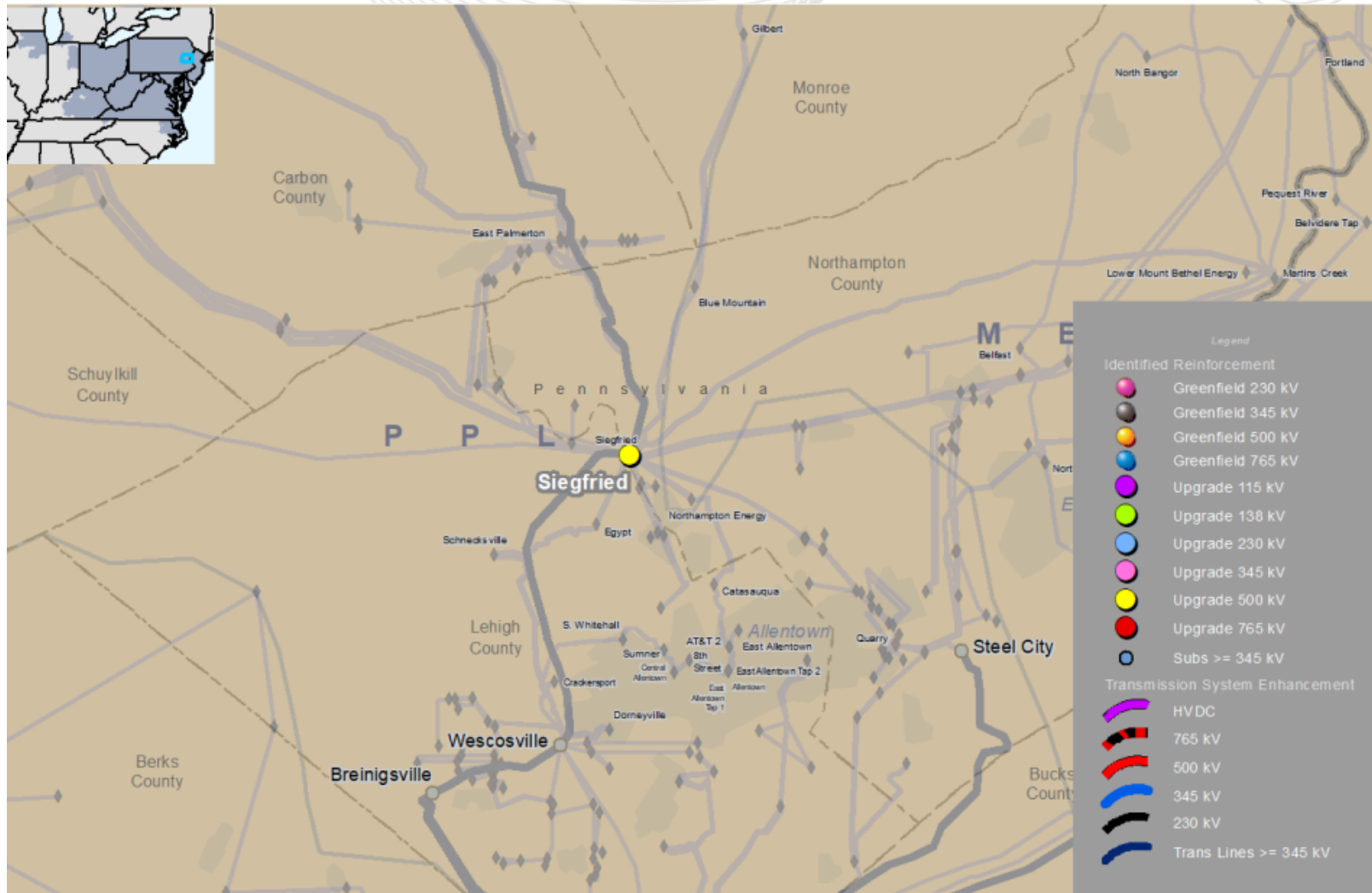
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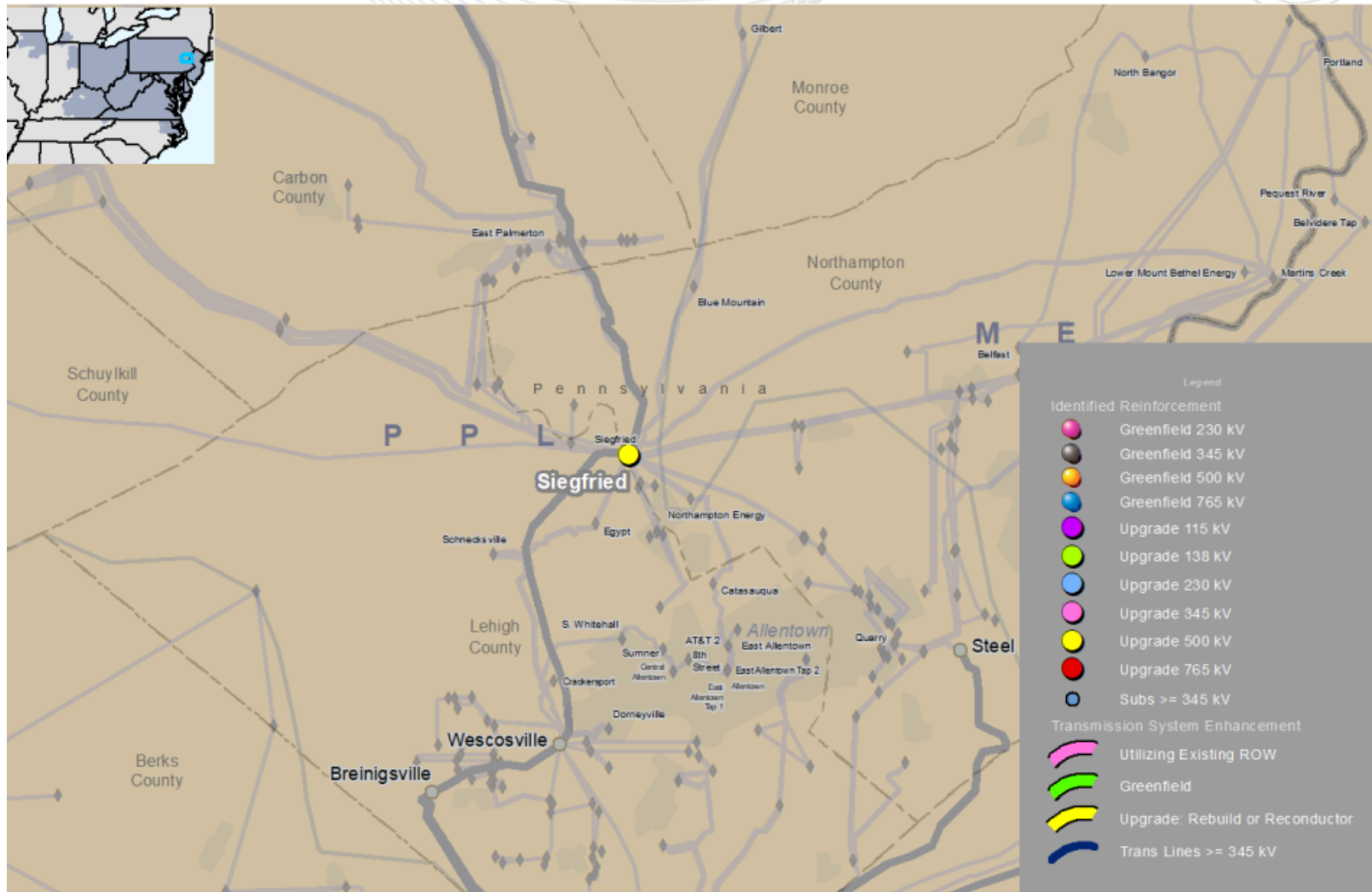


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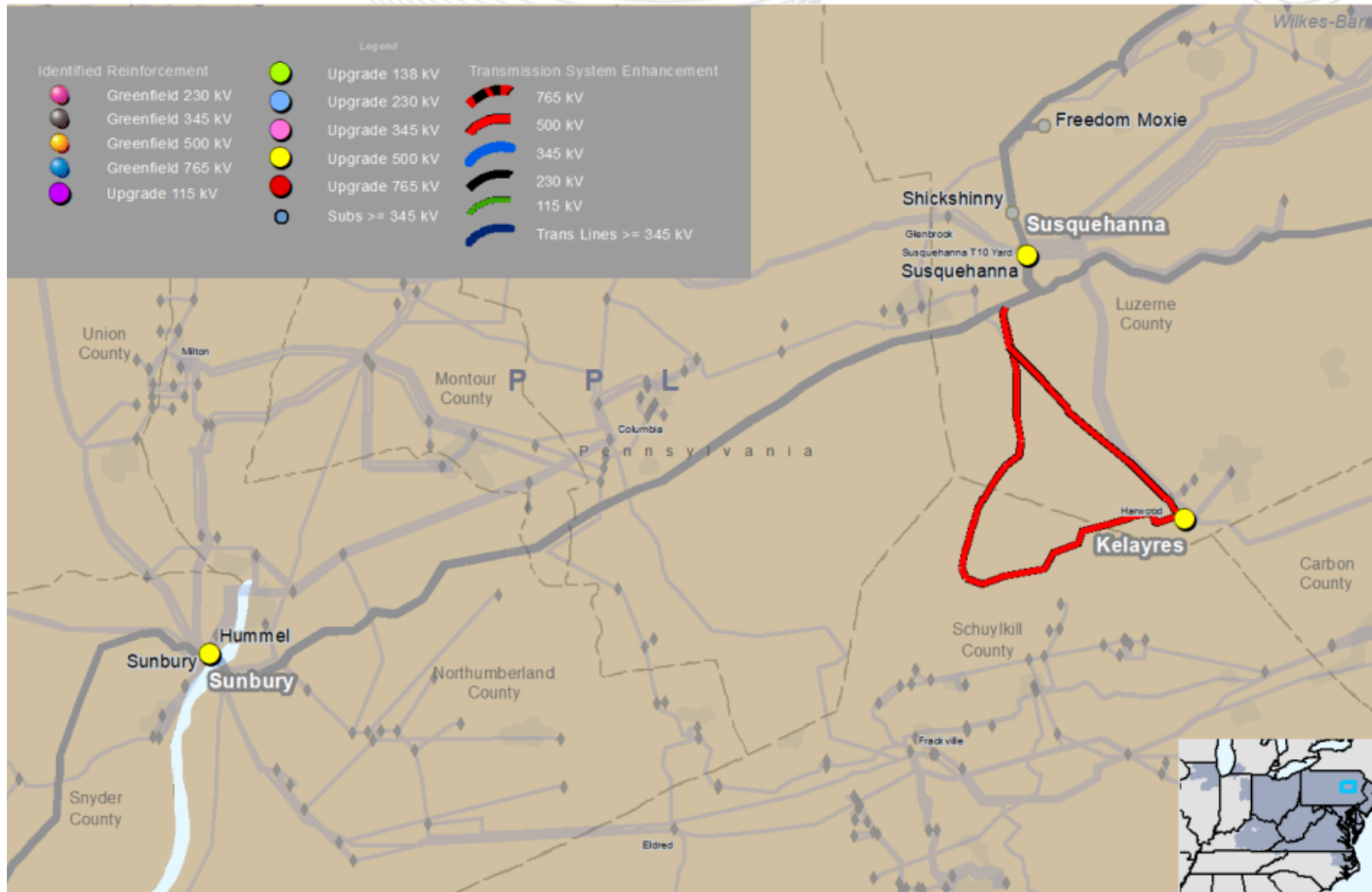


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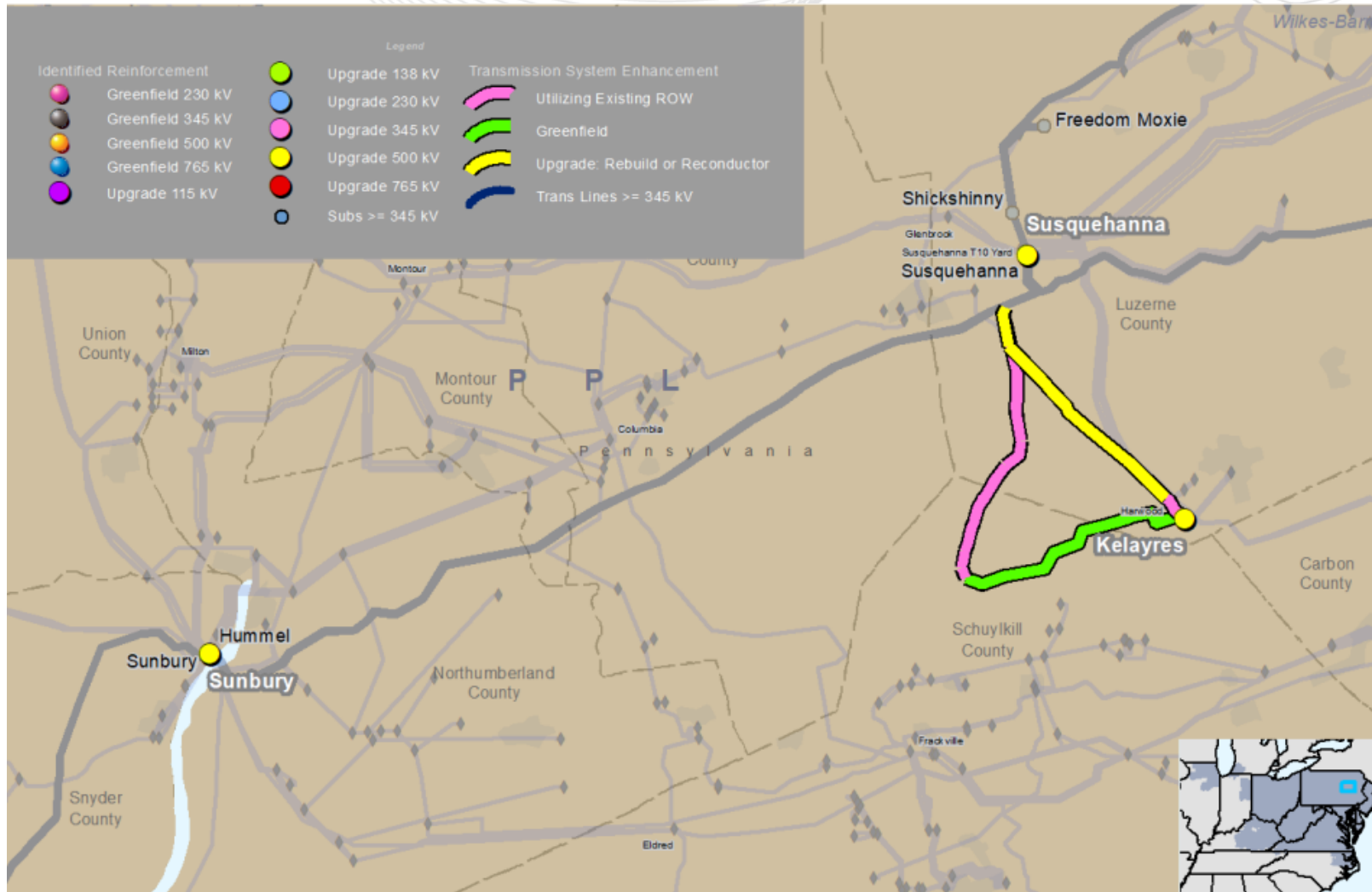




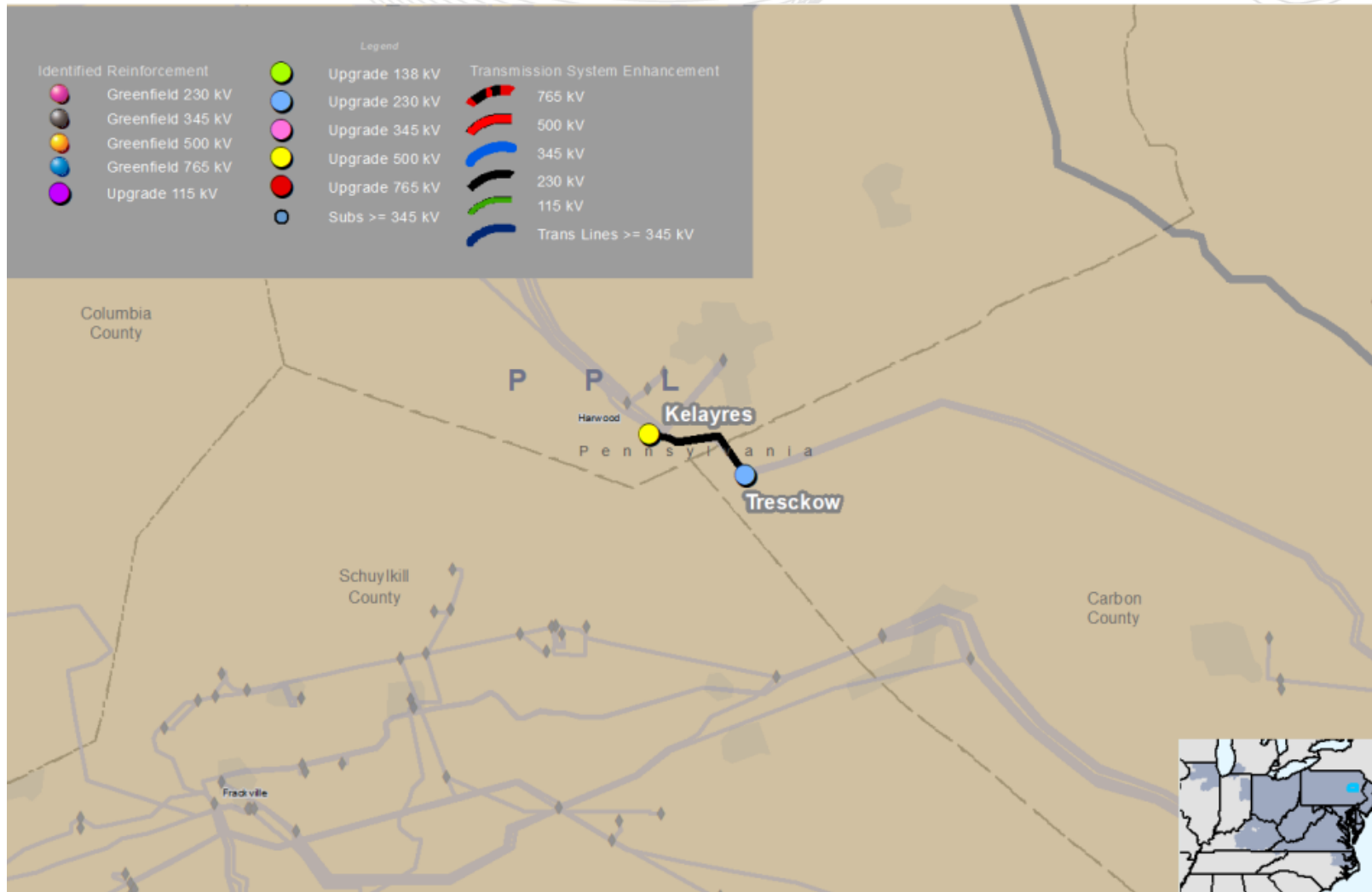
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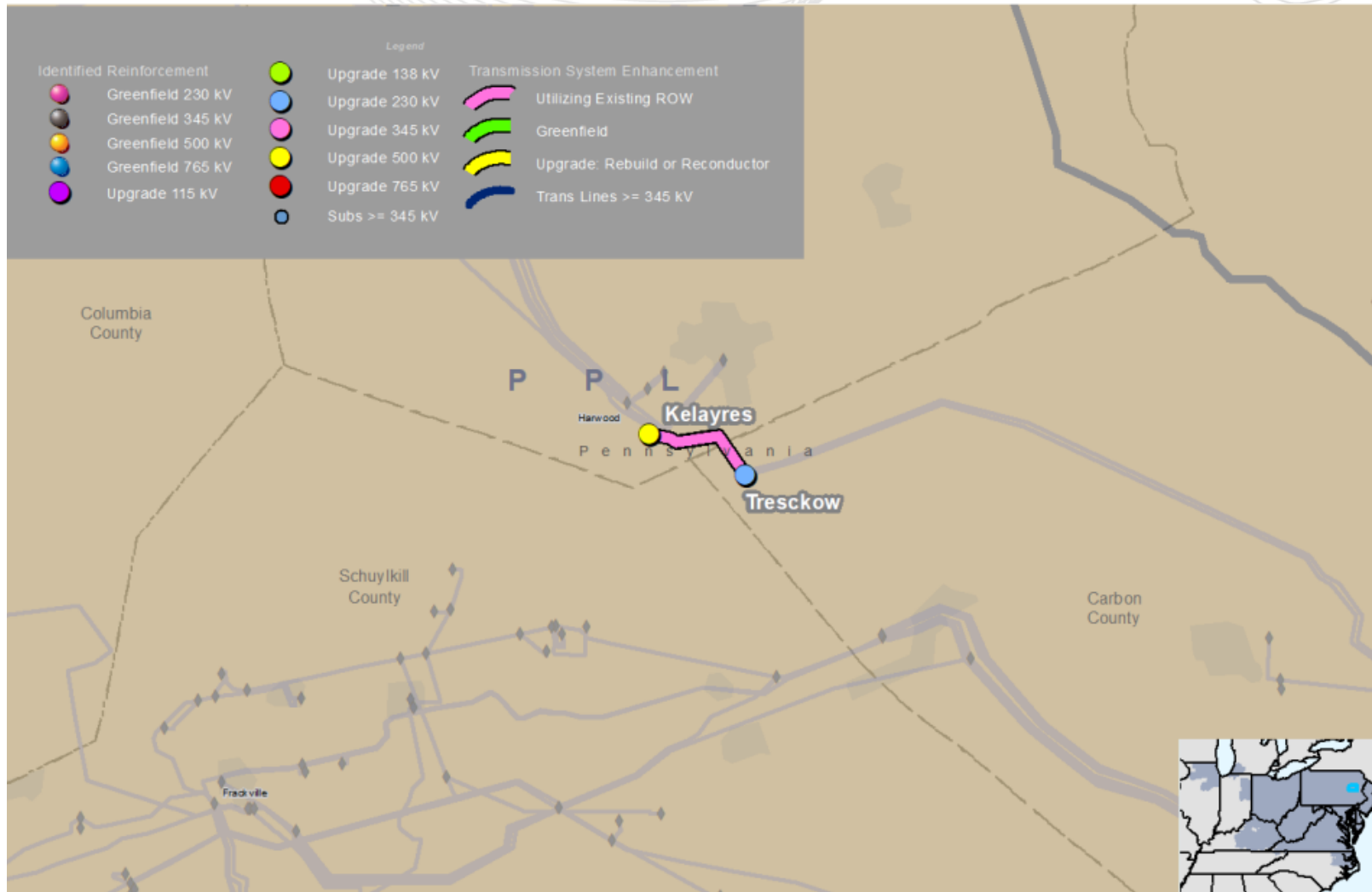
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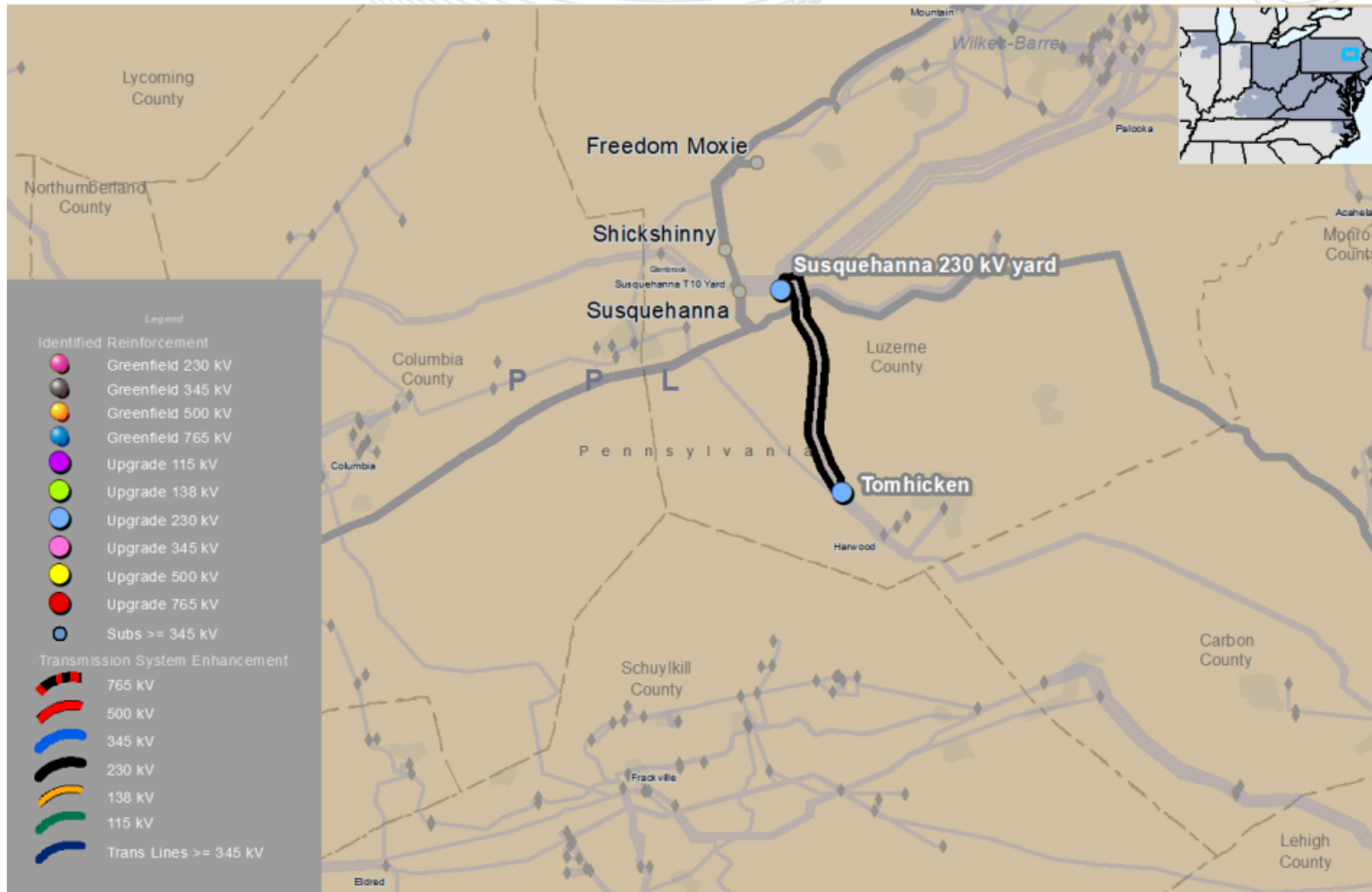


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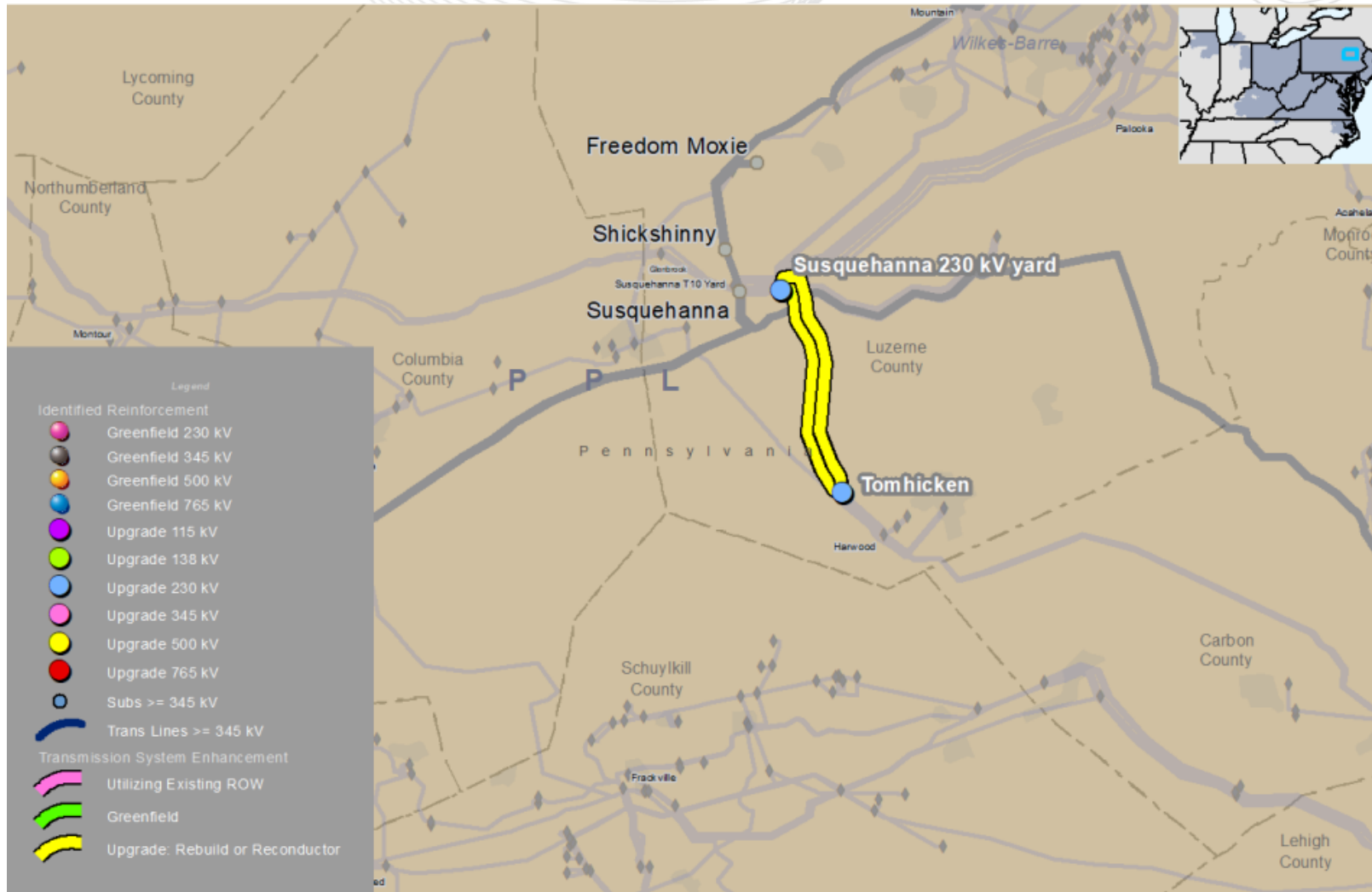


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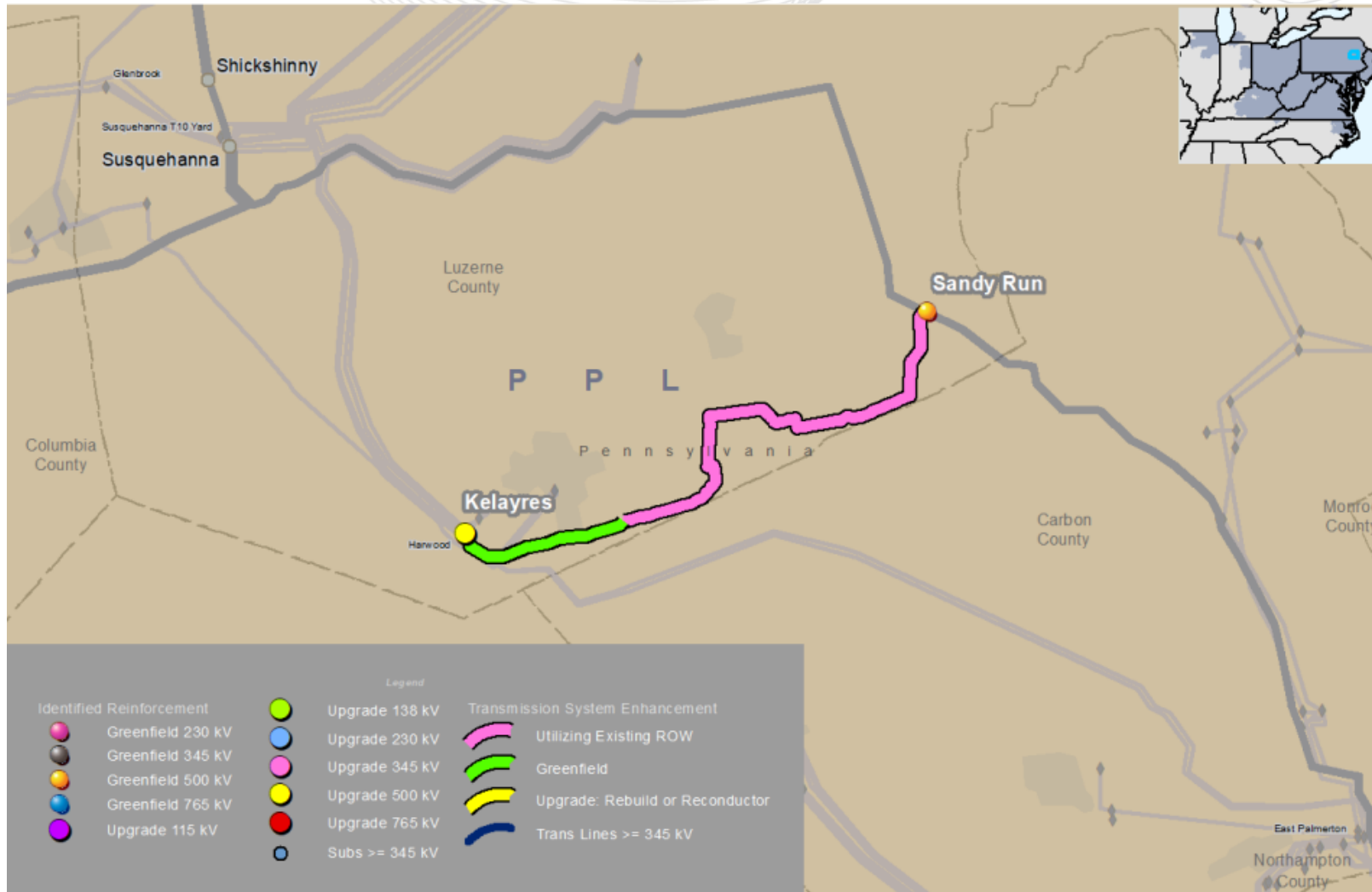
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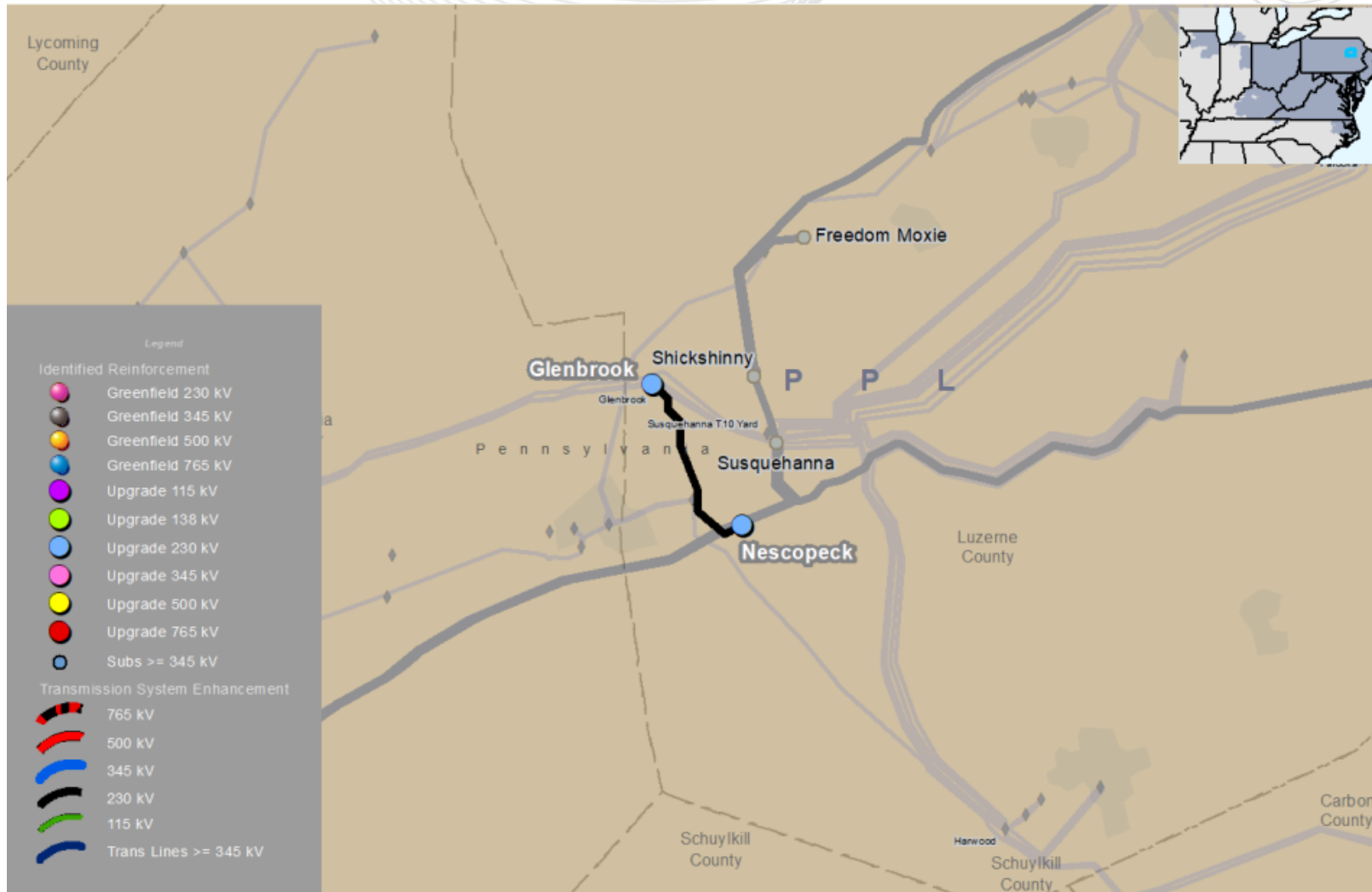
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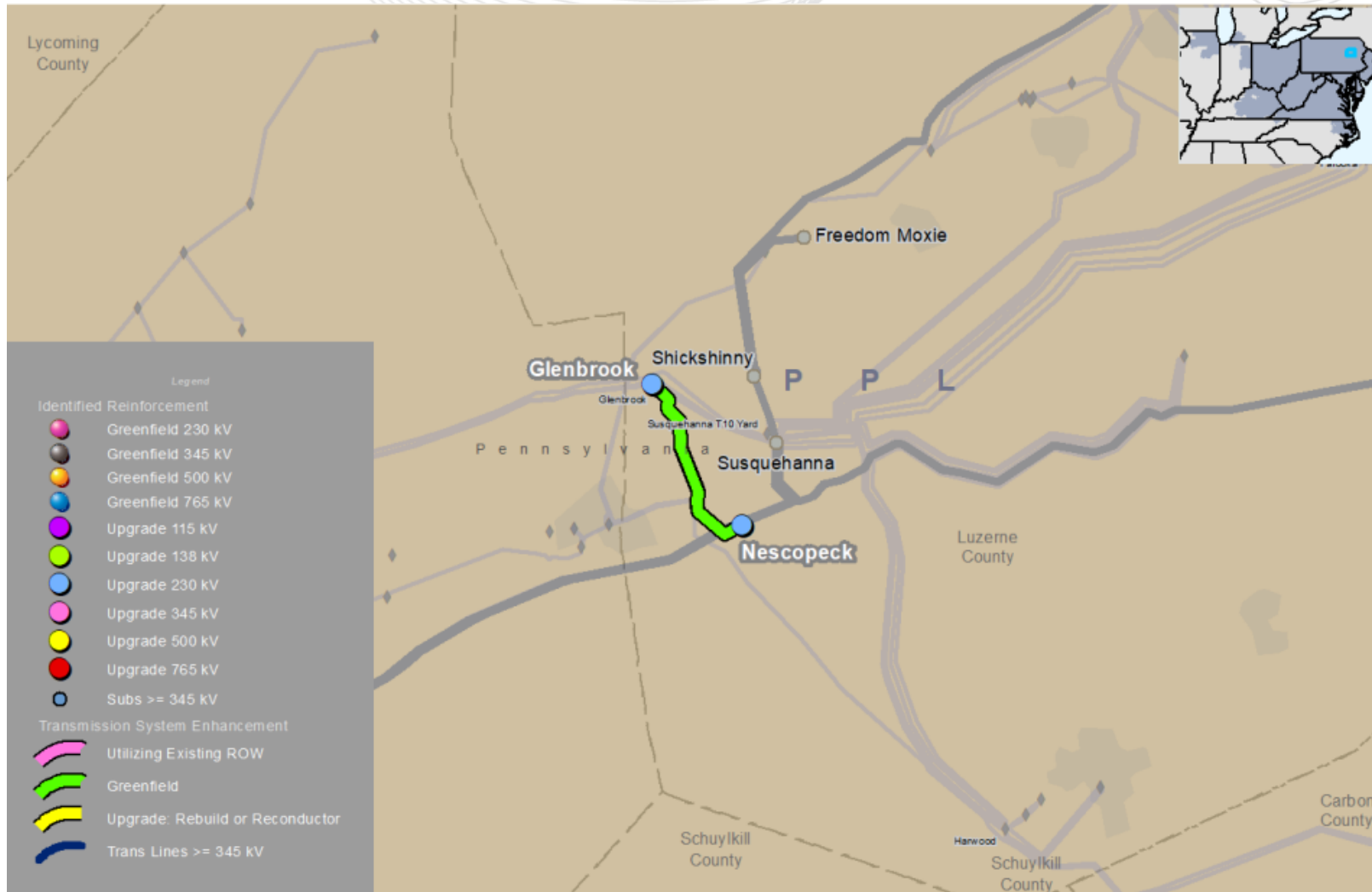


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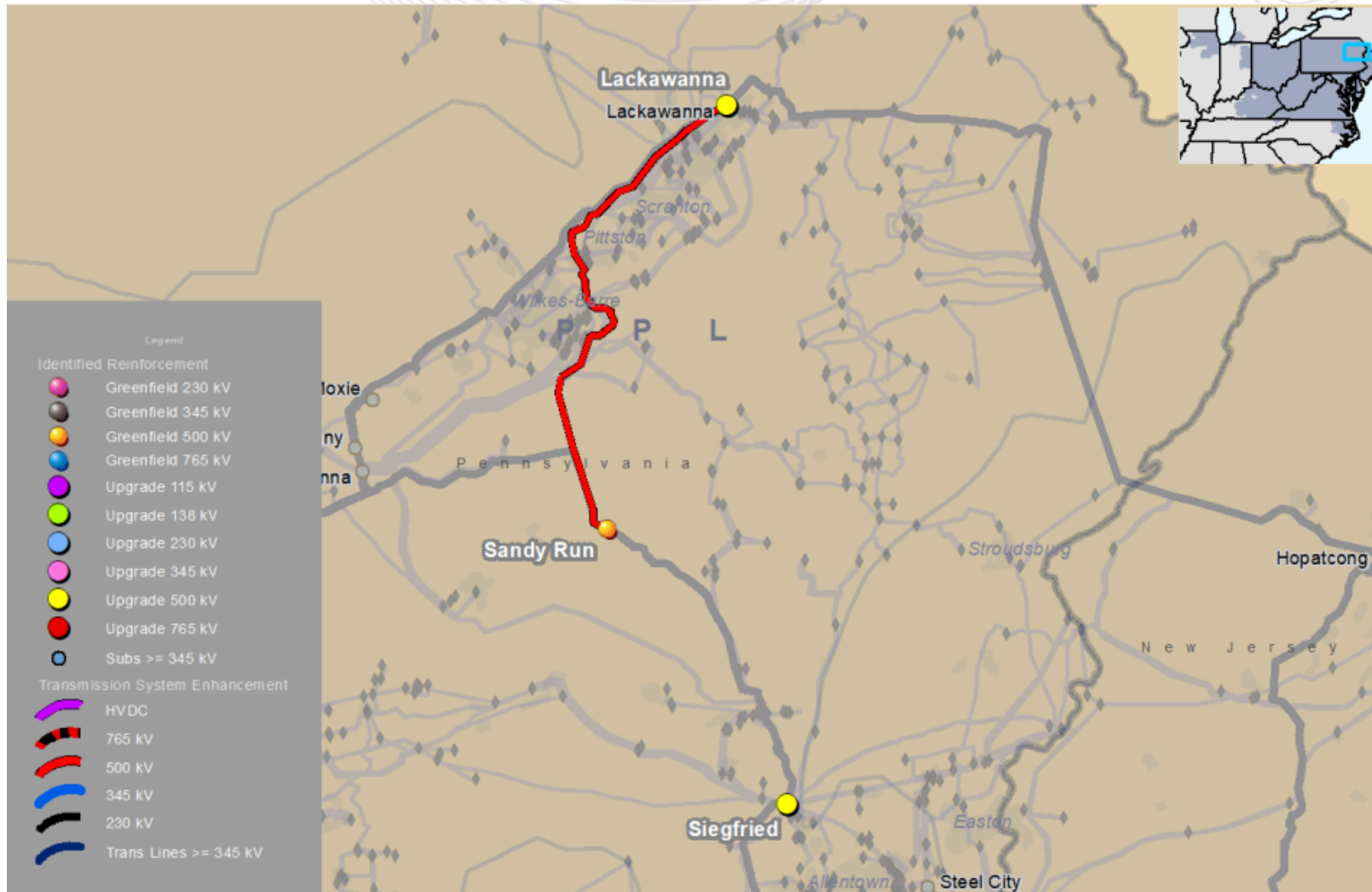


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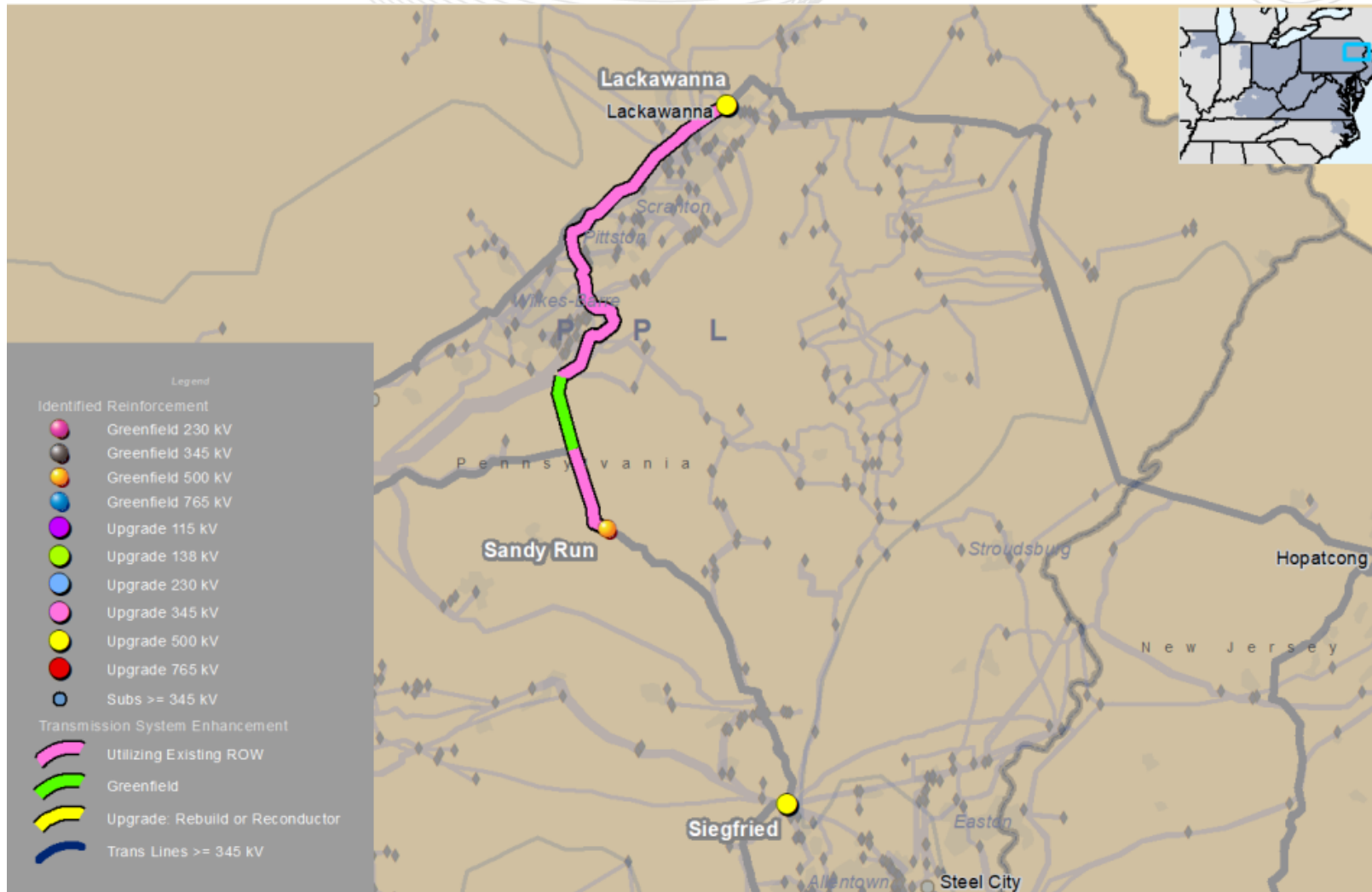




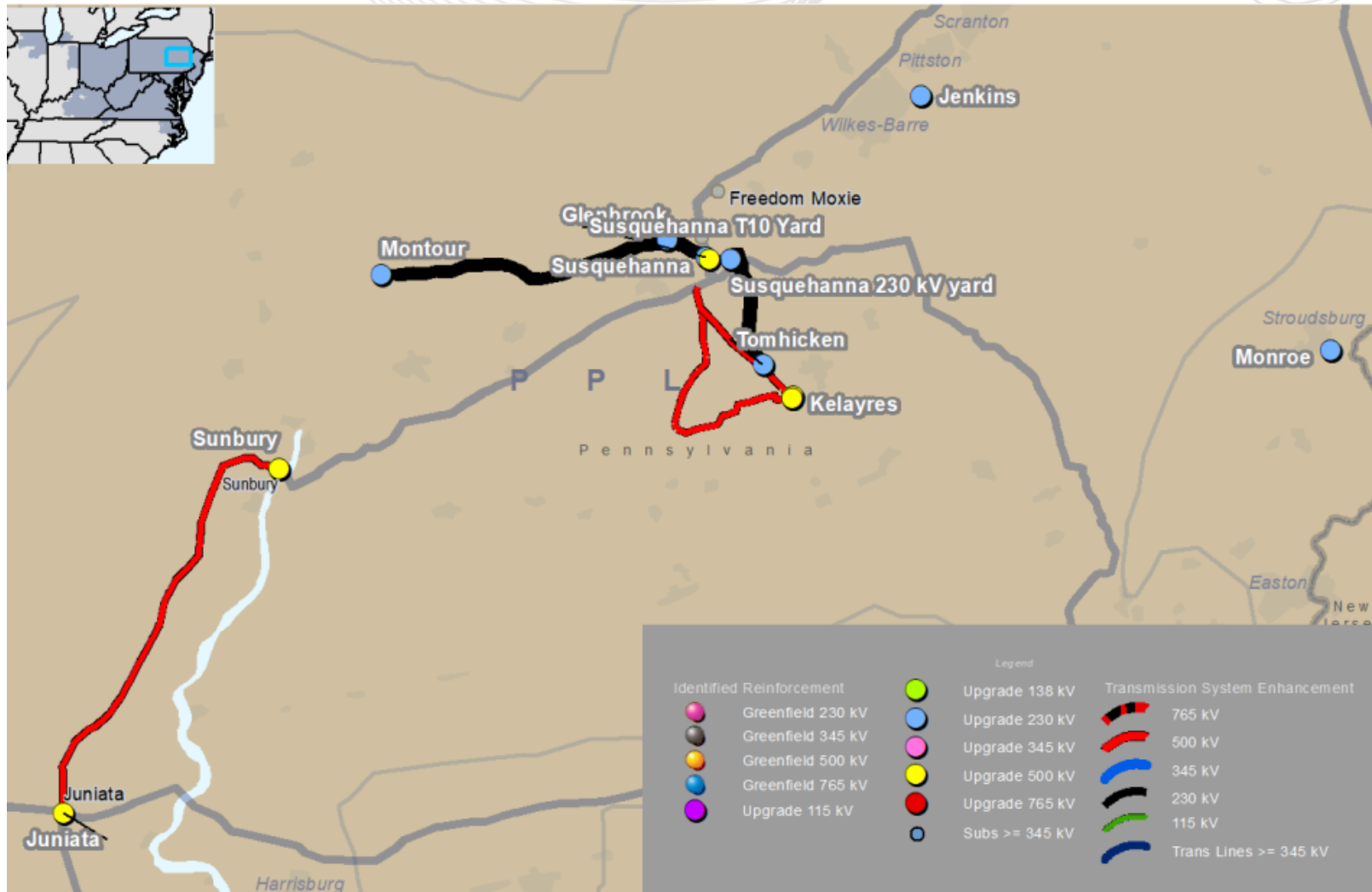
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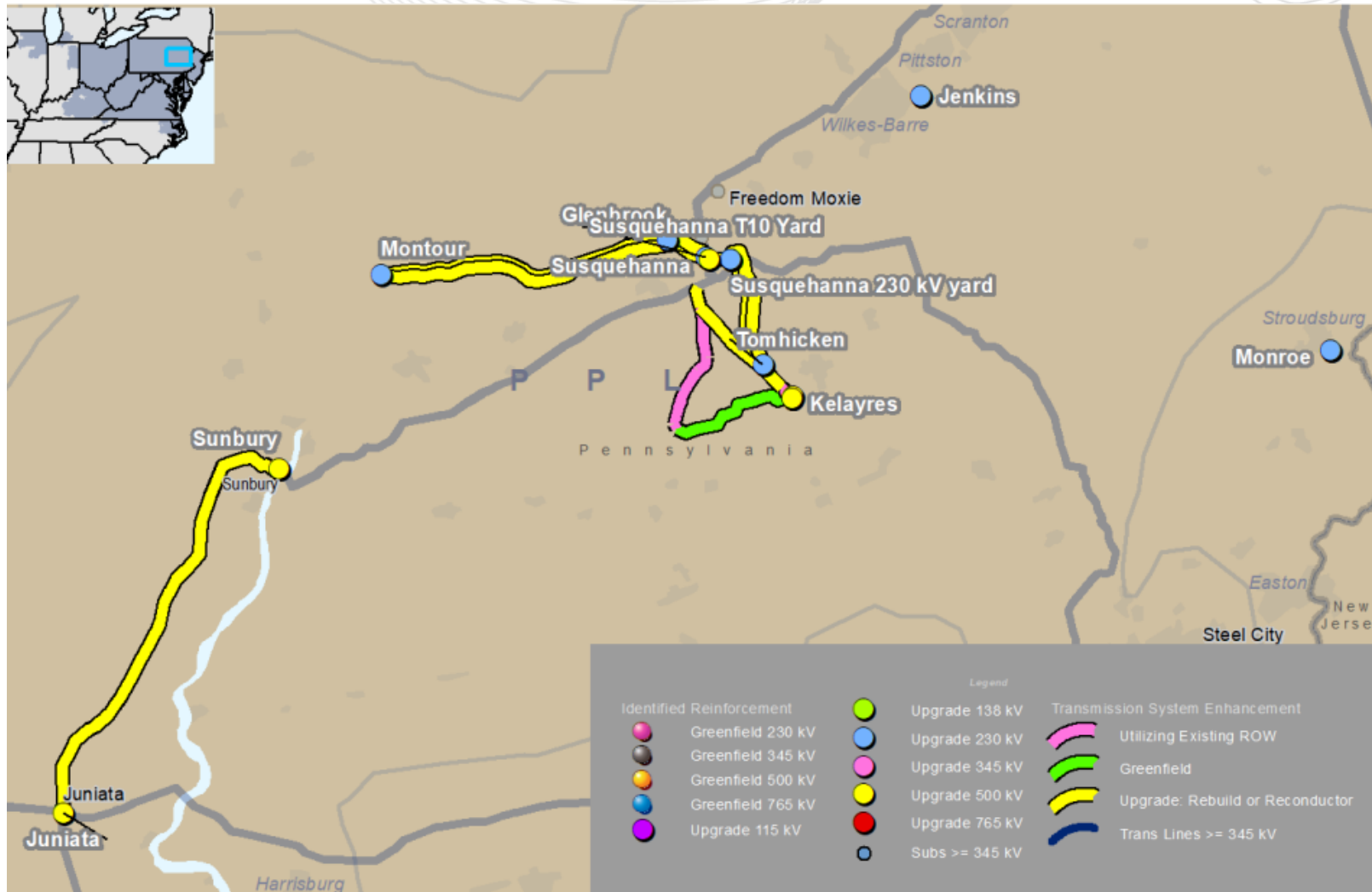
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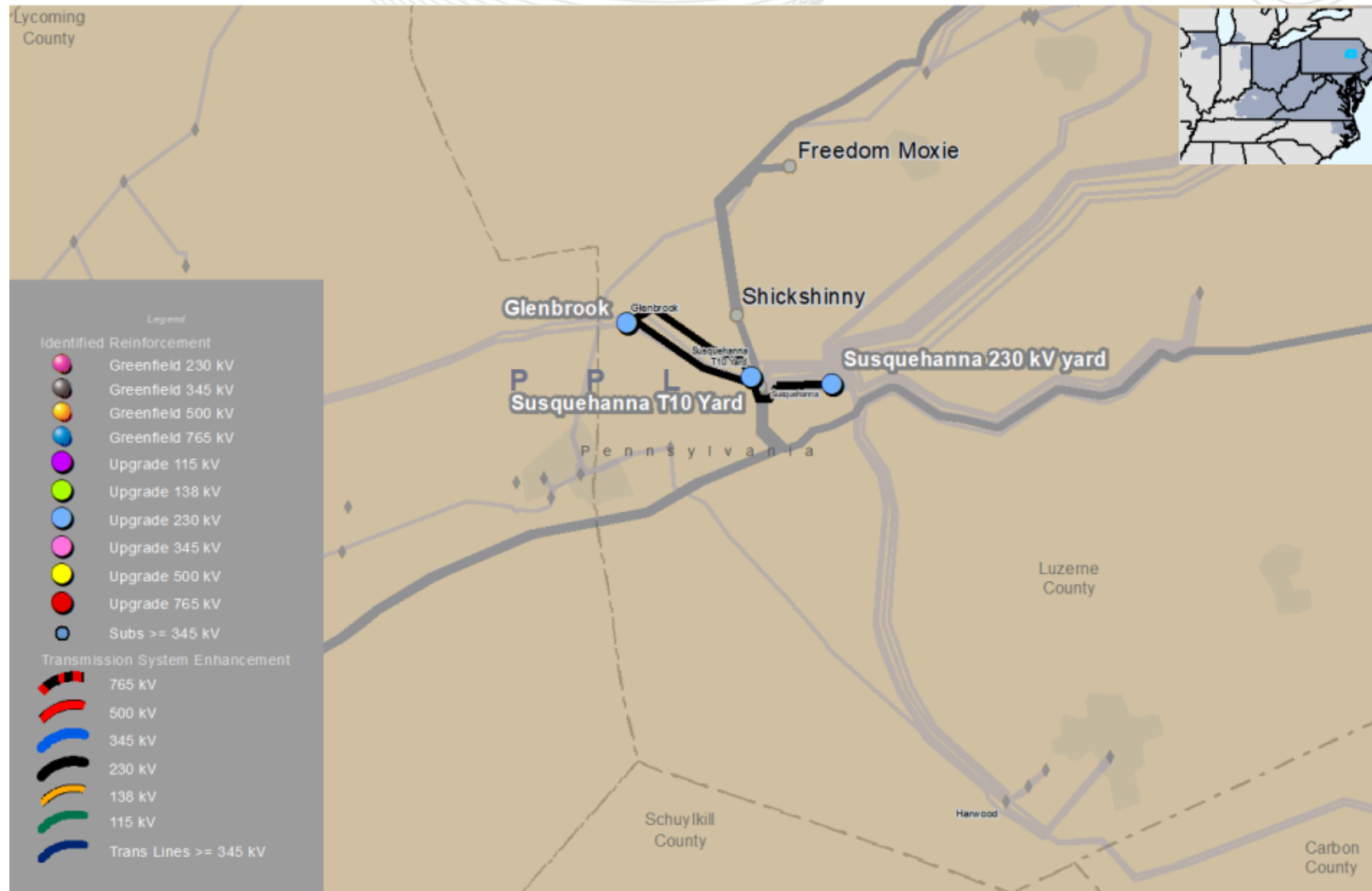


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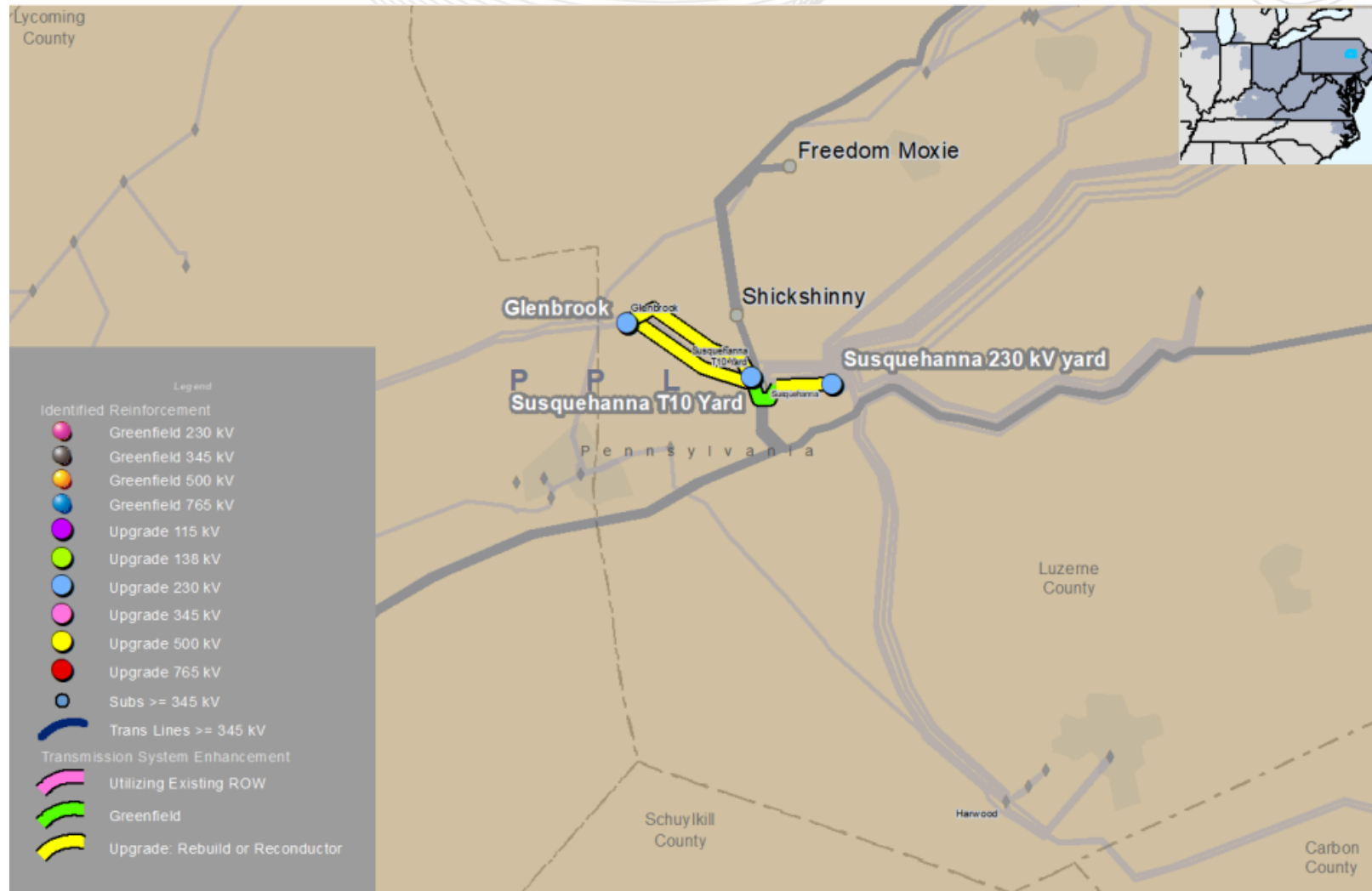


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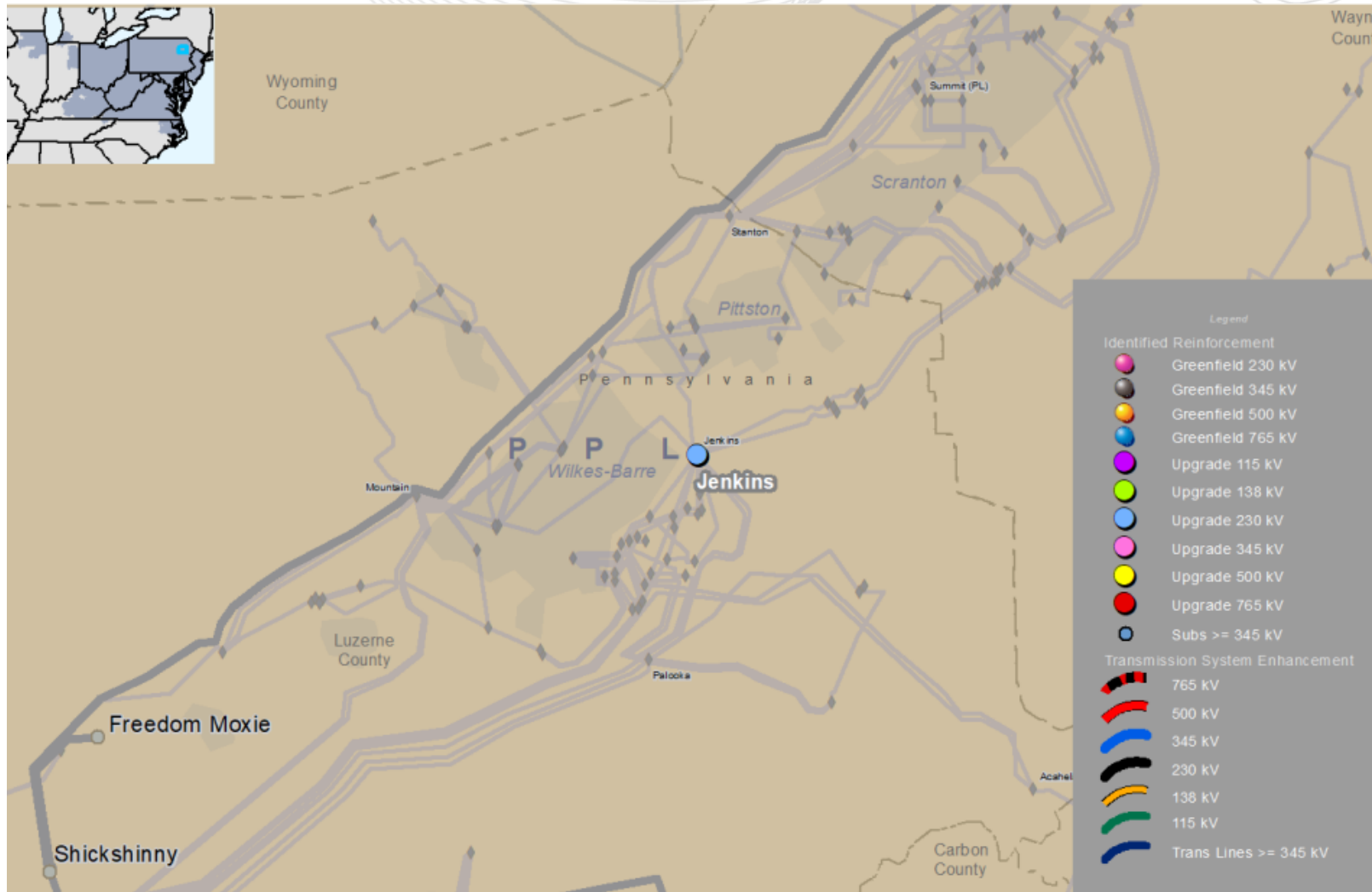




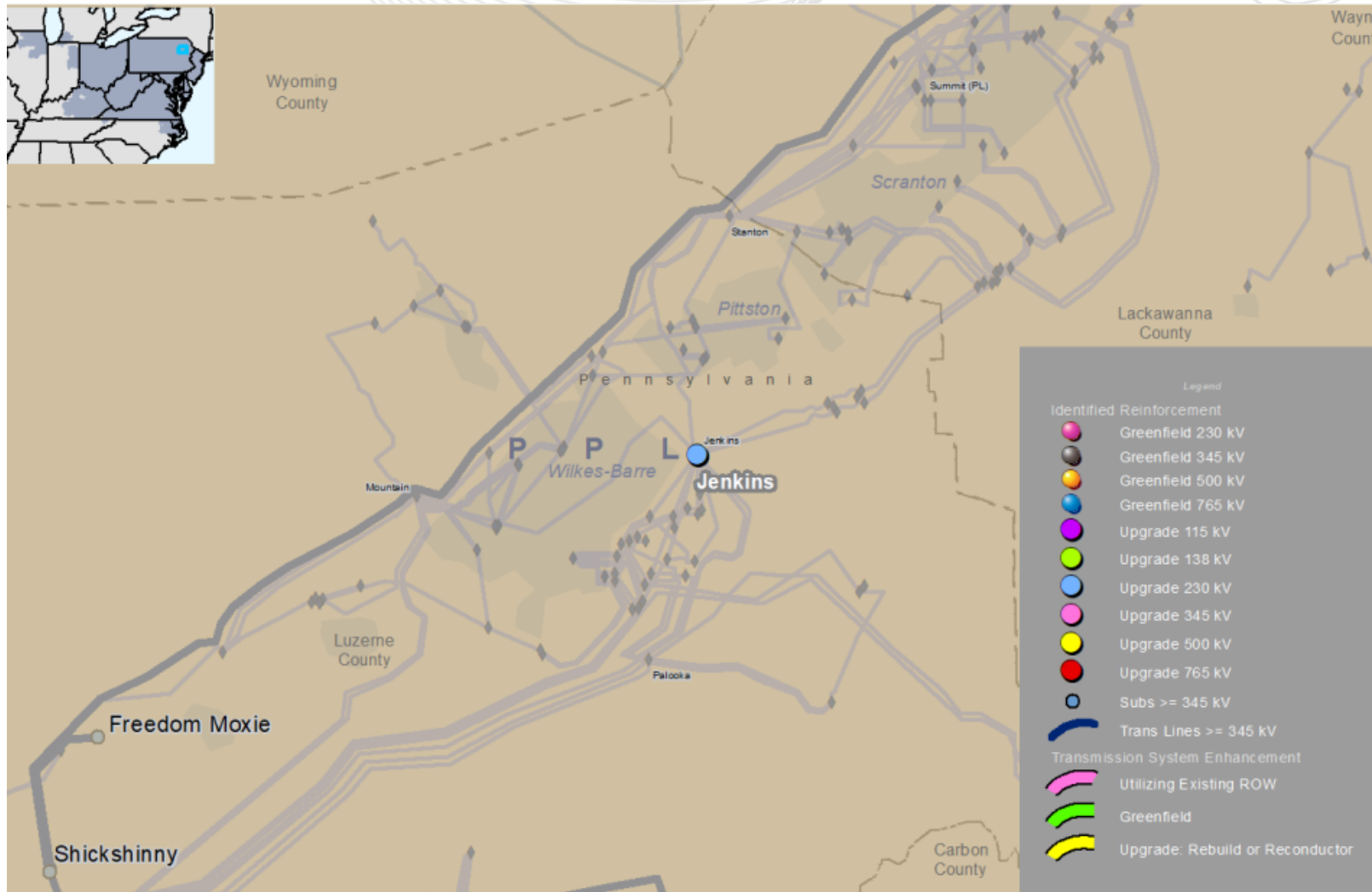
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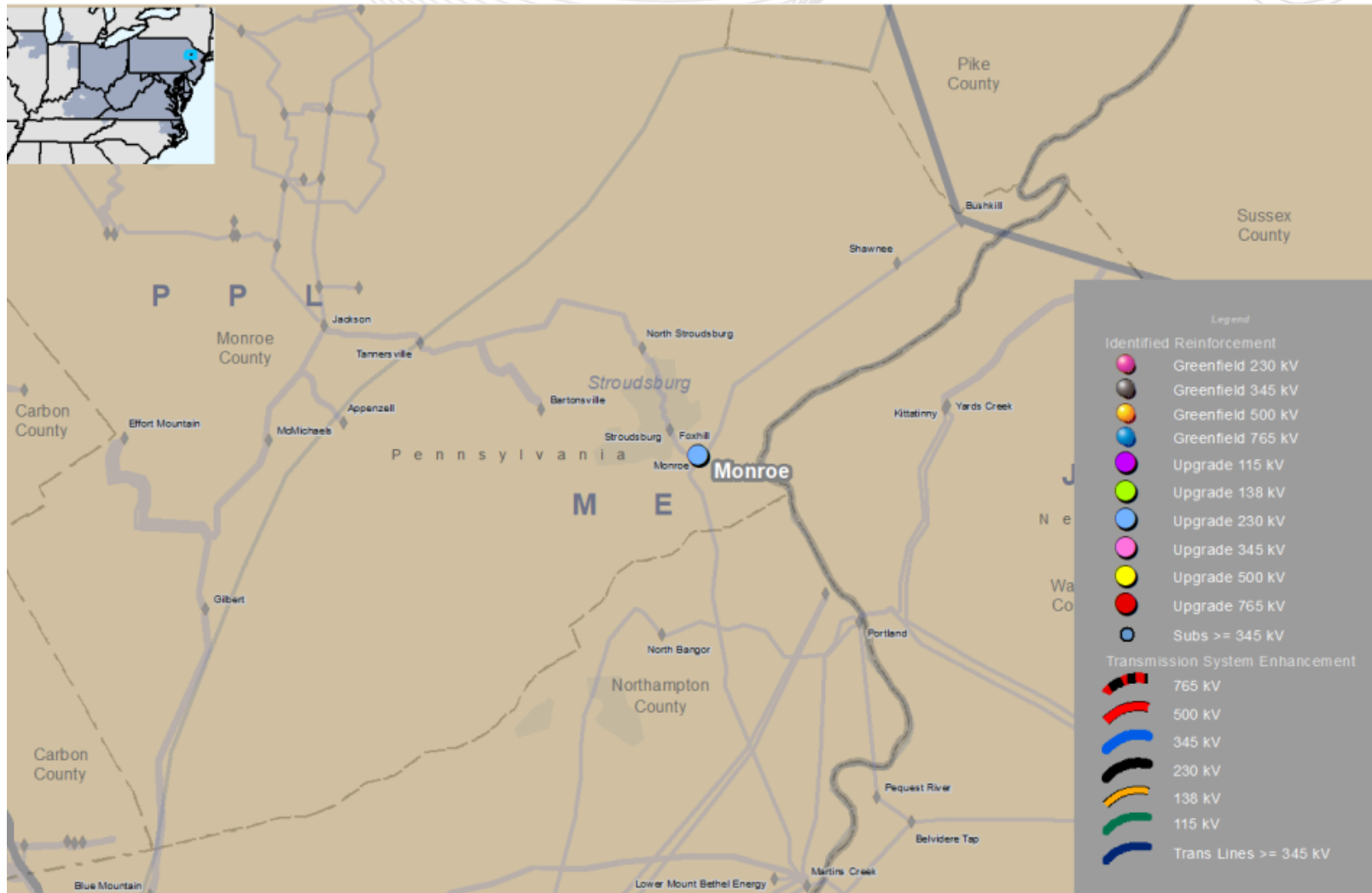
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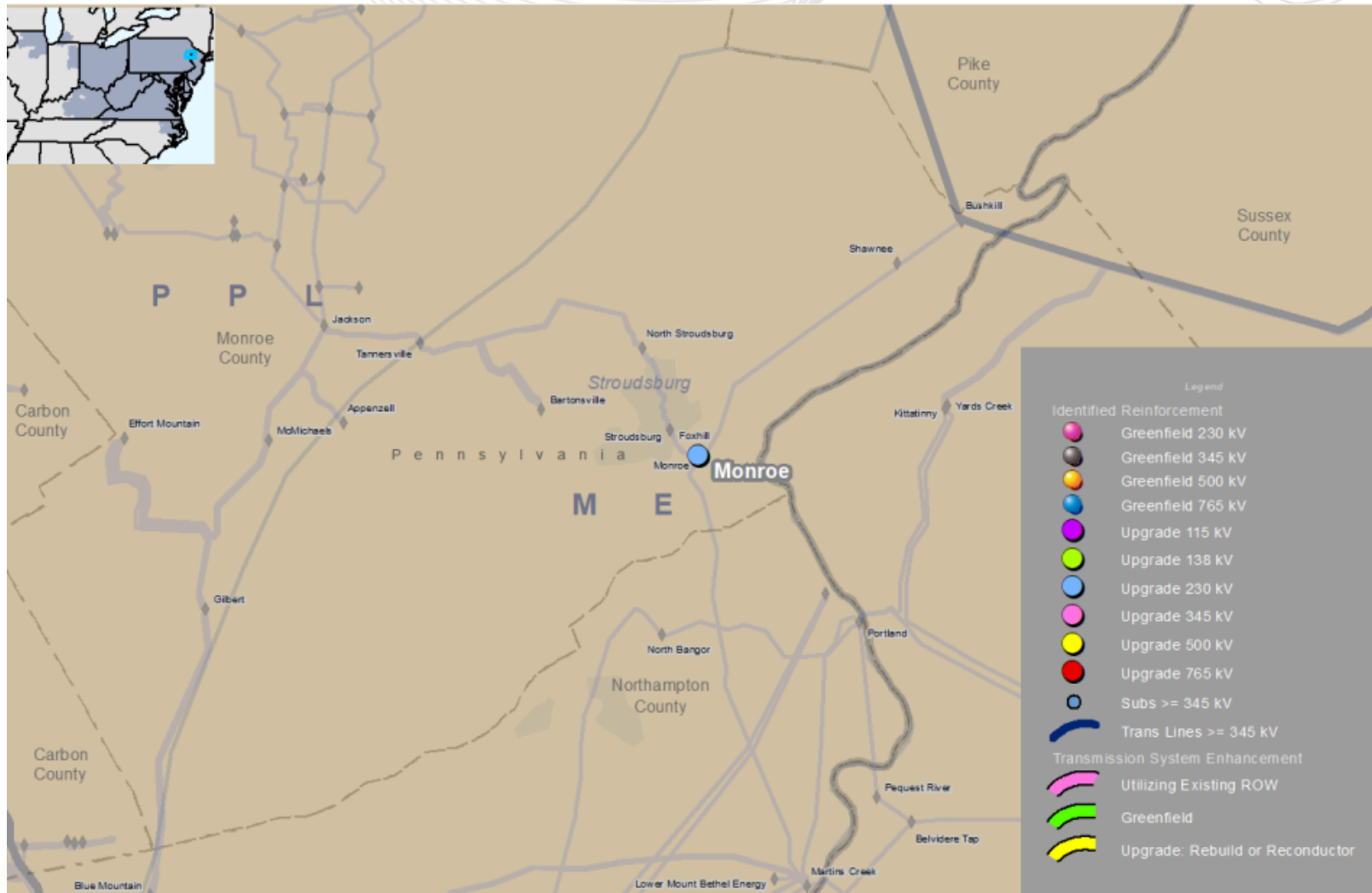


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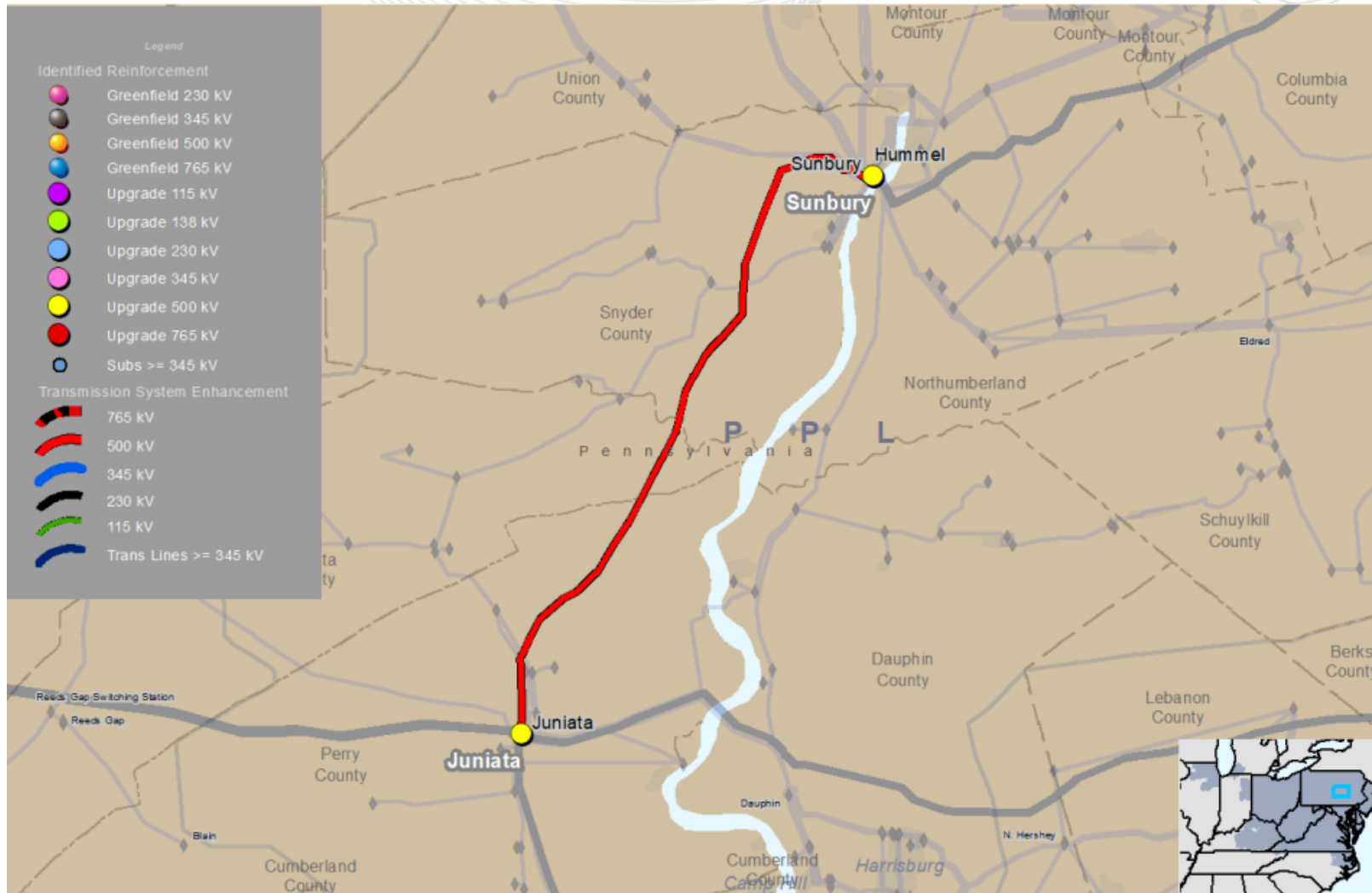


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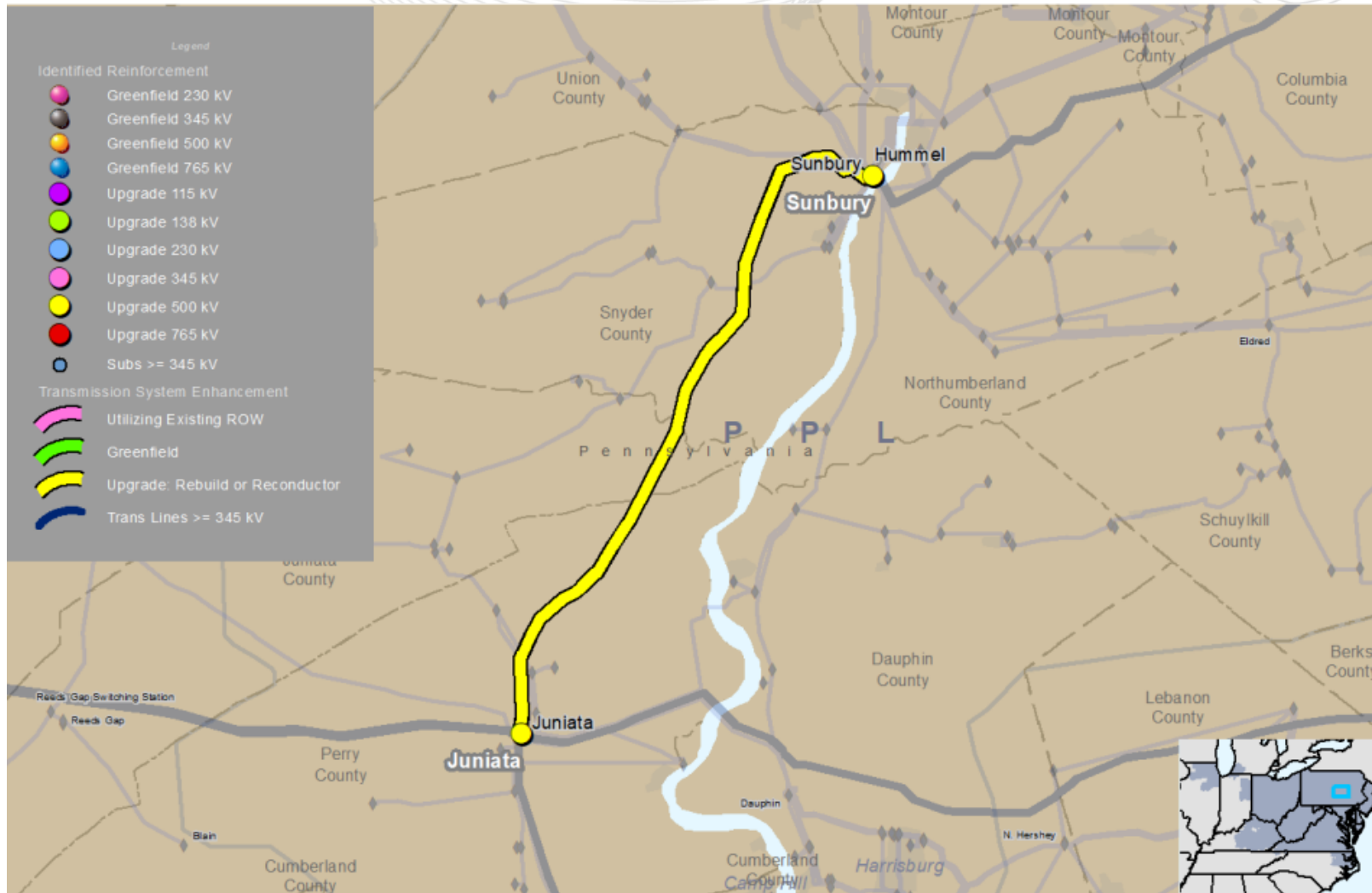




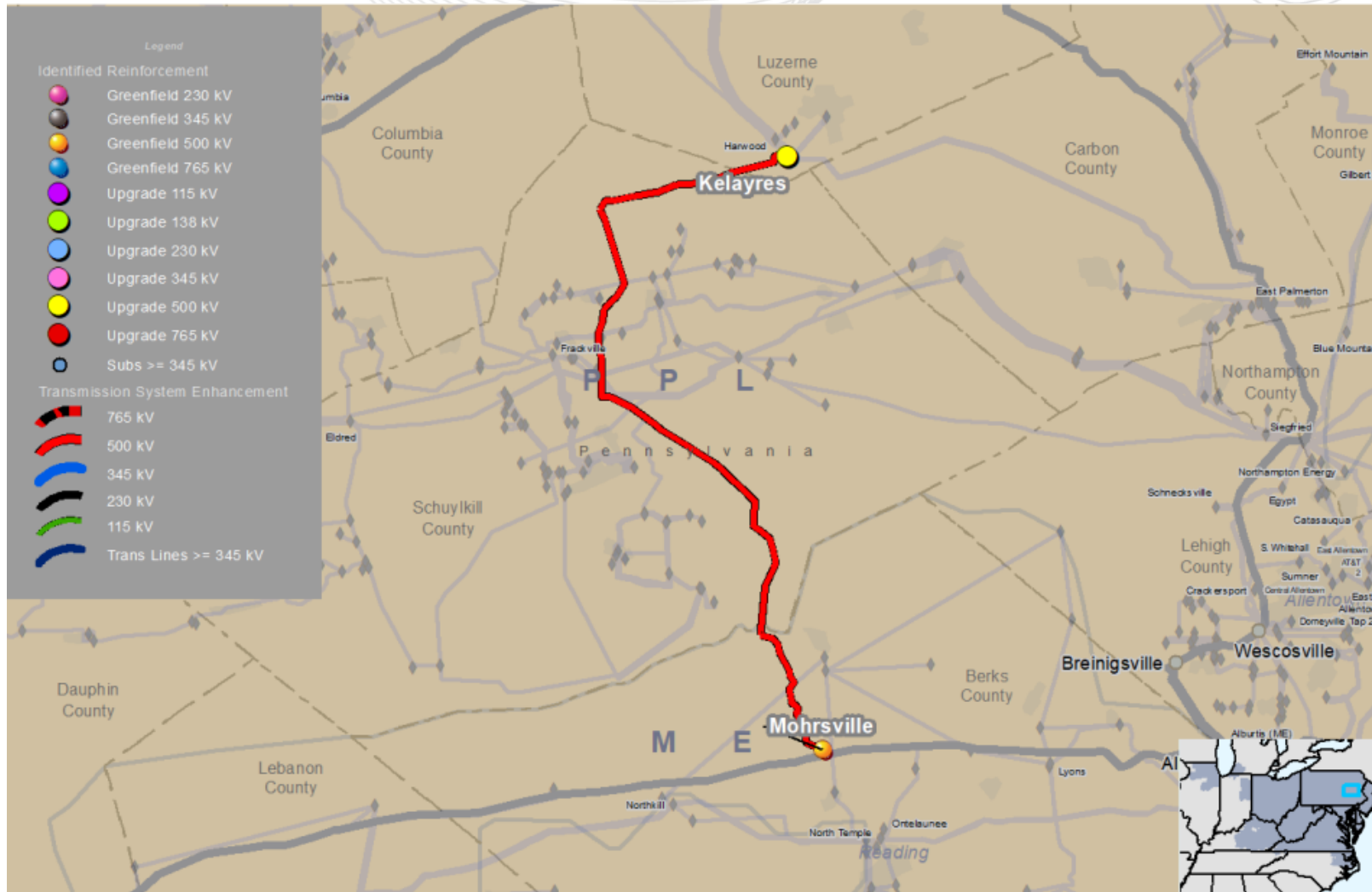
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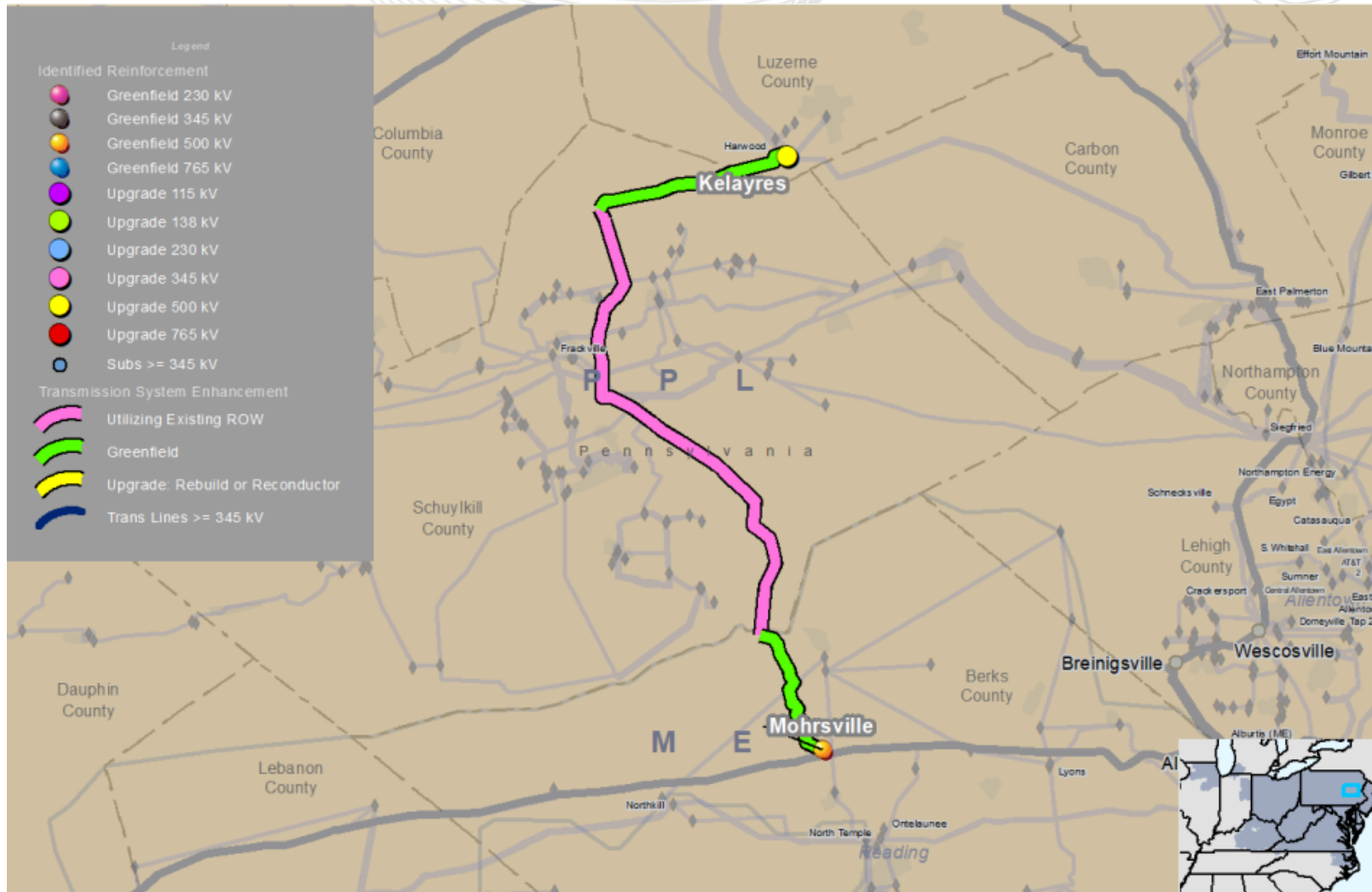
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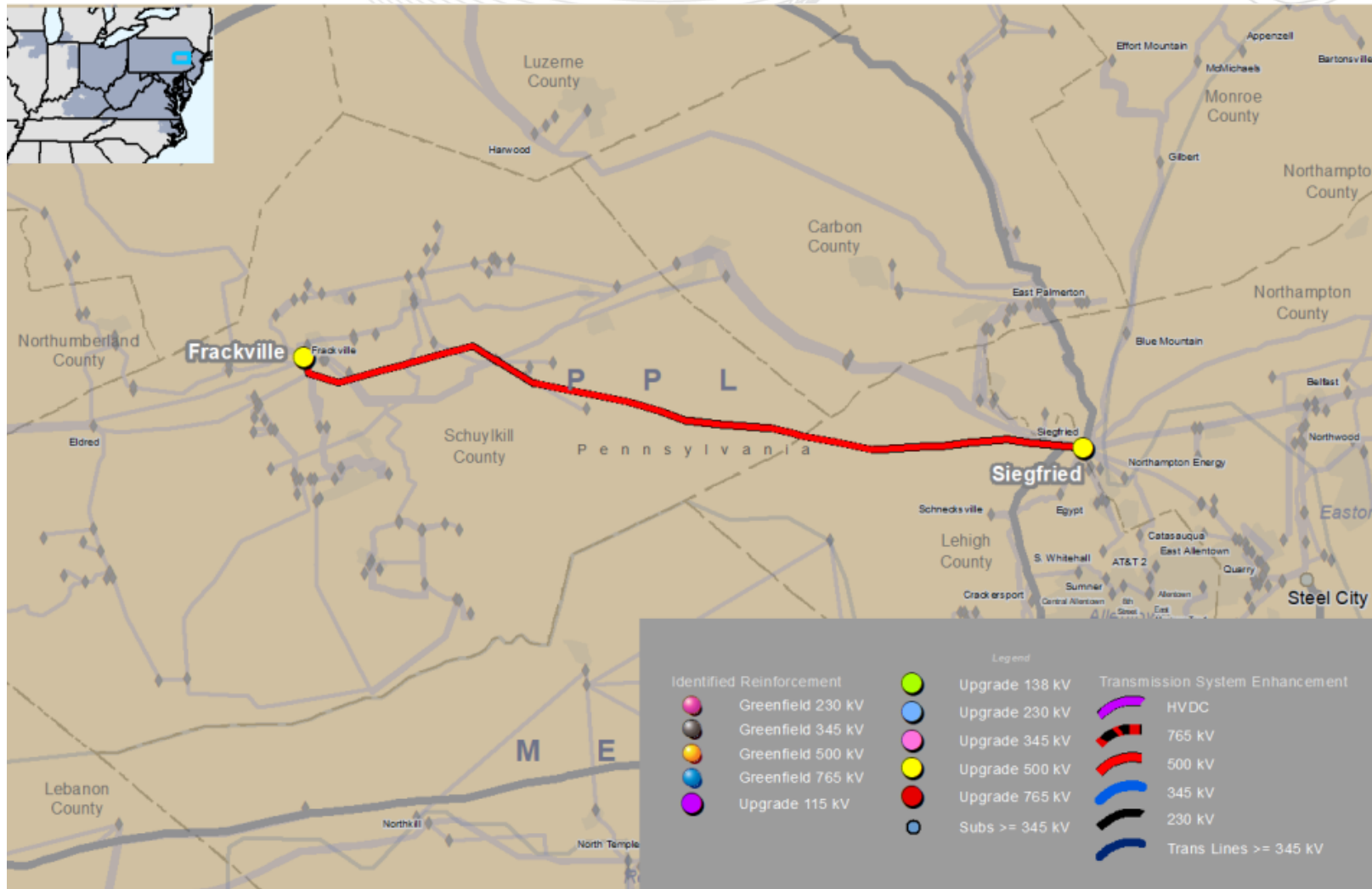


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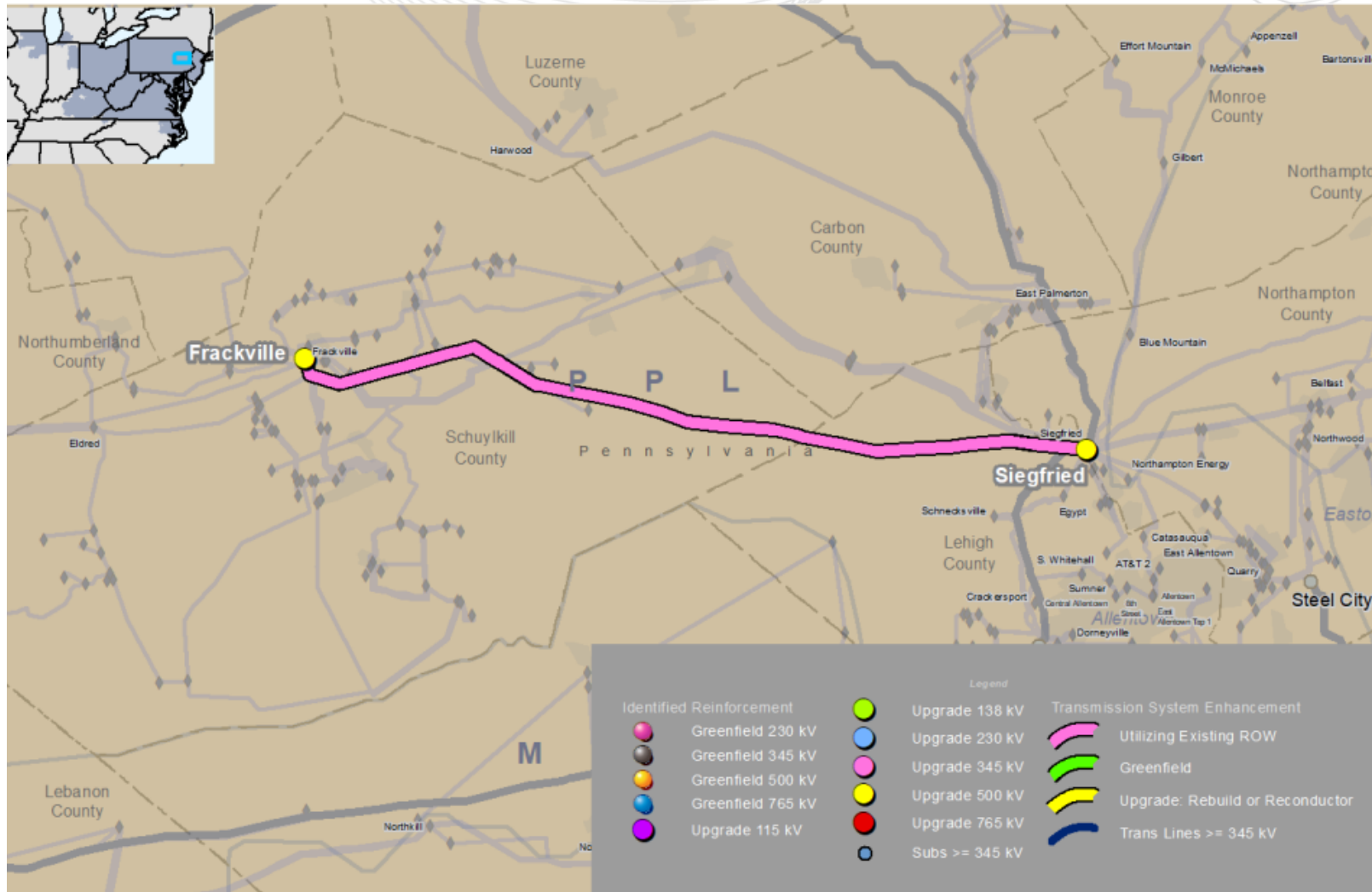


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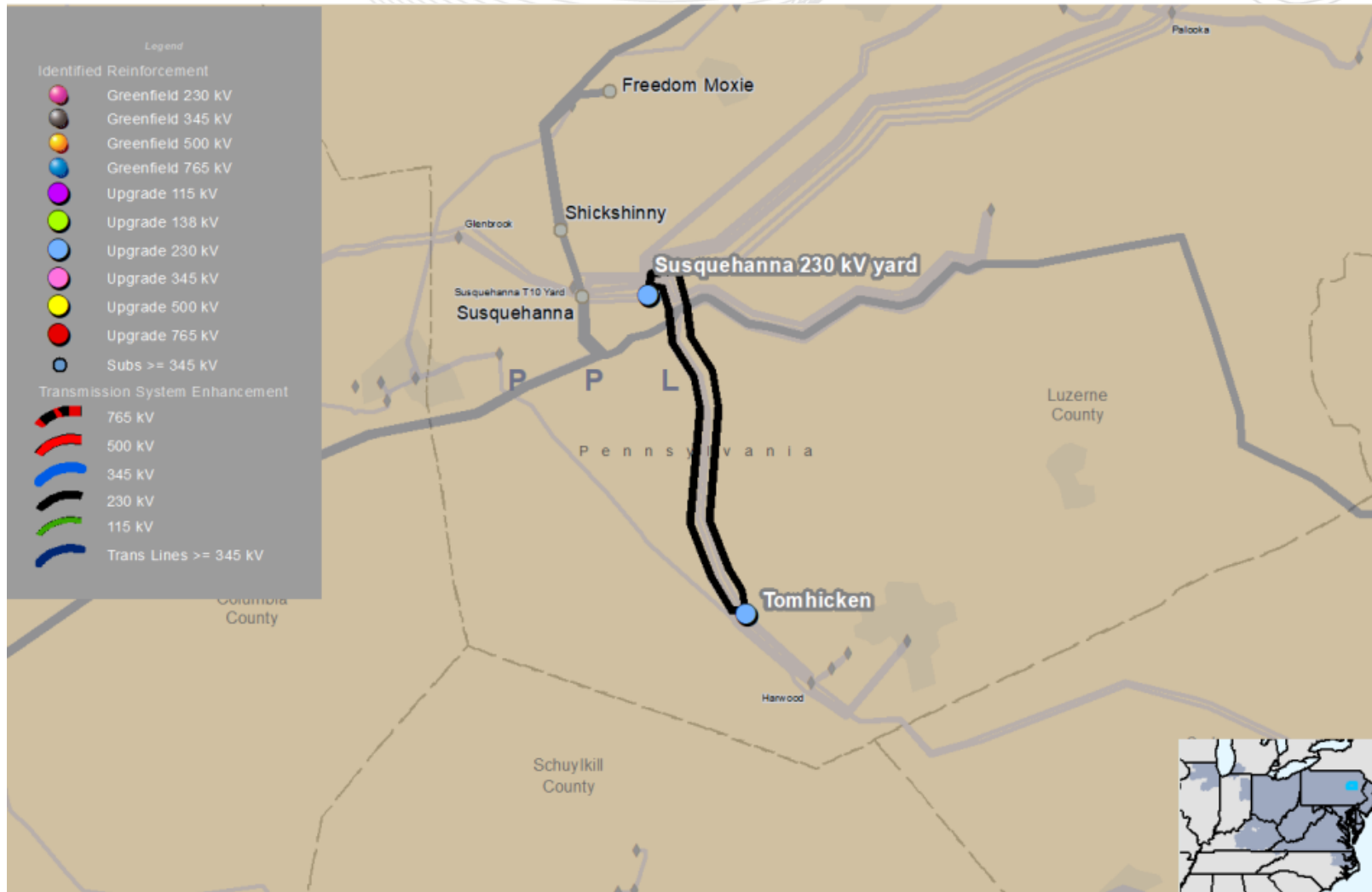




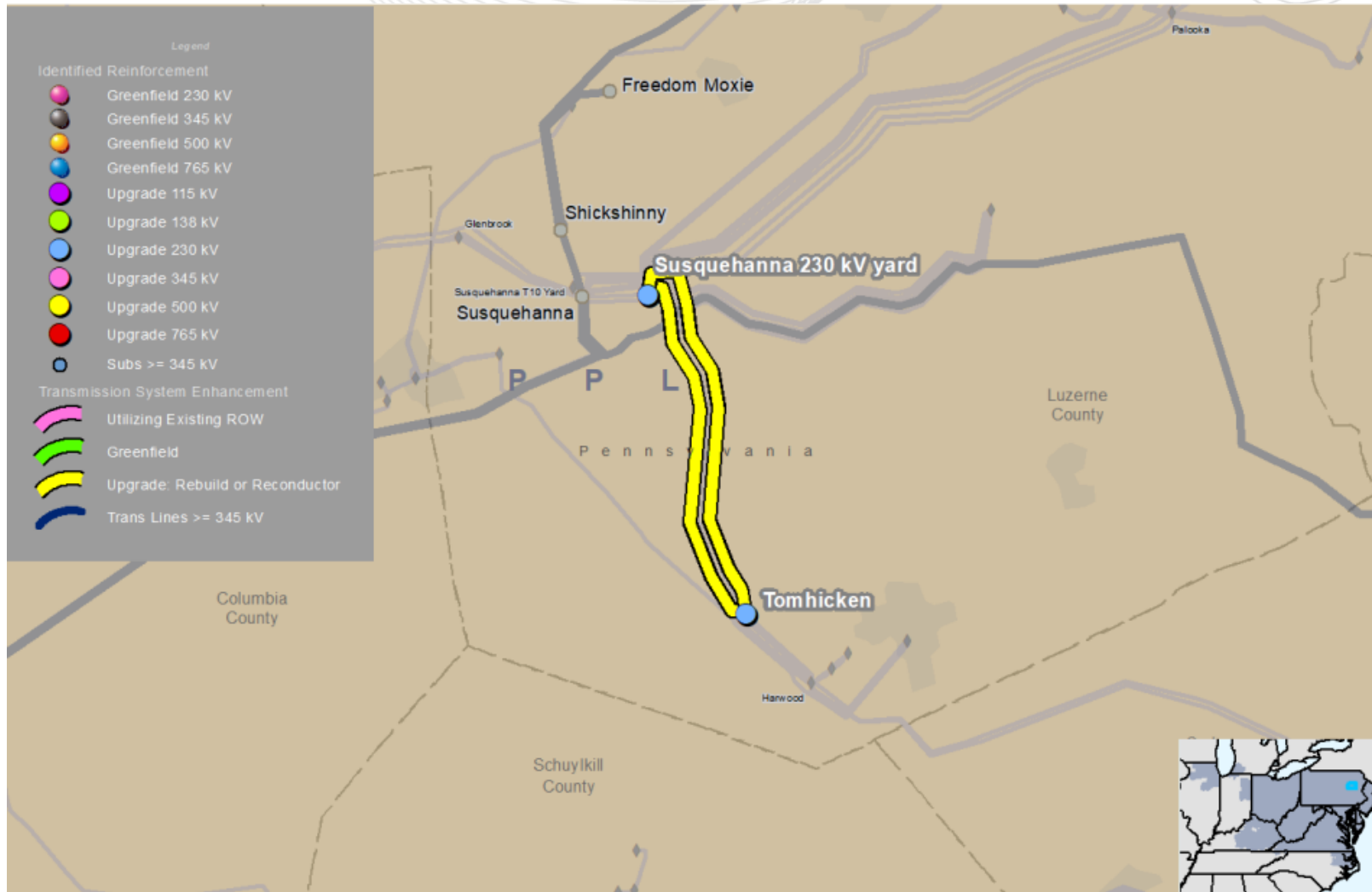
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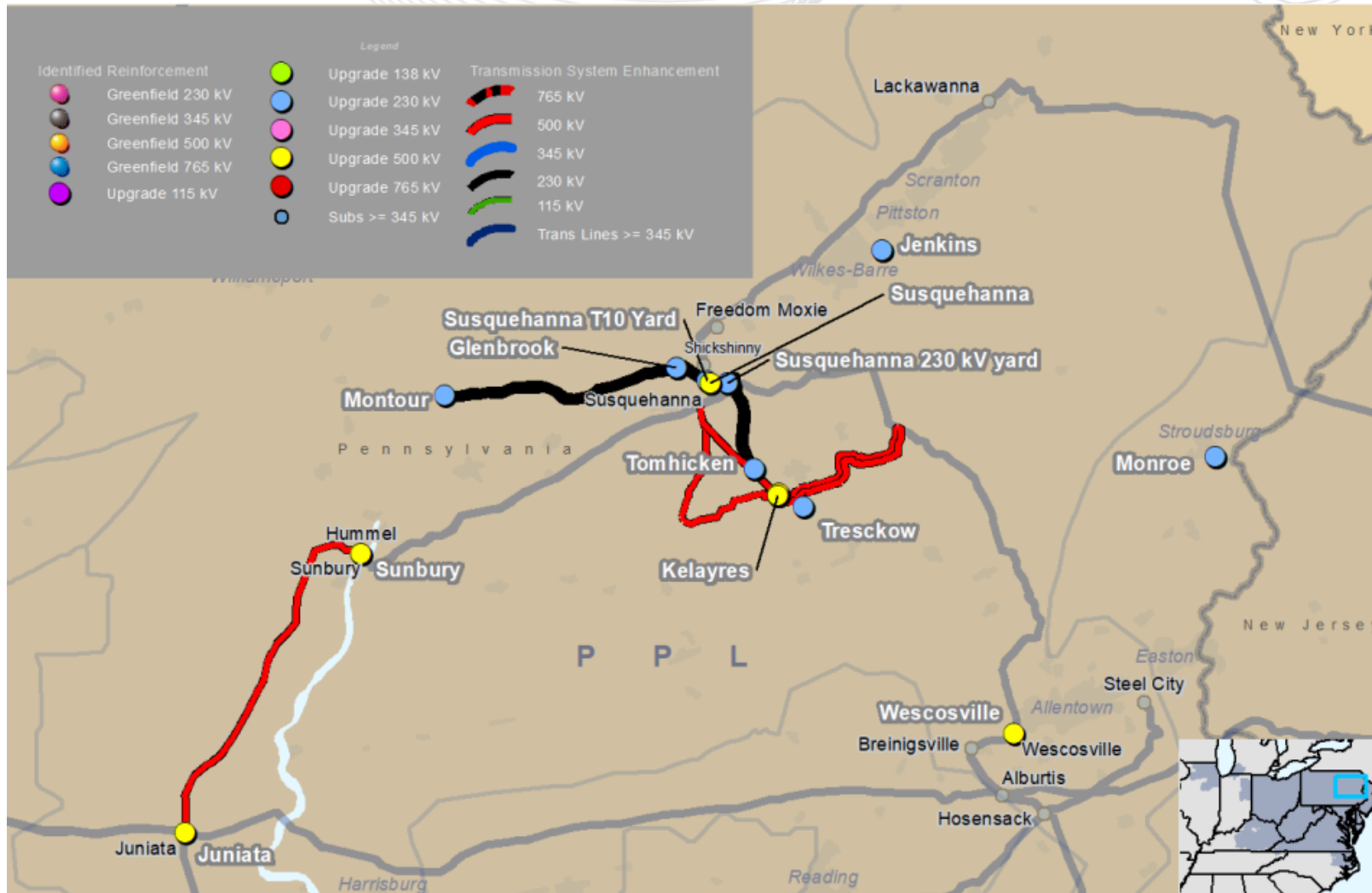
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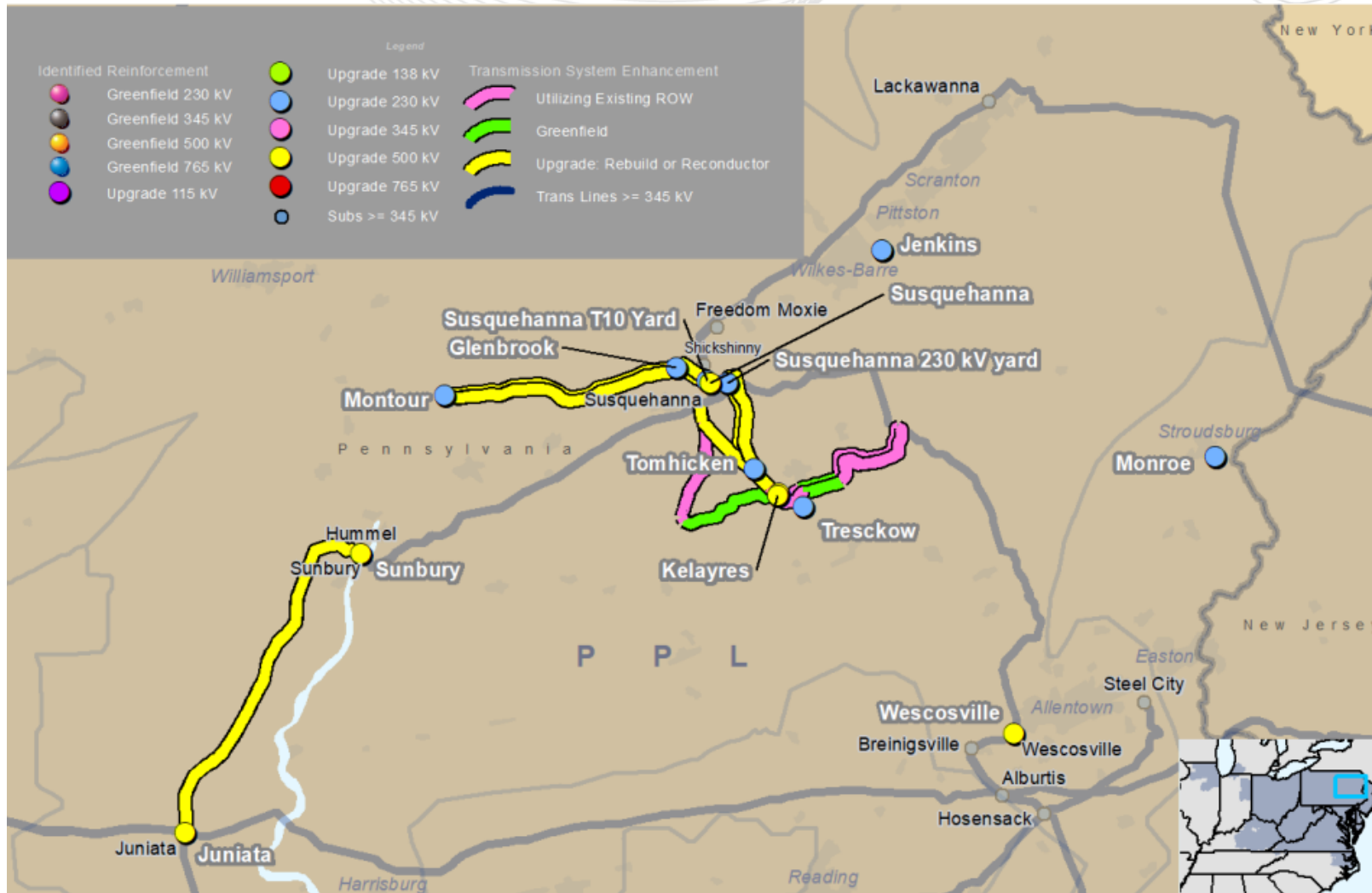


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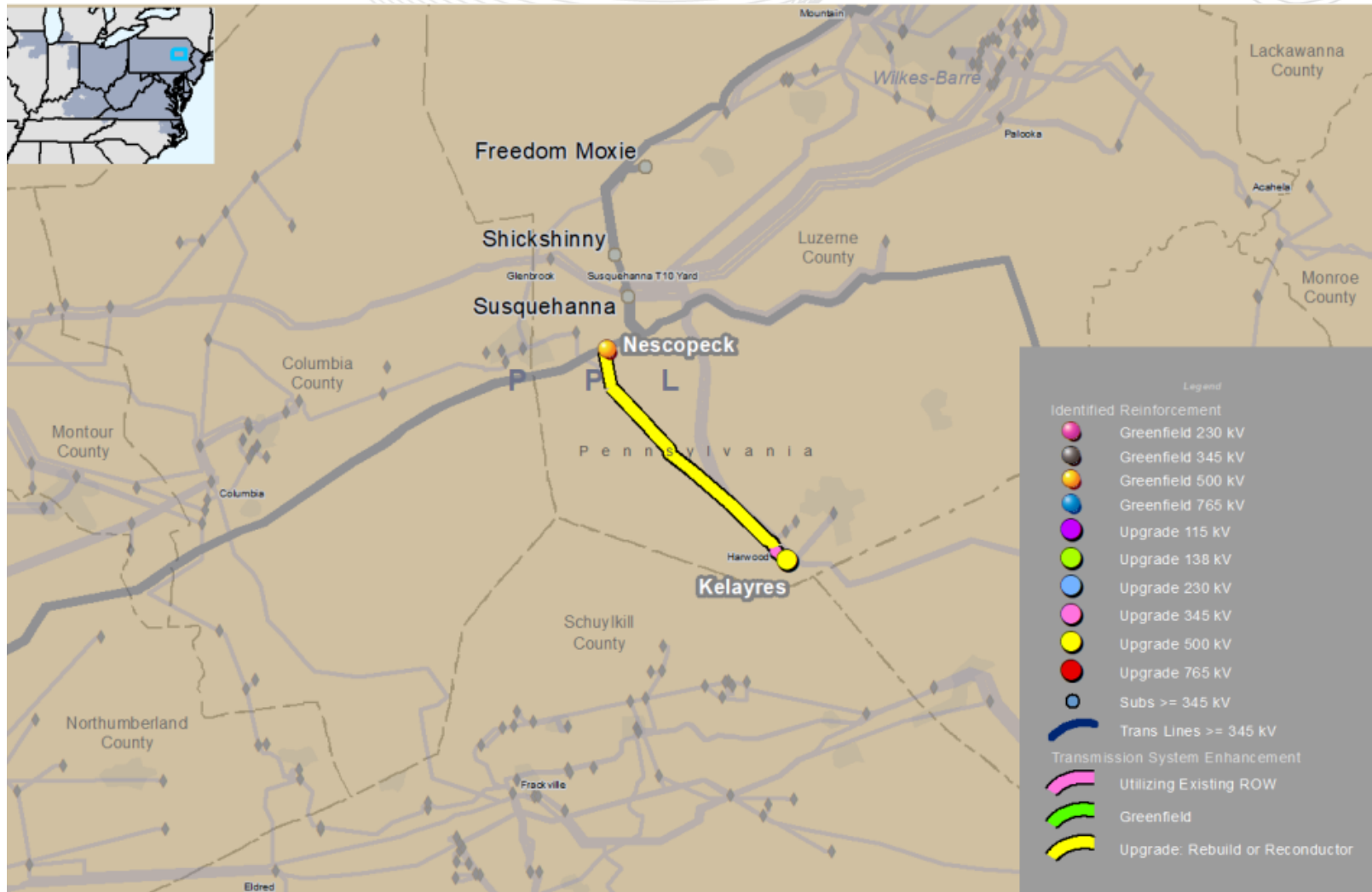




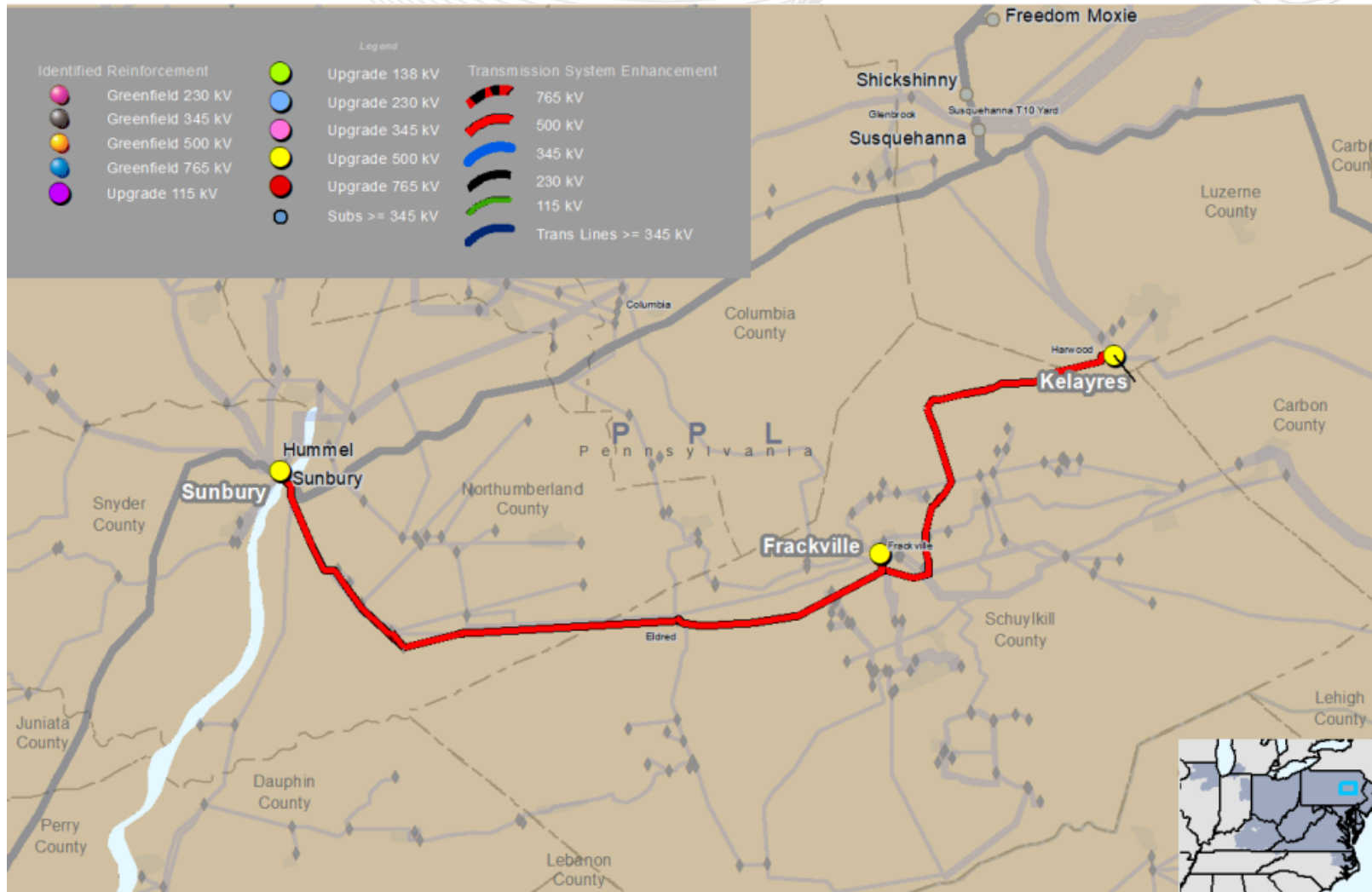
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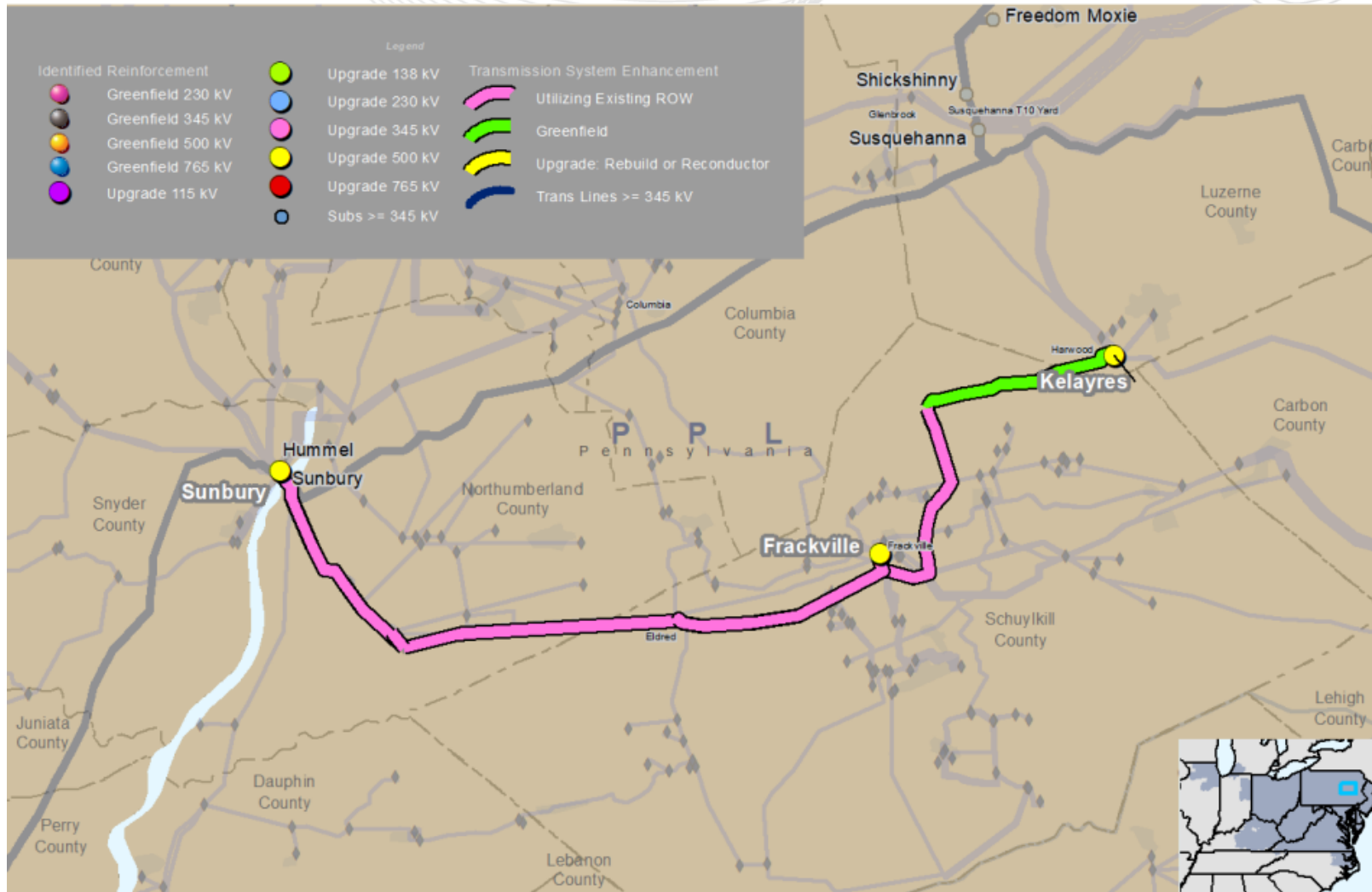
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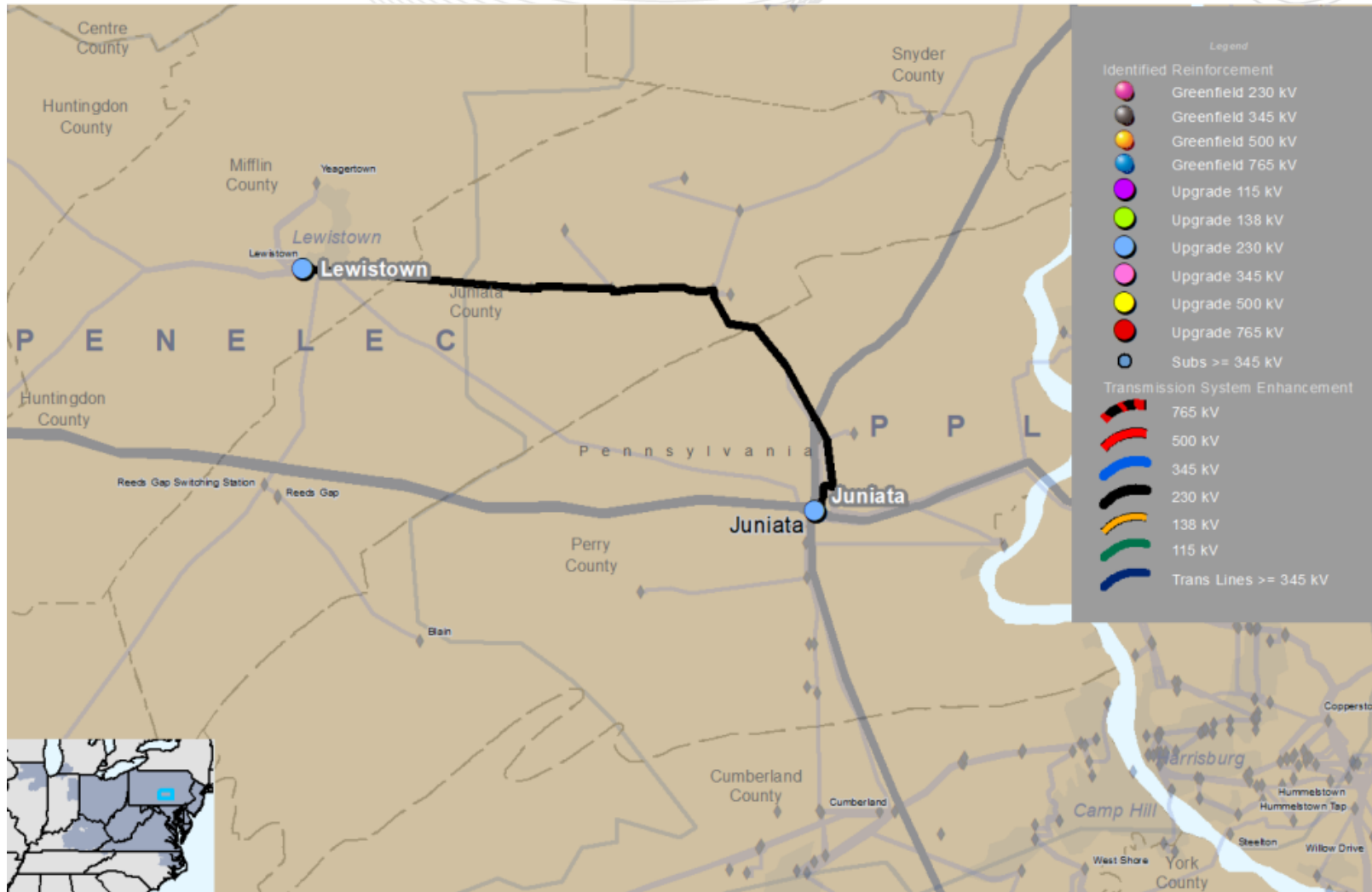


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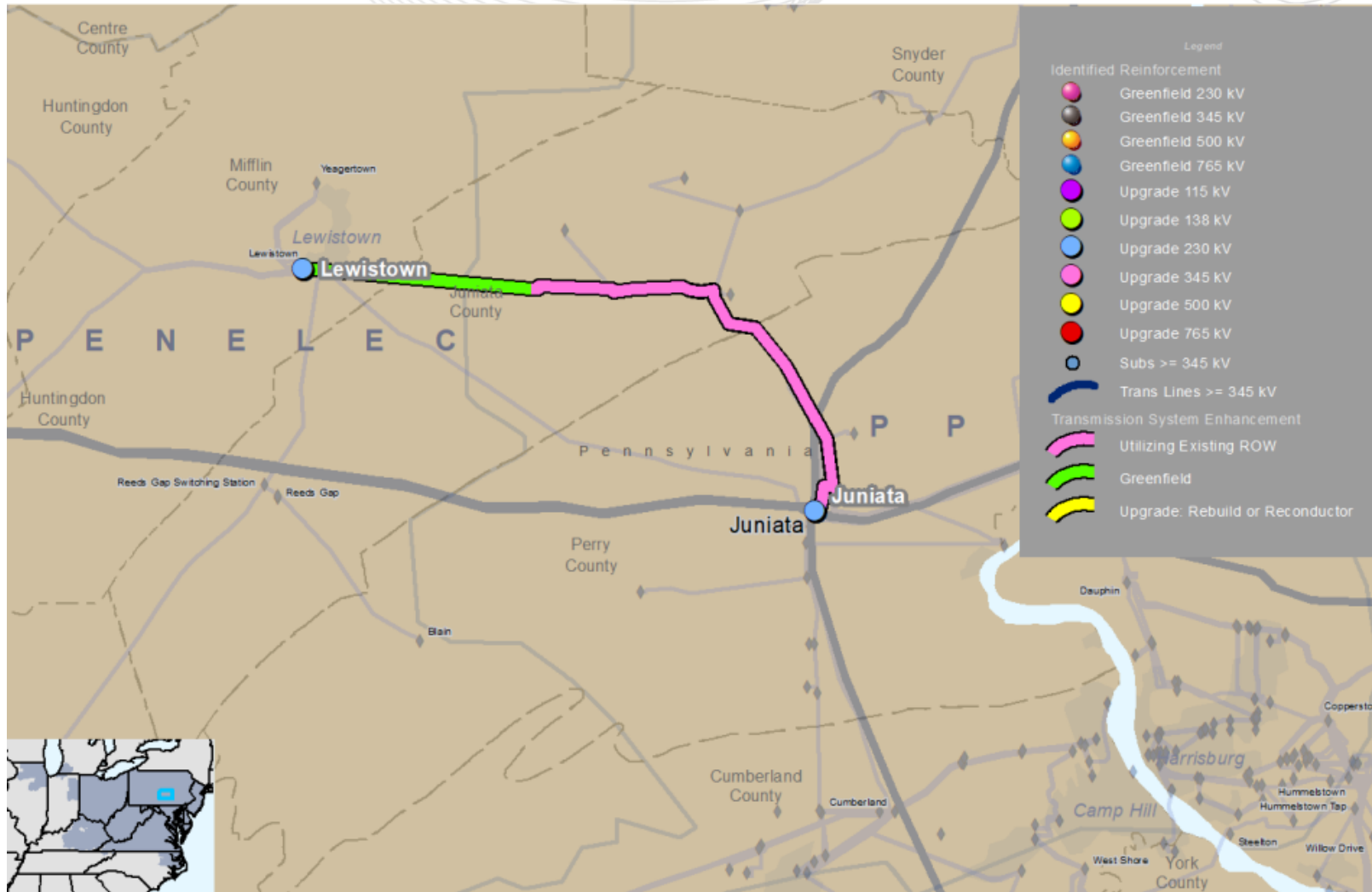


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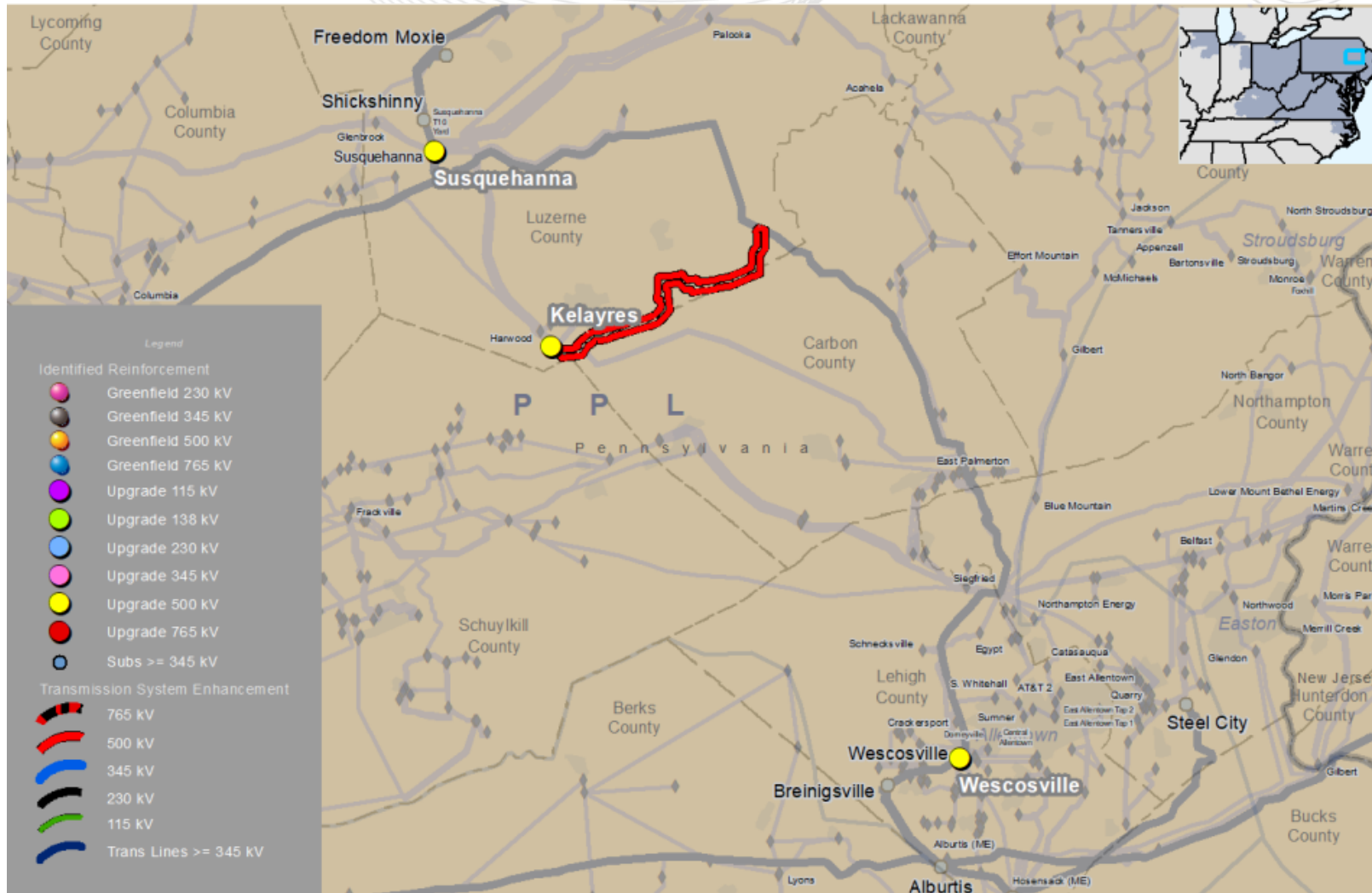




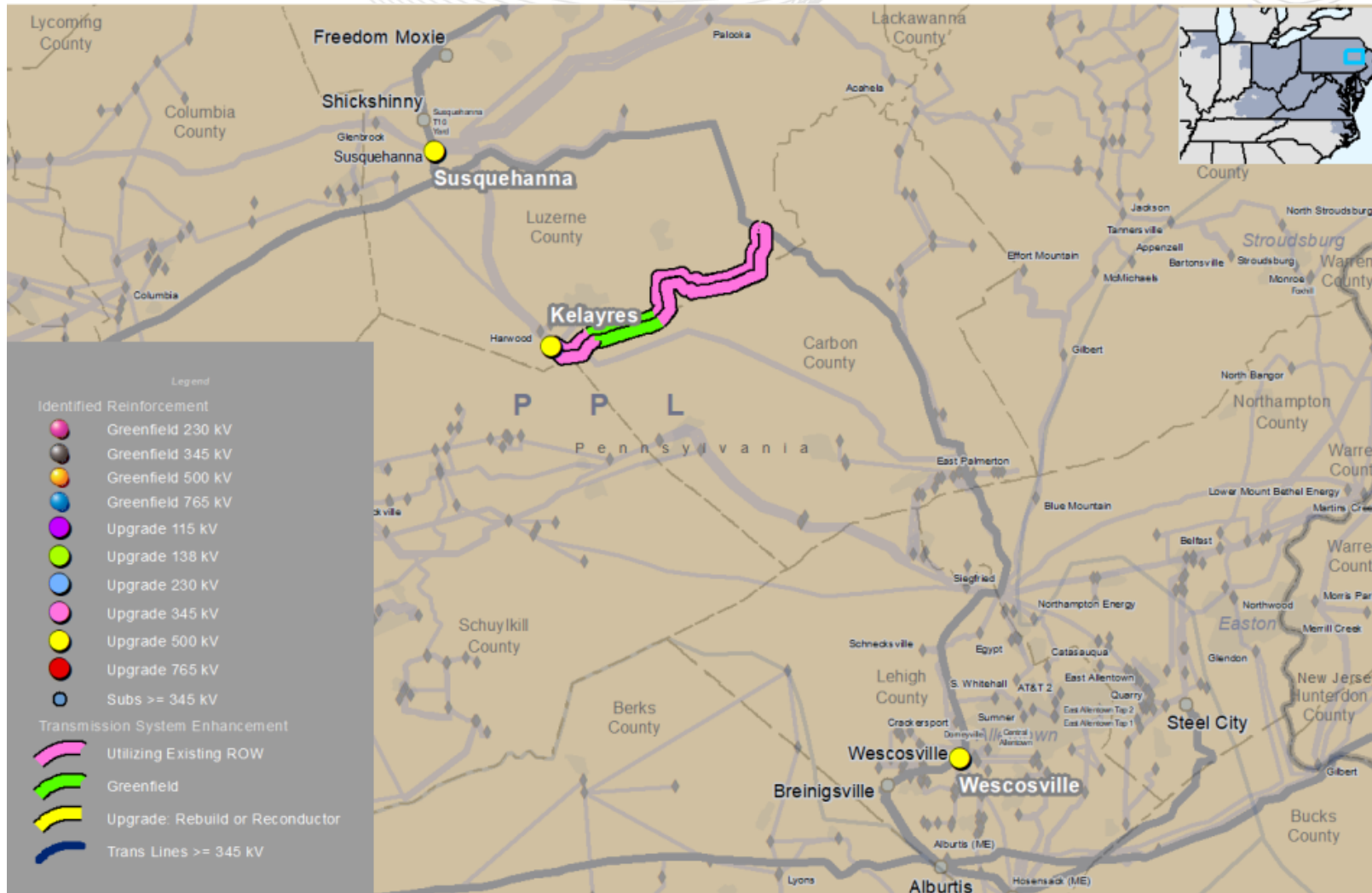
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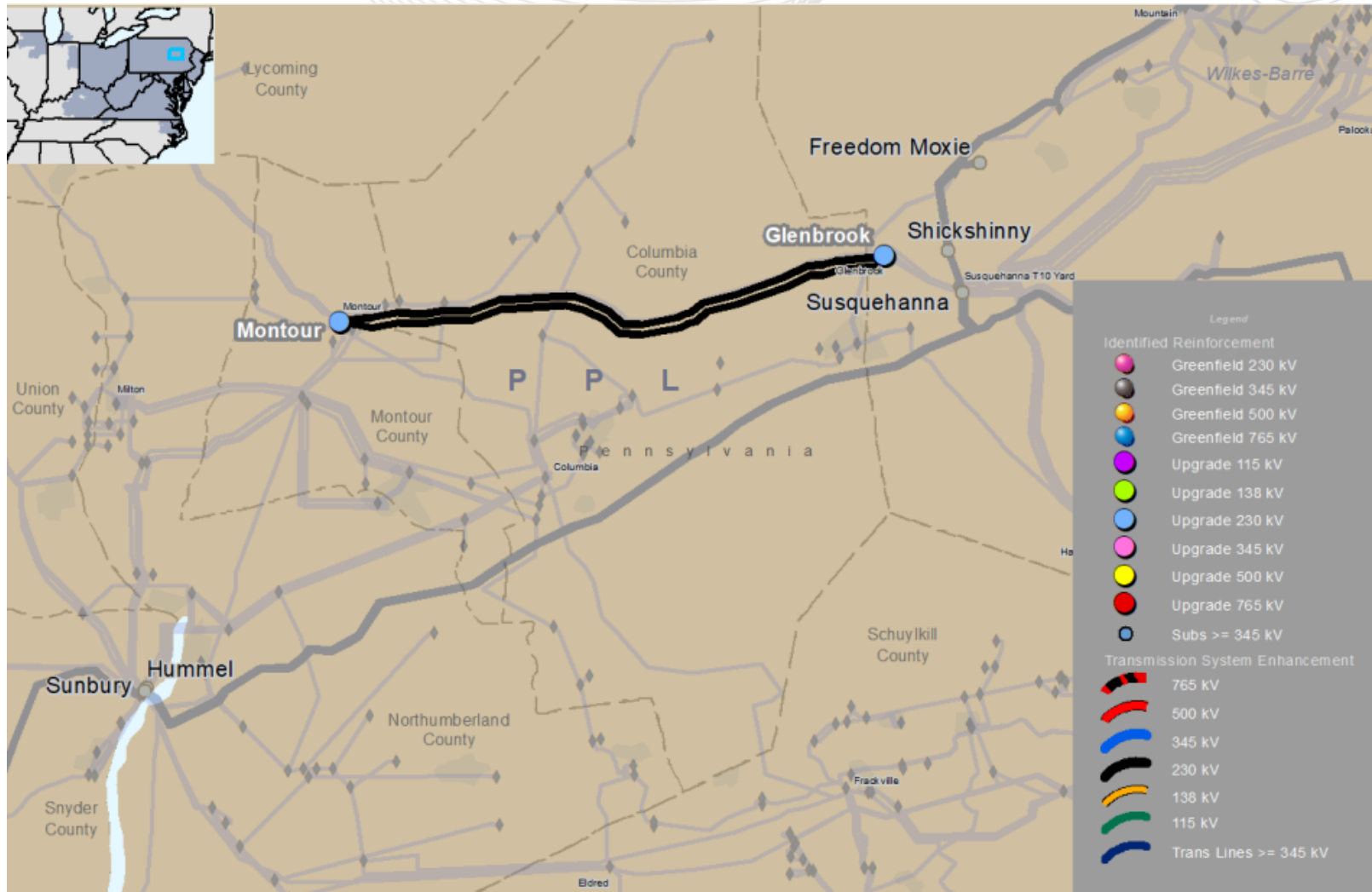


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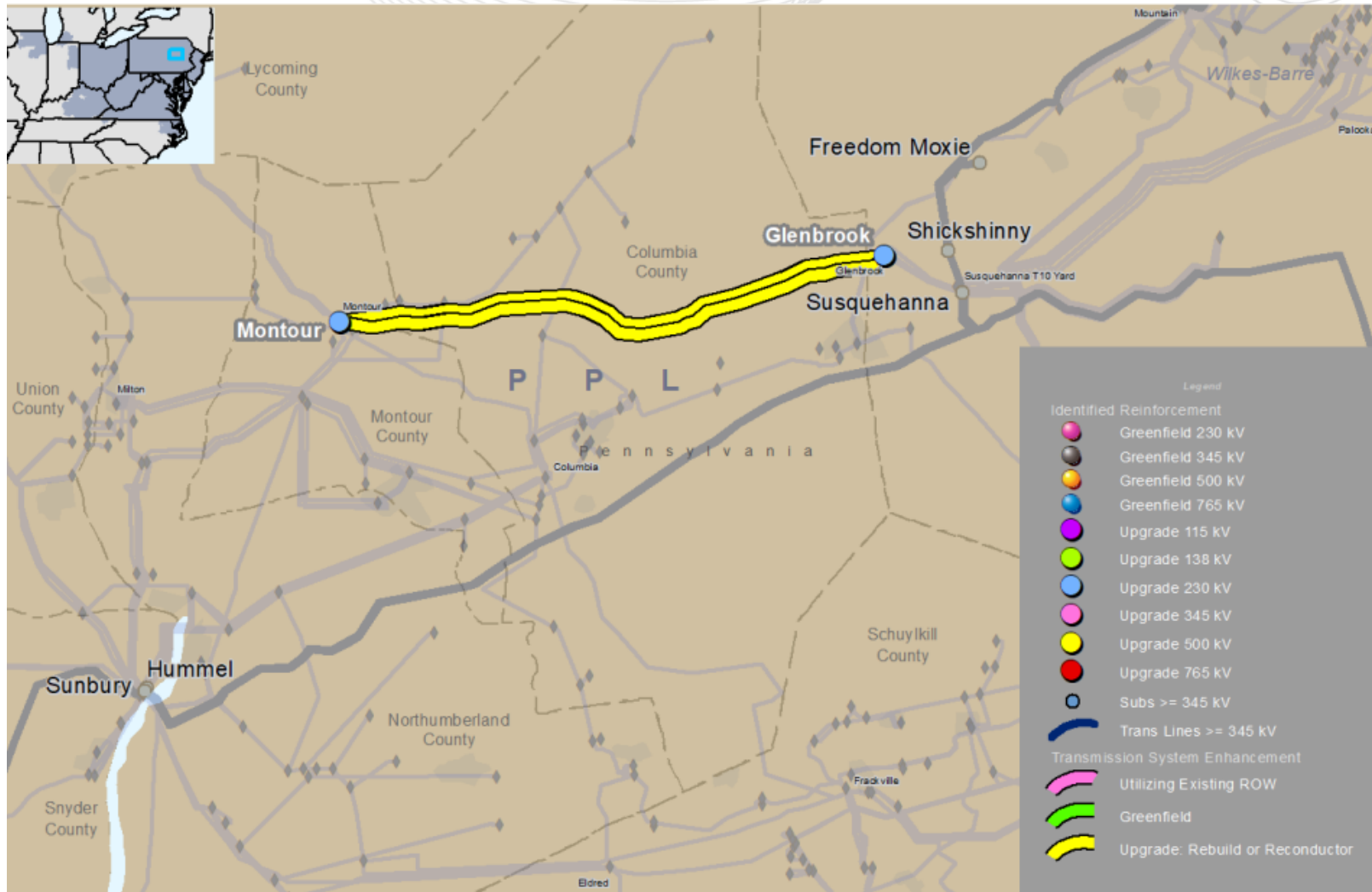
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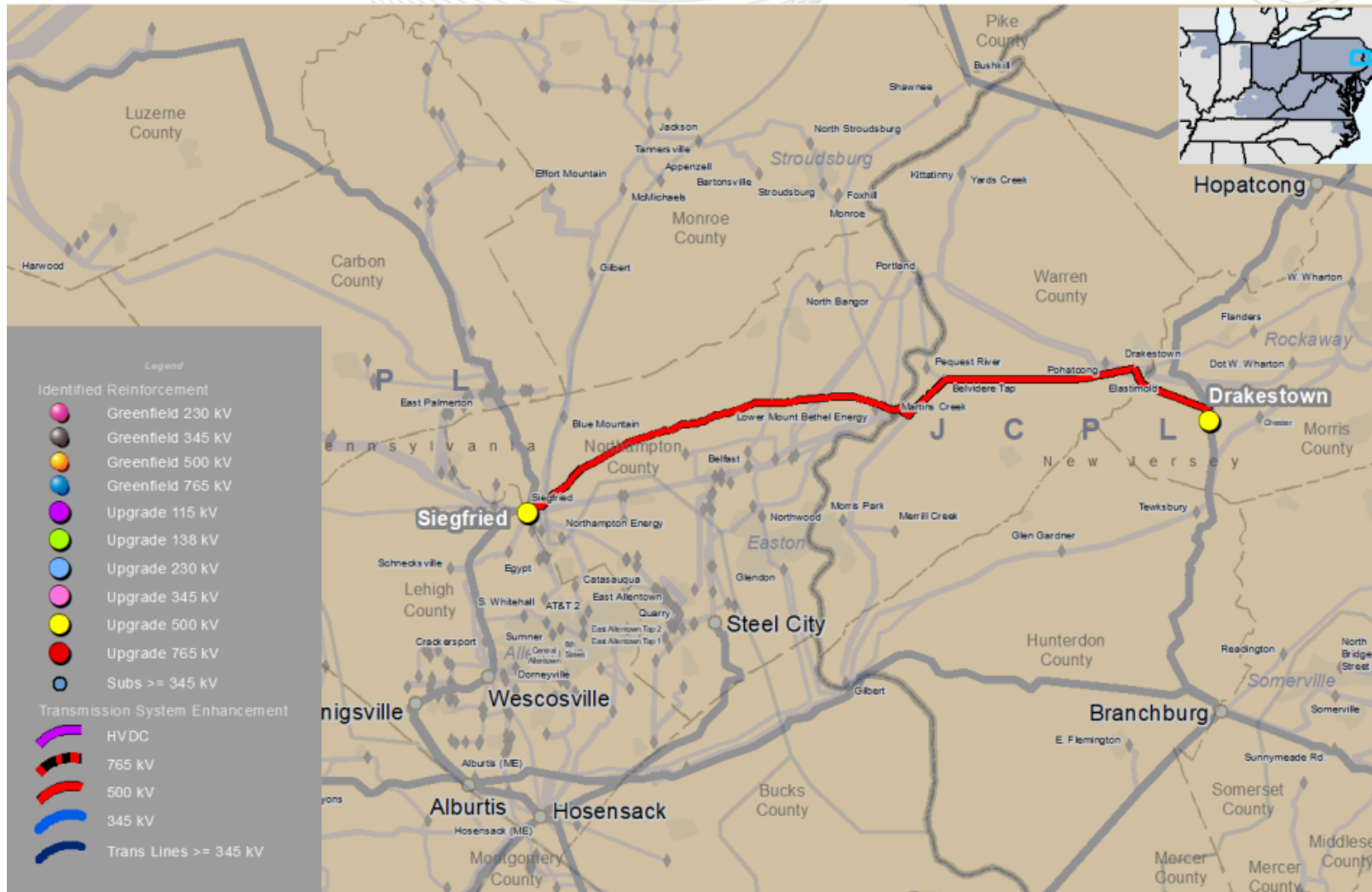




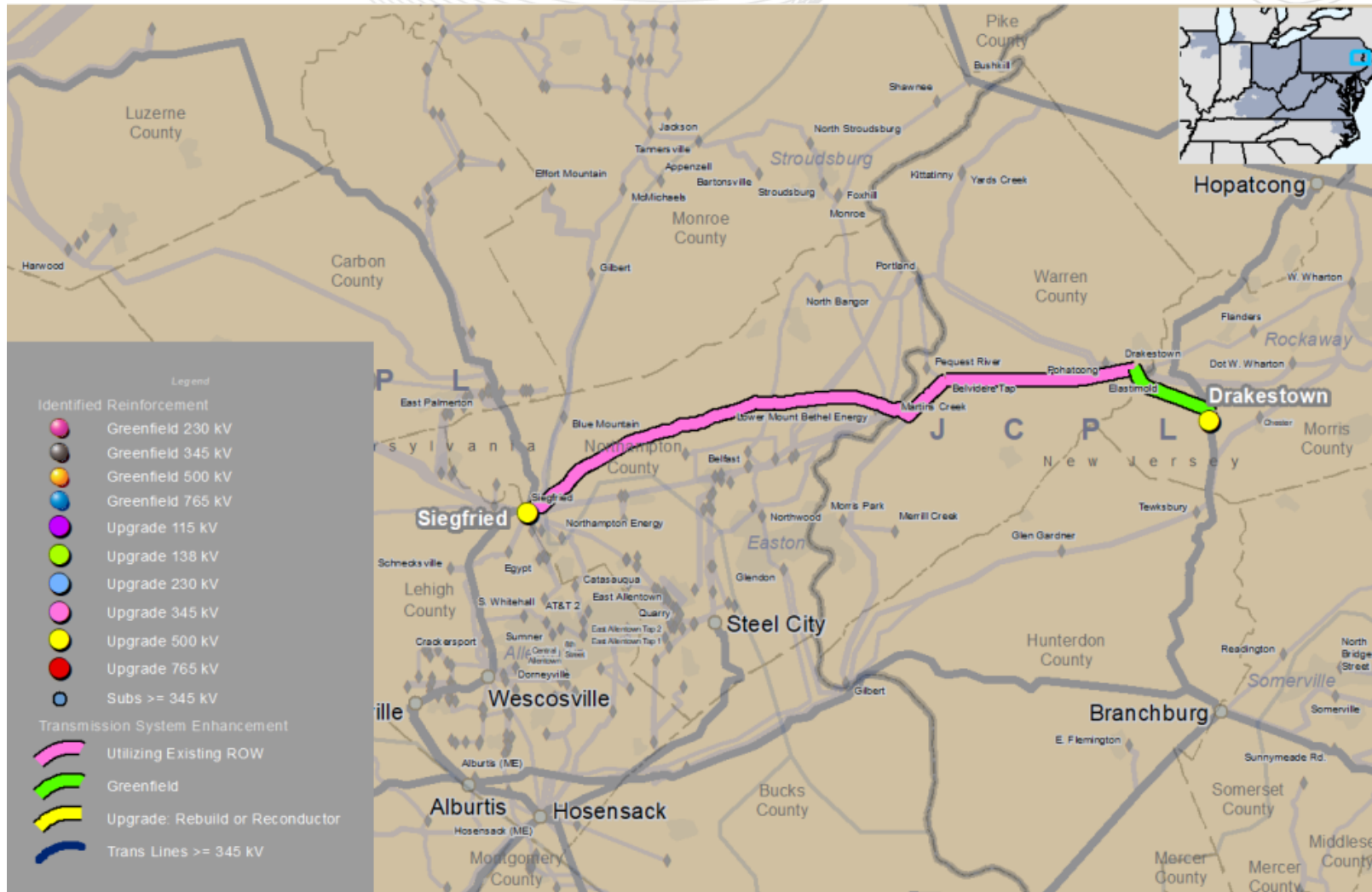
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# PPLTO & TRNSLK

## (Connected Proposals by PPL and Translink)

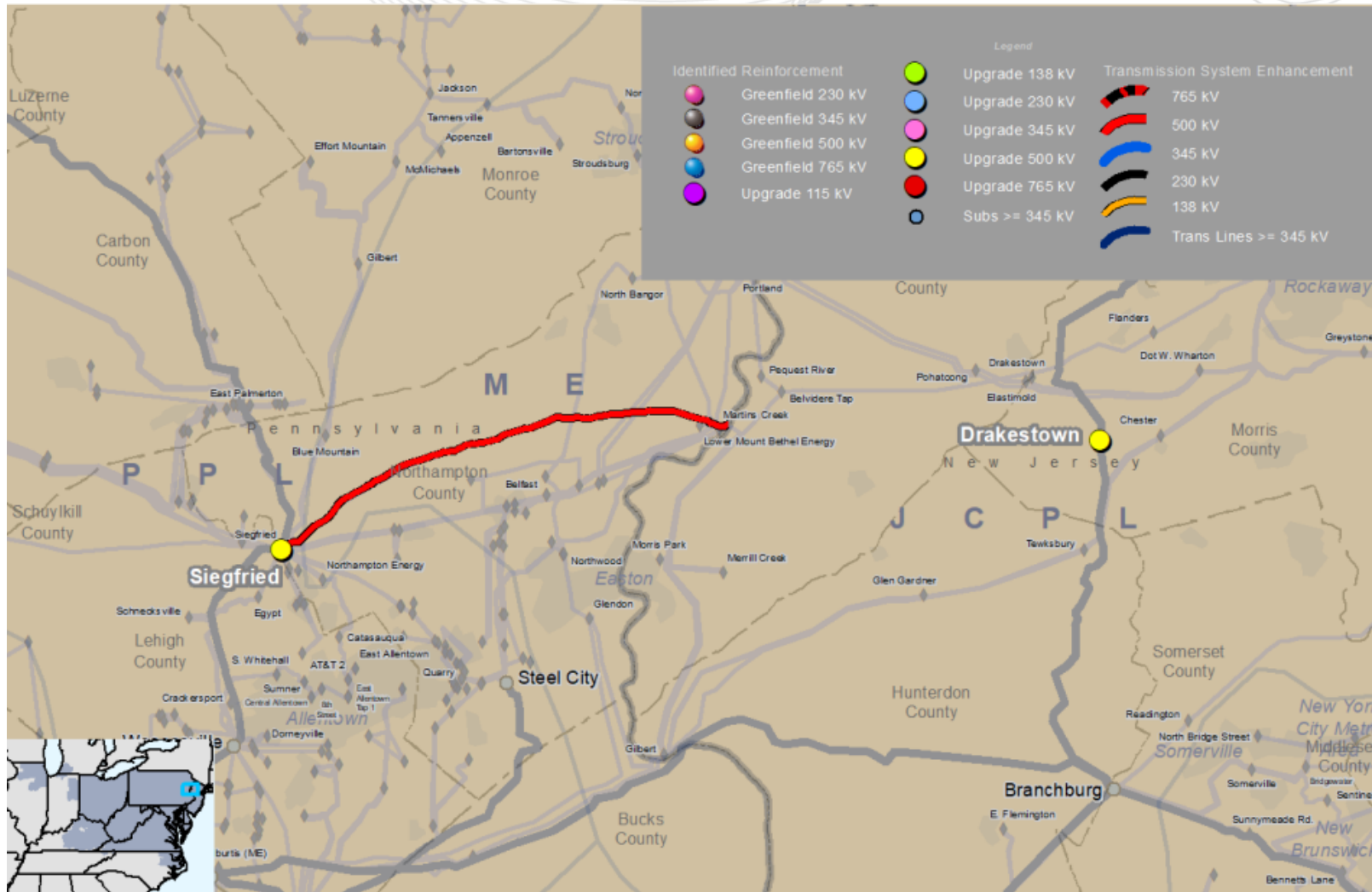


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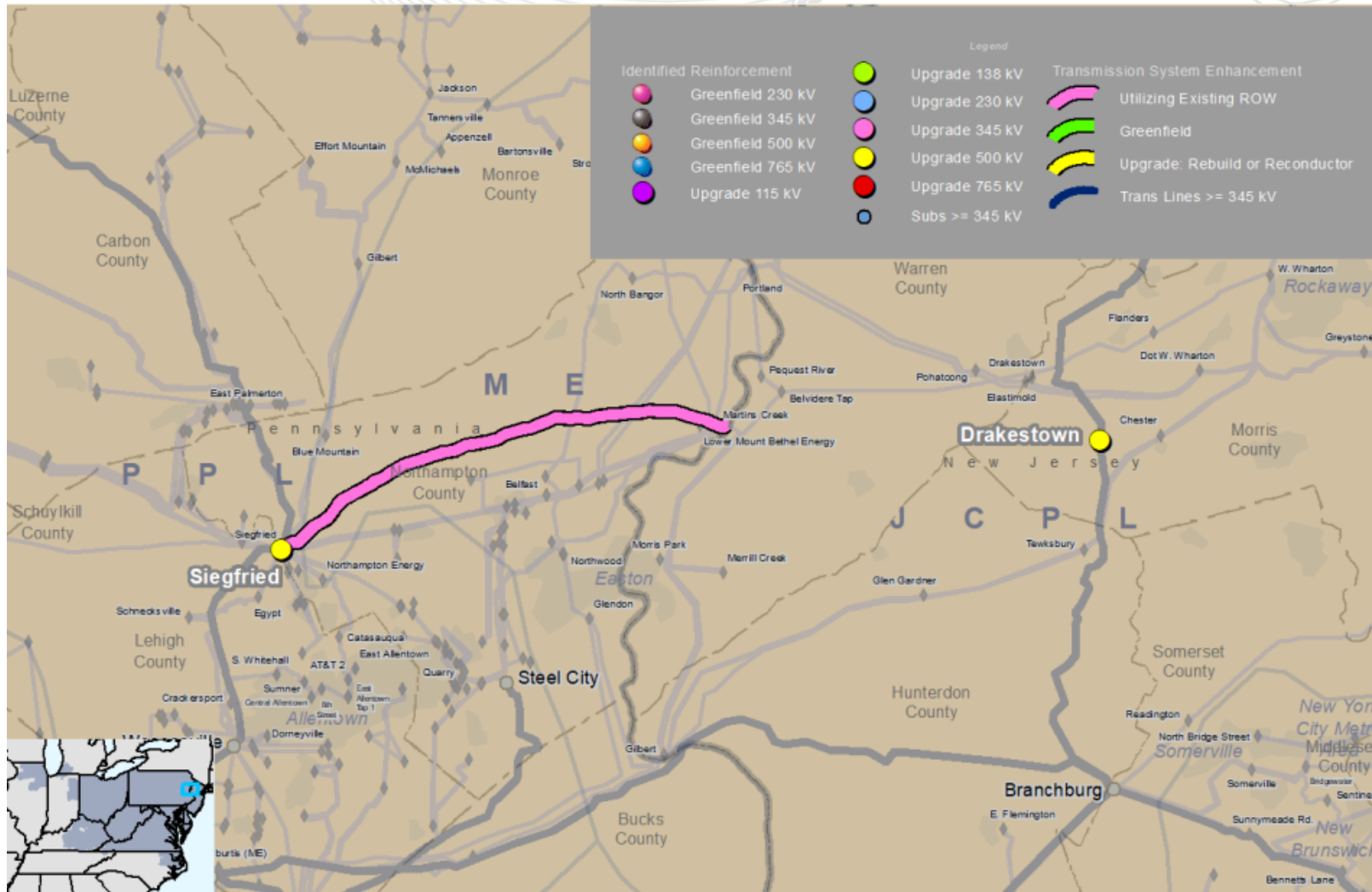
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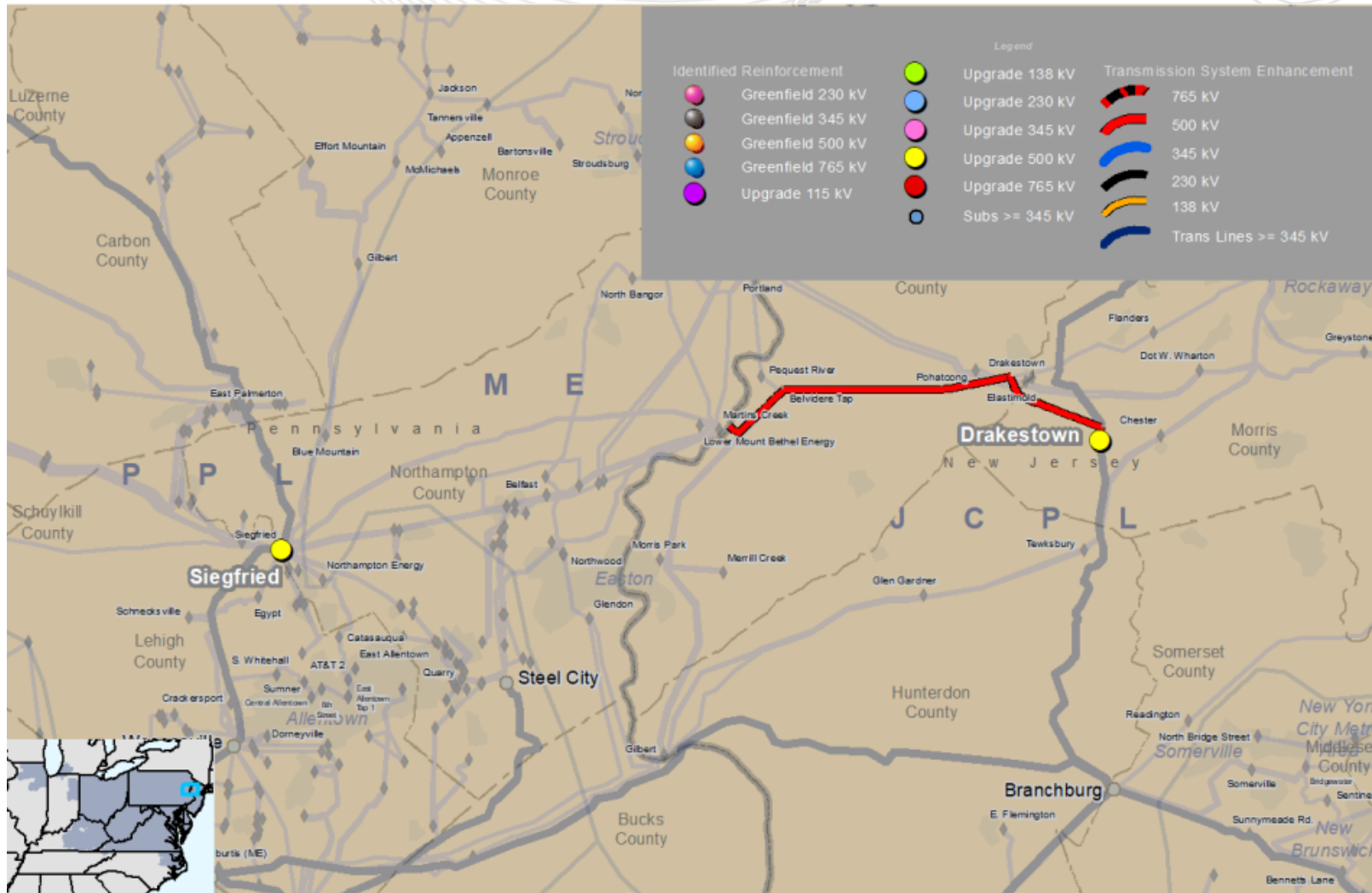


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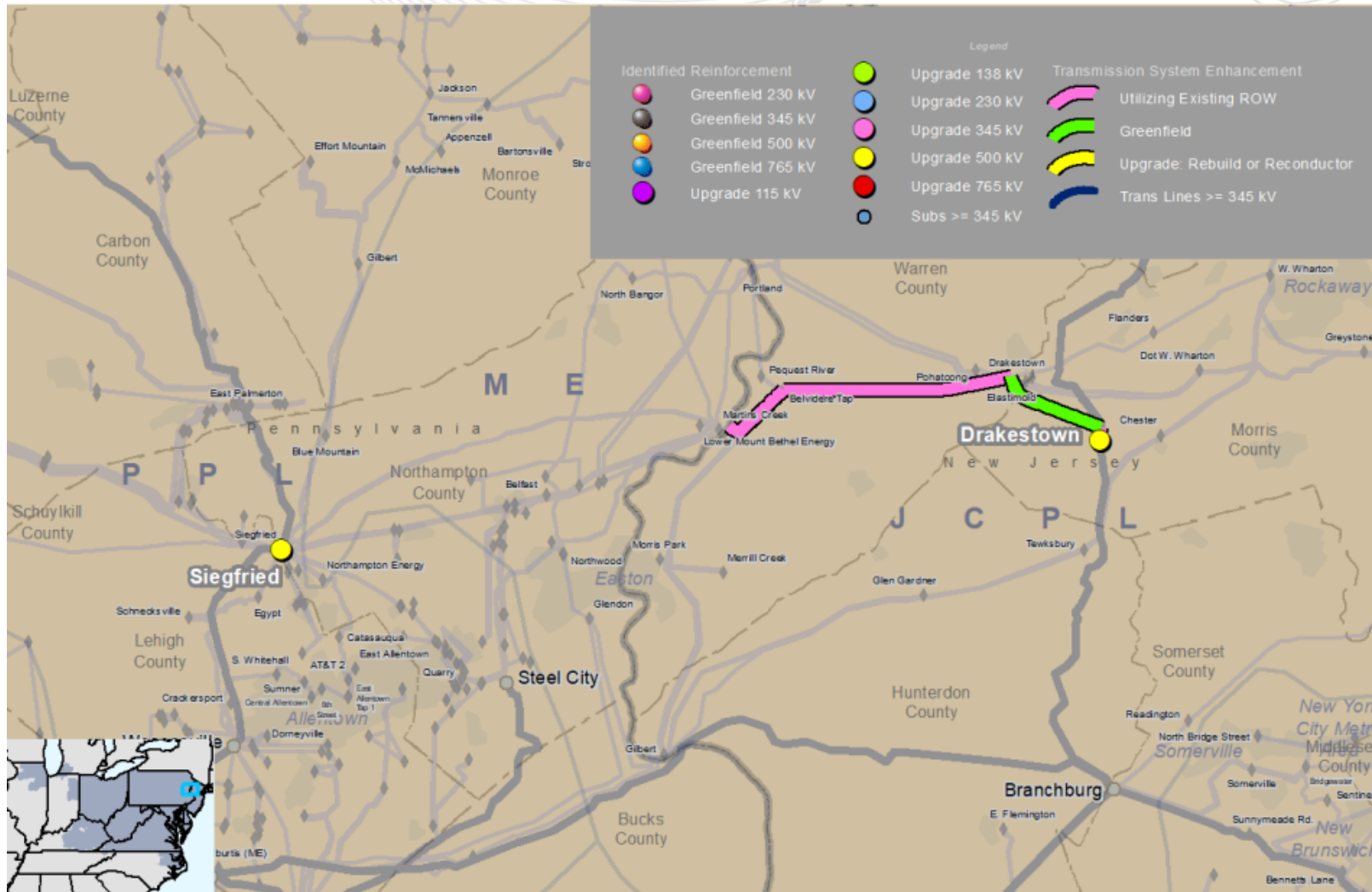




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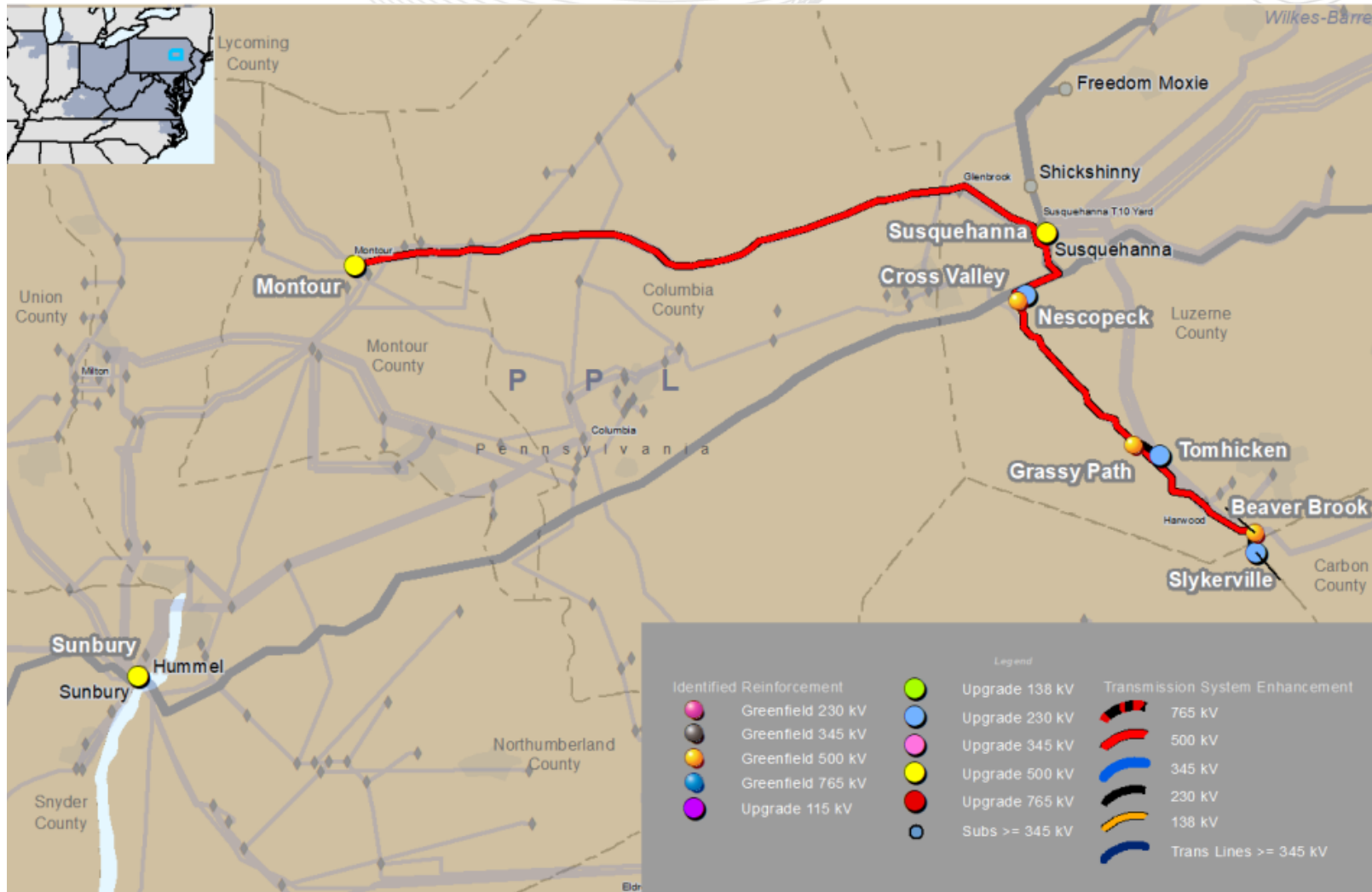


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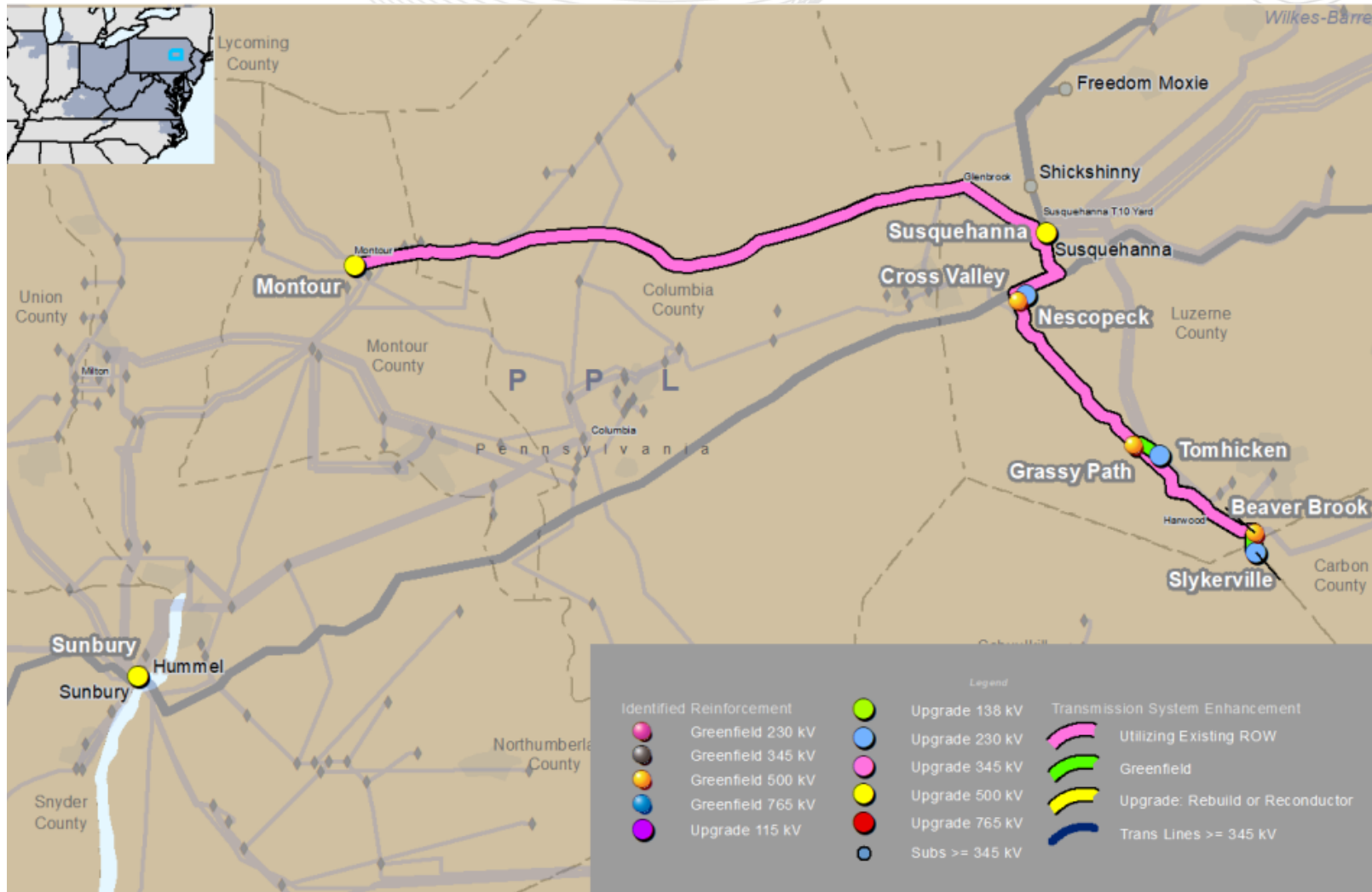
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# CNTLTM (LS Power)

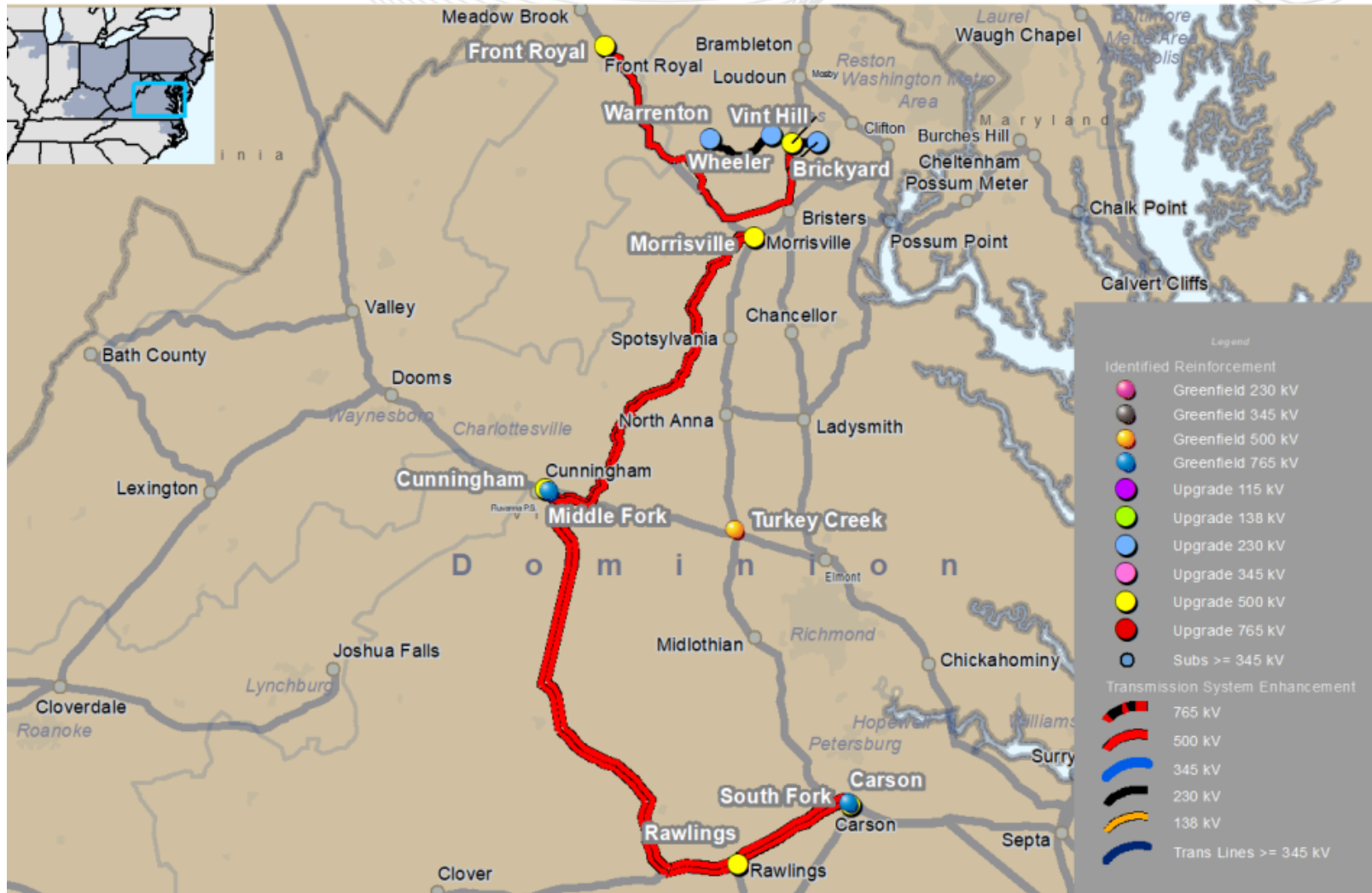


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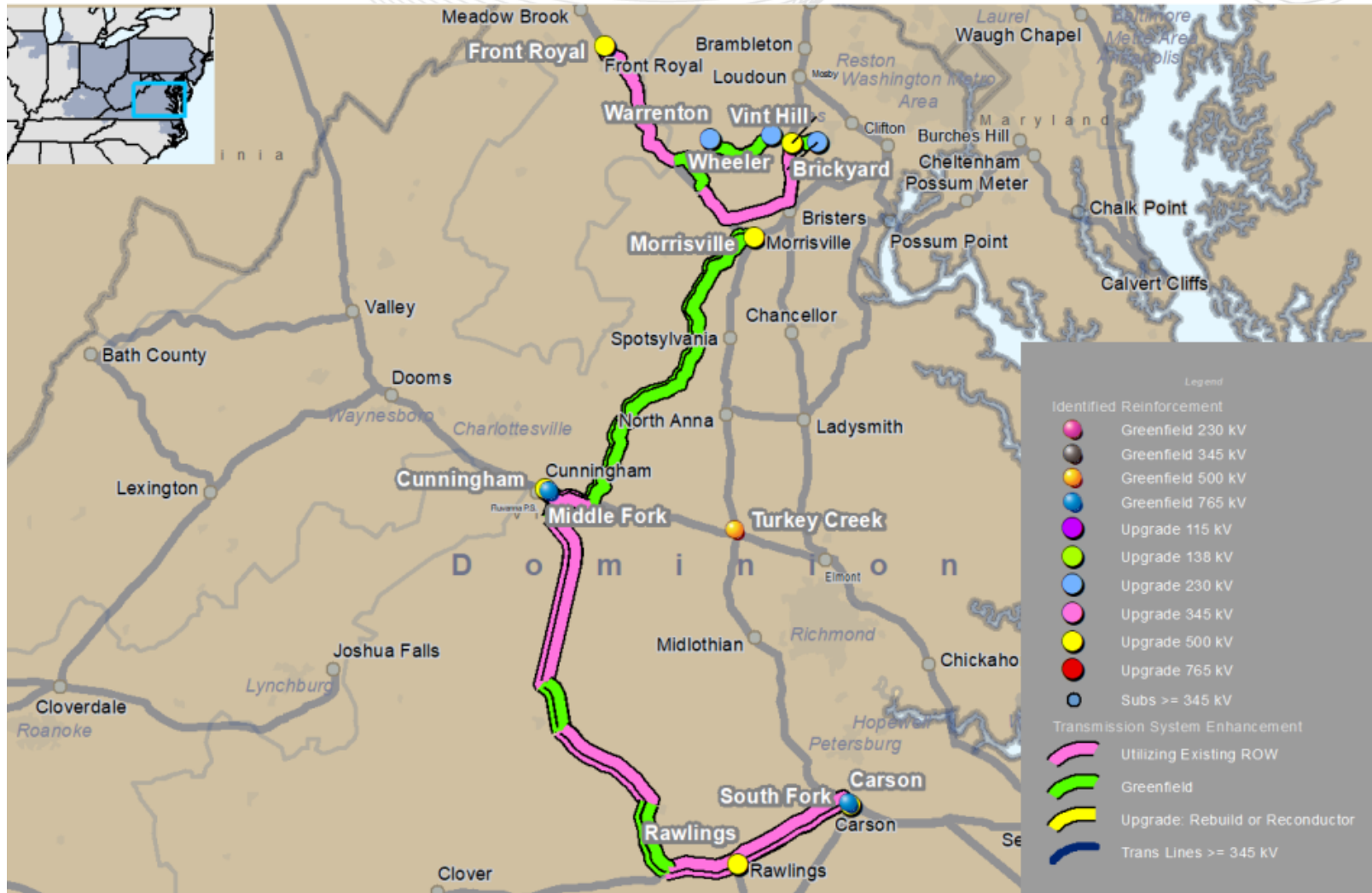




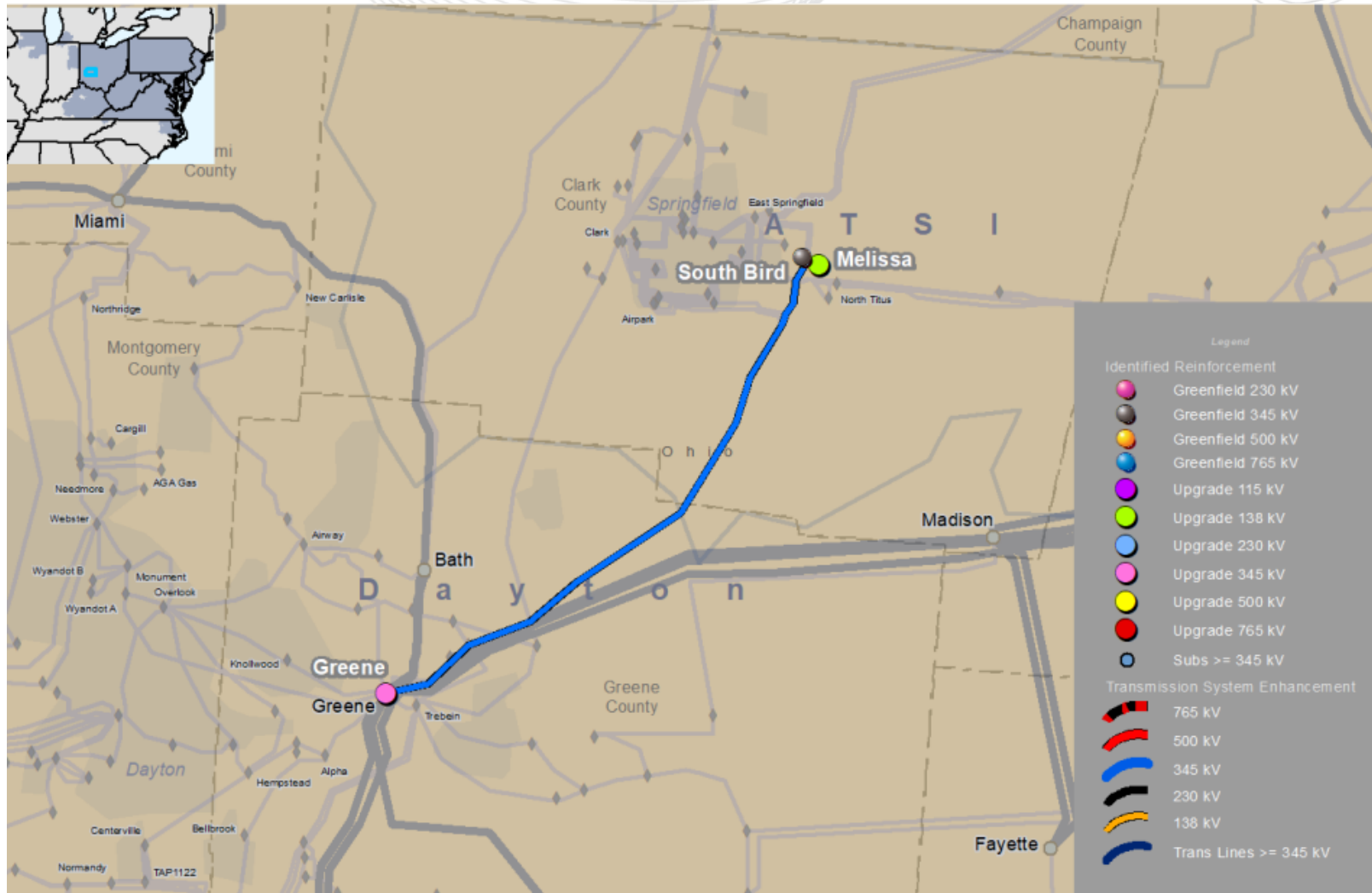
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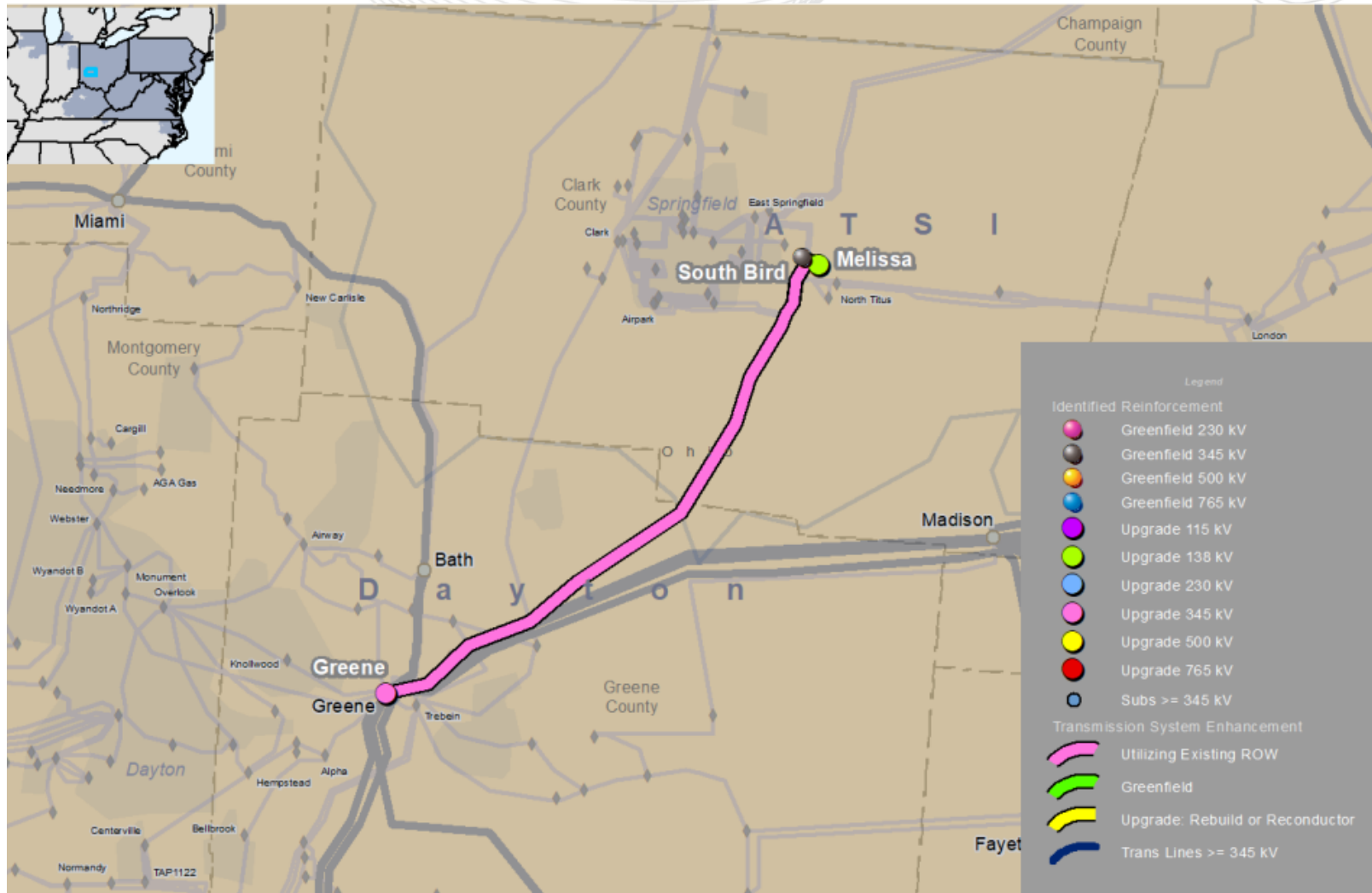


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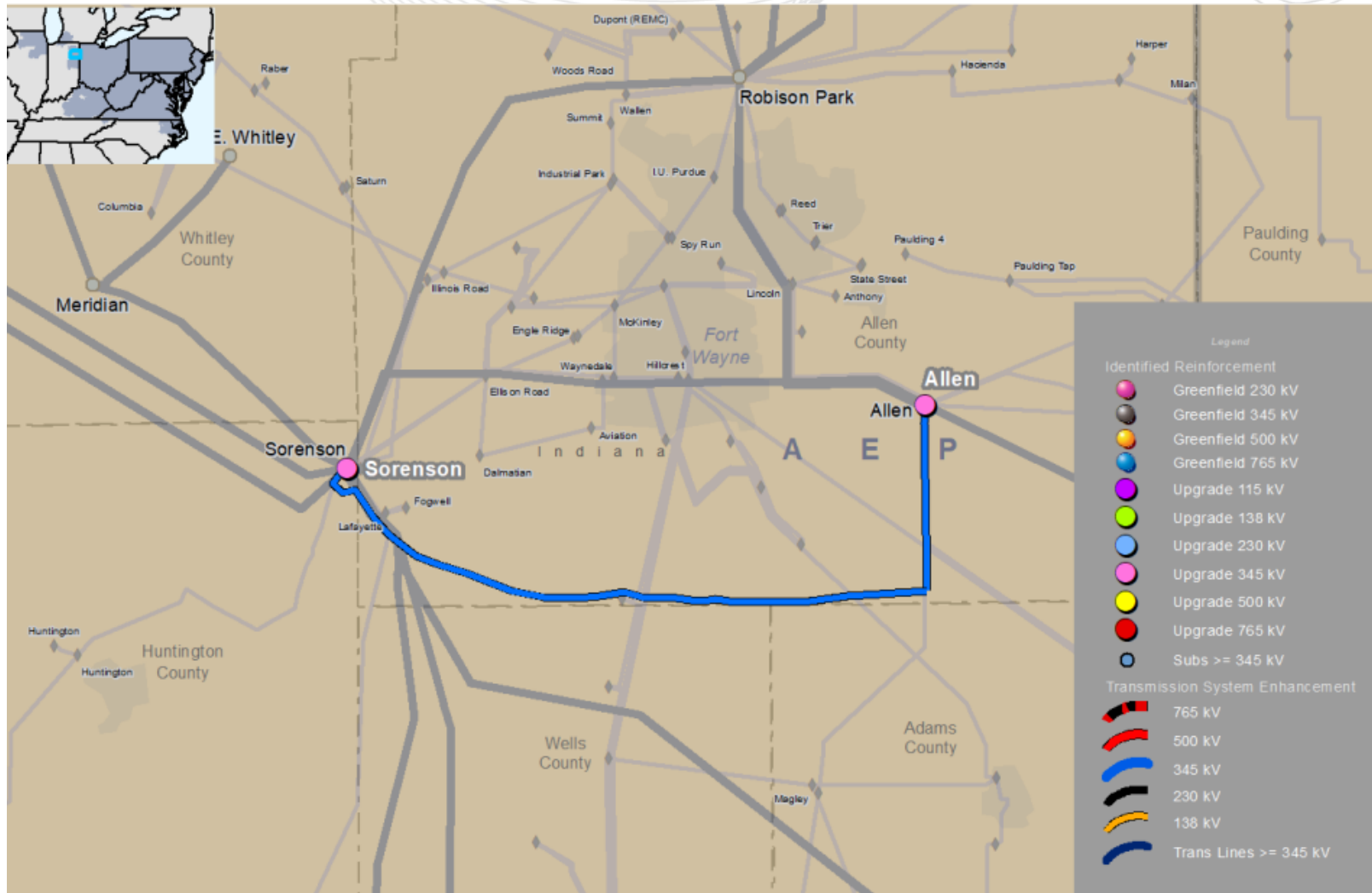
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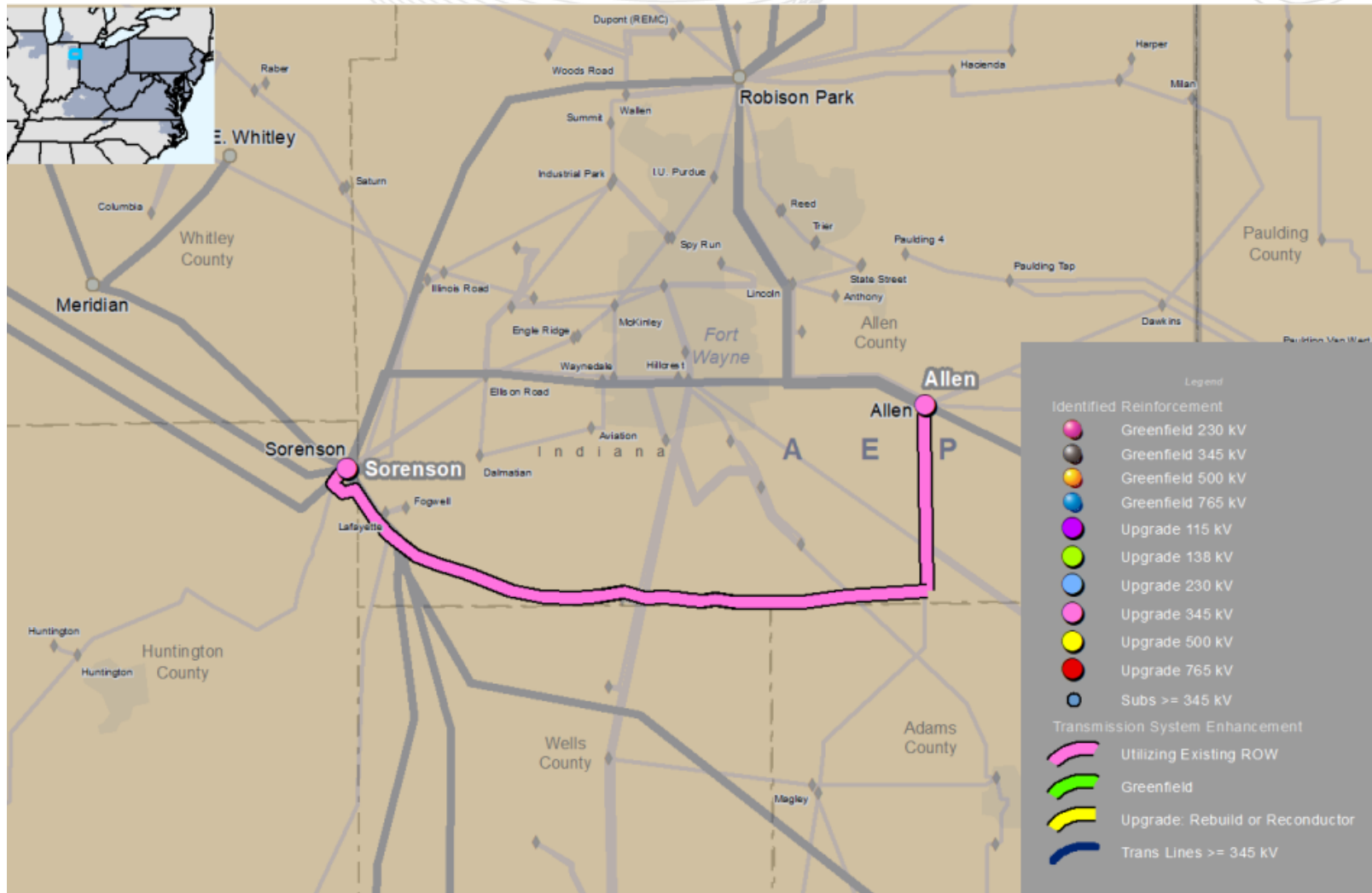


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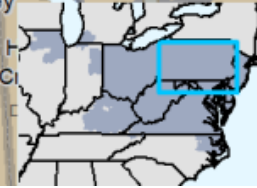


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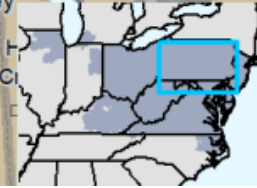
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# MATLIT (FirstEnergy)



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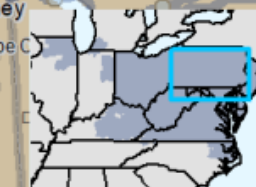


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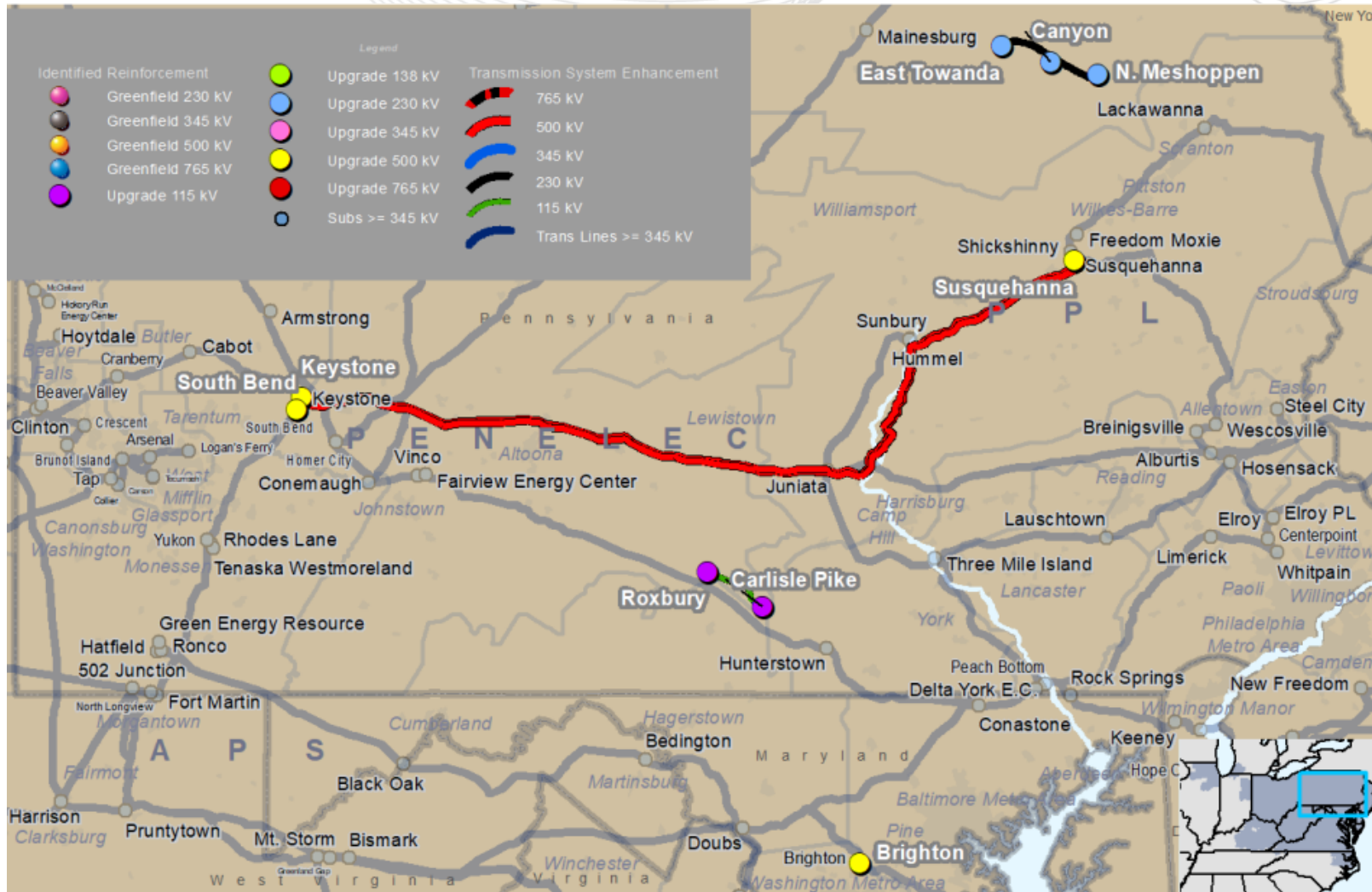




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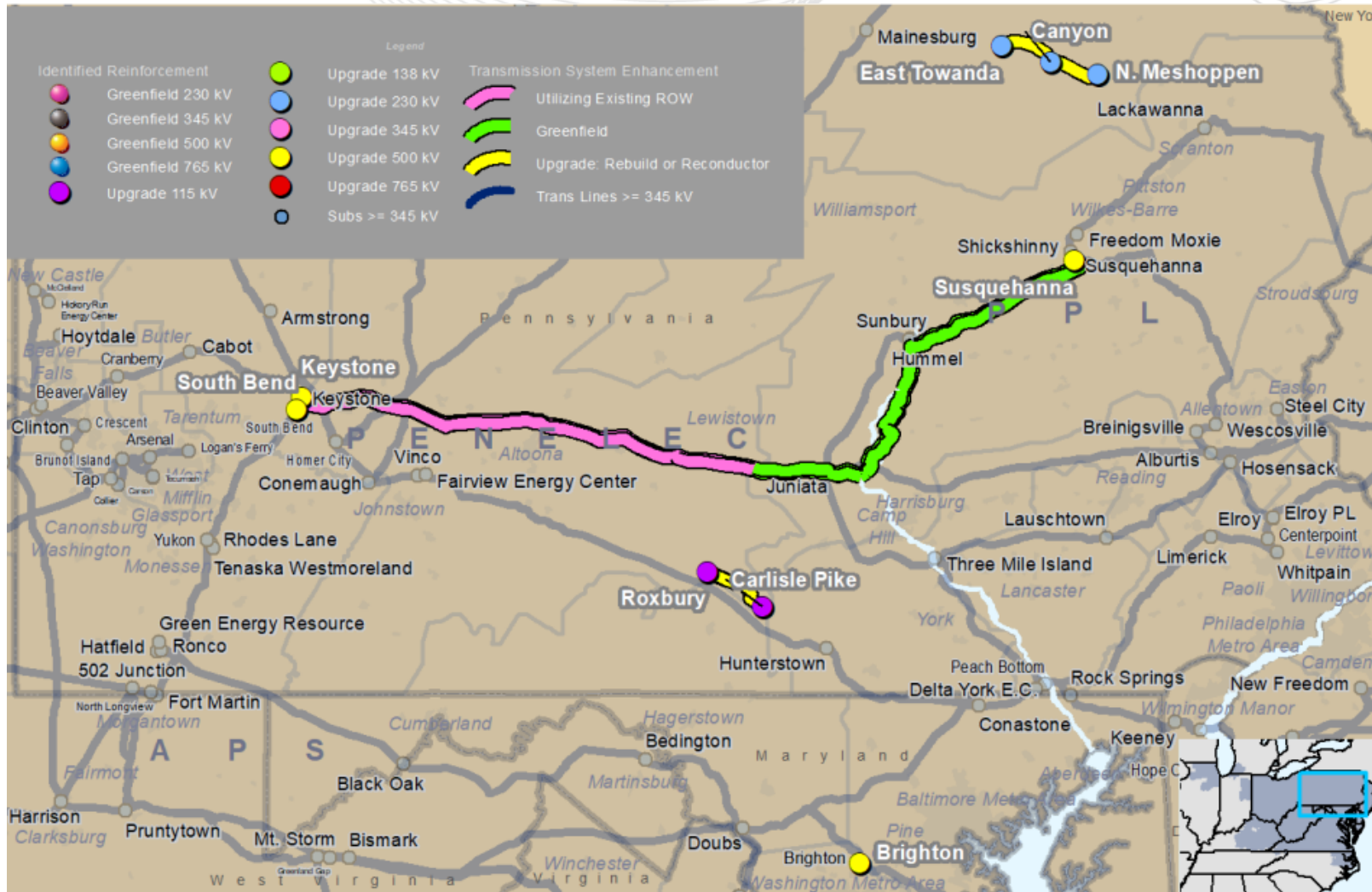


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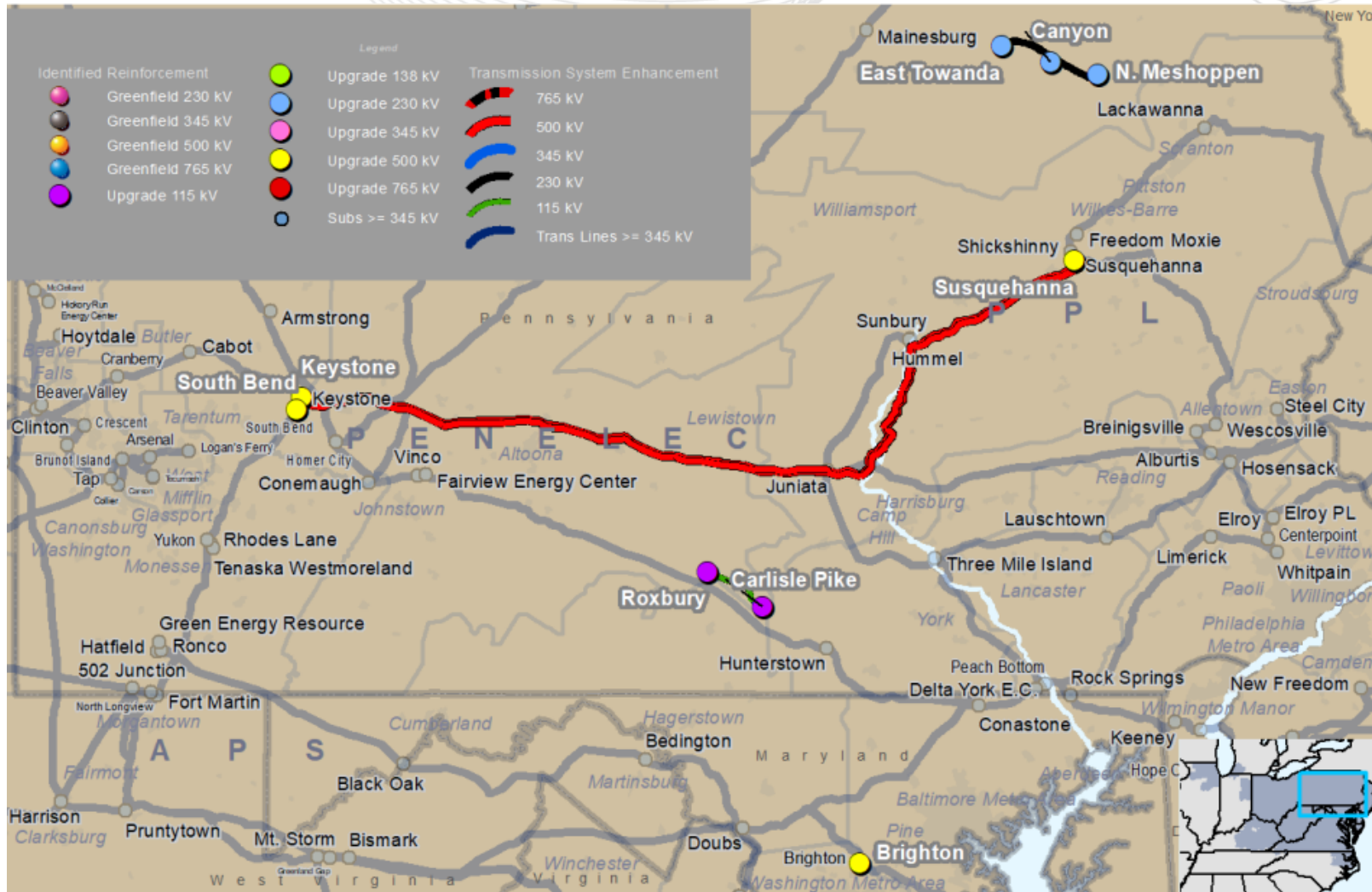


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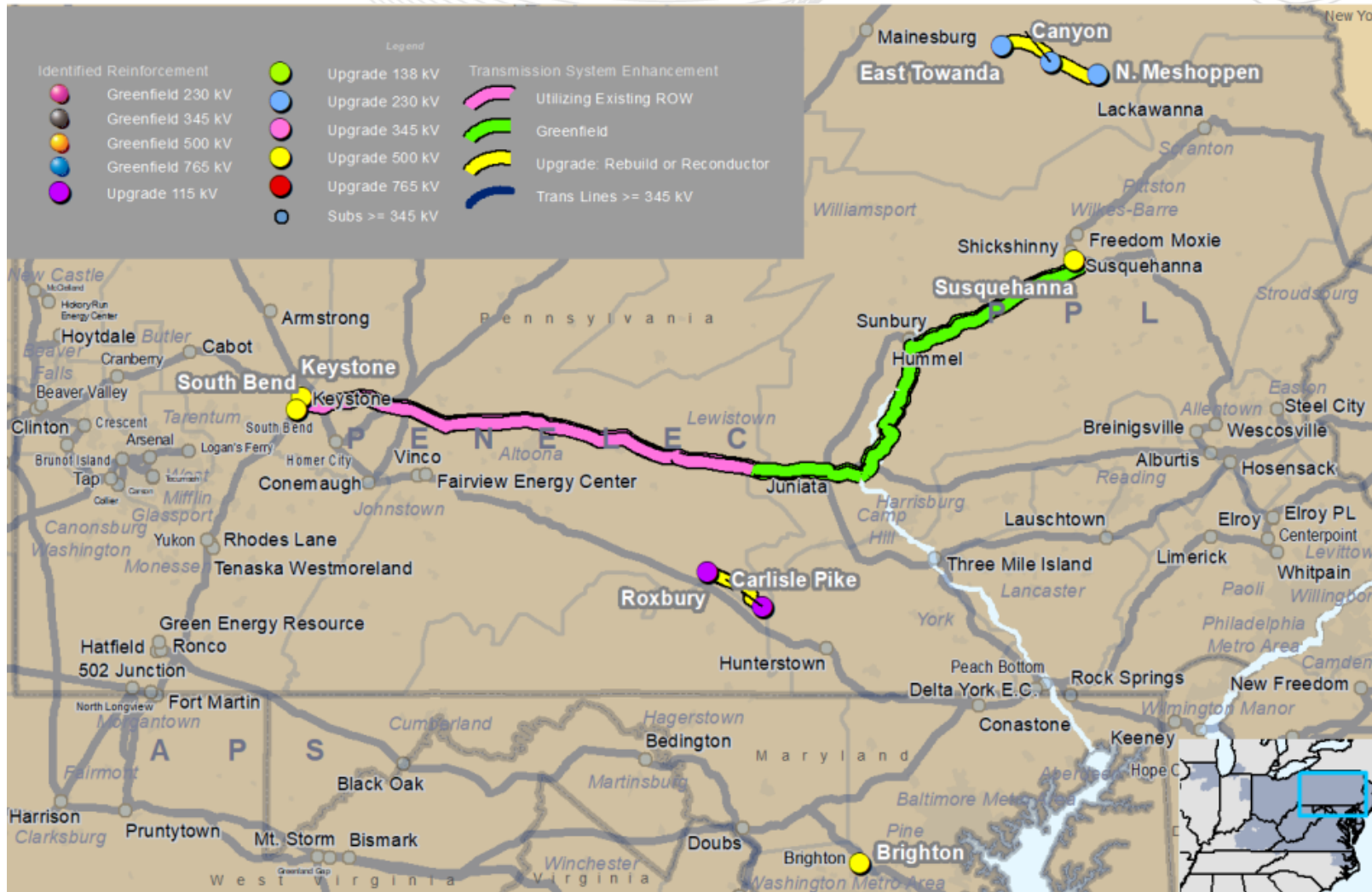


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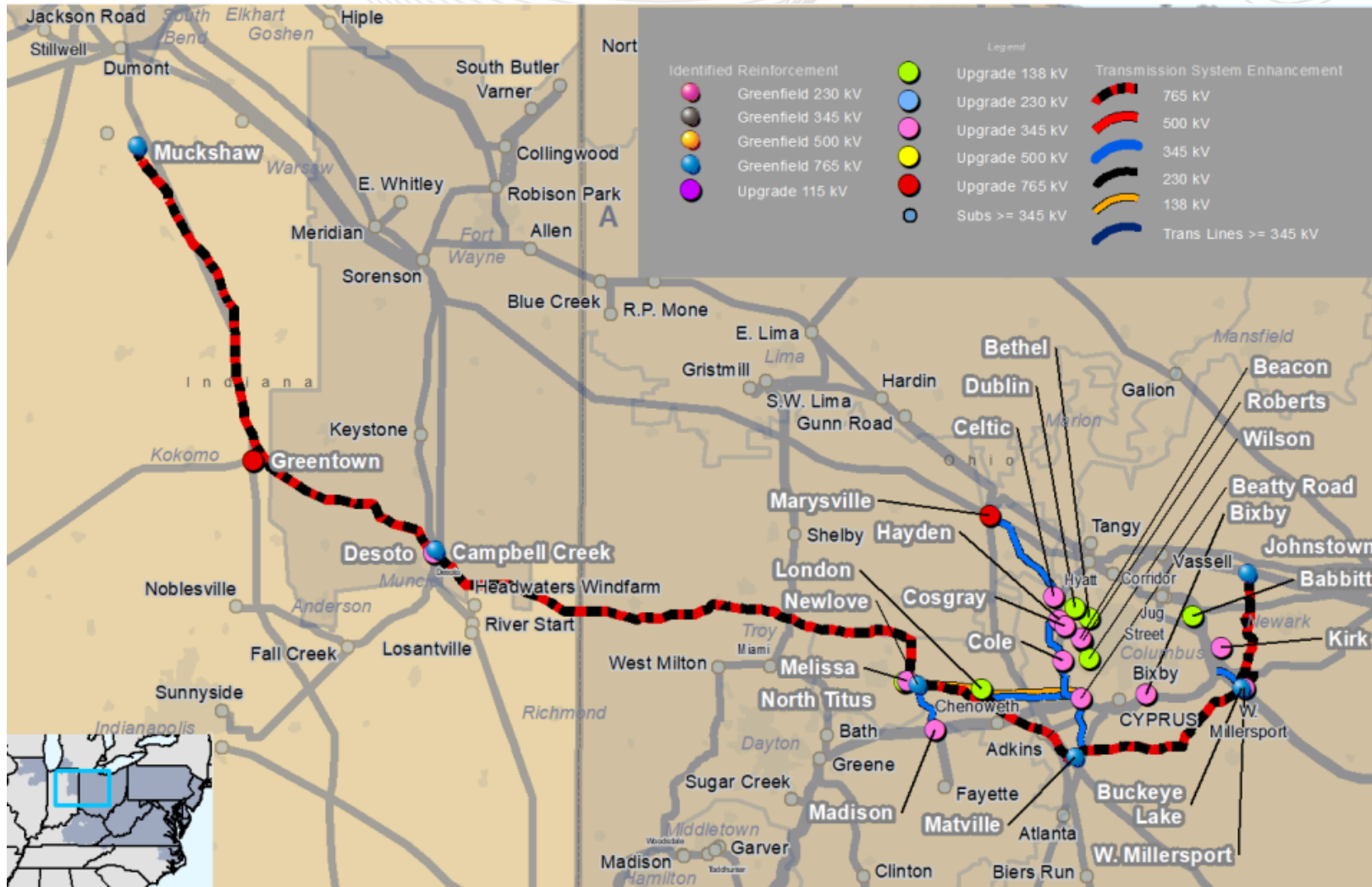
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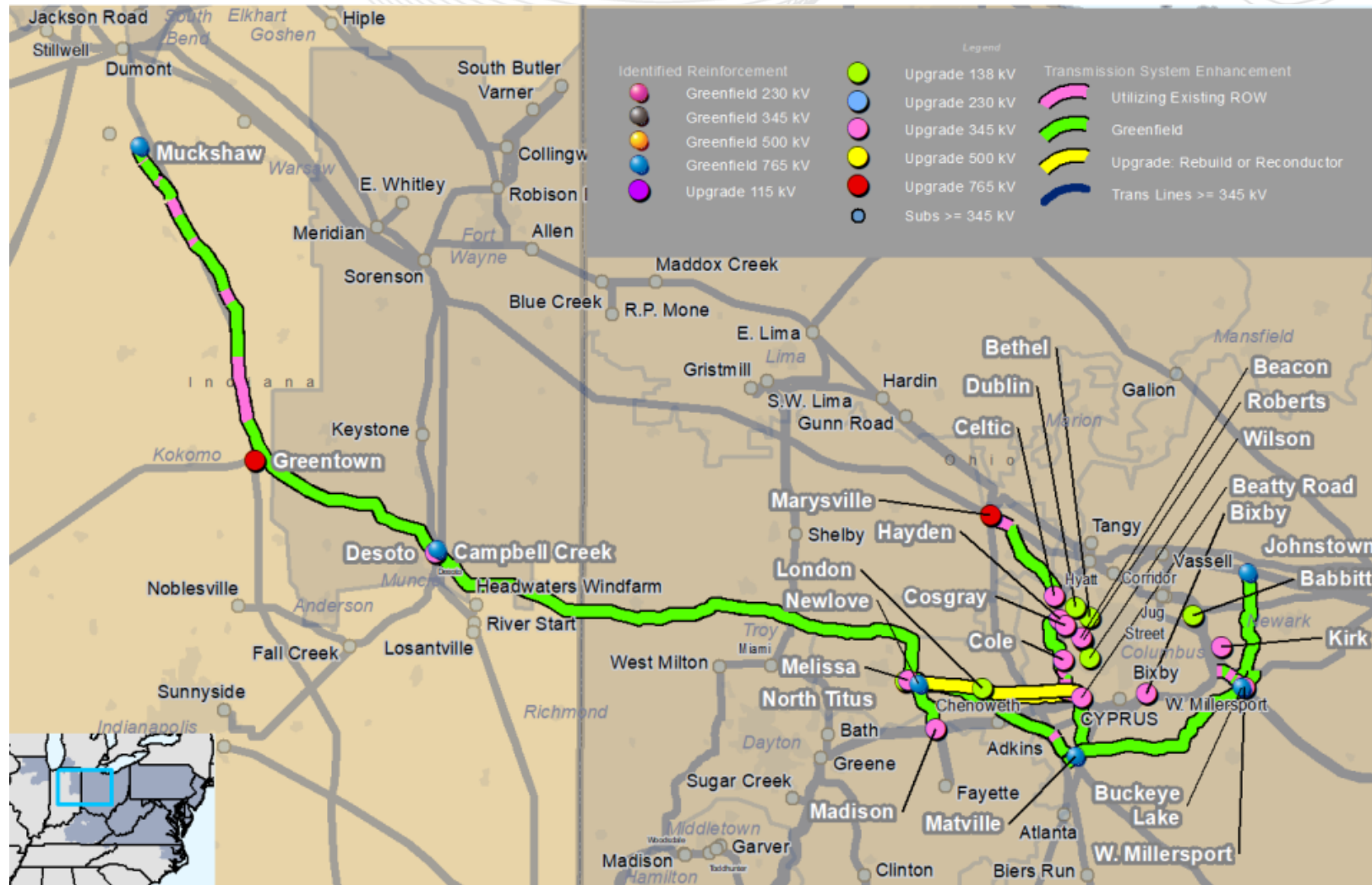


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# NXTMID (NextEra)

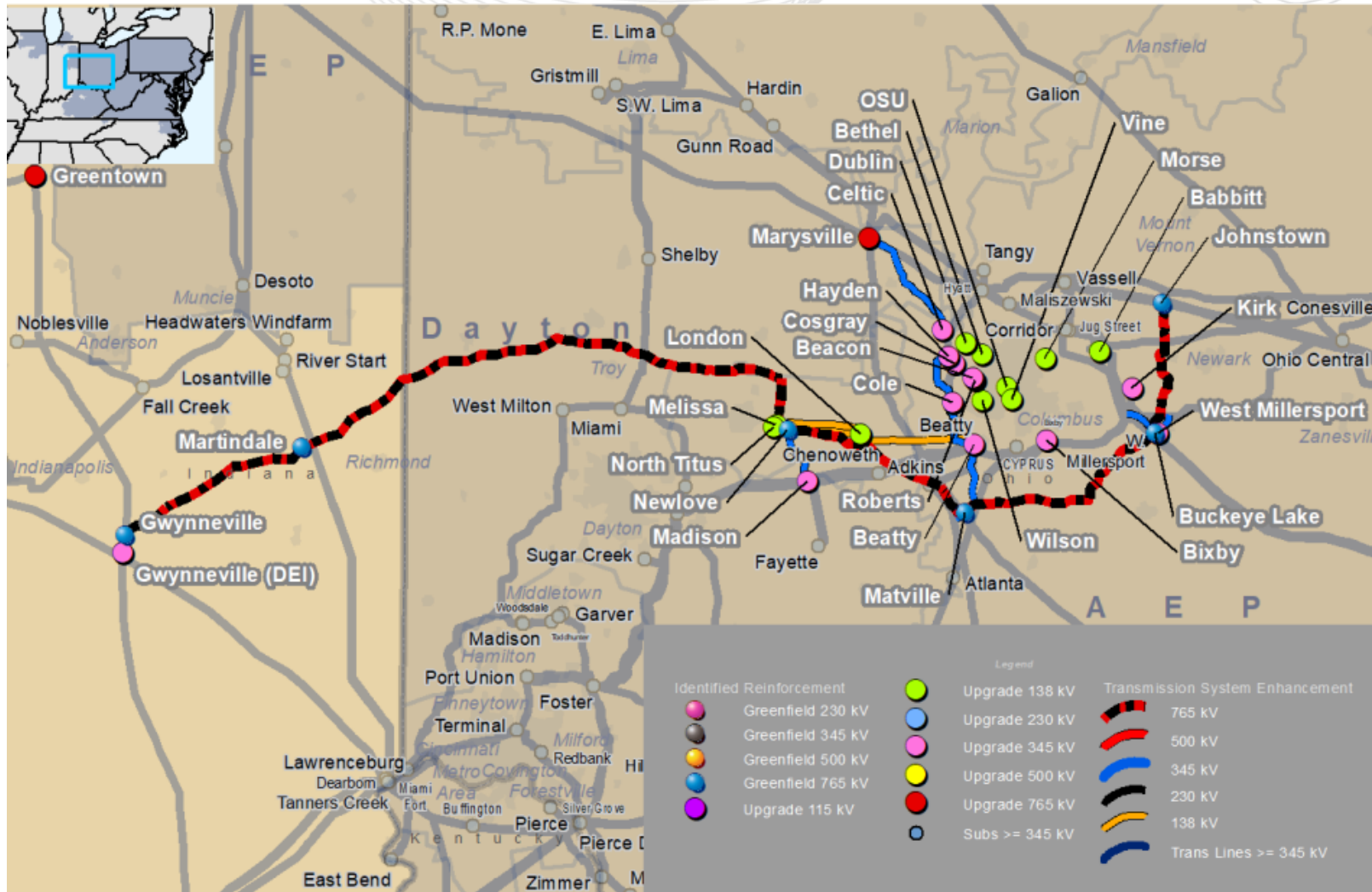


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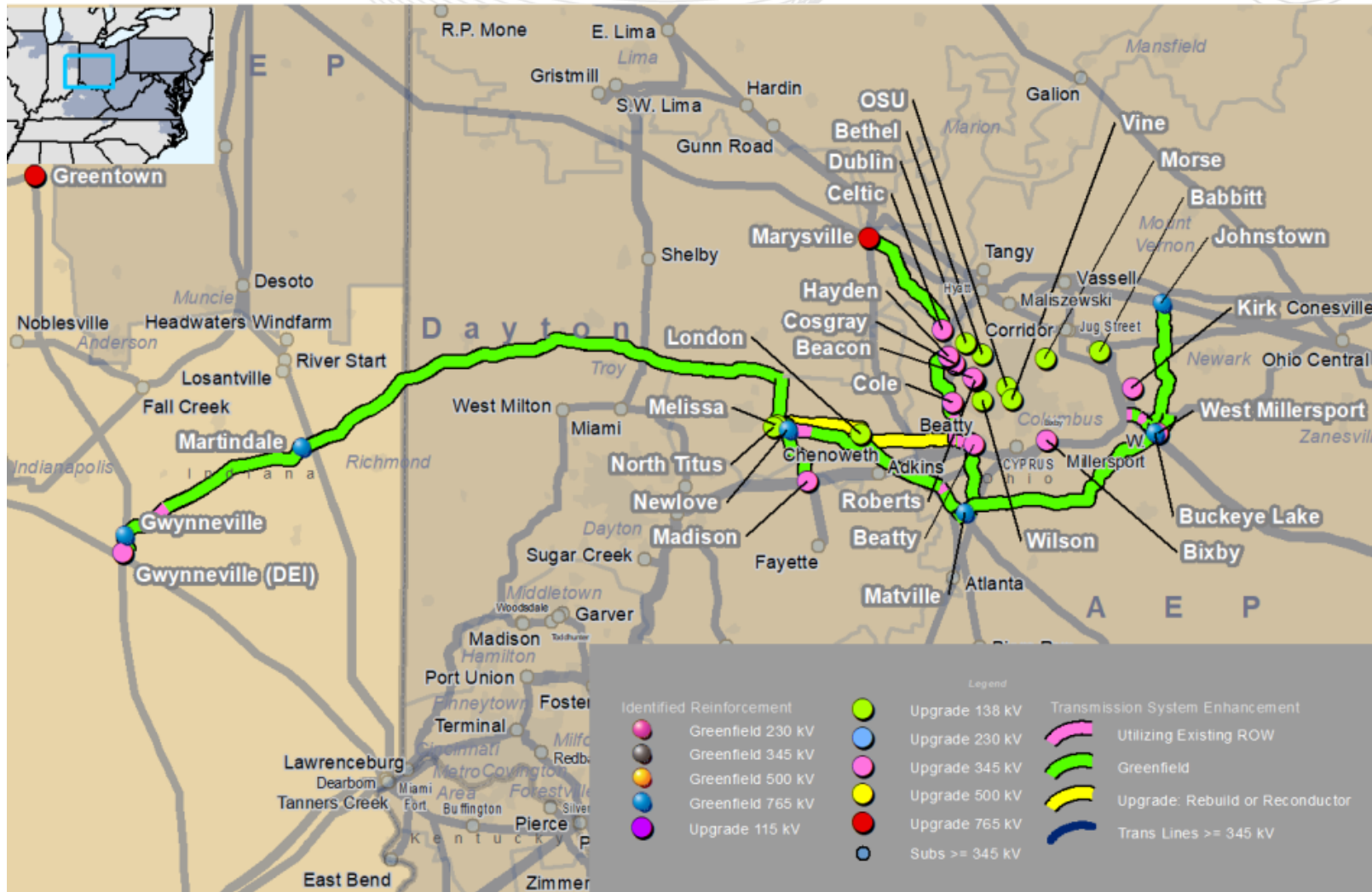
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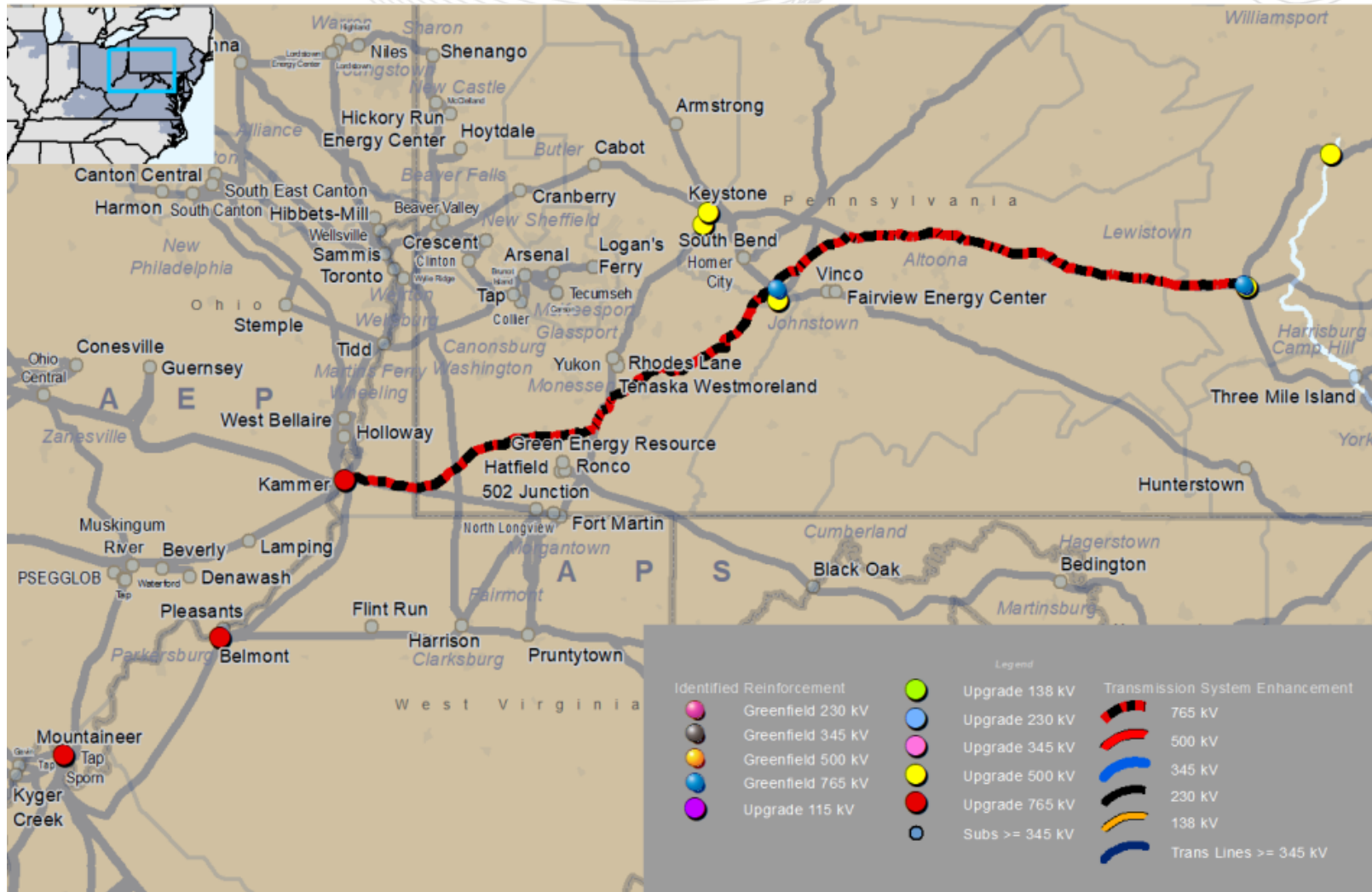


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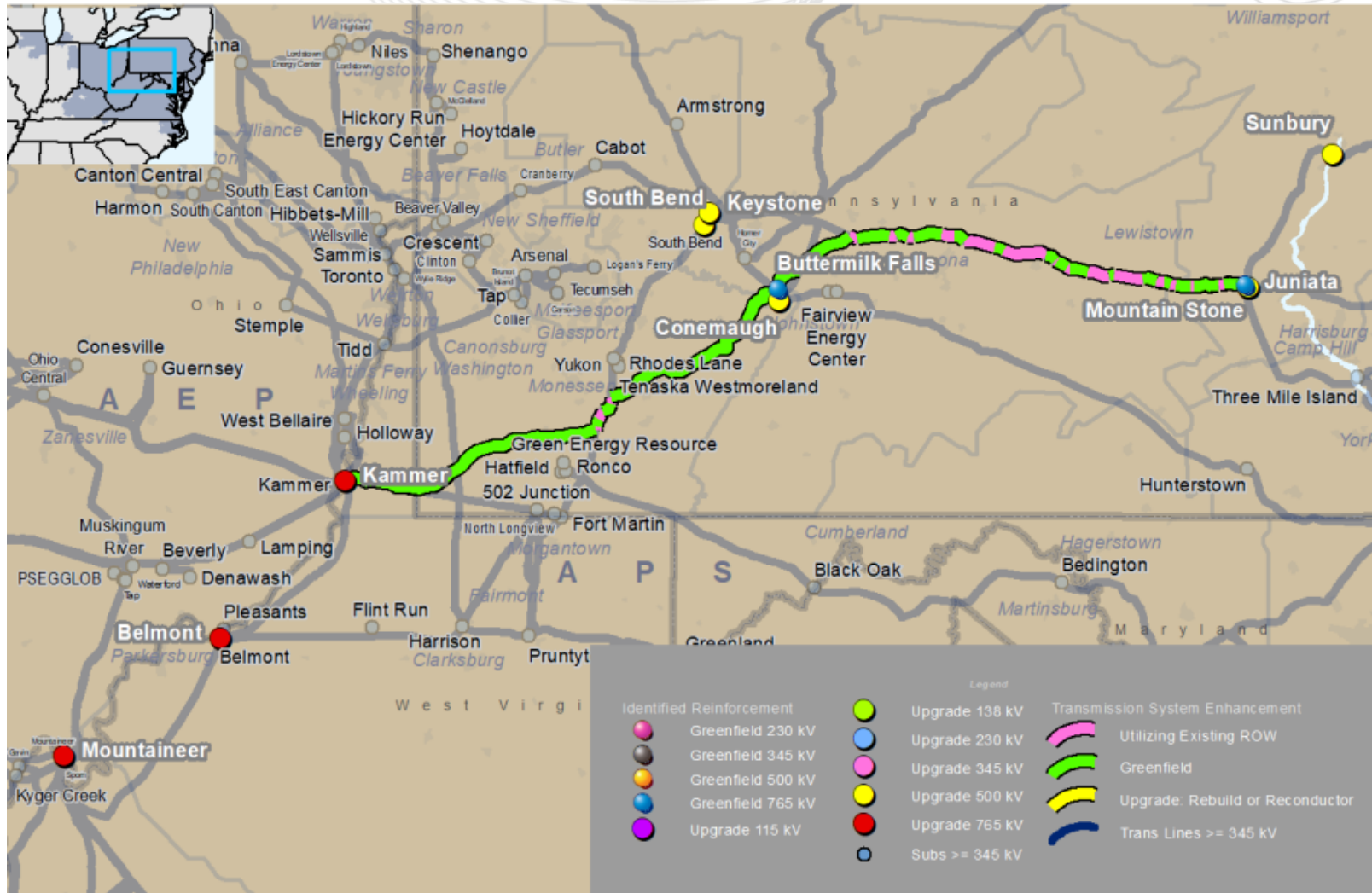




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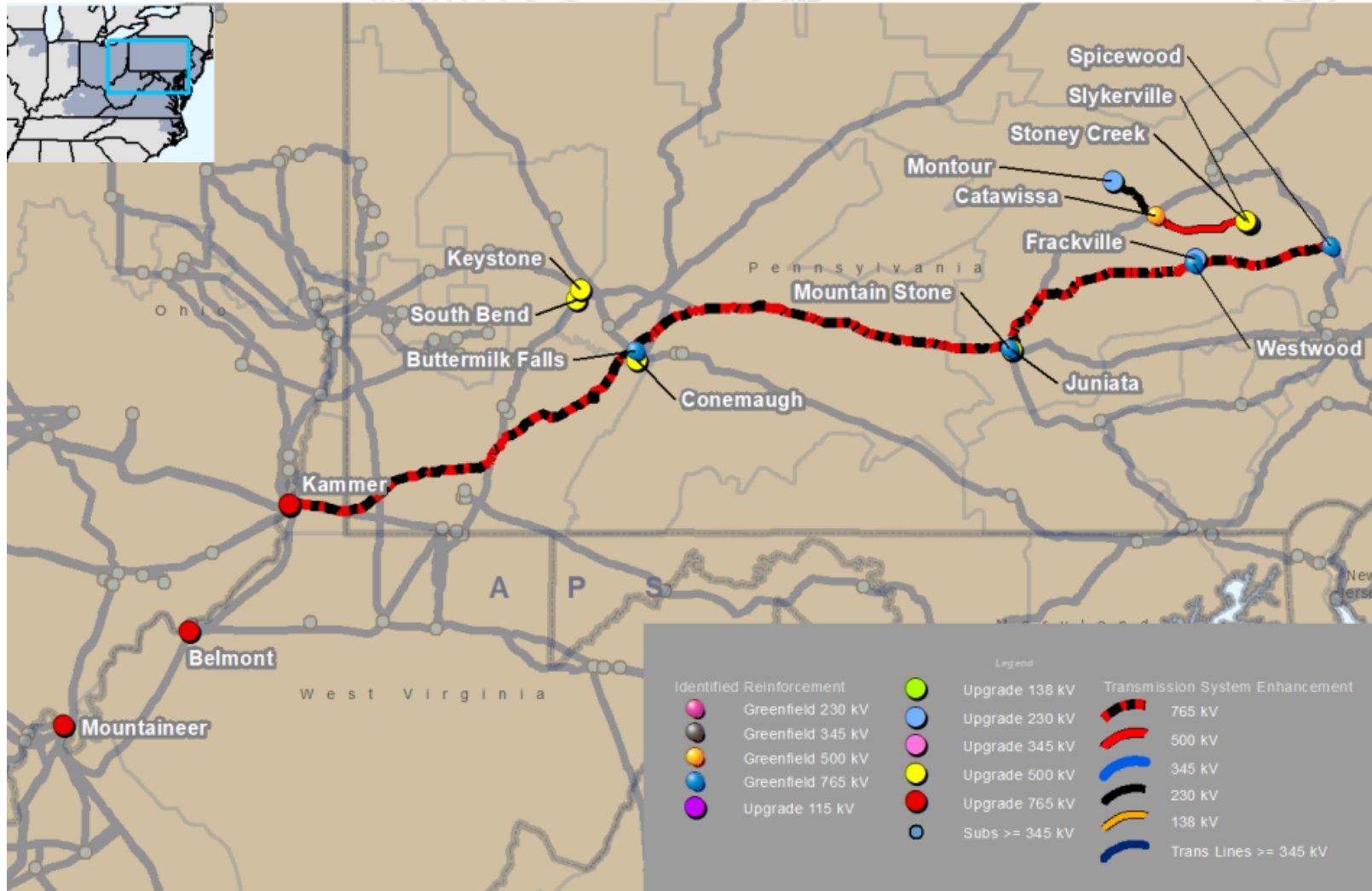


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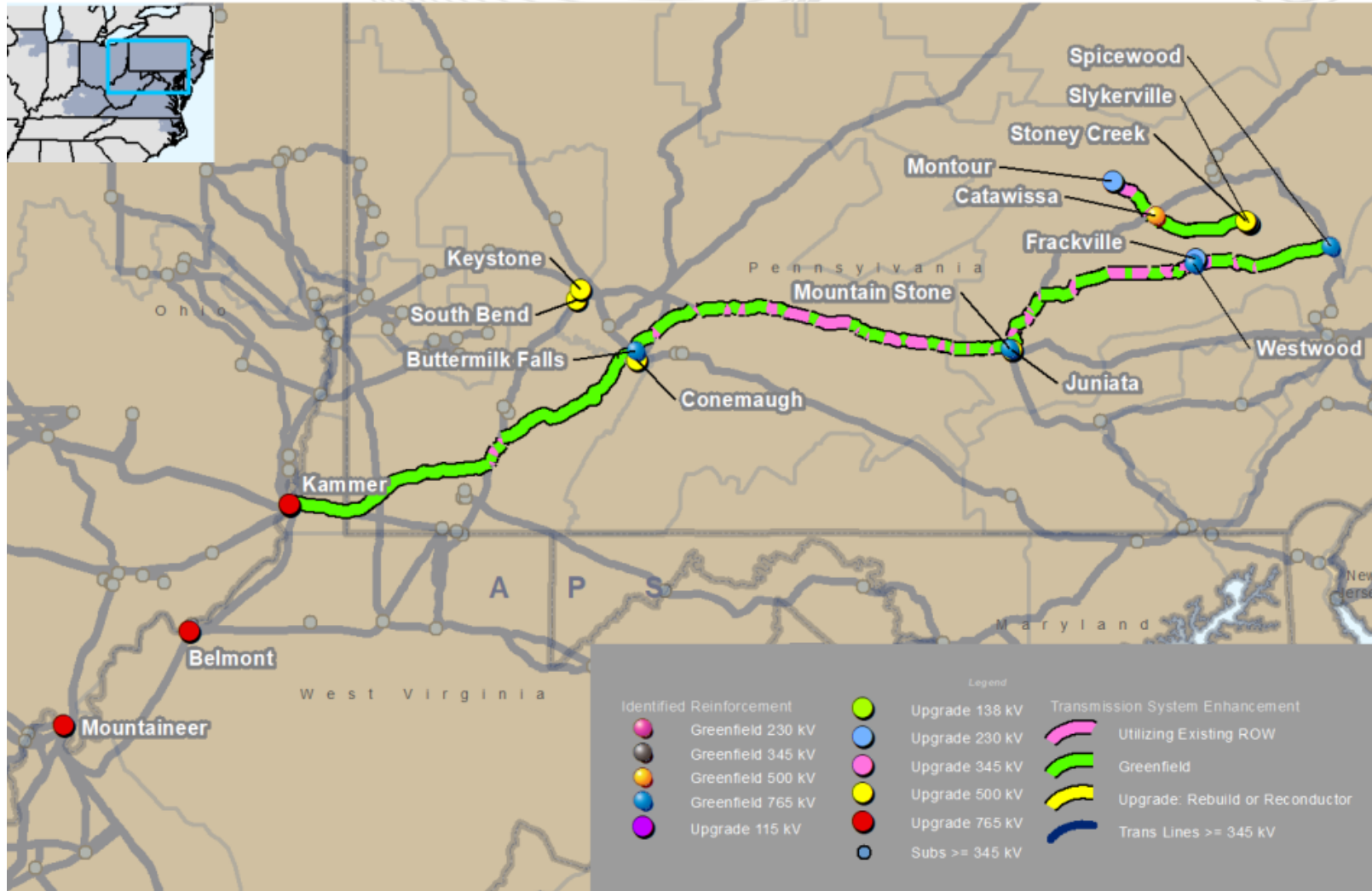


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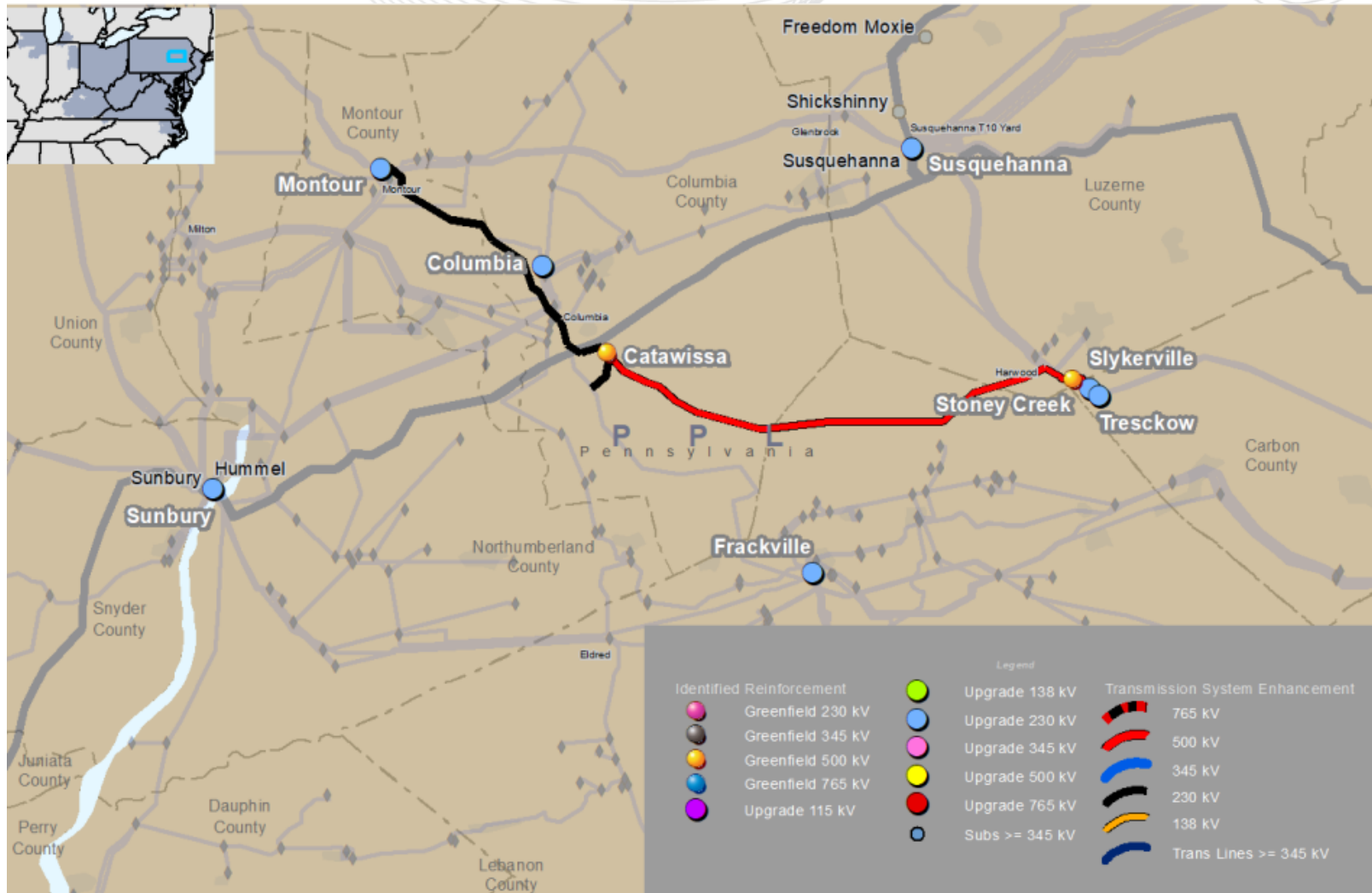


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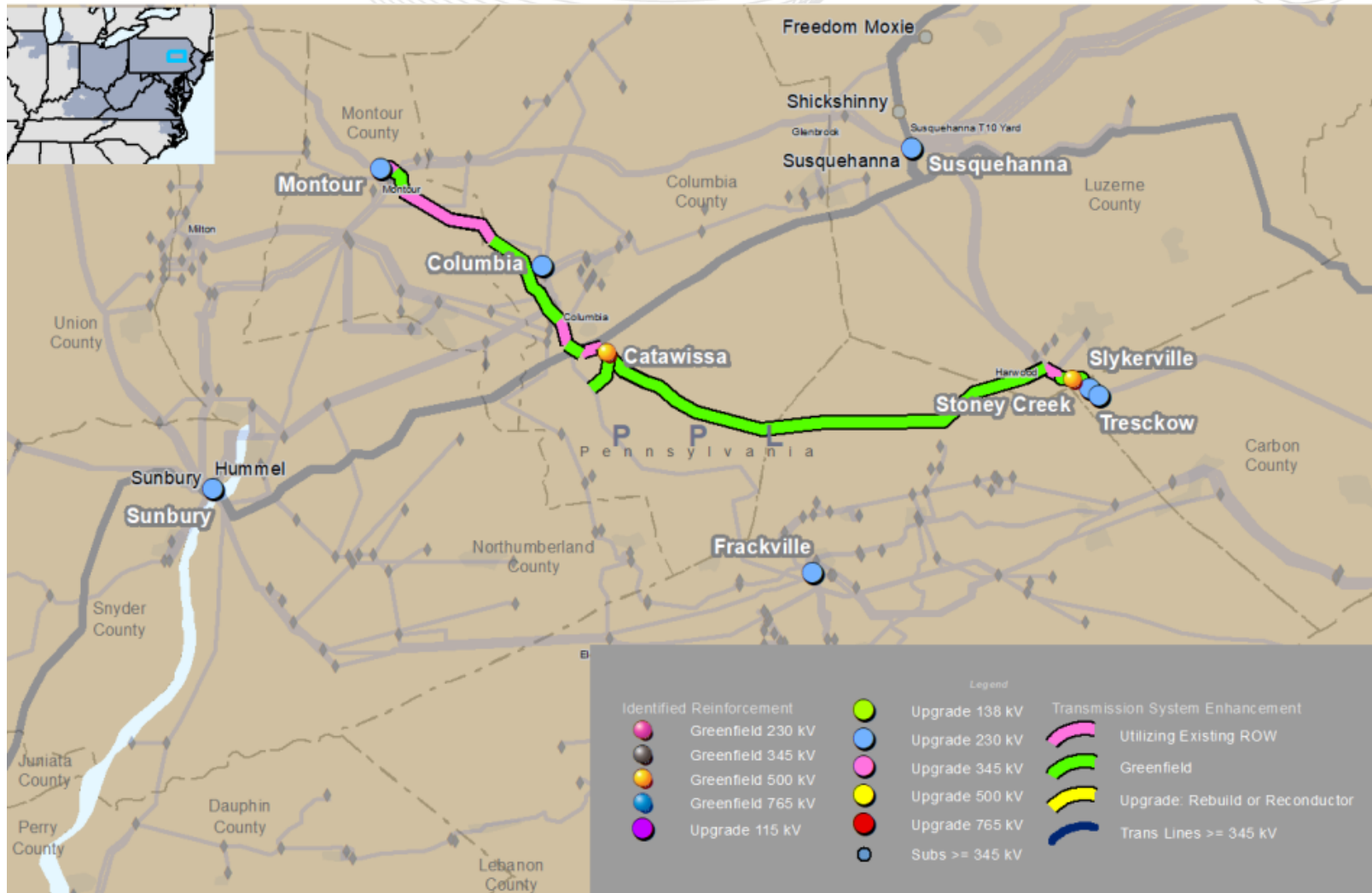


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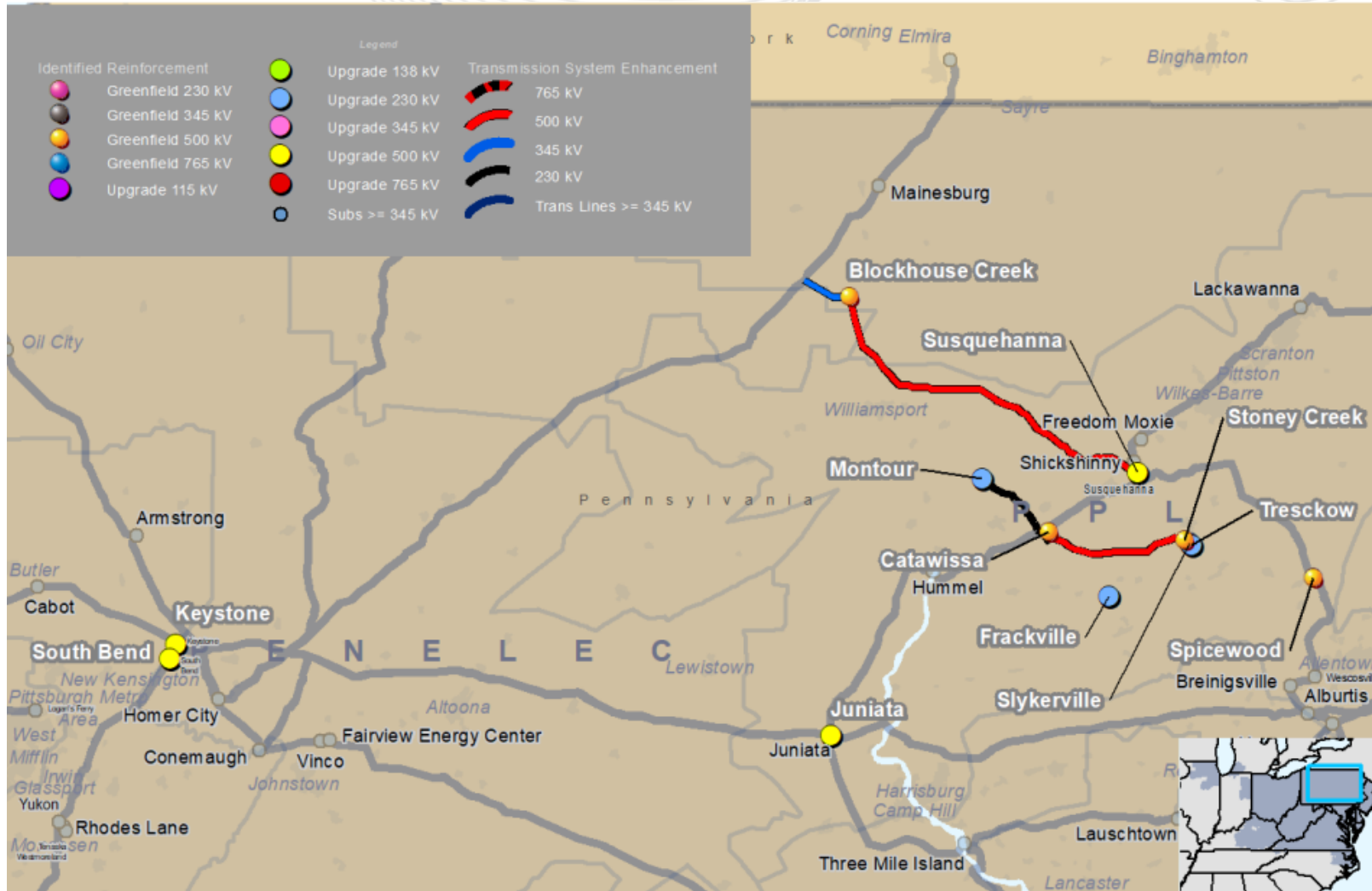




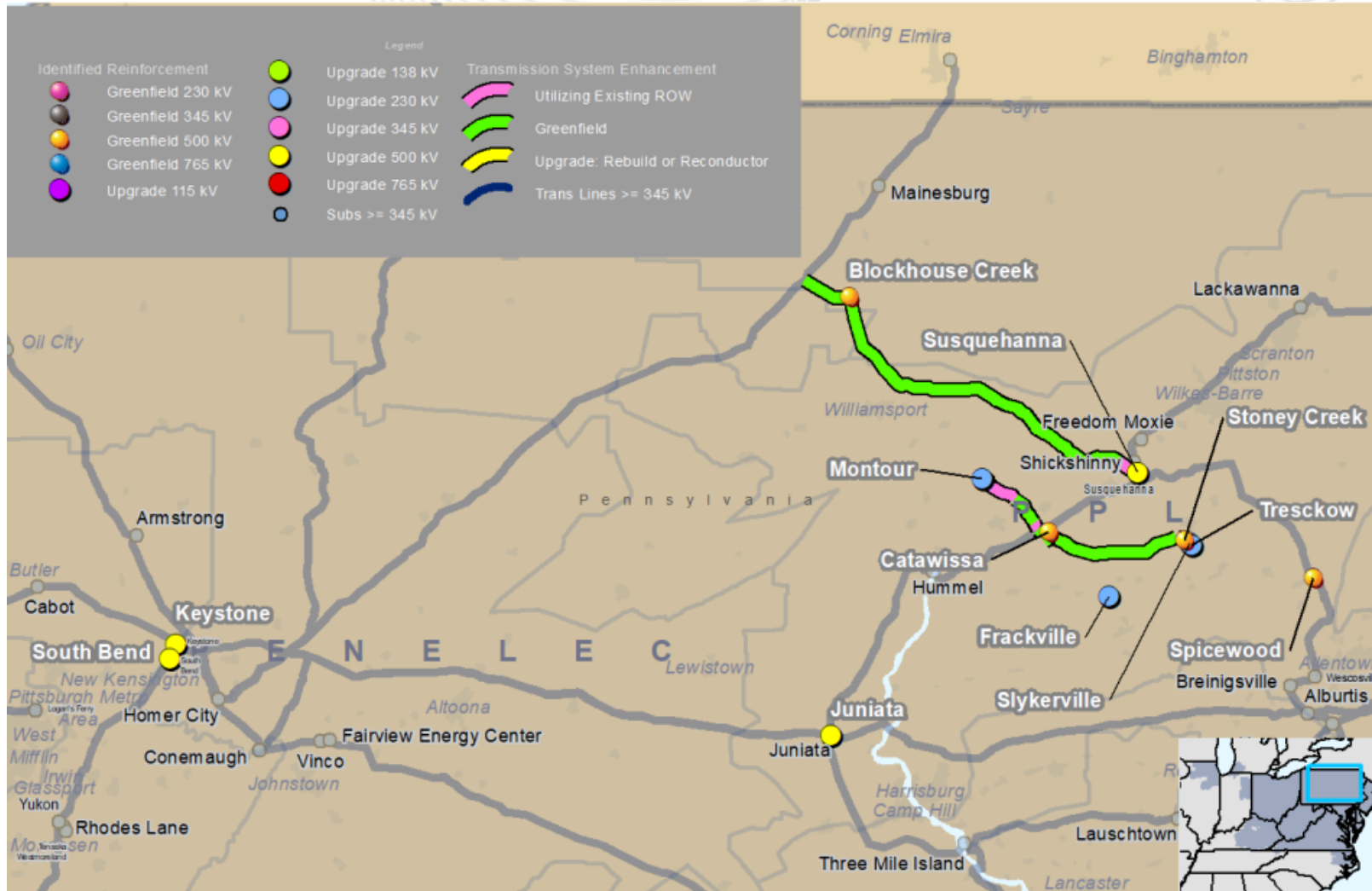
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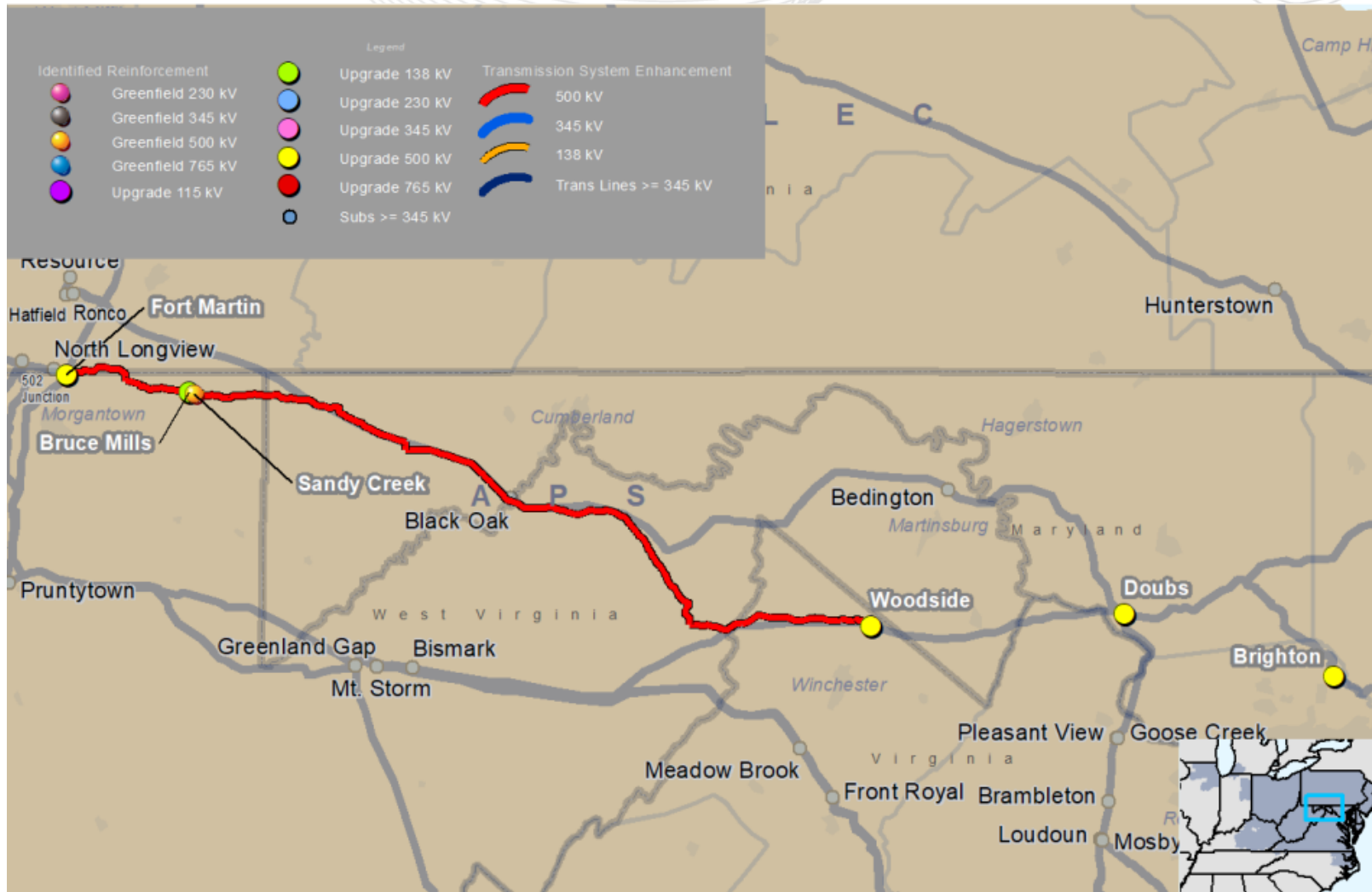


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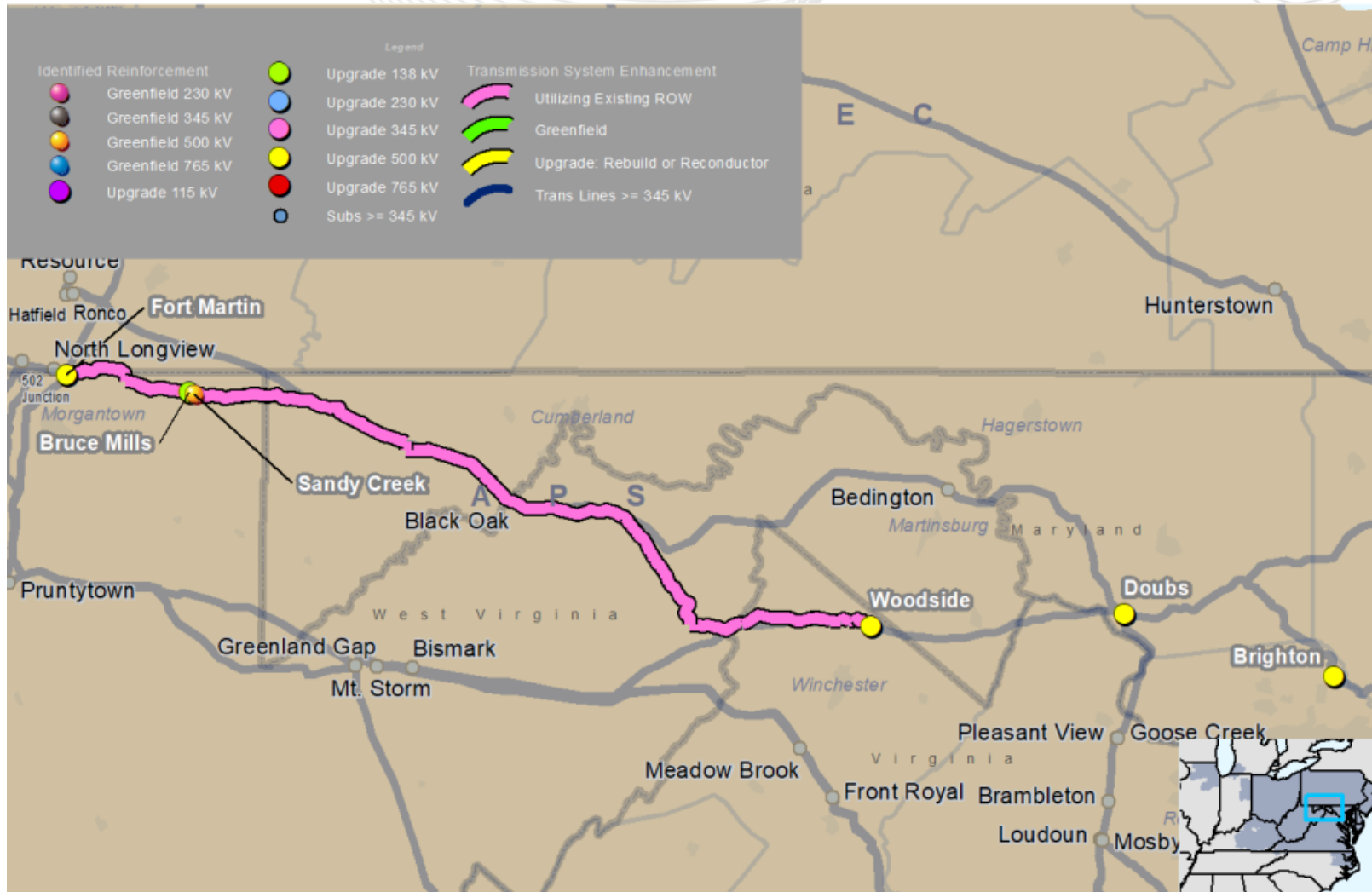
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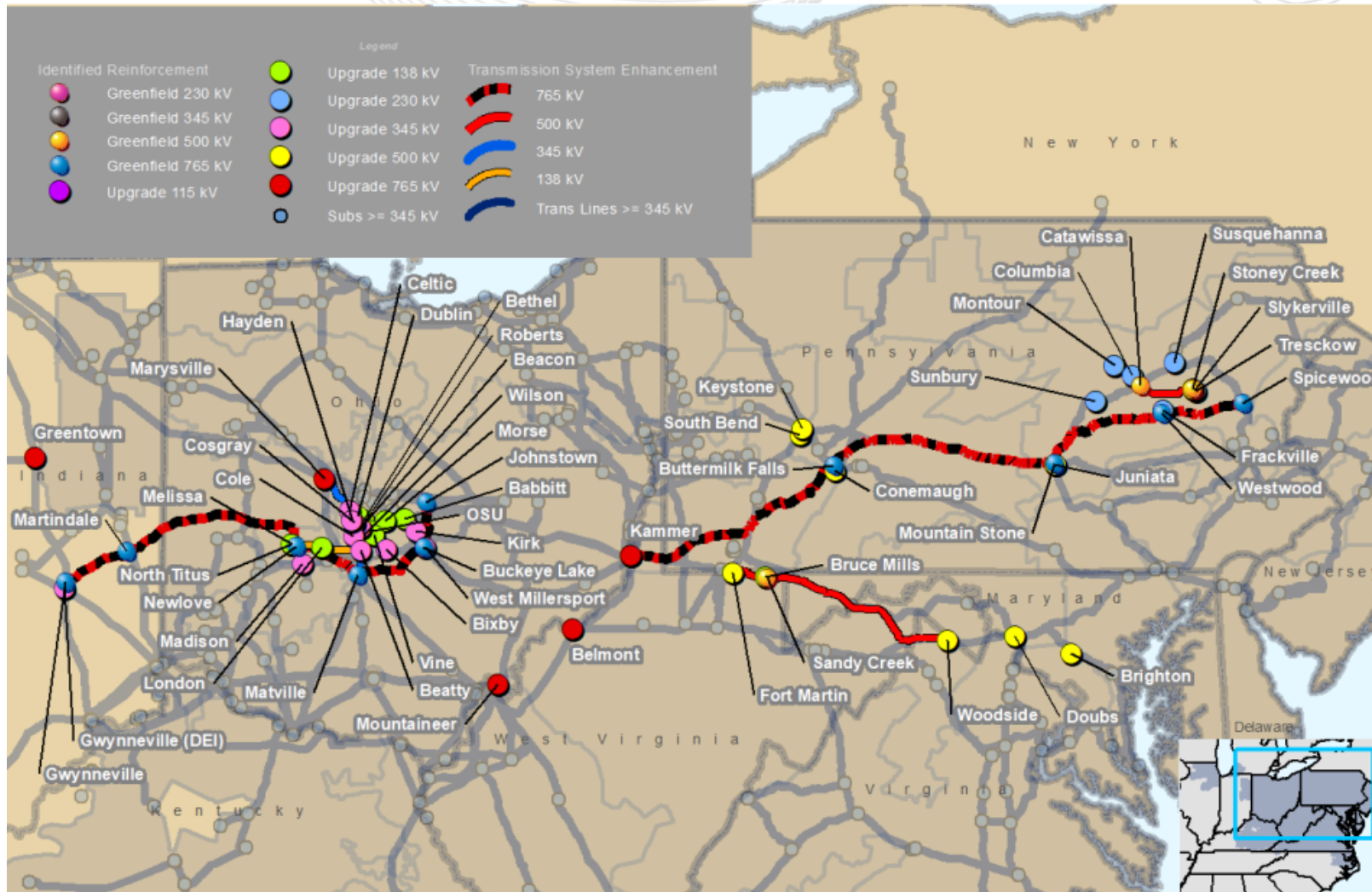


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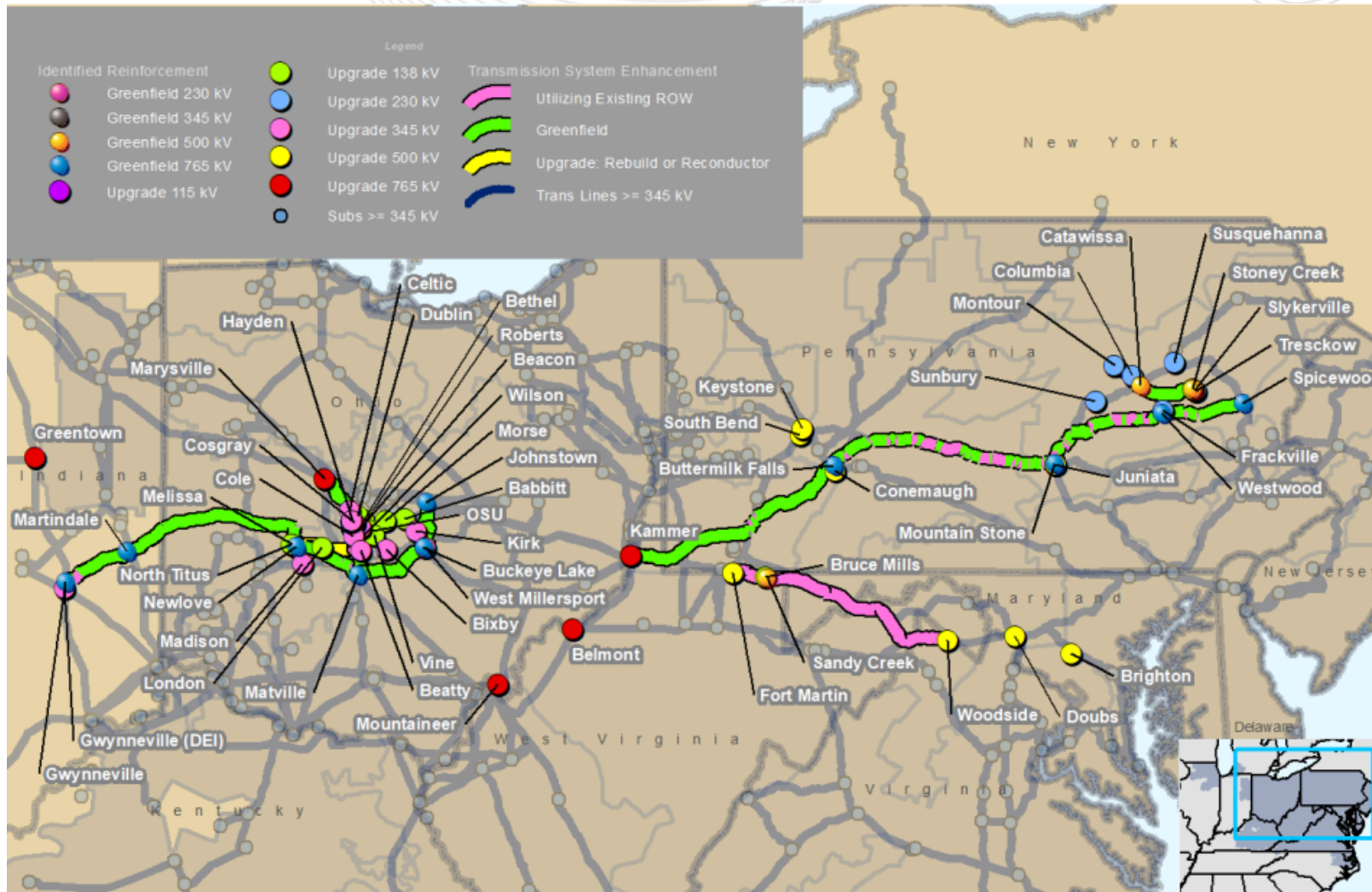




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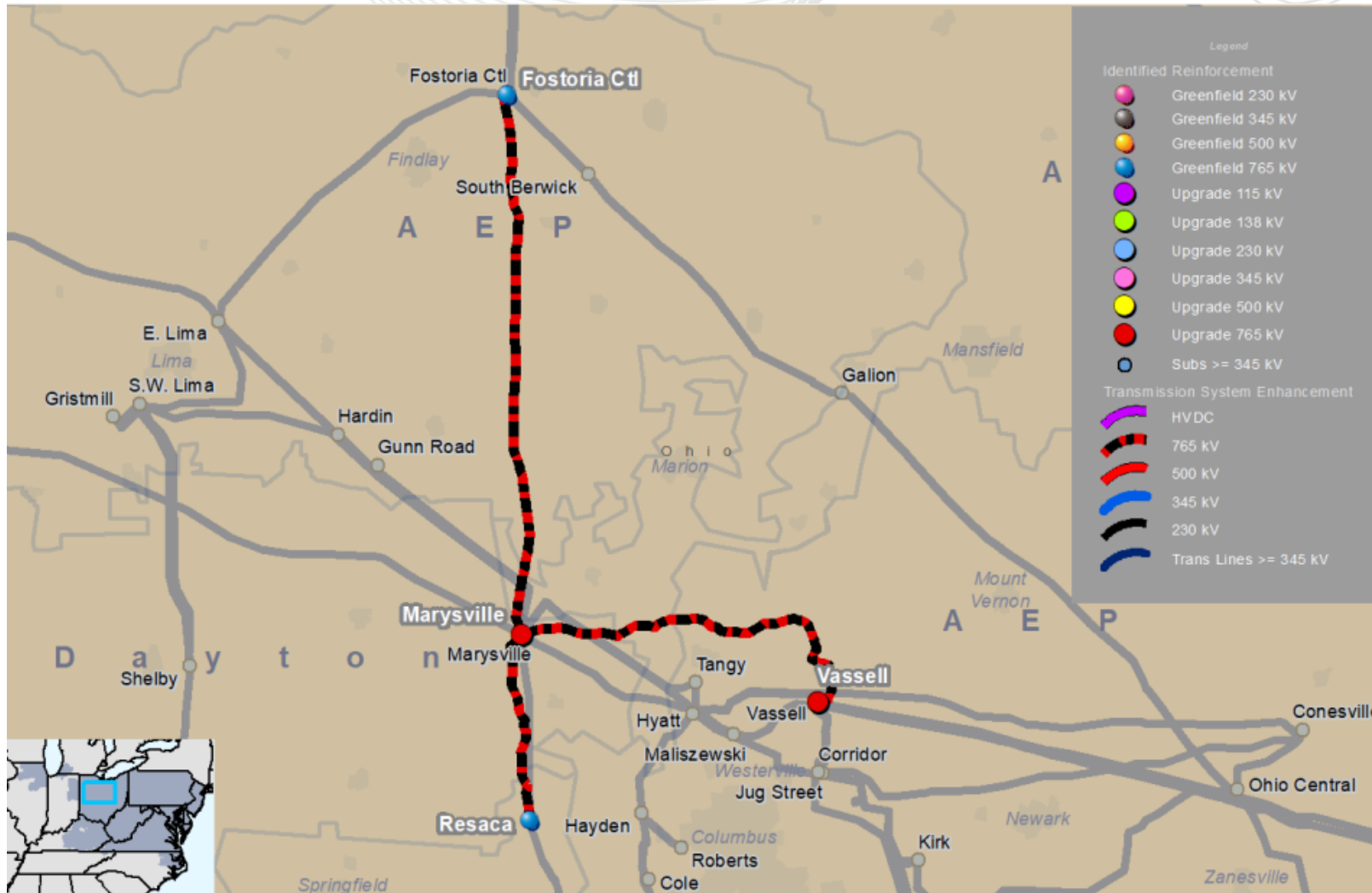
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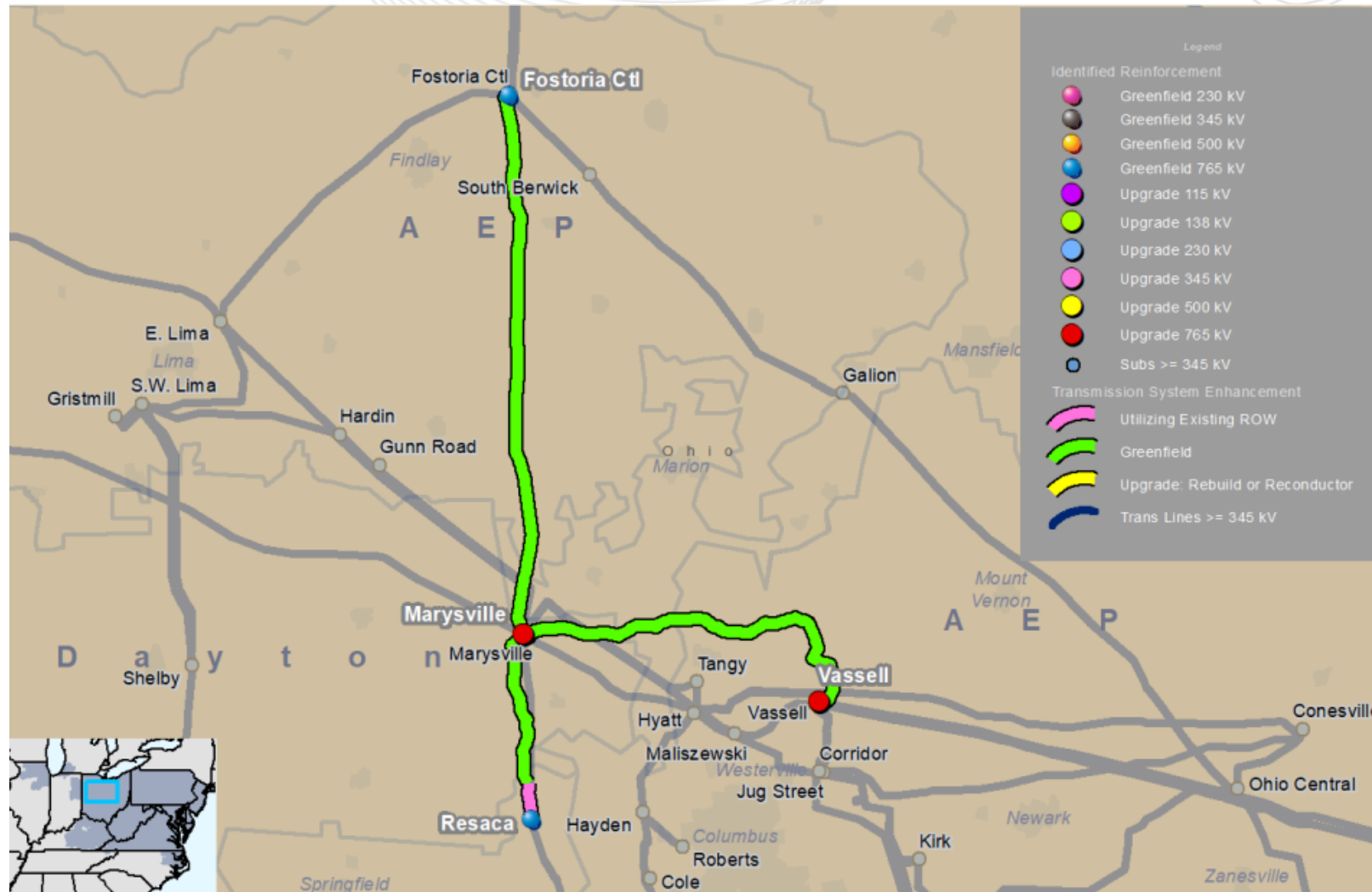
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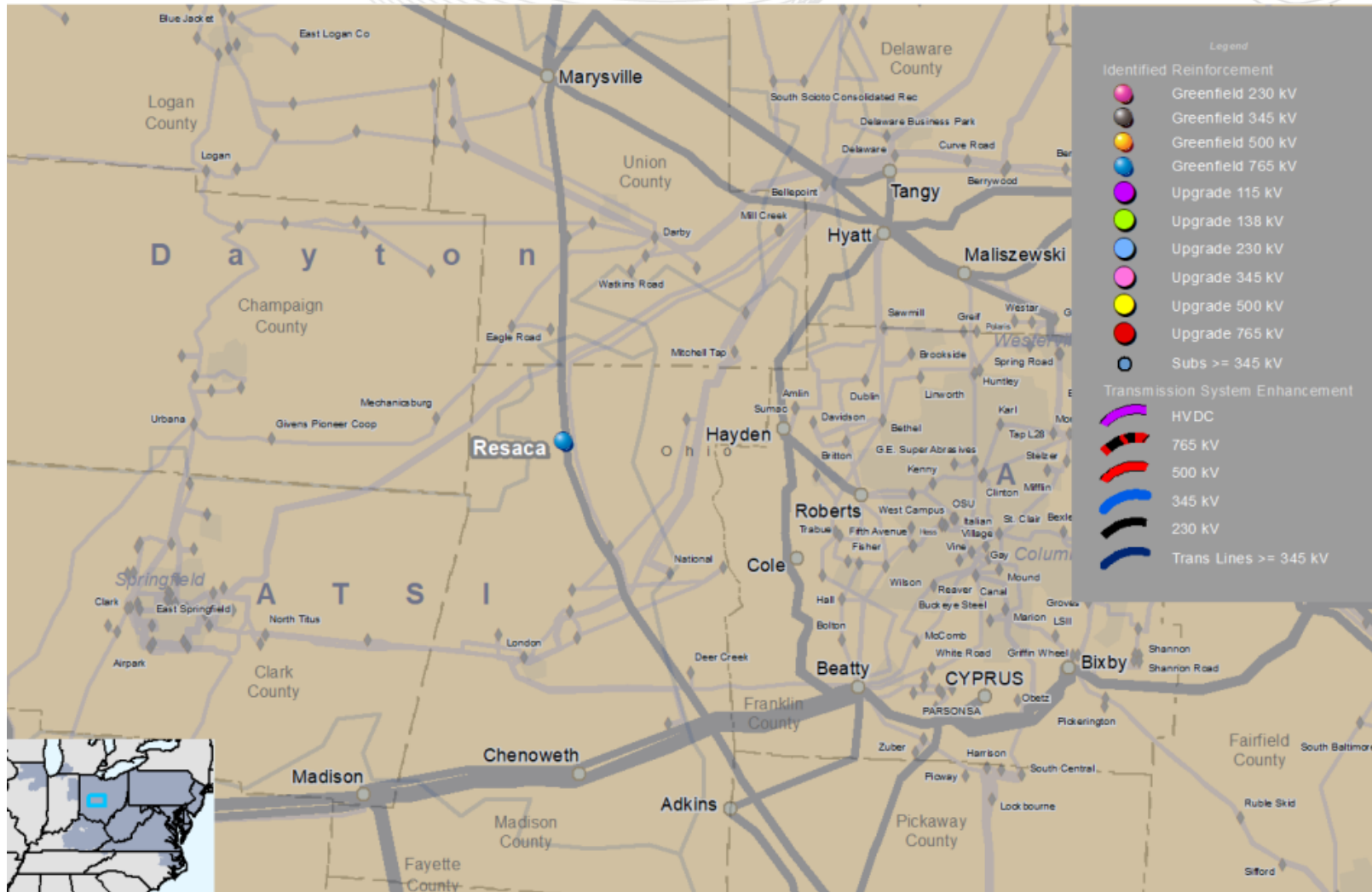


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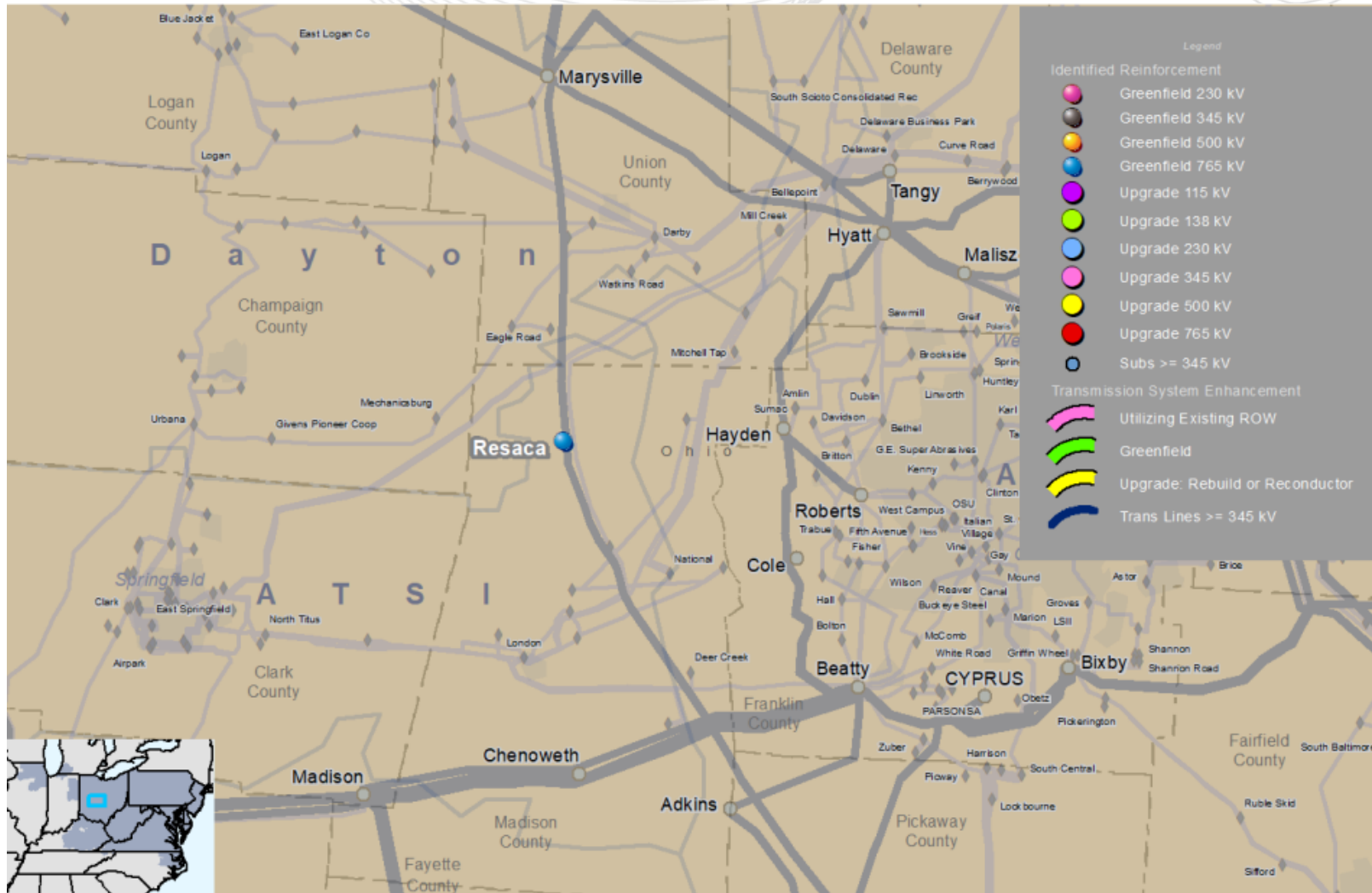




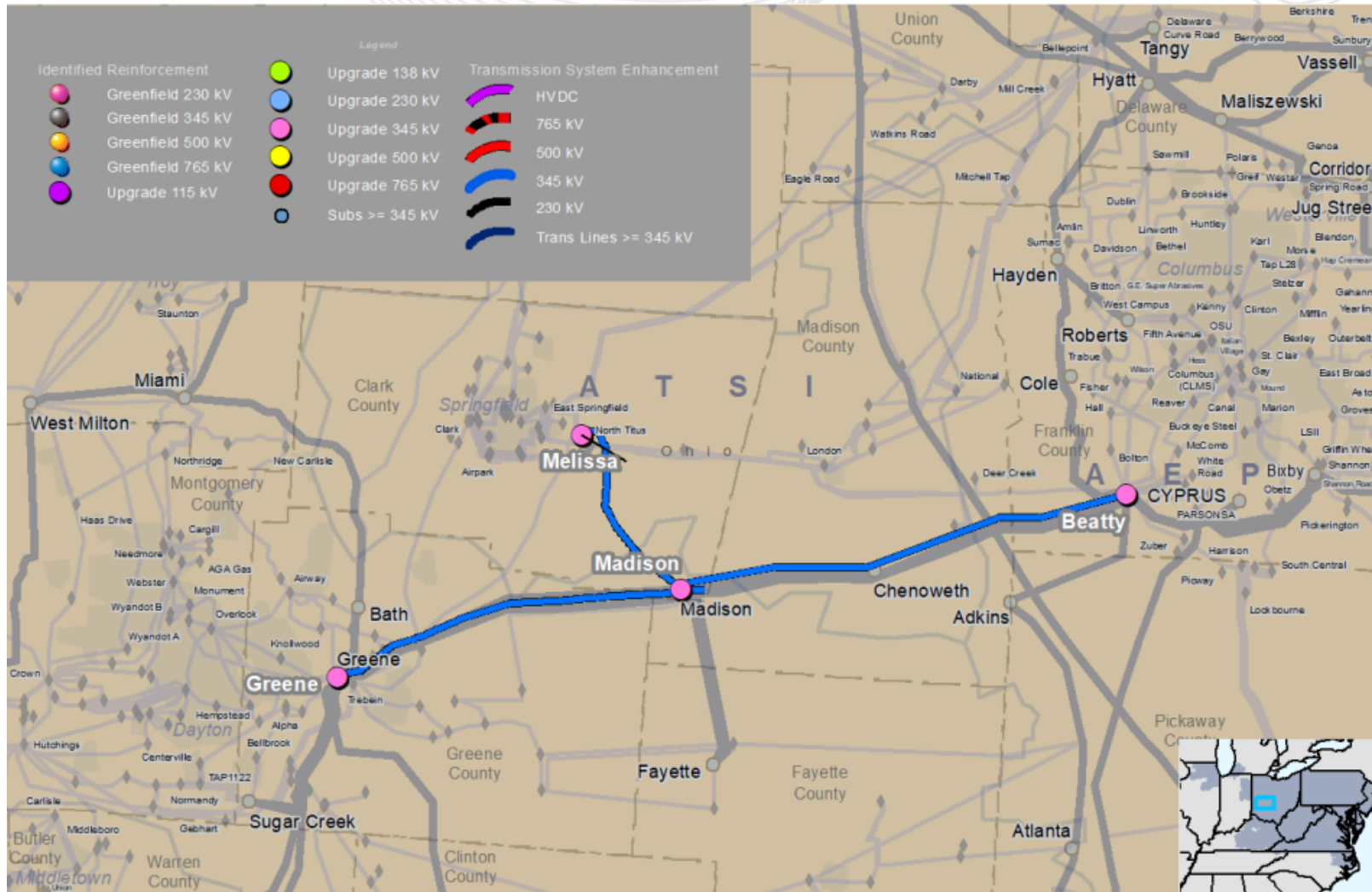
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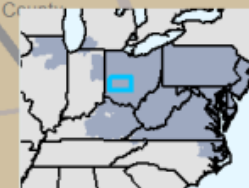


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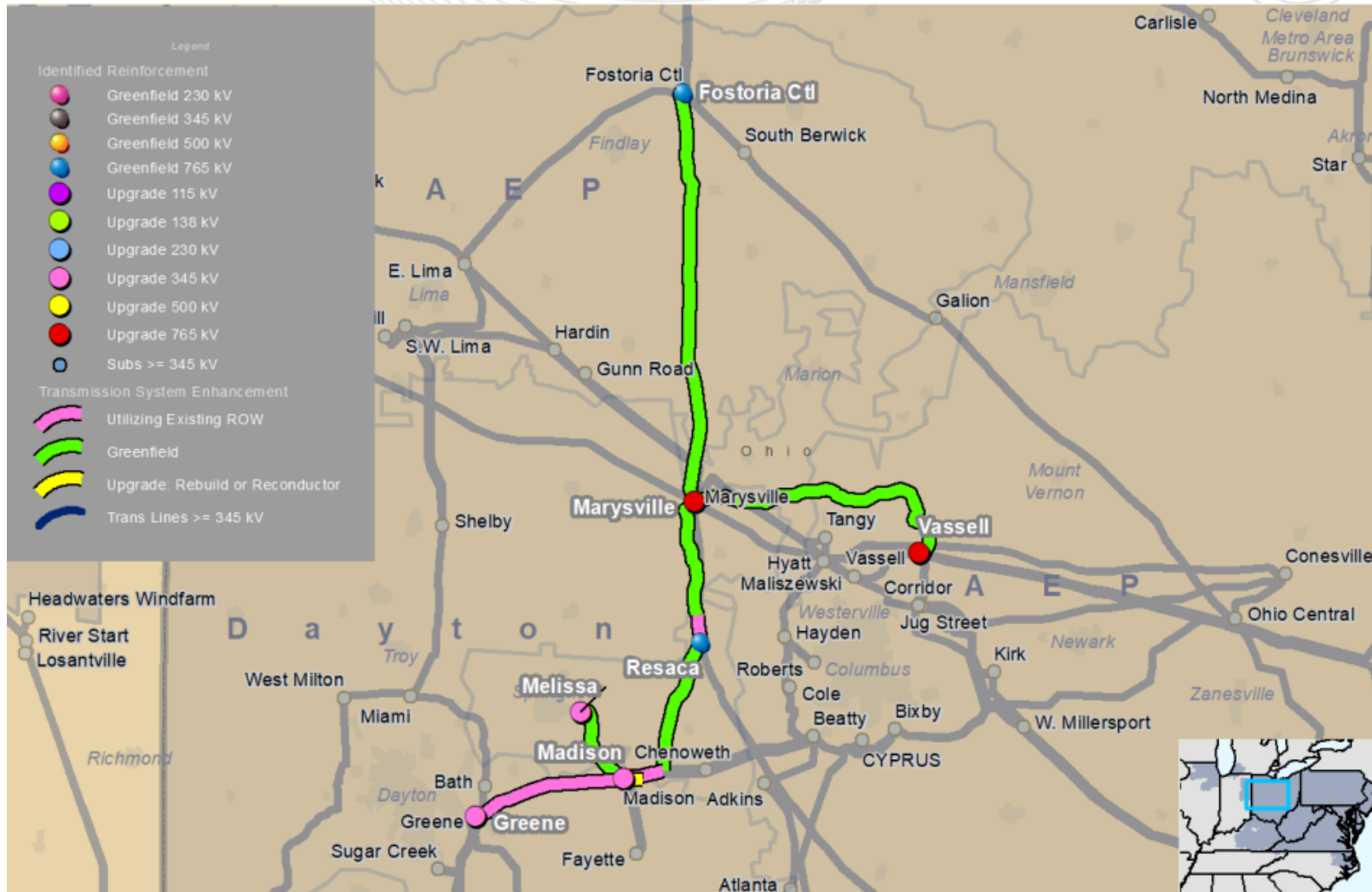
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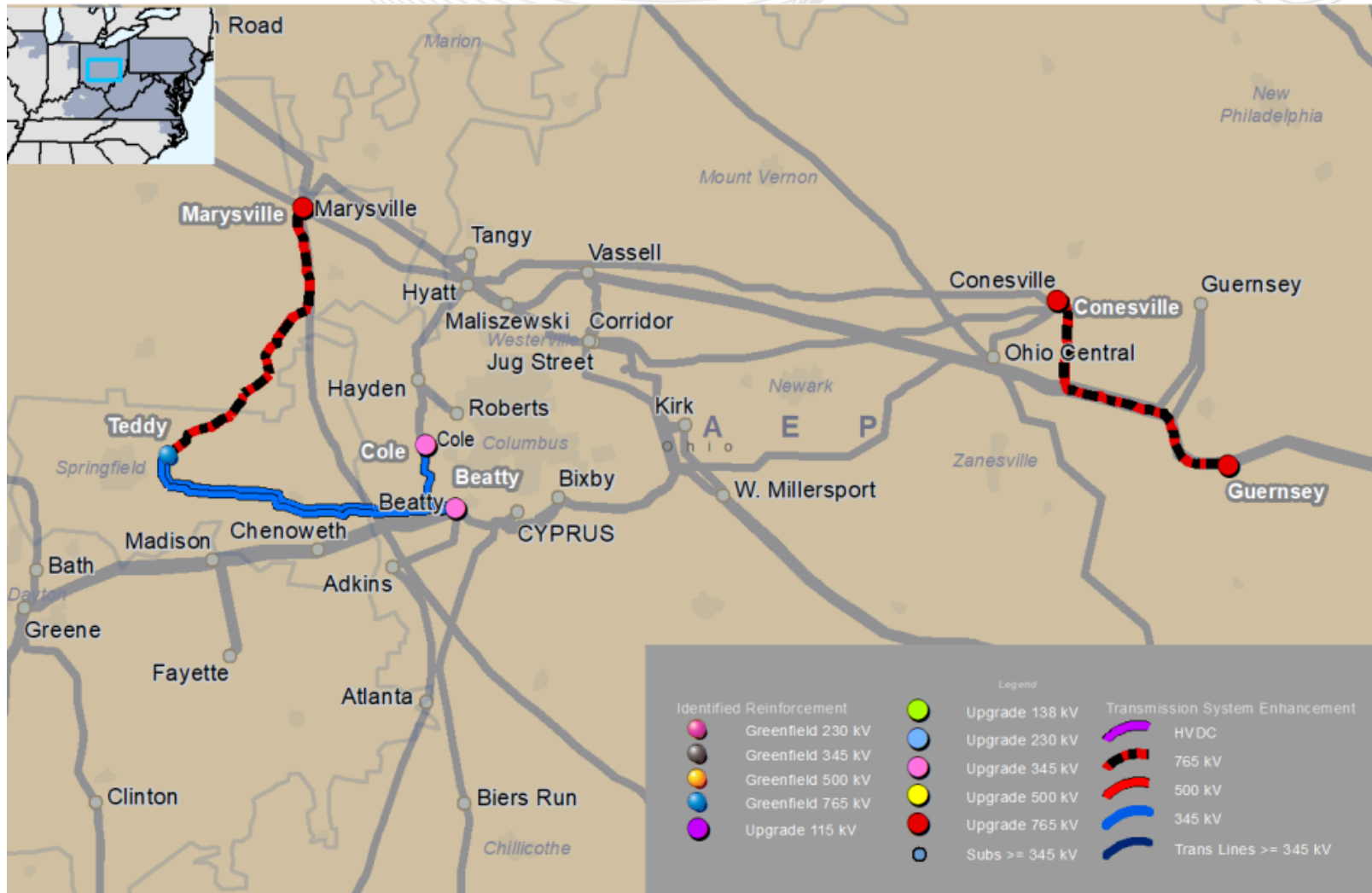
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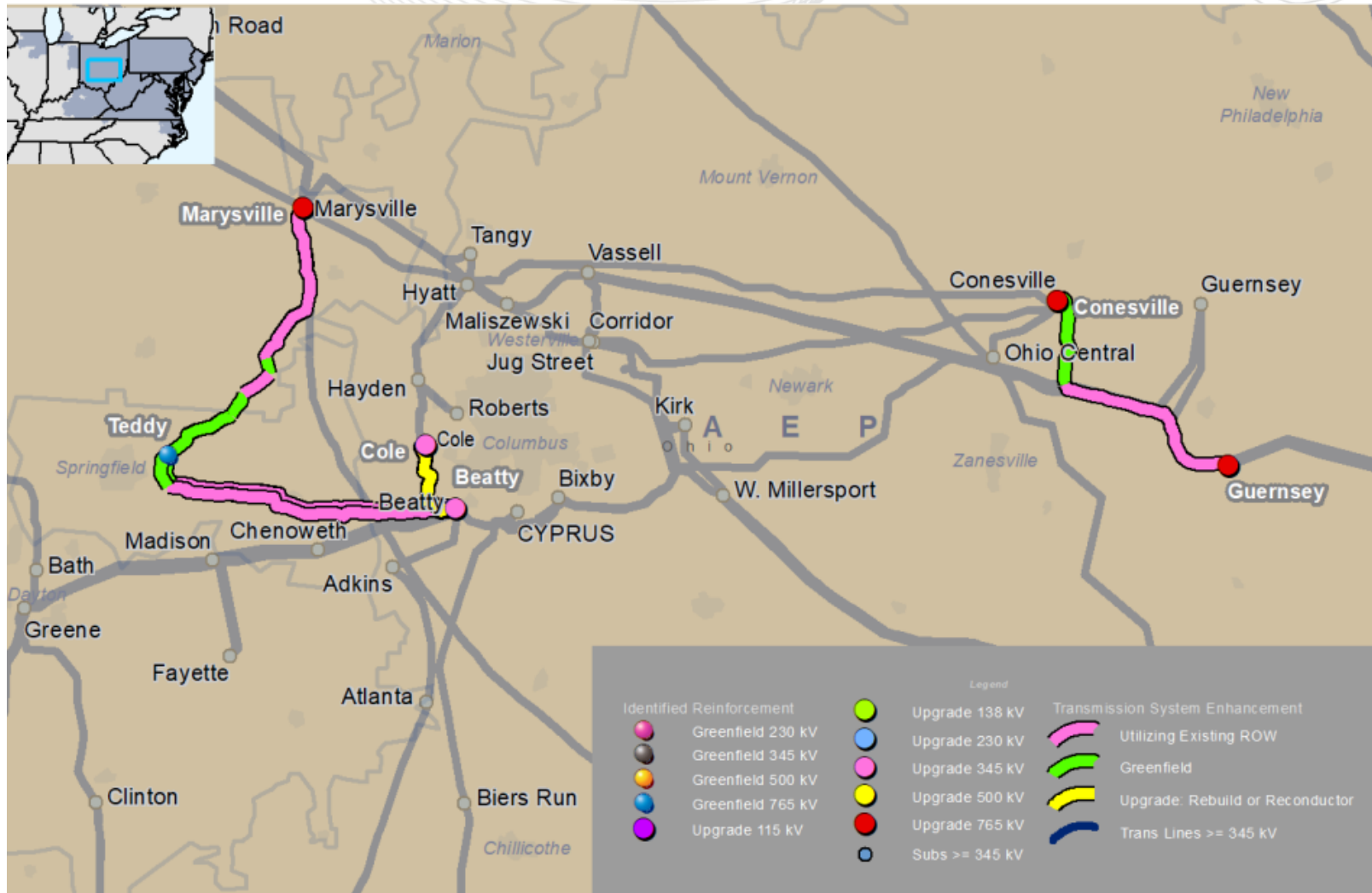
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# TRANSRC (Transource)

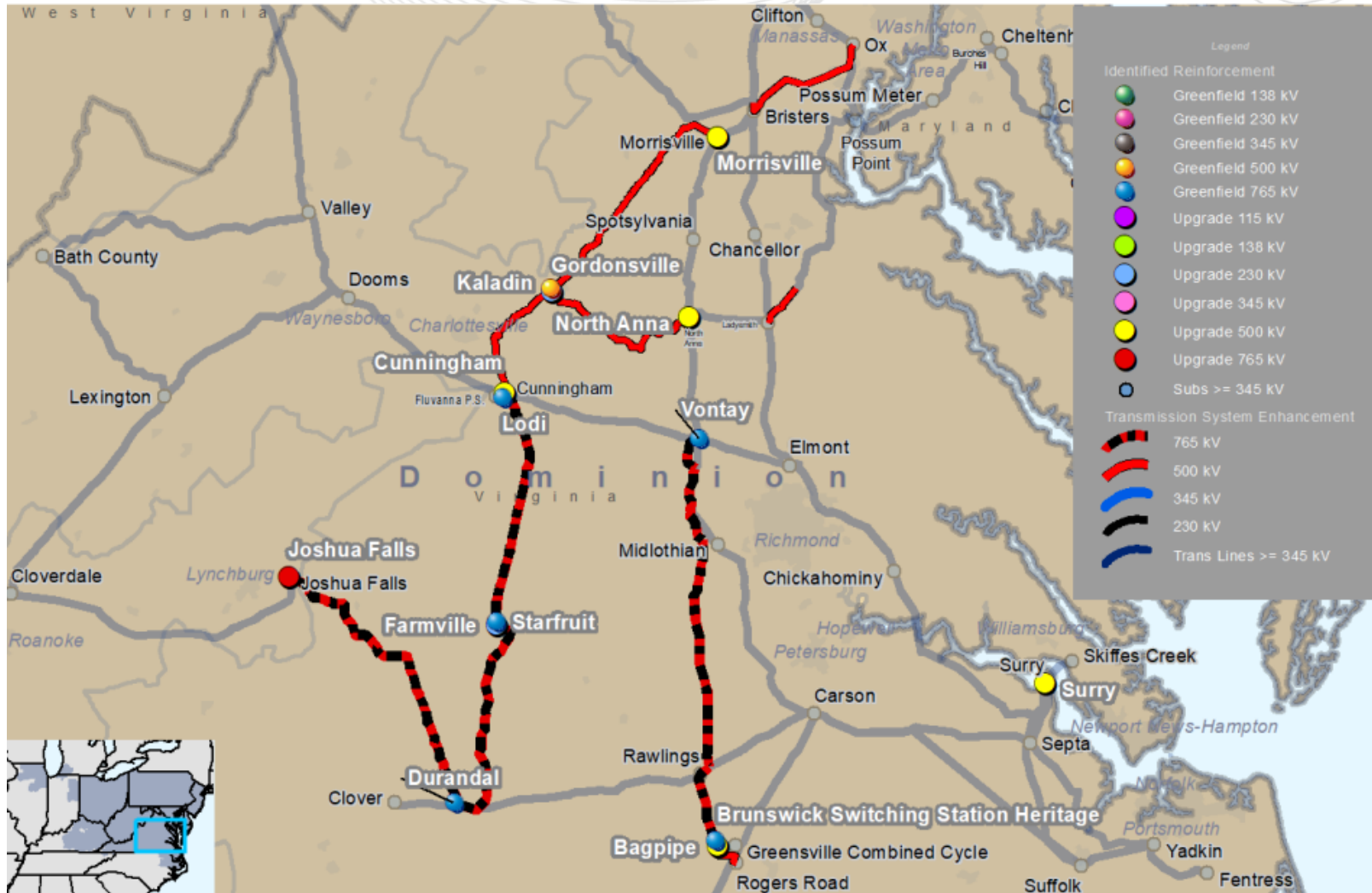




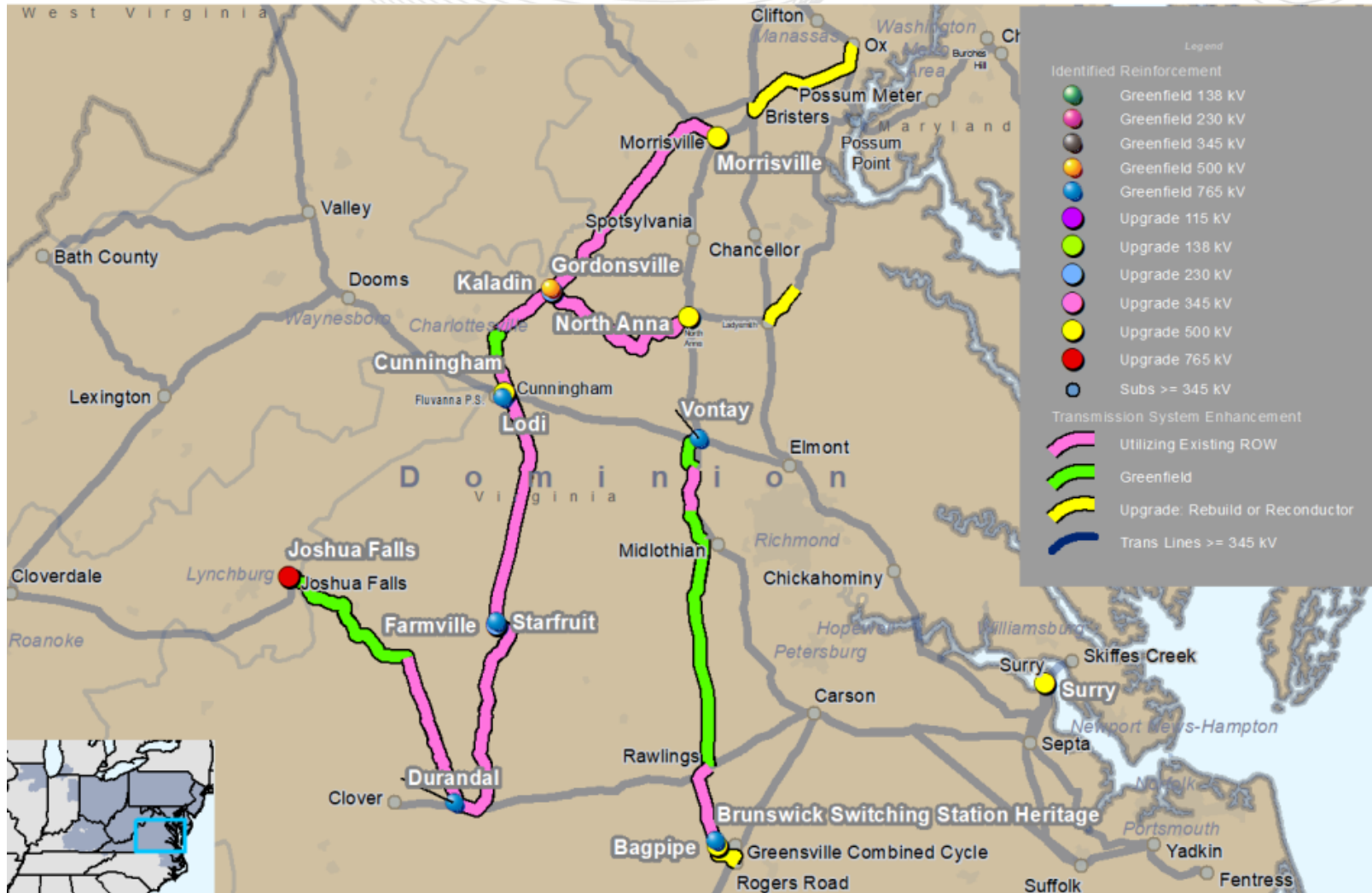
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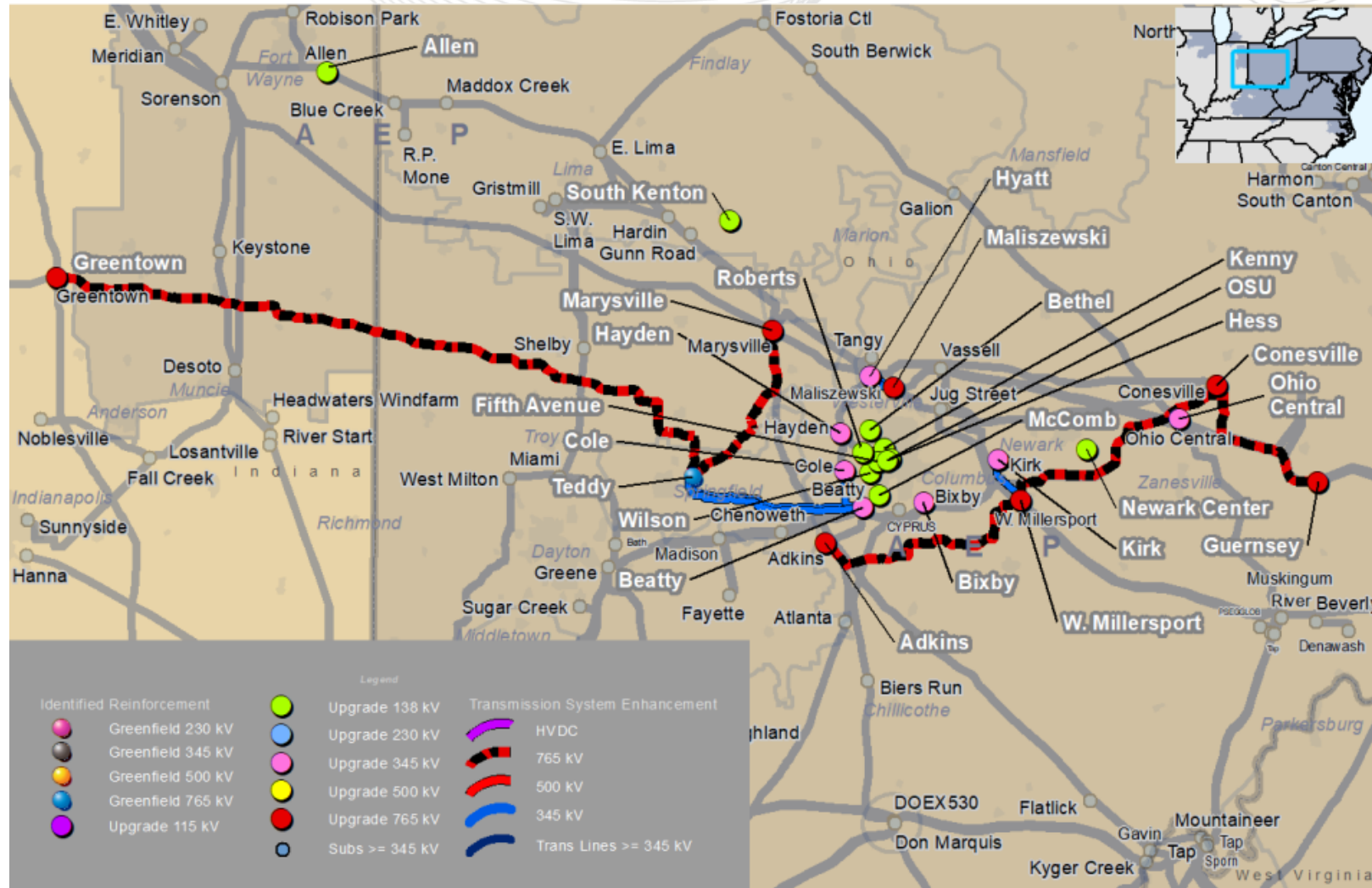


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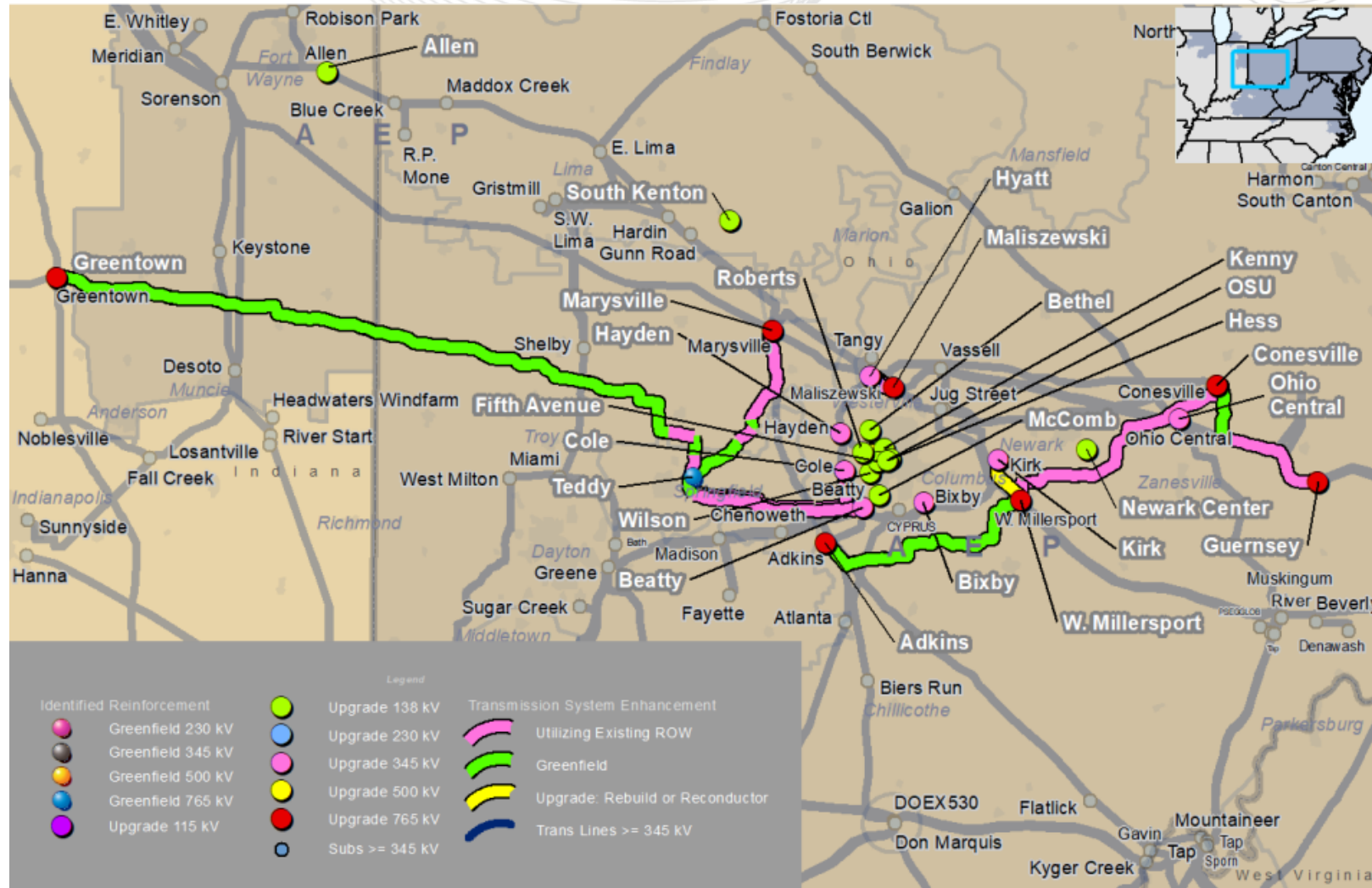
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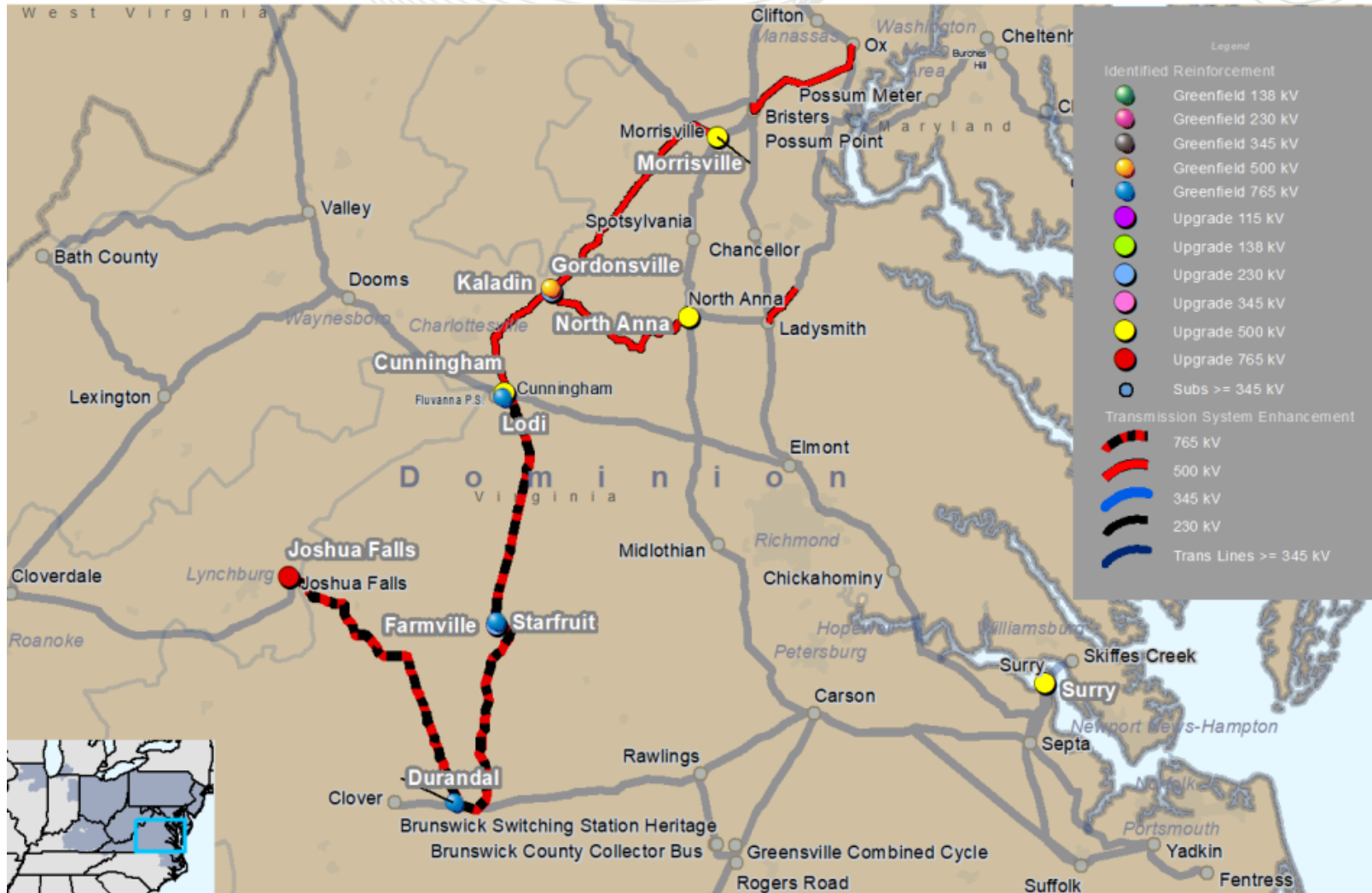


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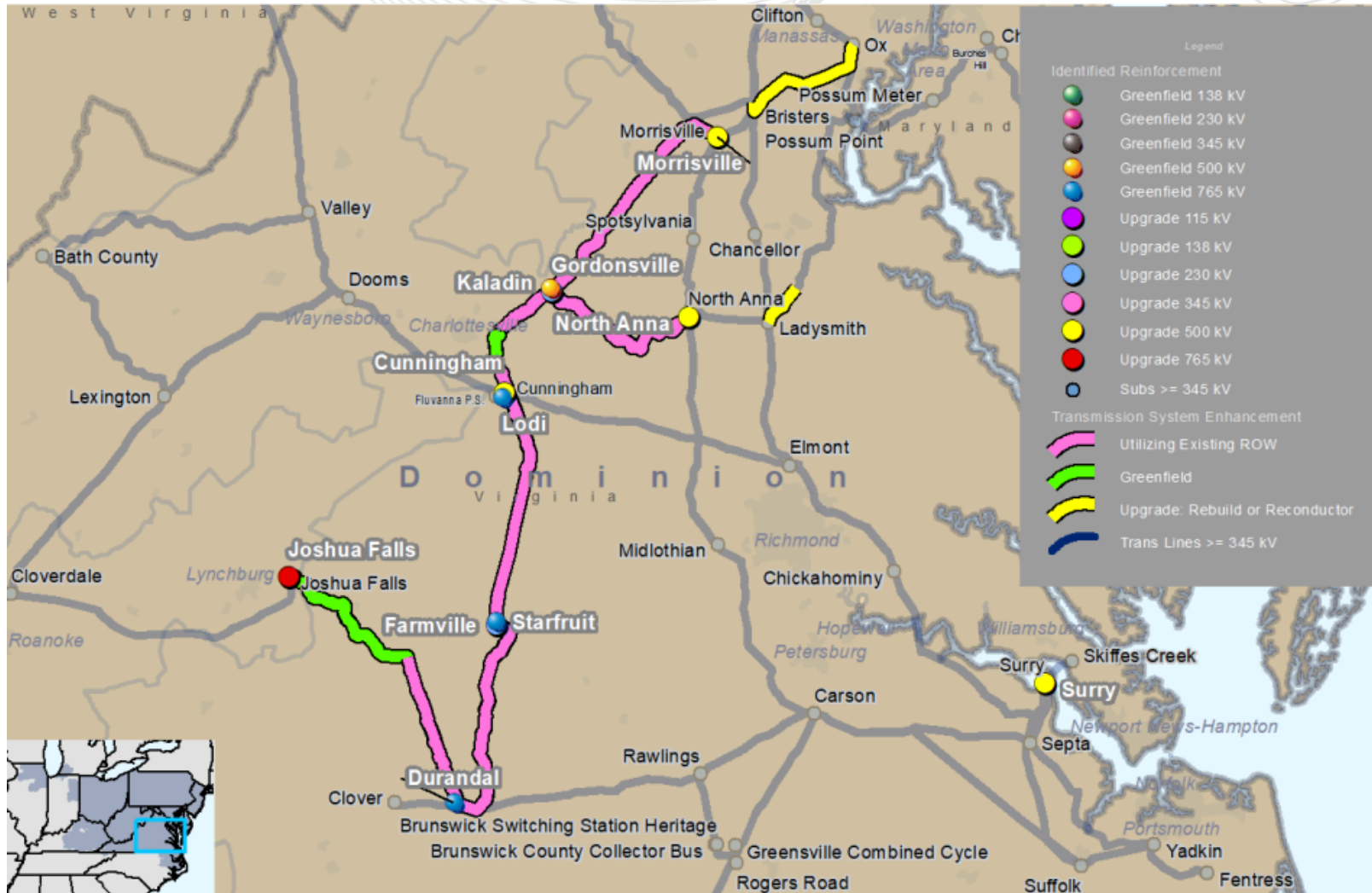




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# TRAIL (FirstEnergy)



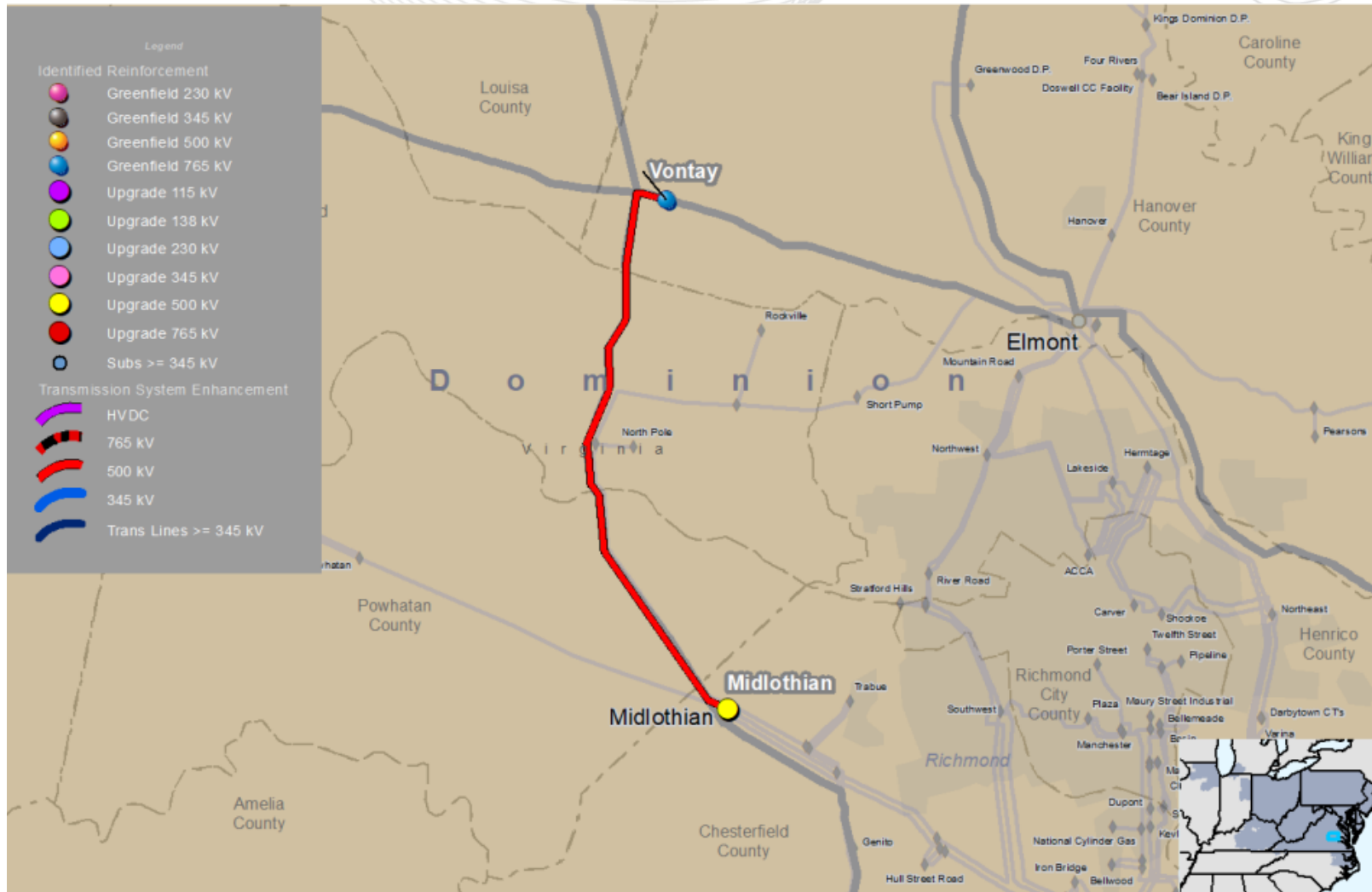


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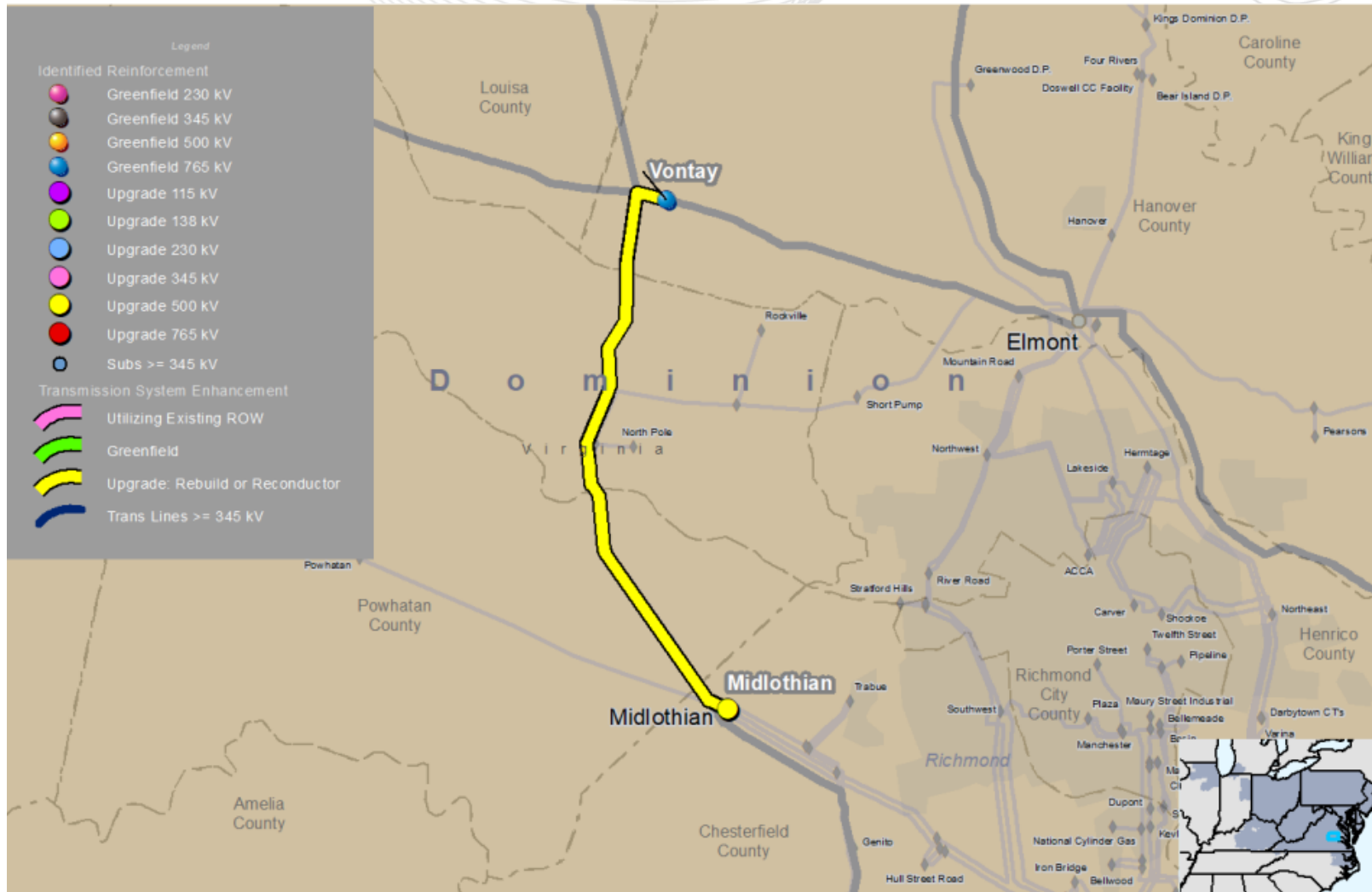
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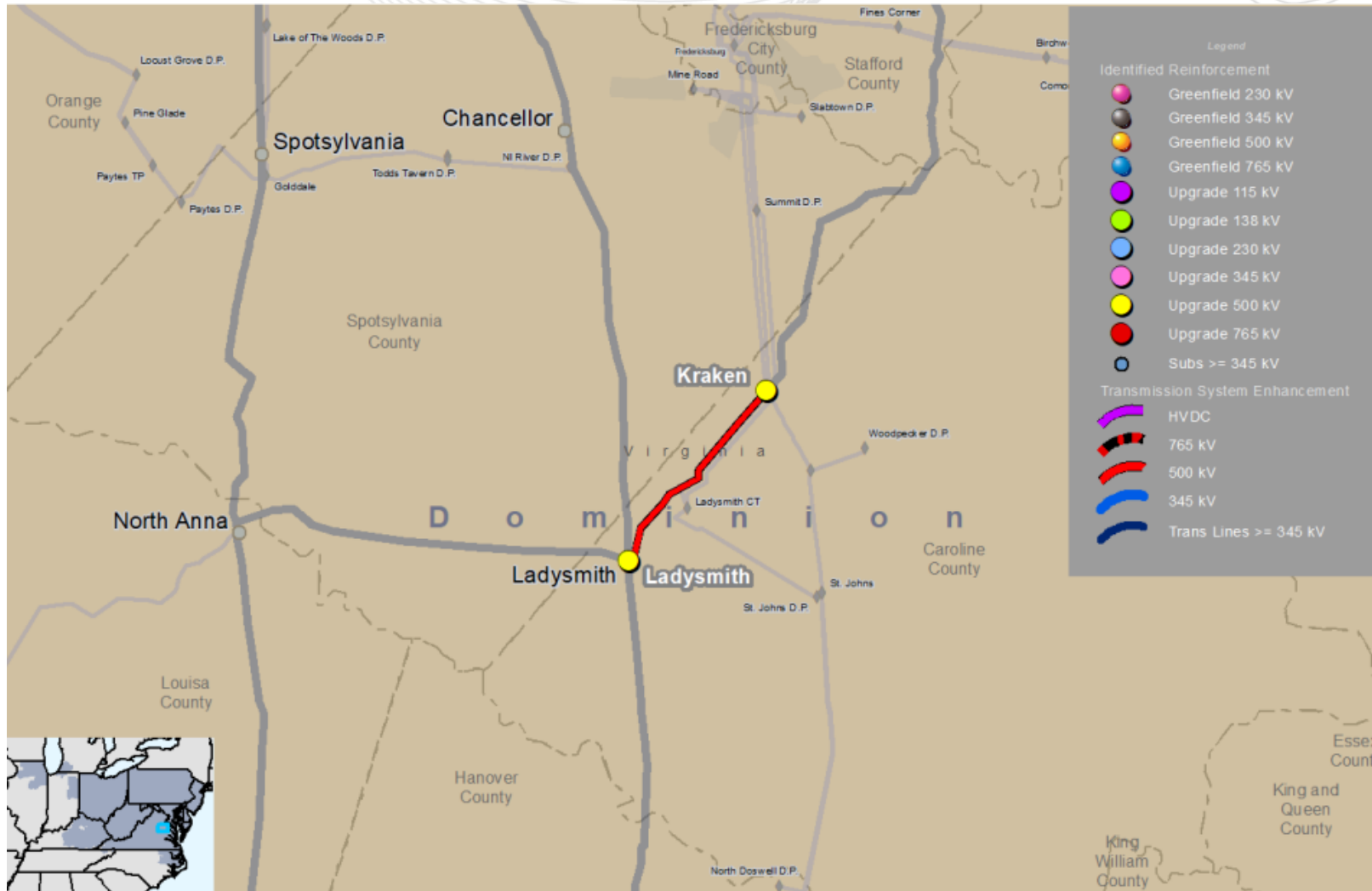


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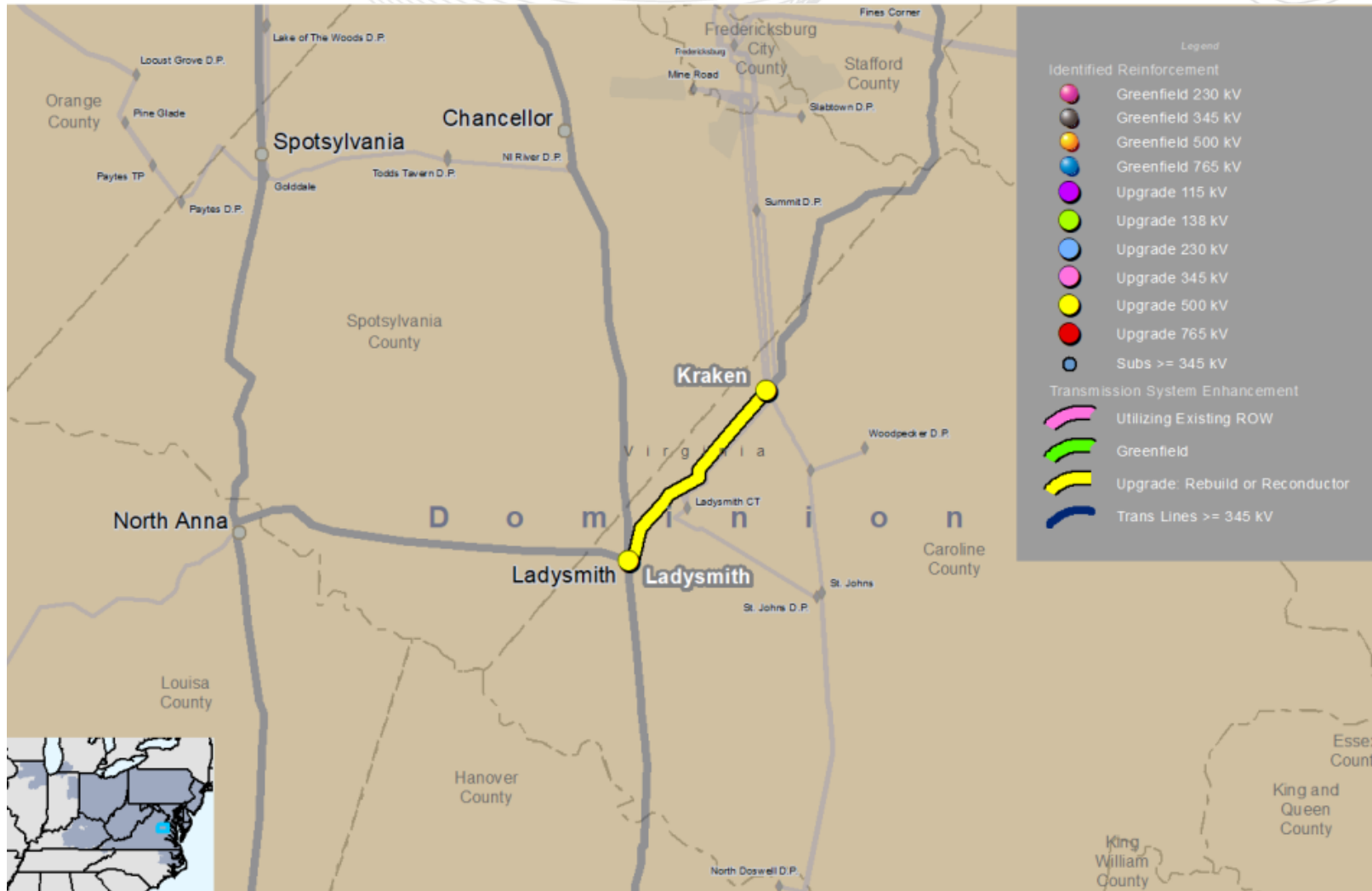




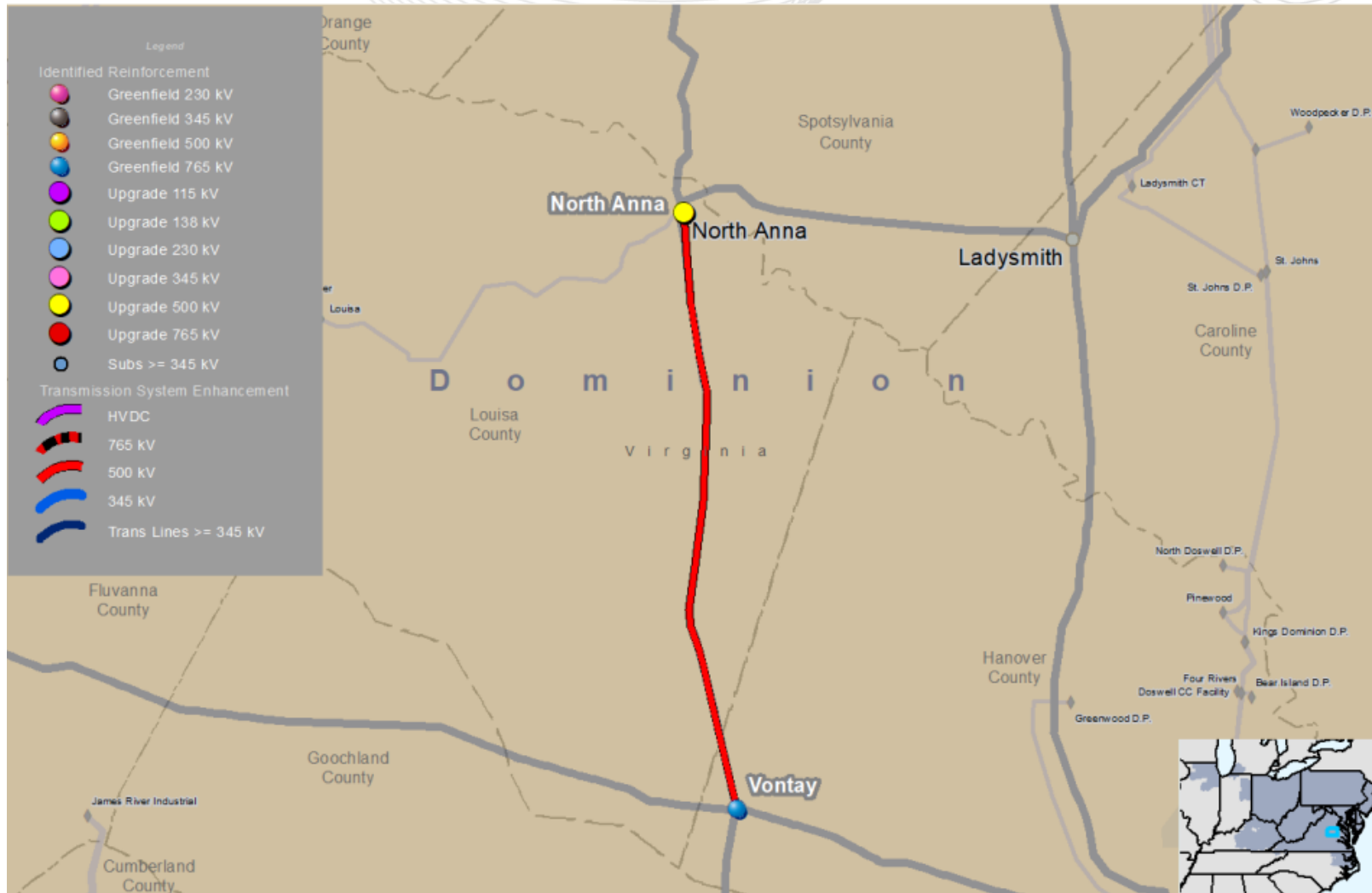
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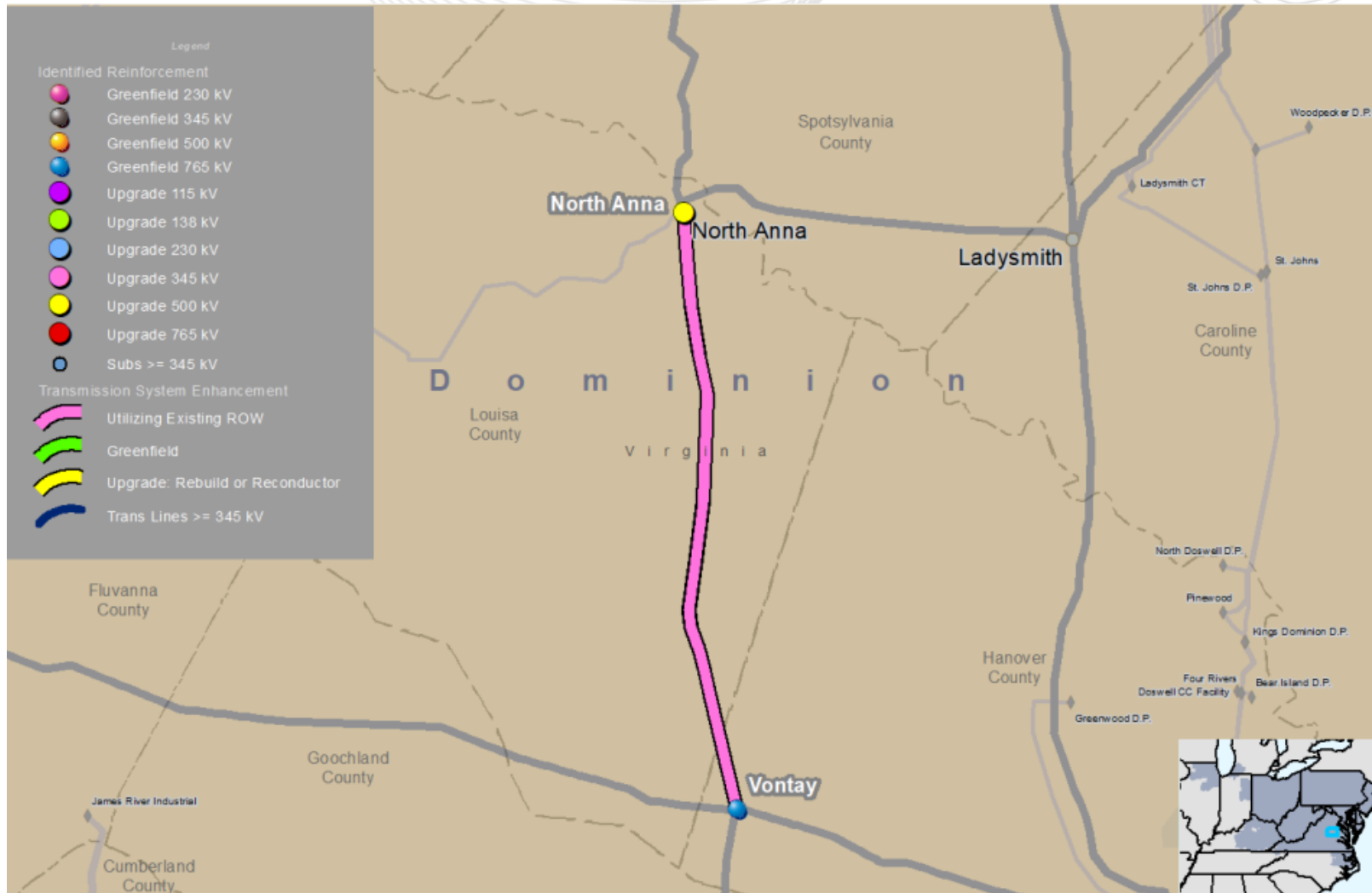


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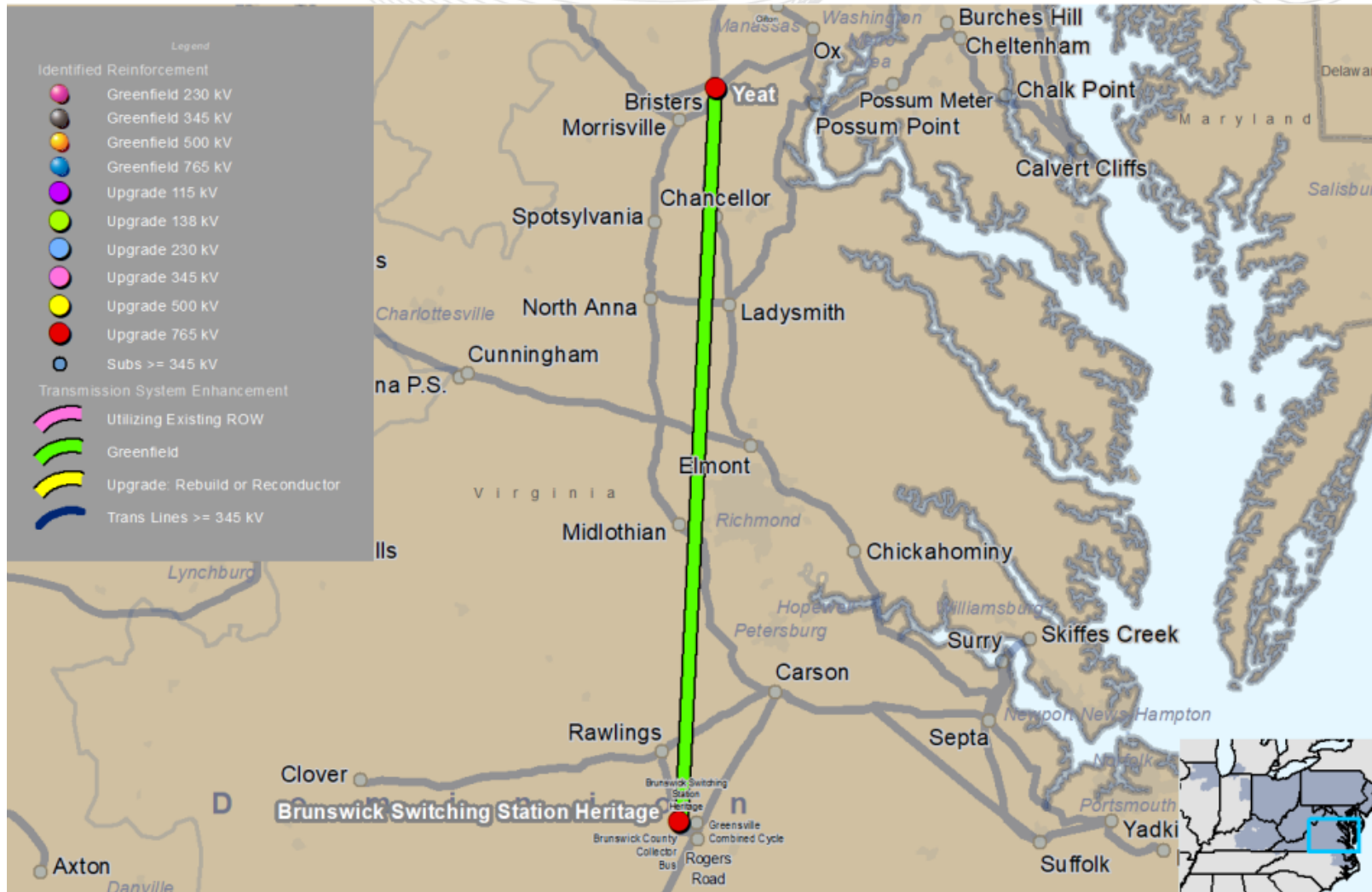




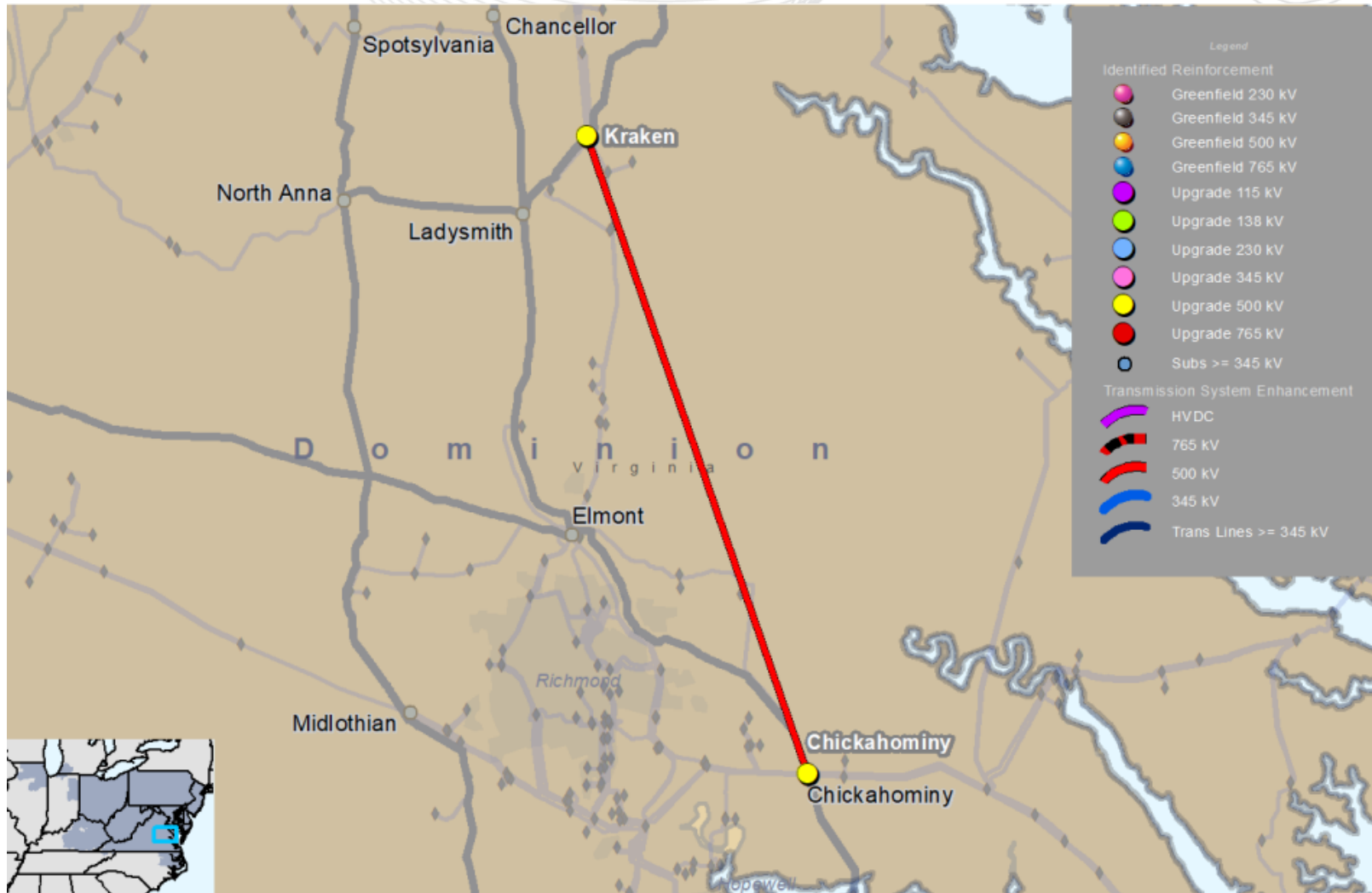
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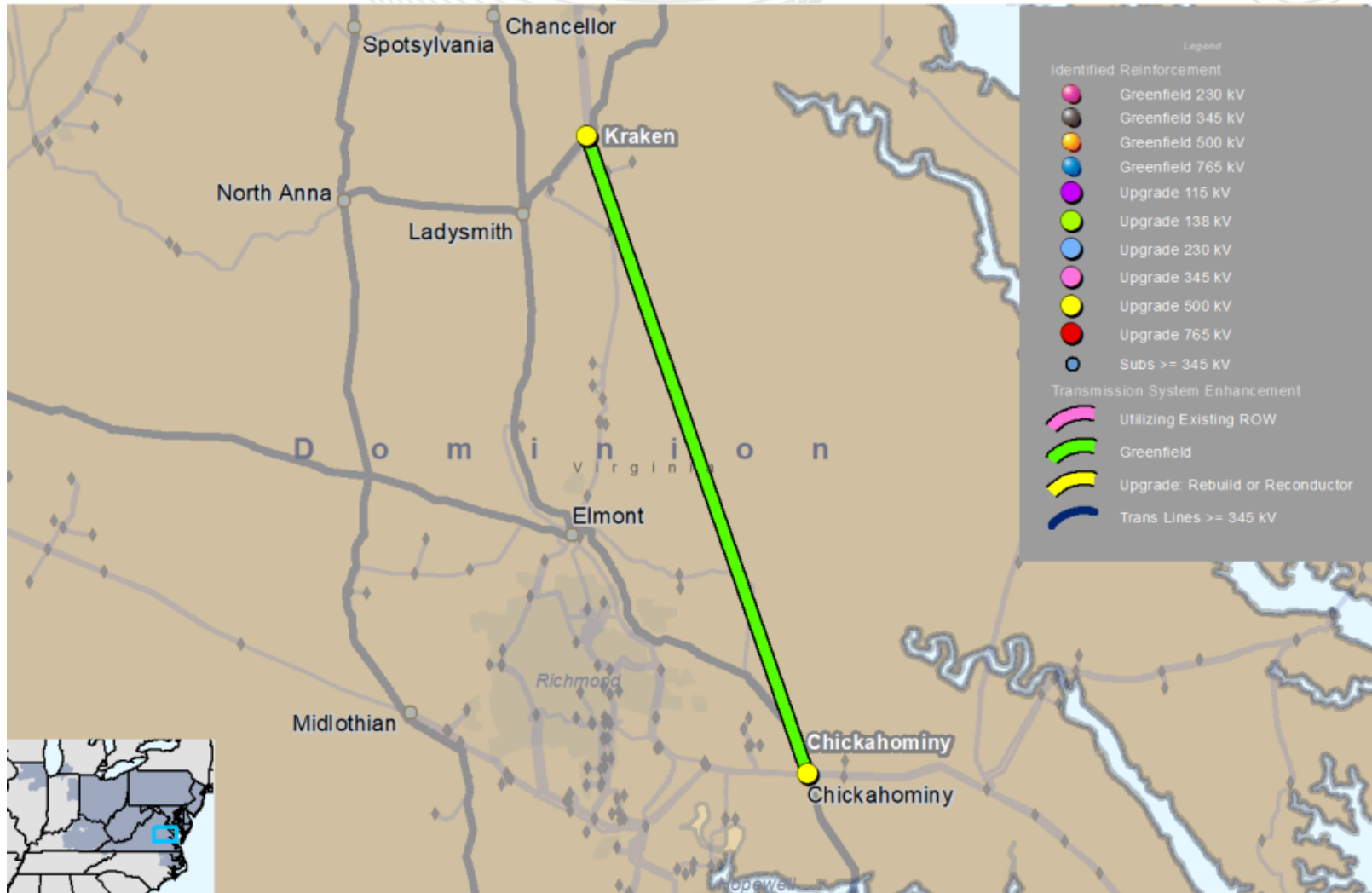


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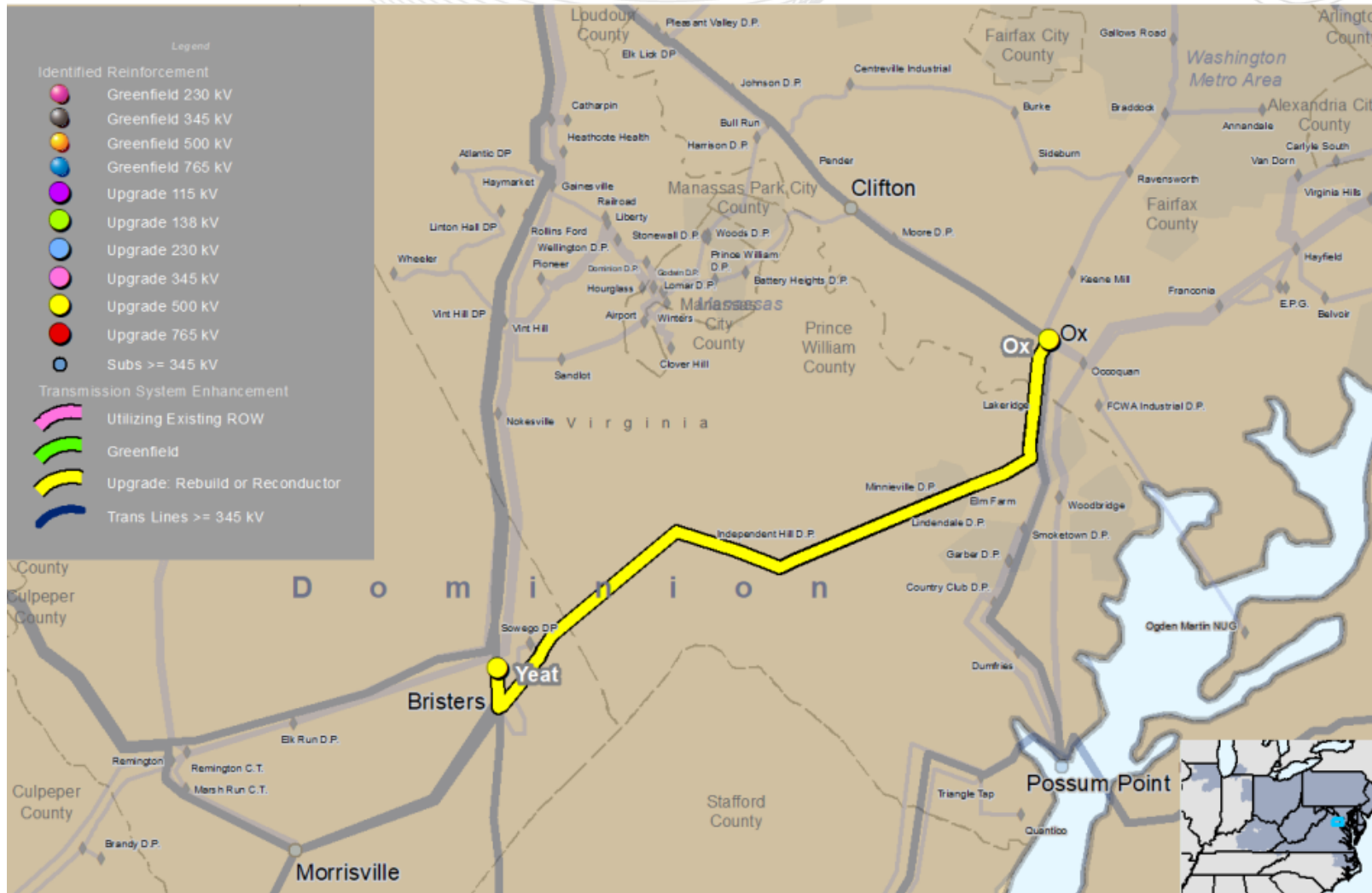




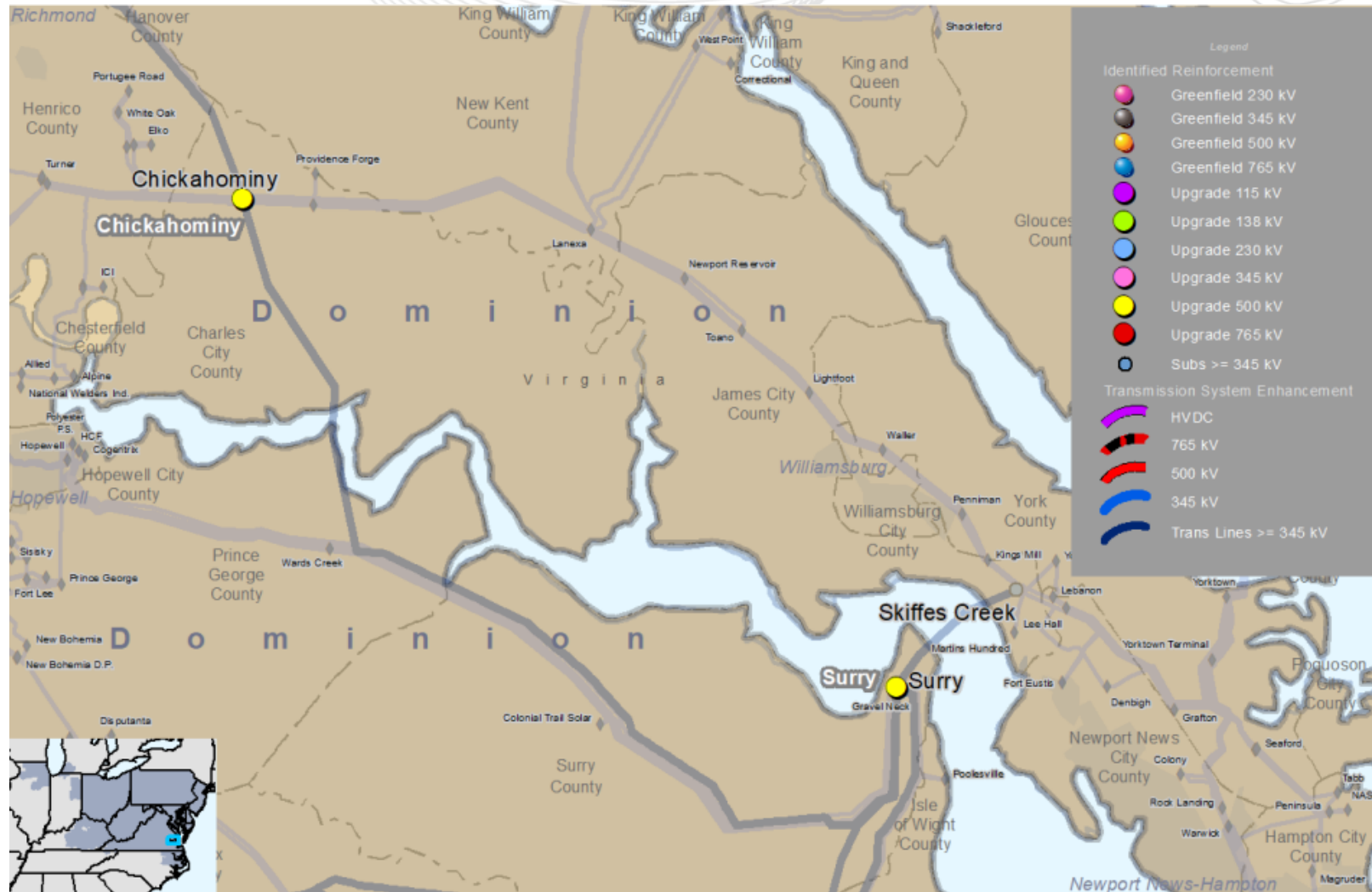
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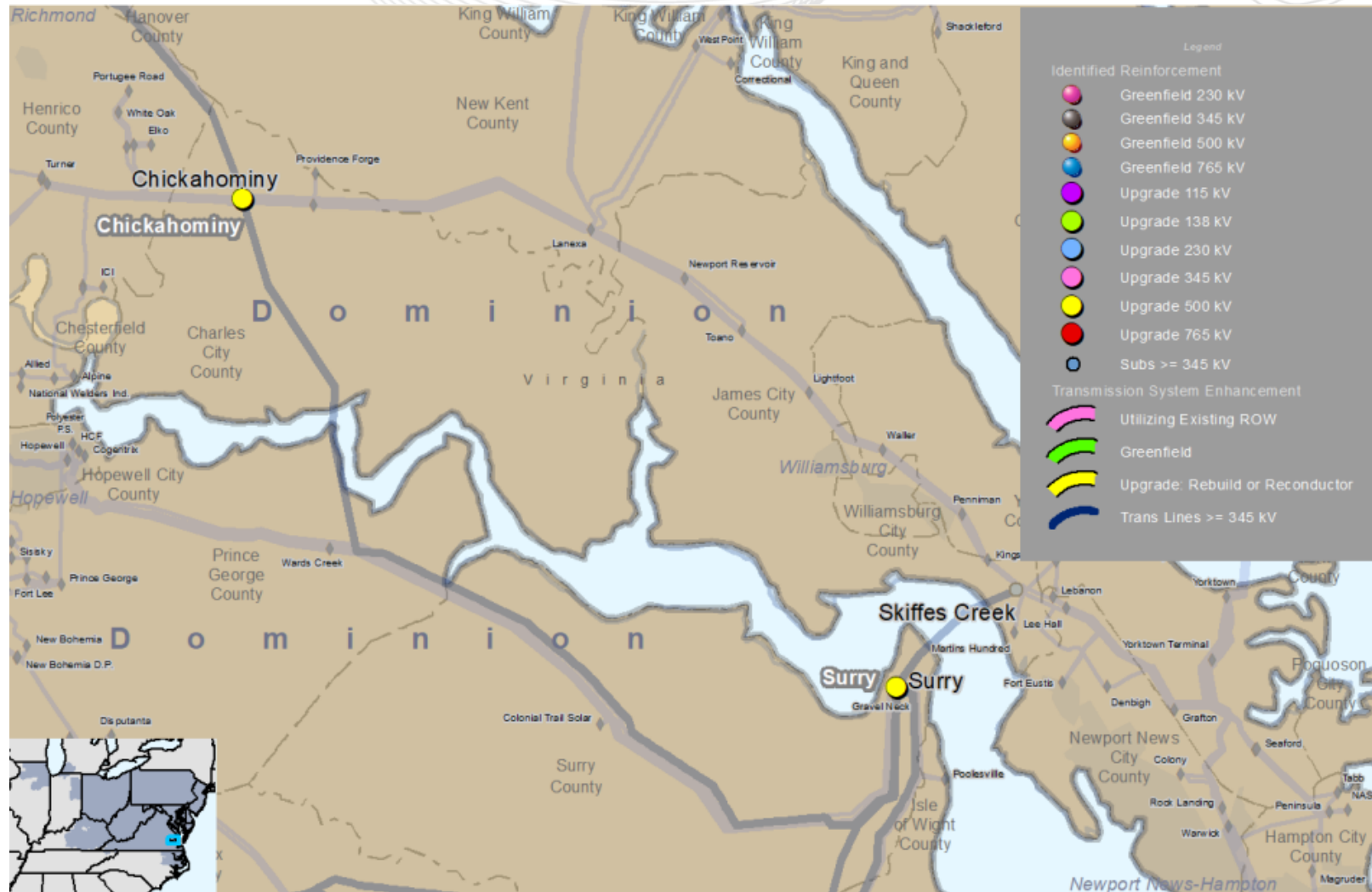


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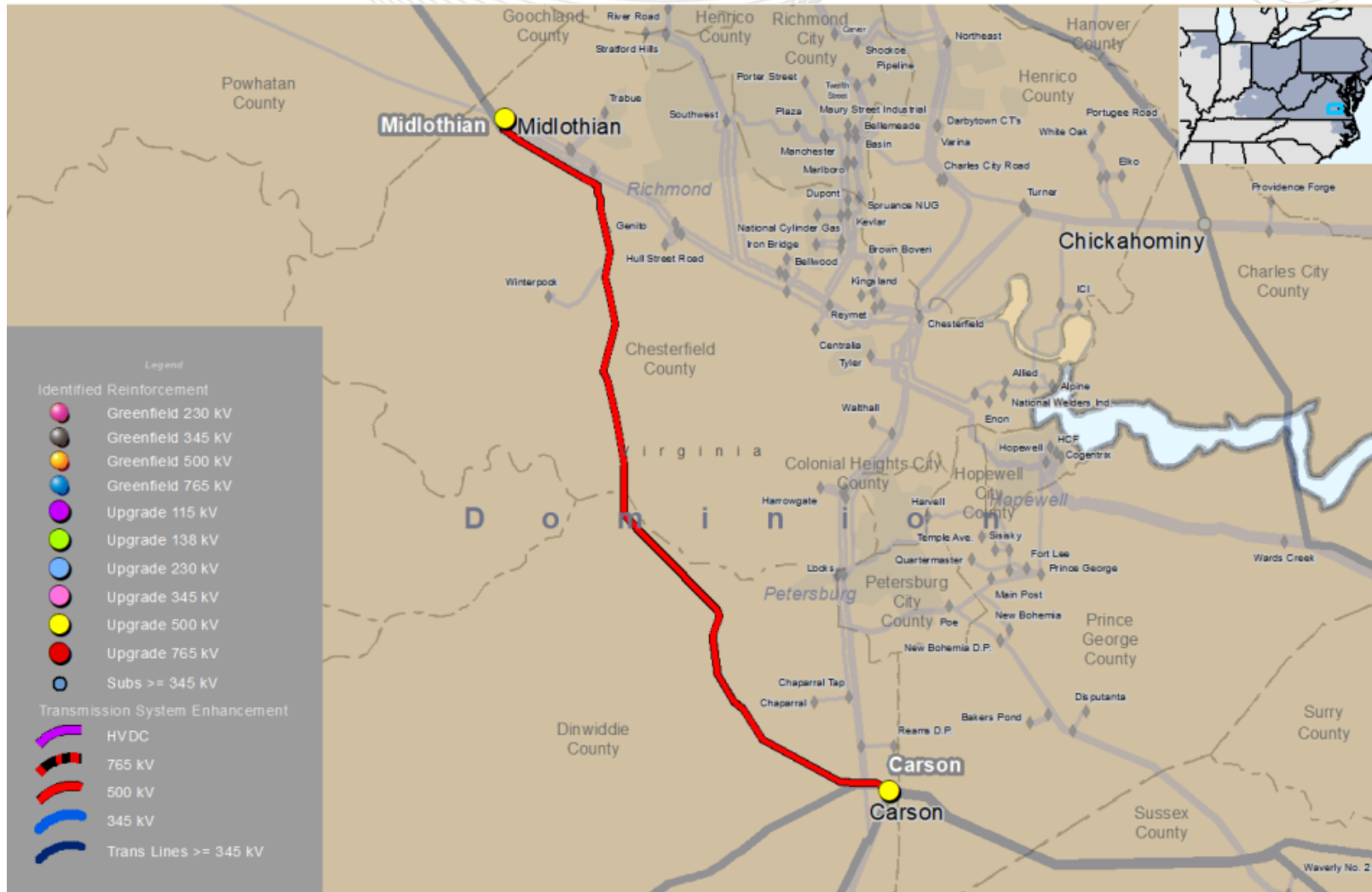
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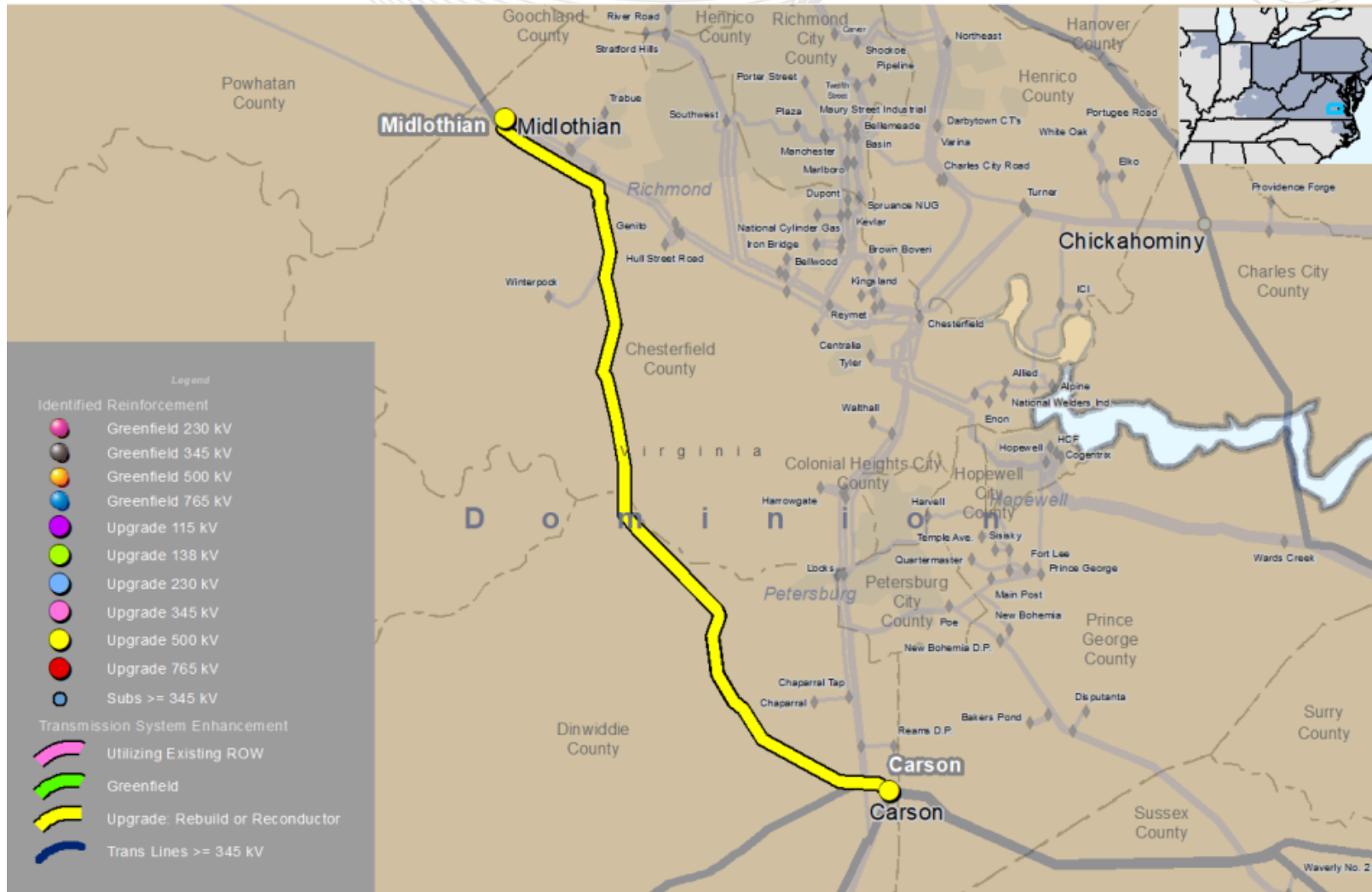


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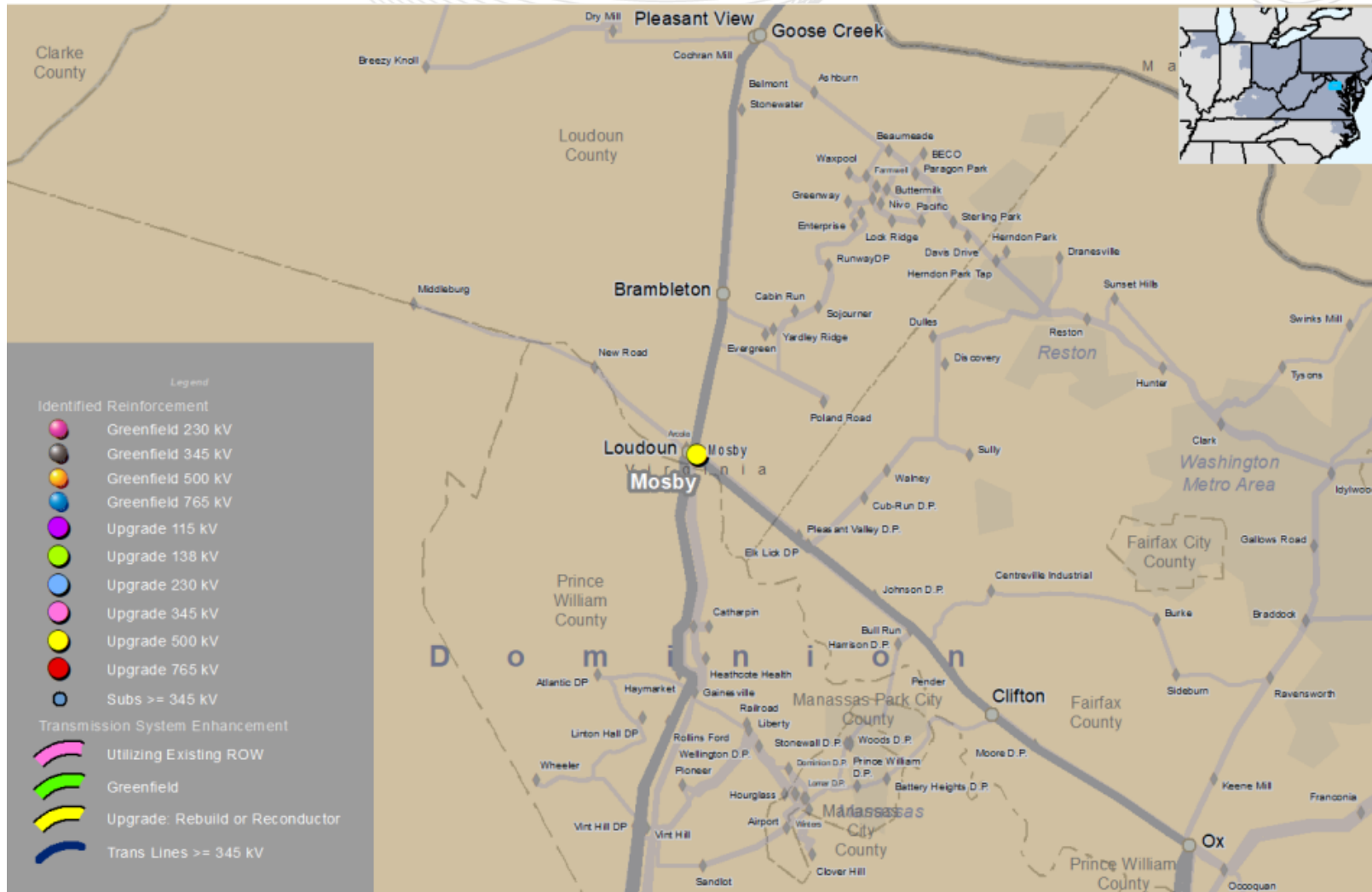


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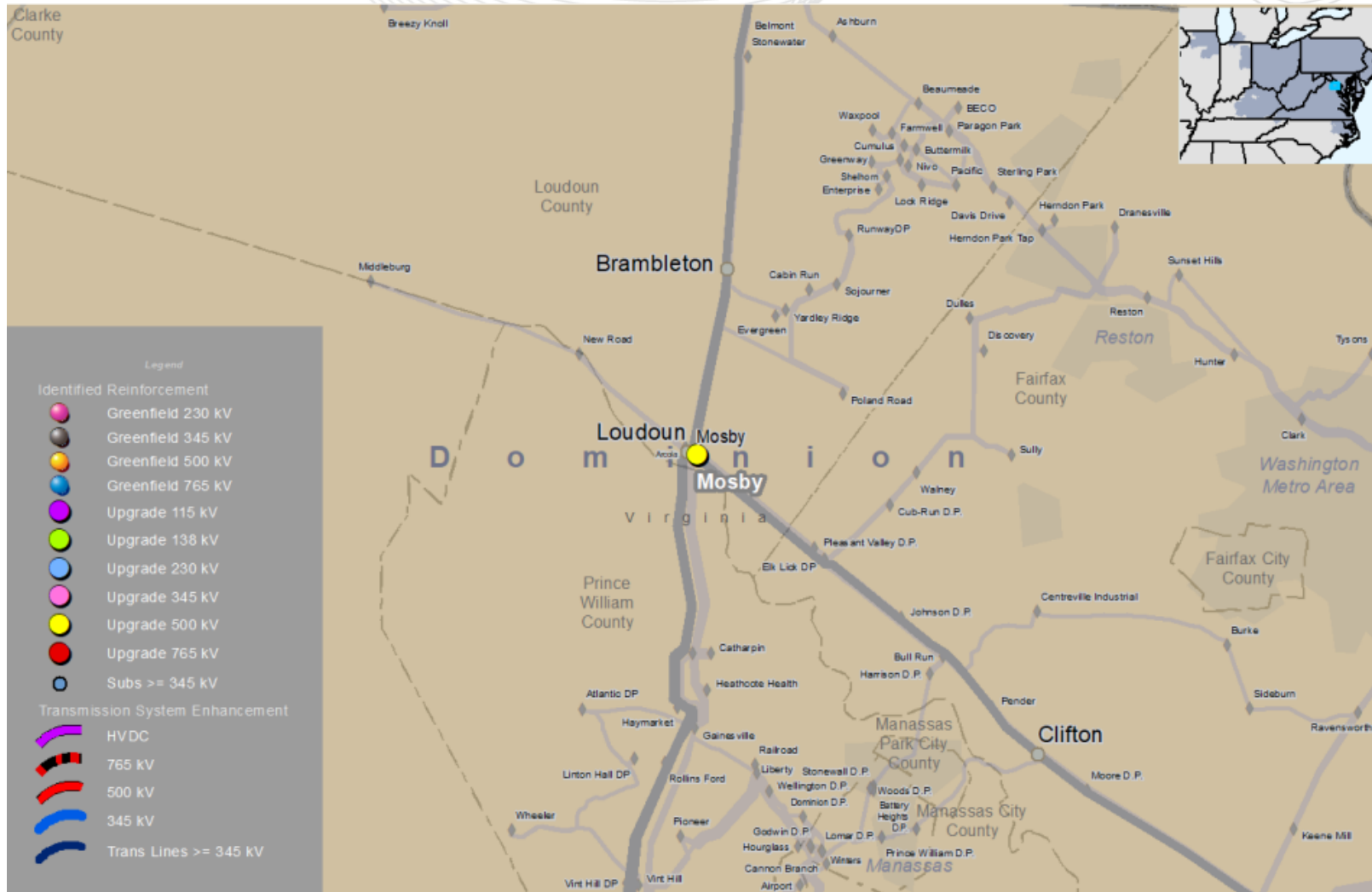
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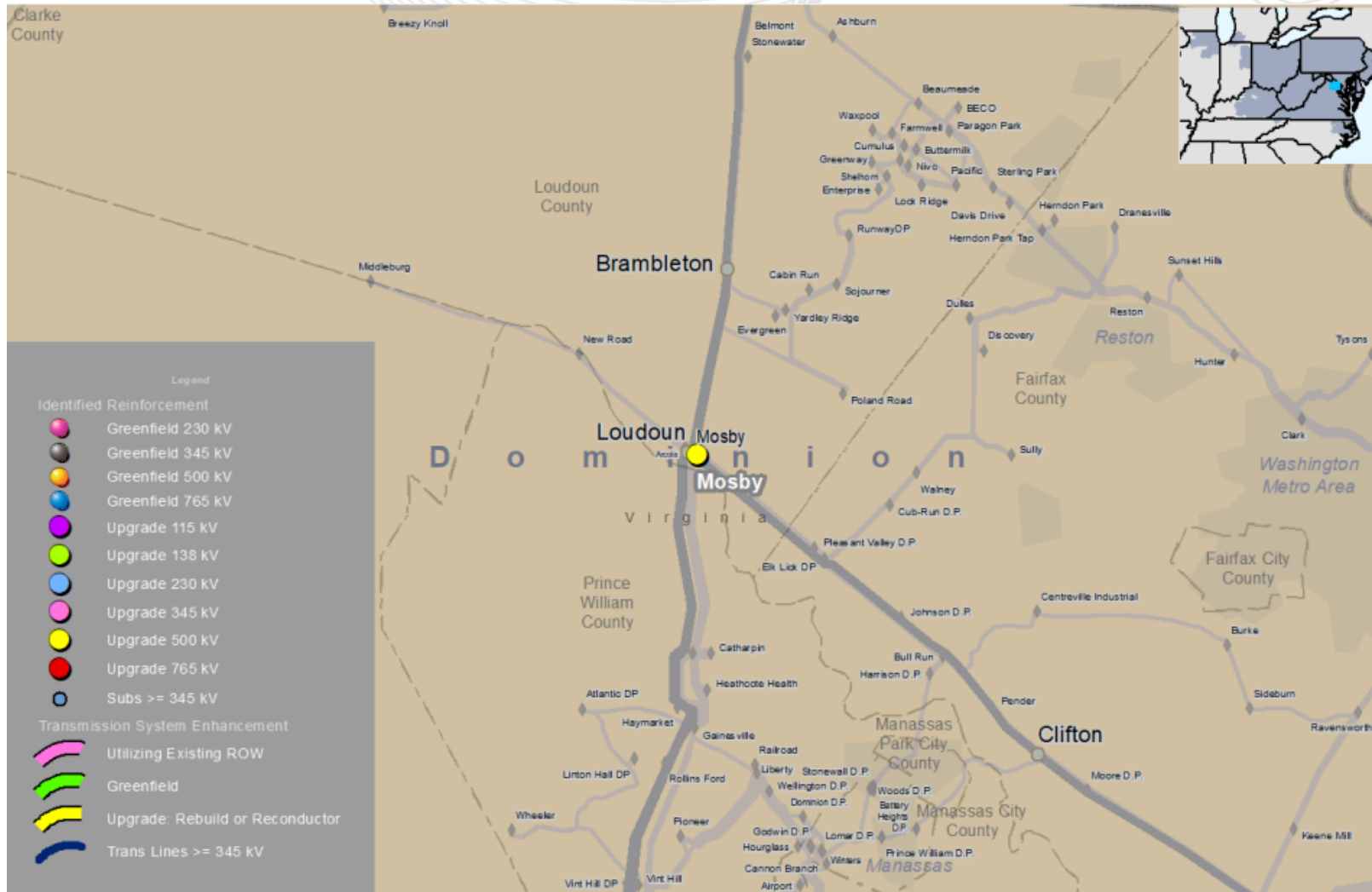
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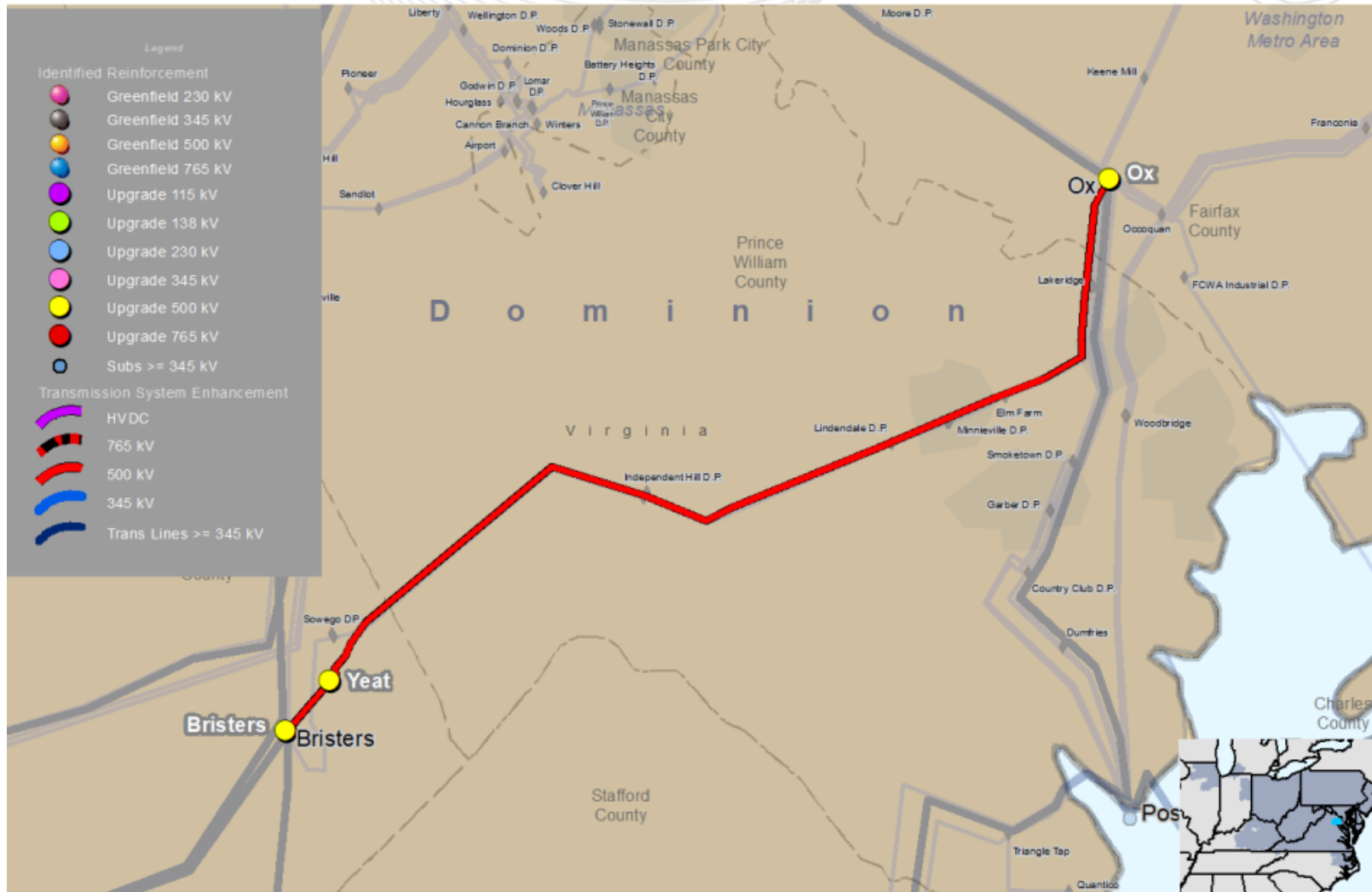


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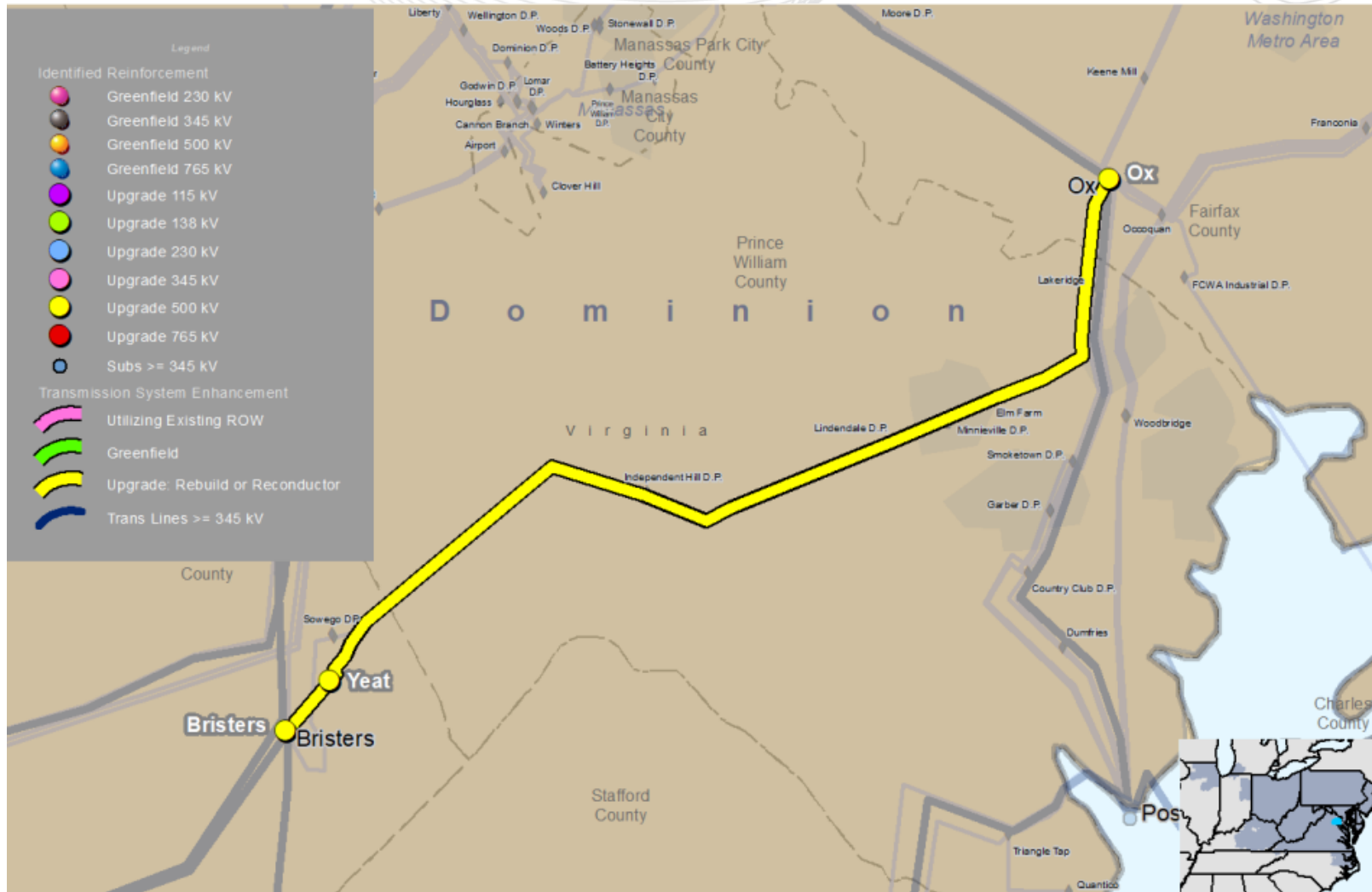


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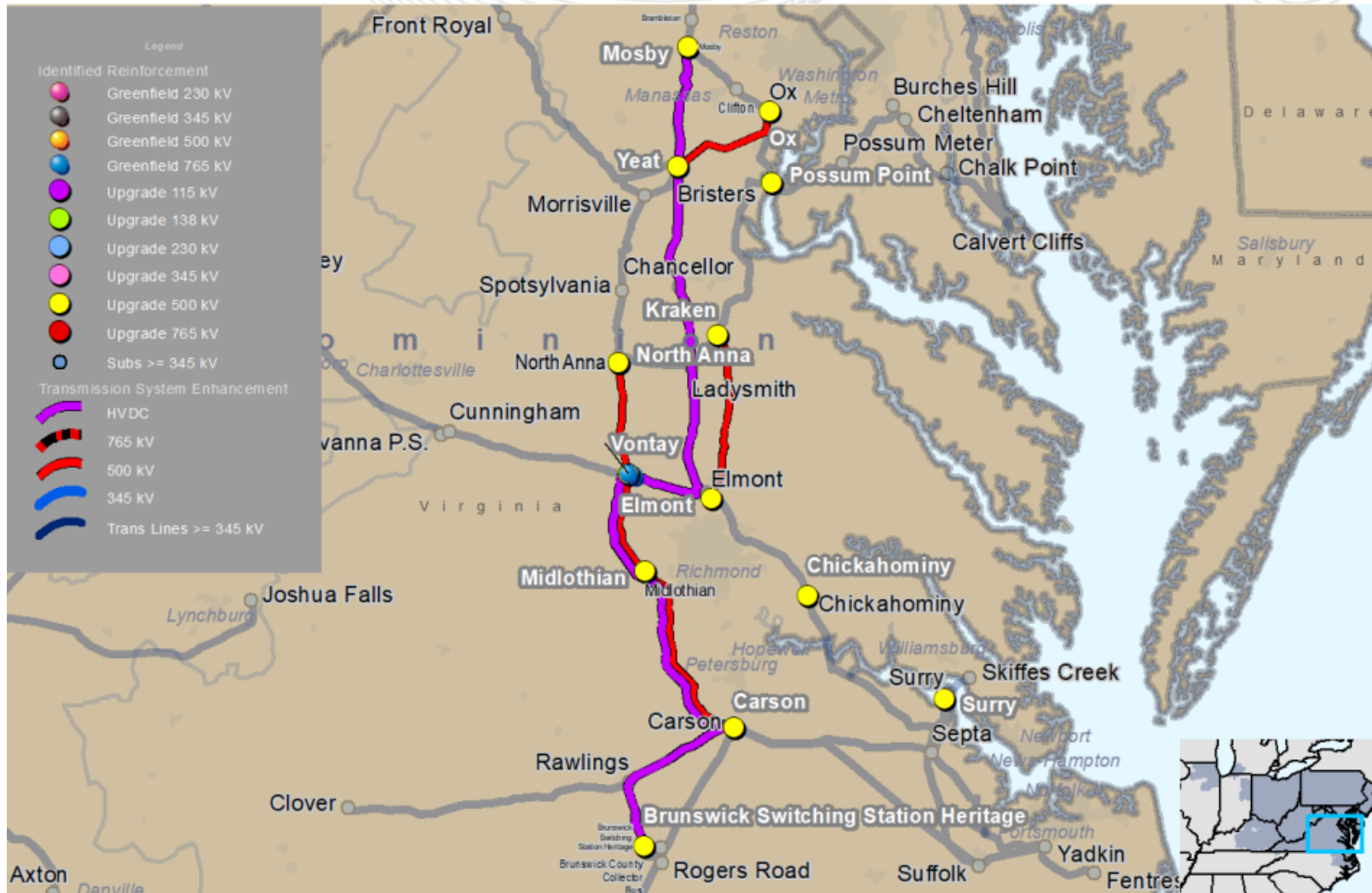




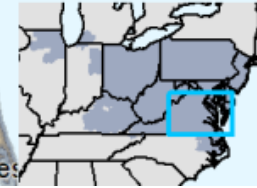
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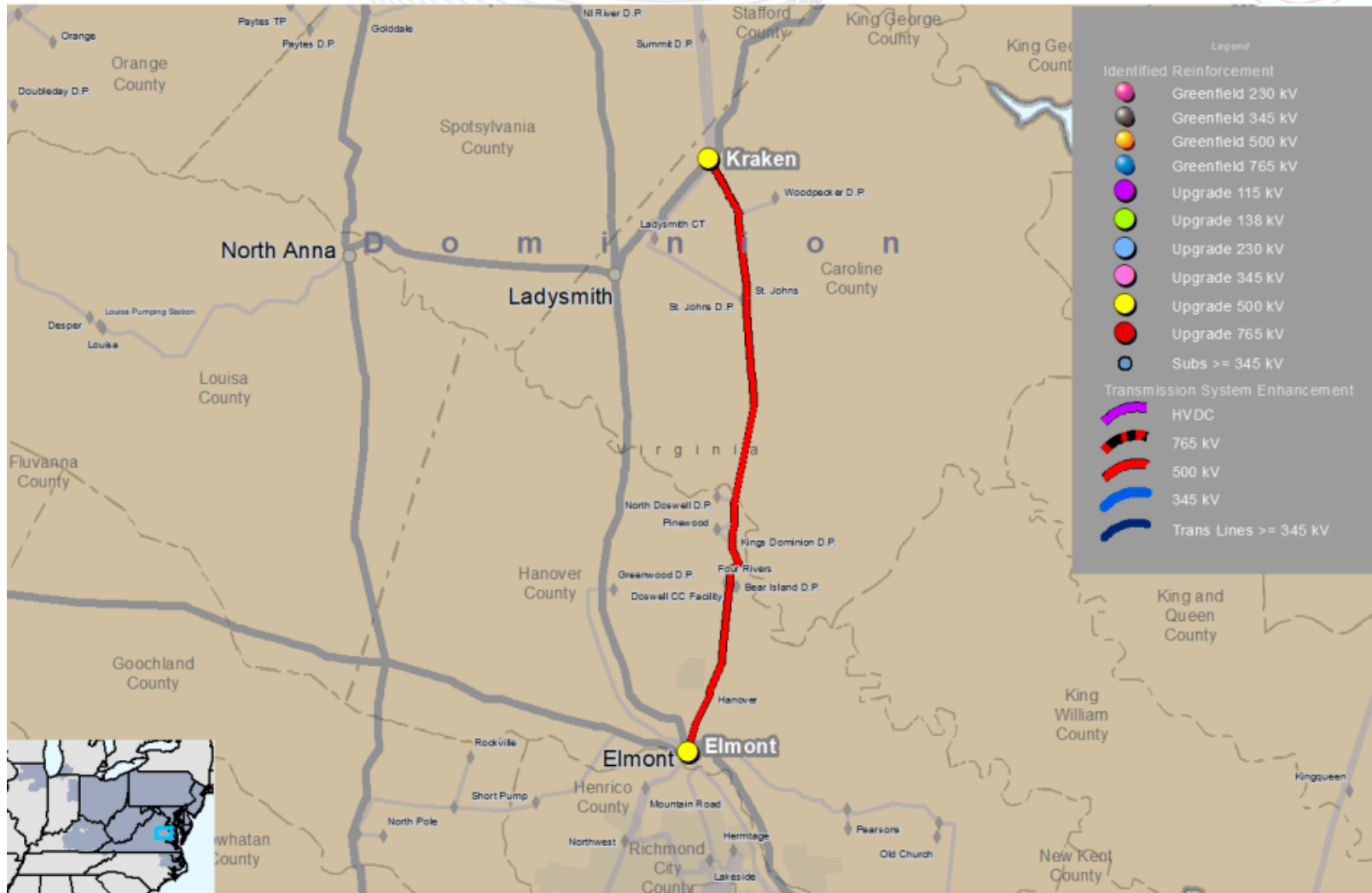


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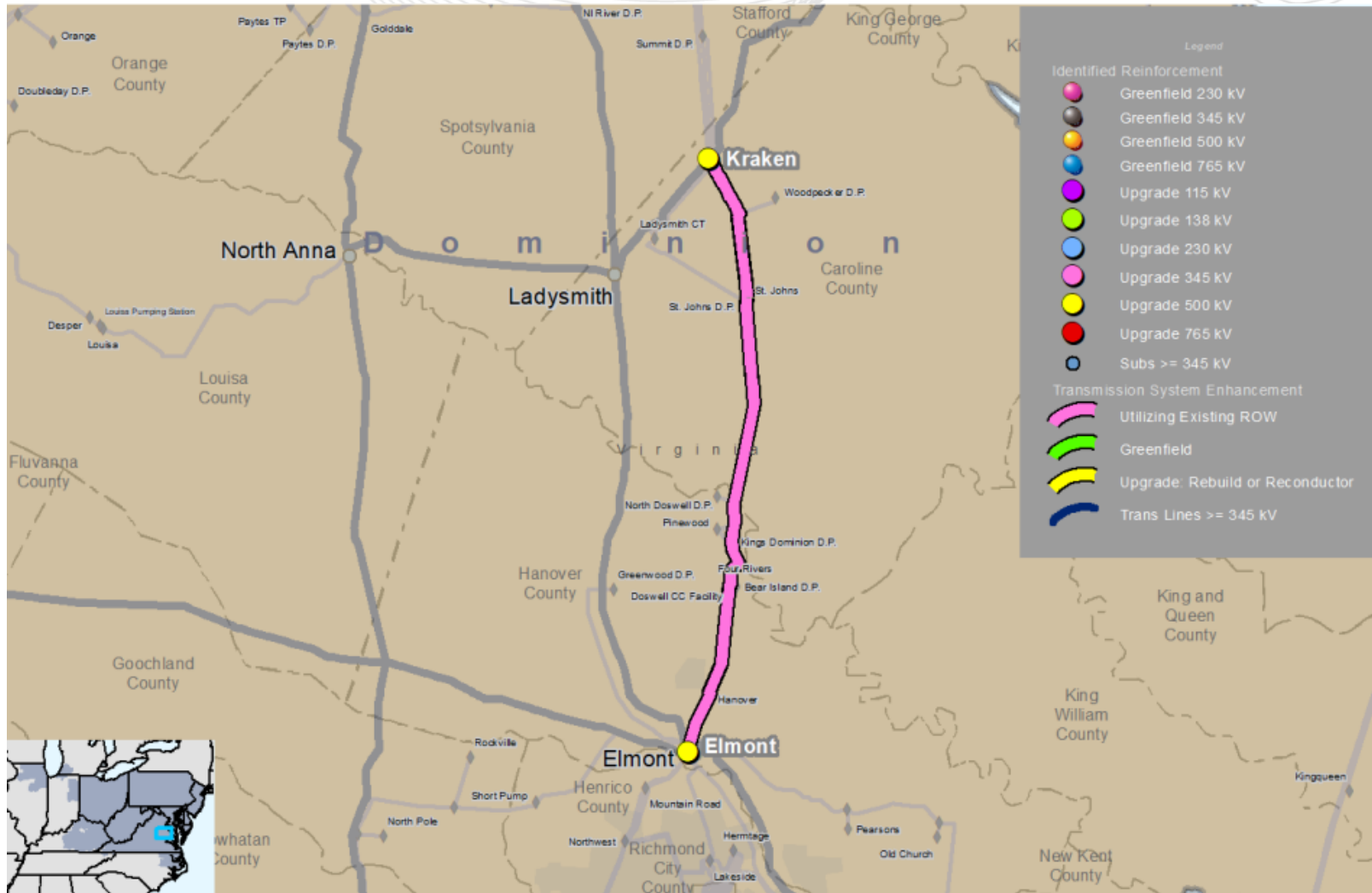




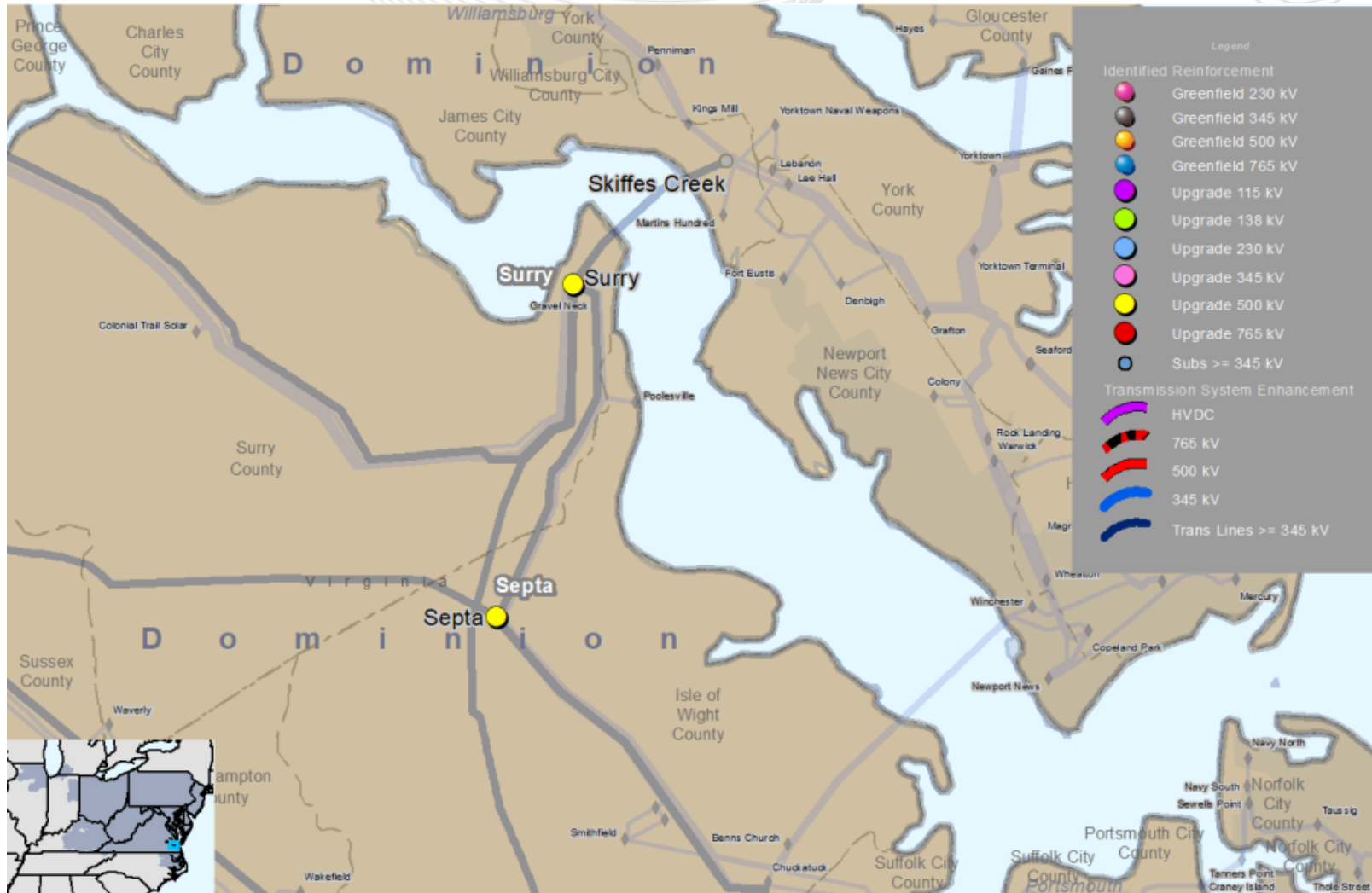
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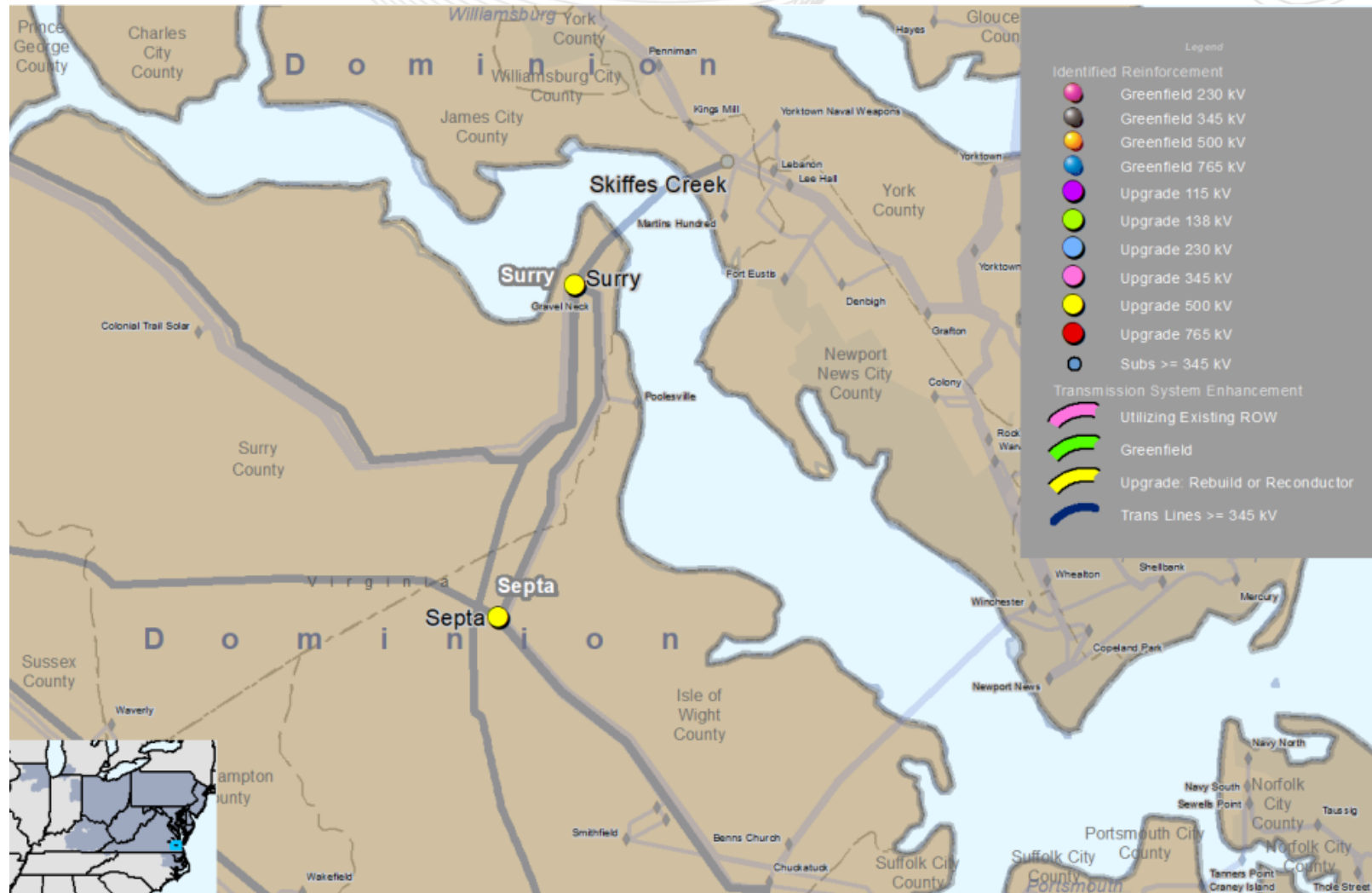
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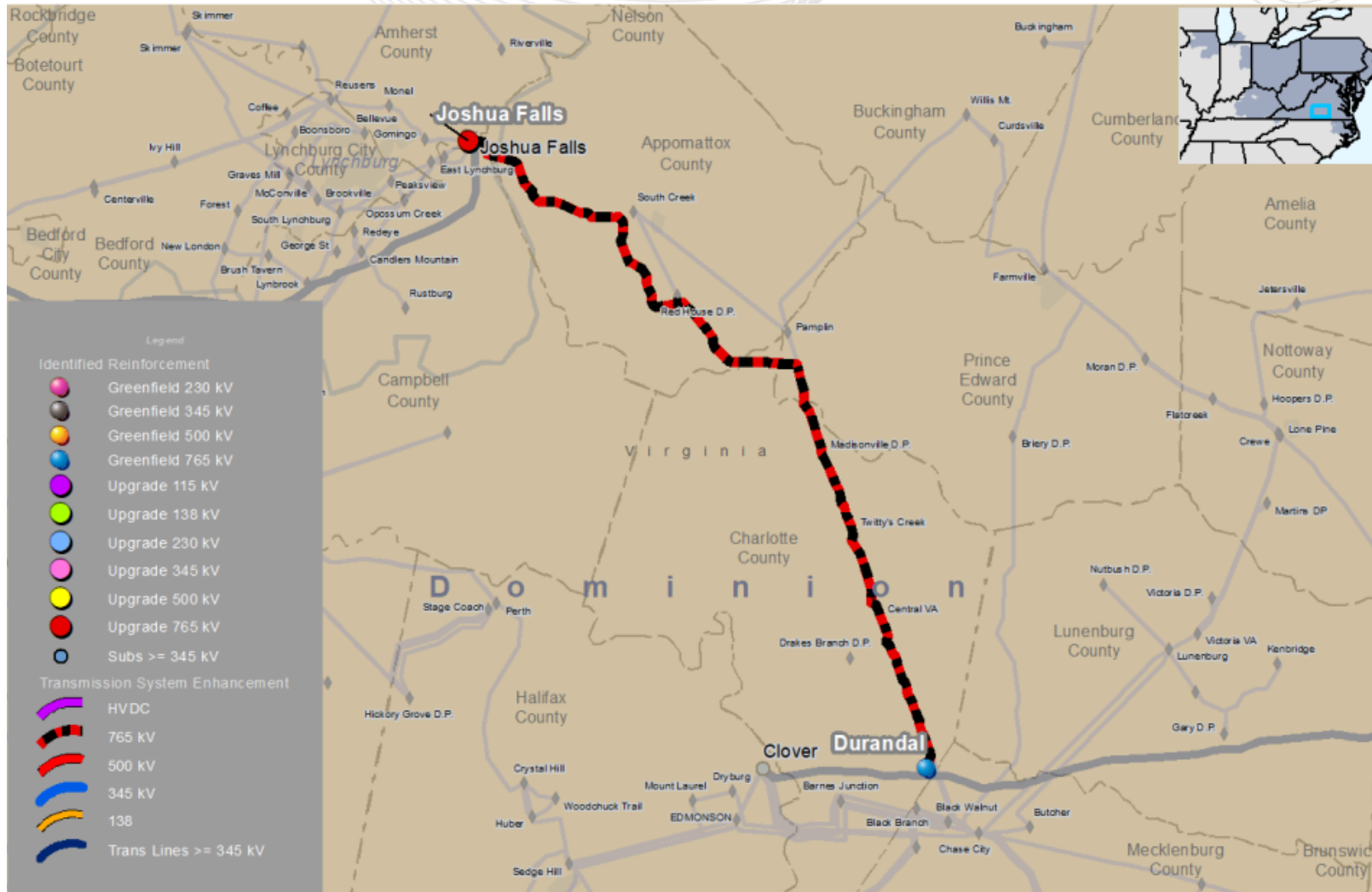


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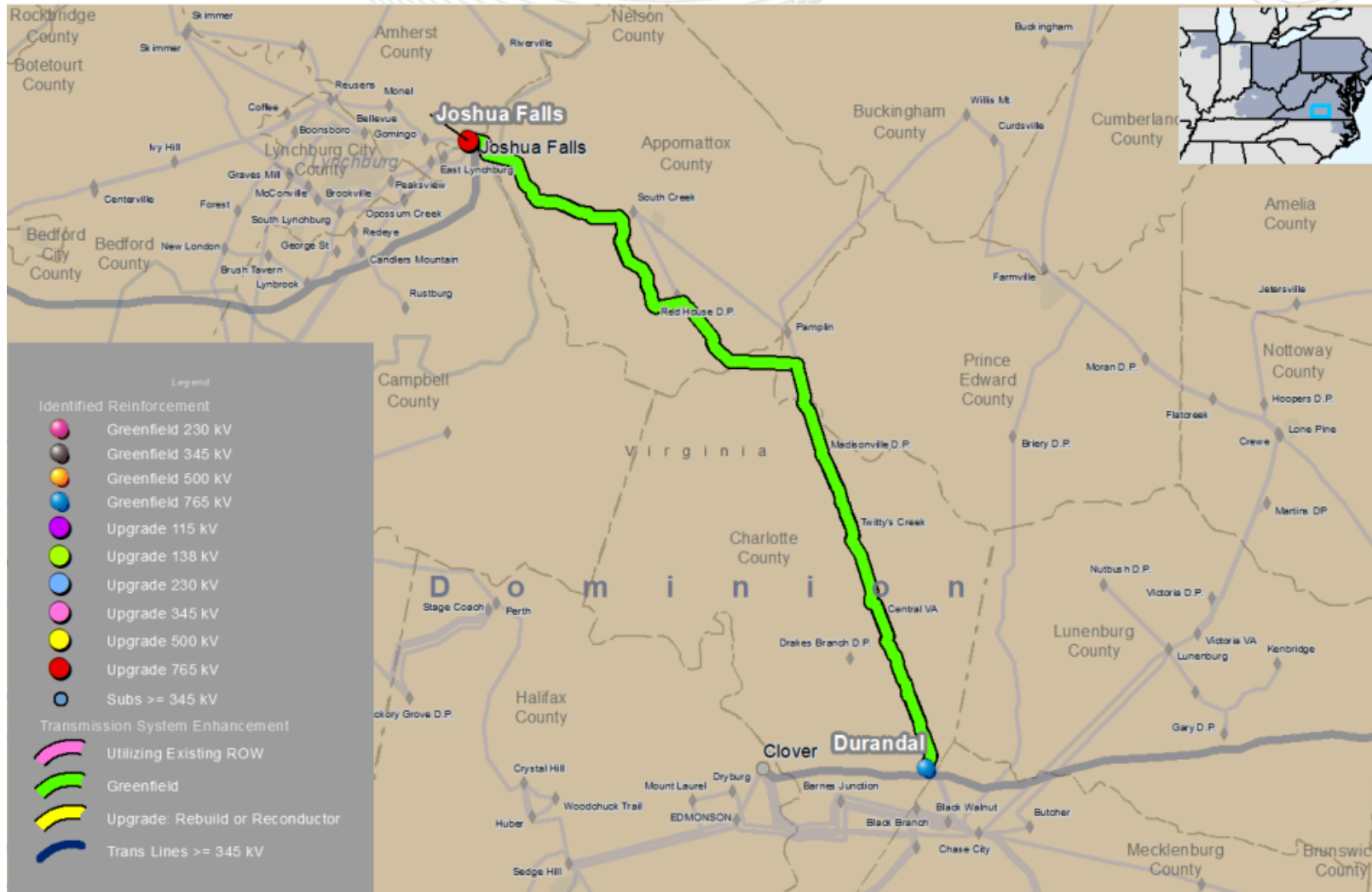


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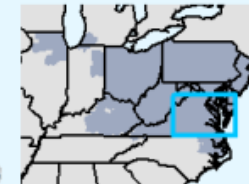


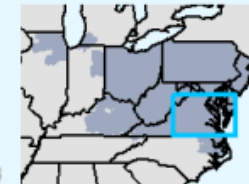


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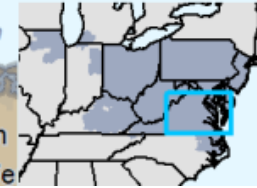


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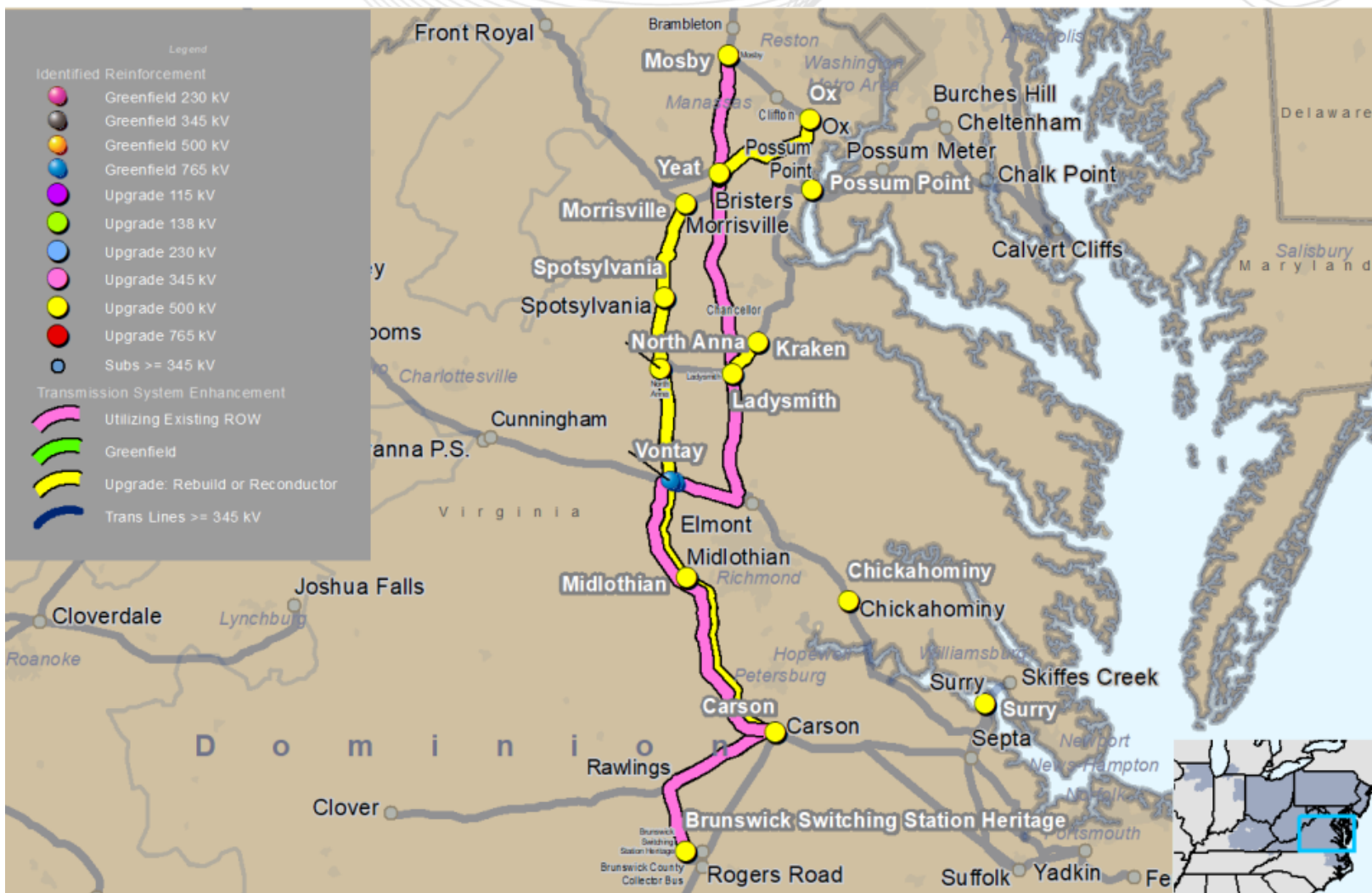




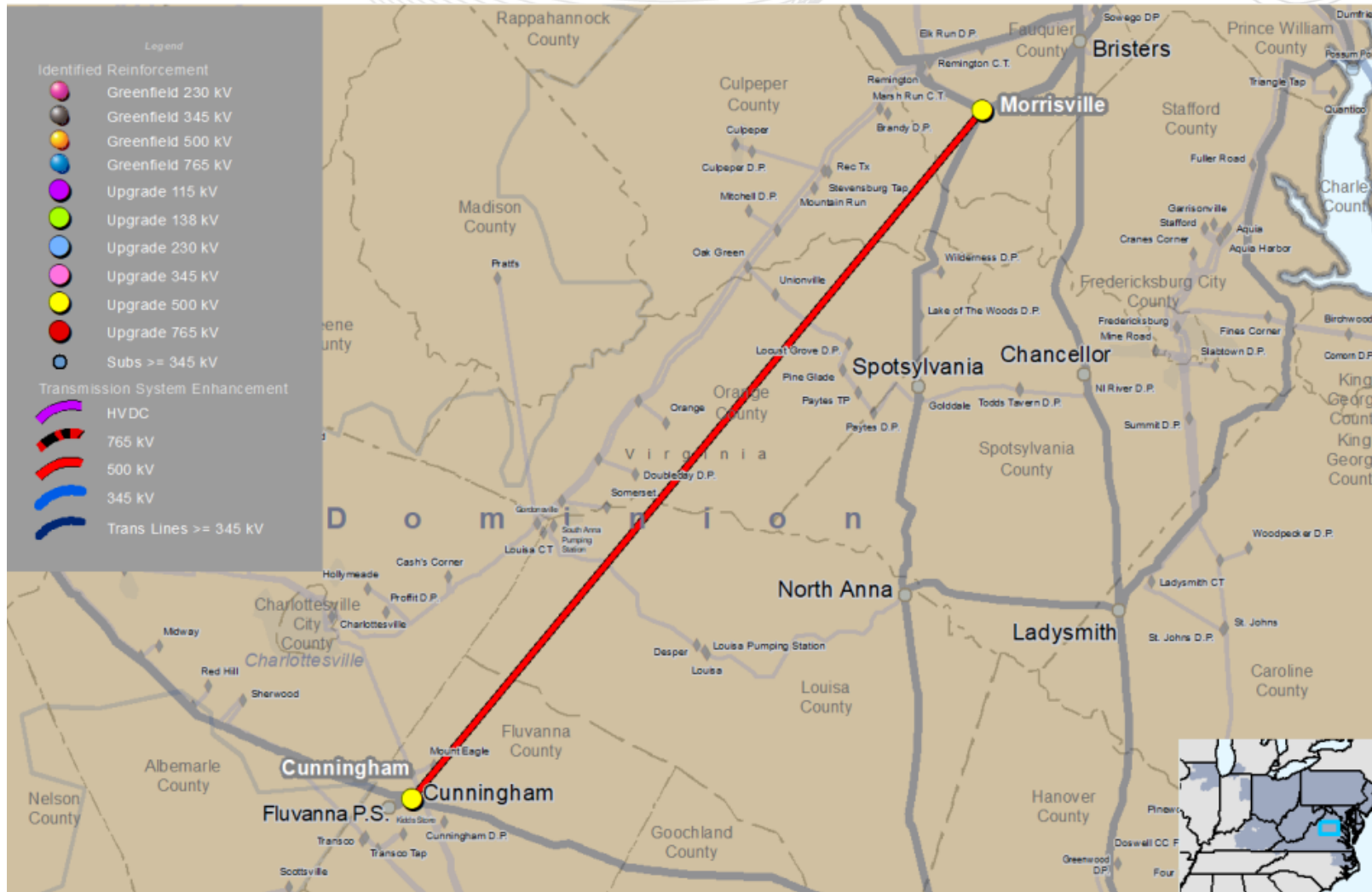
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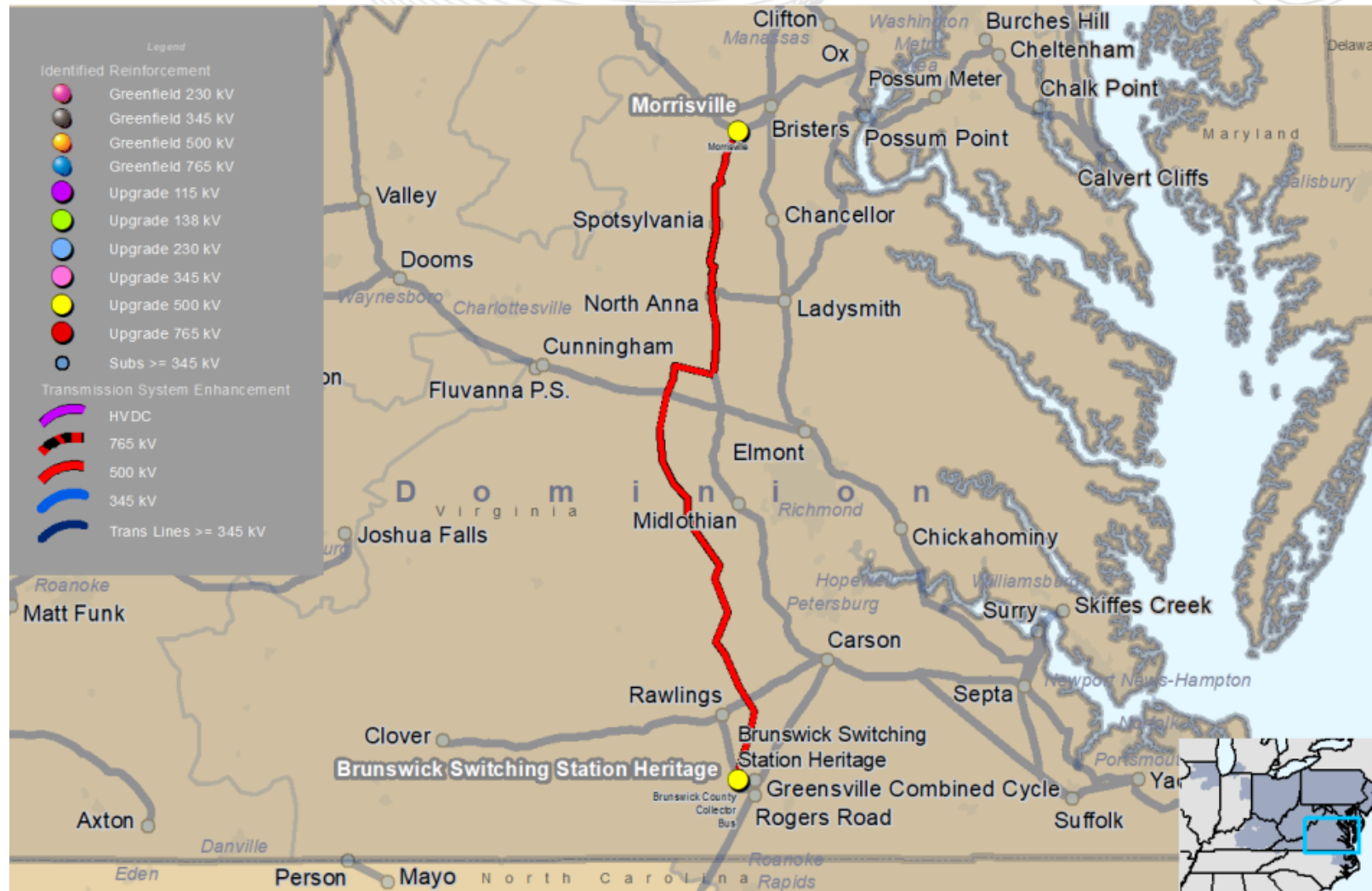


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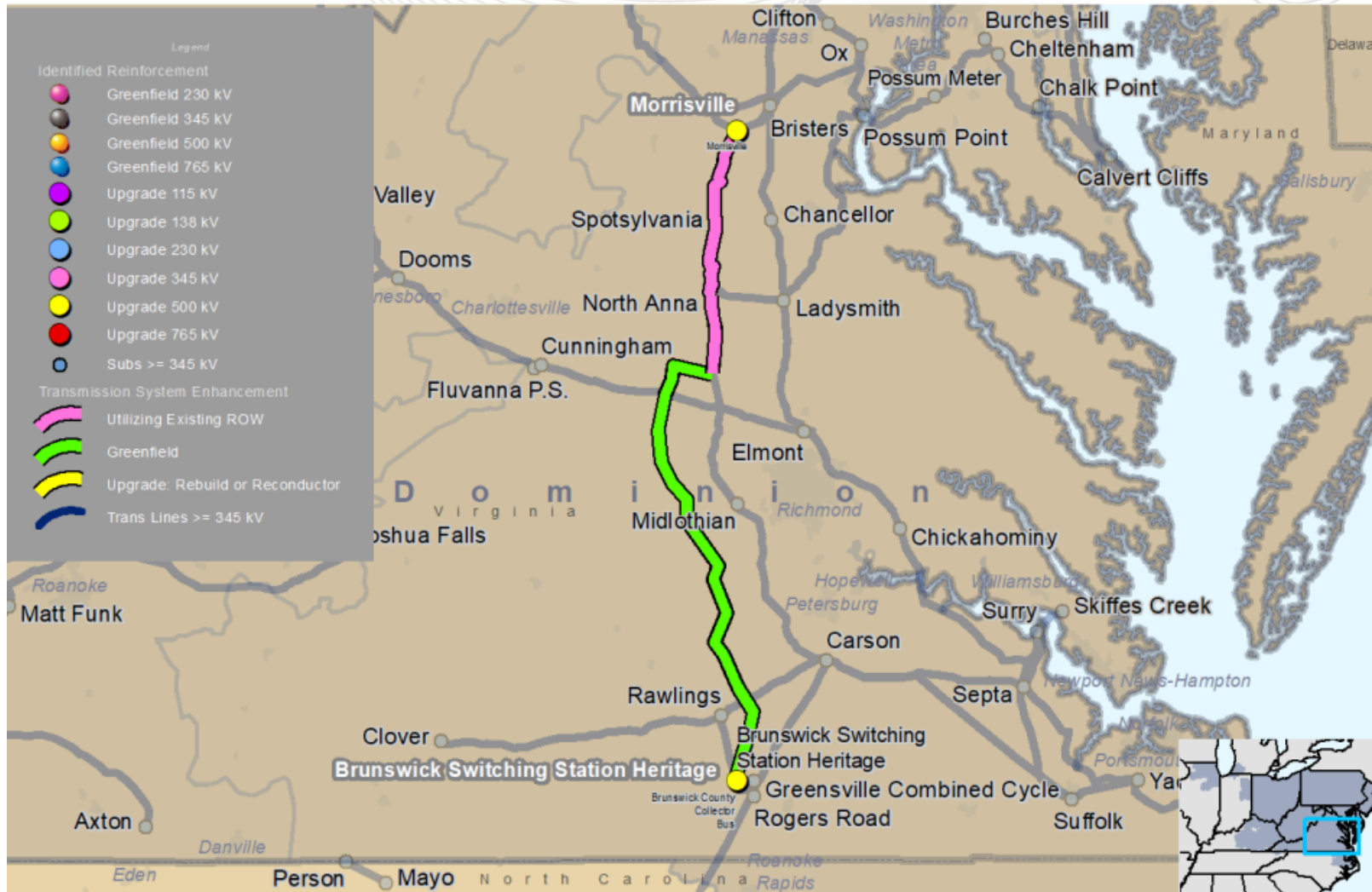




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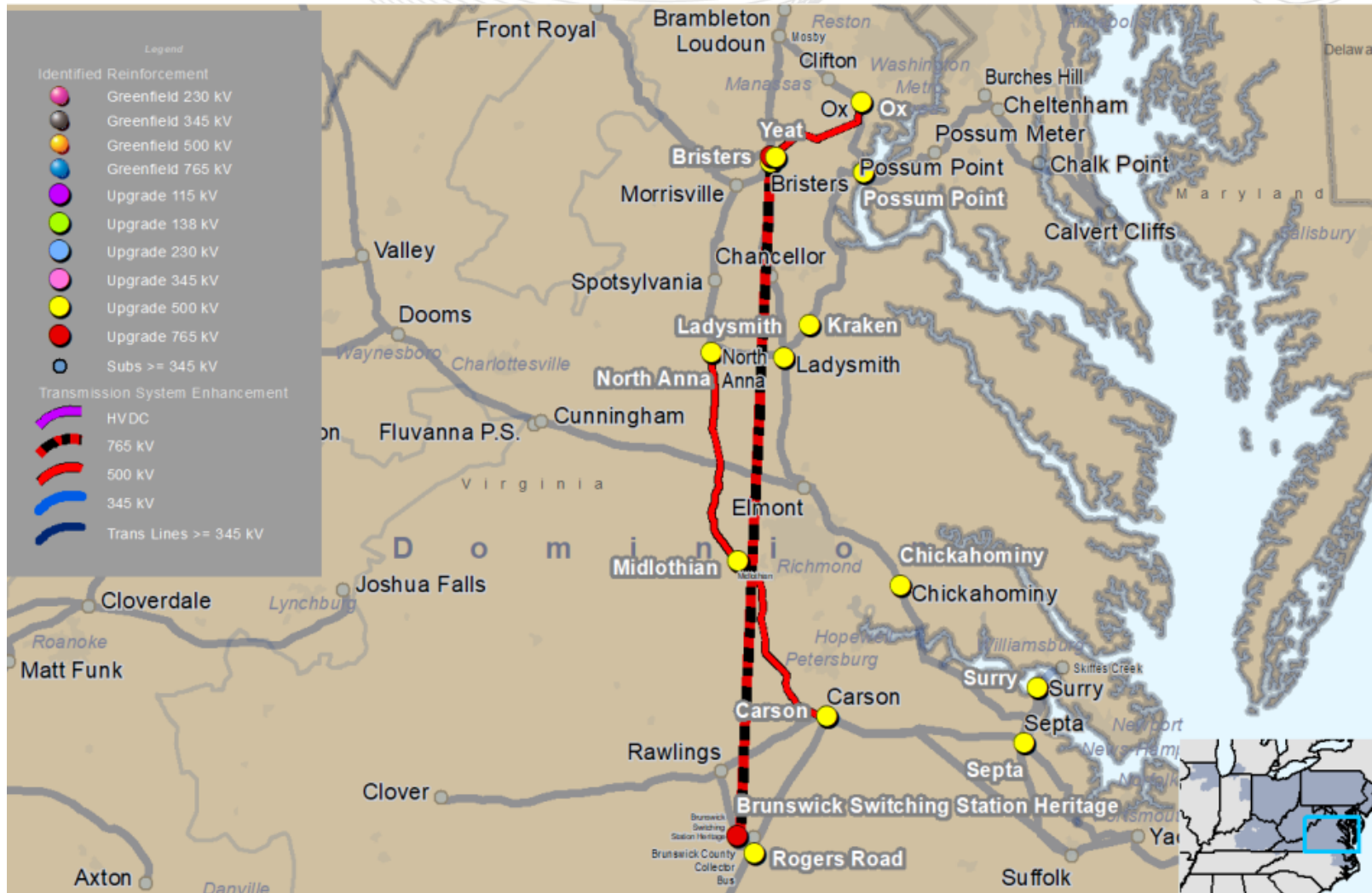


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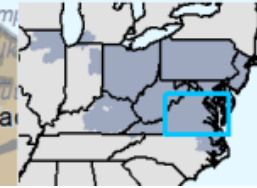
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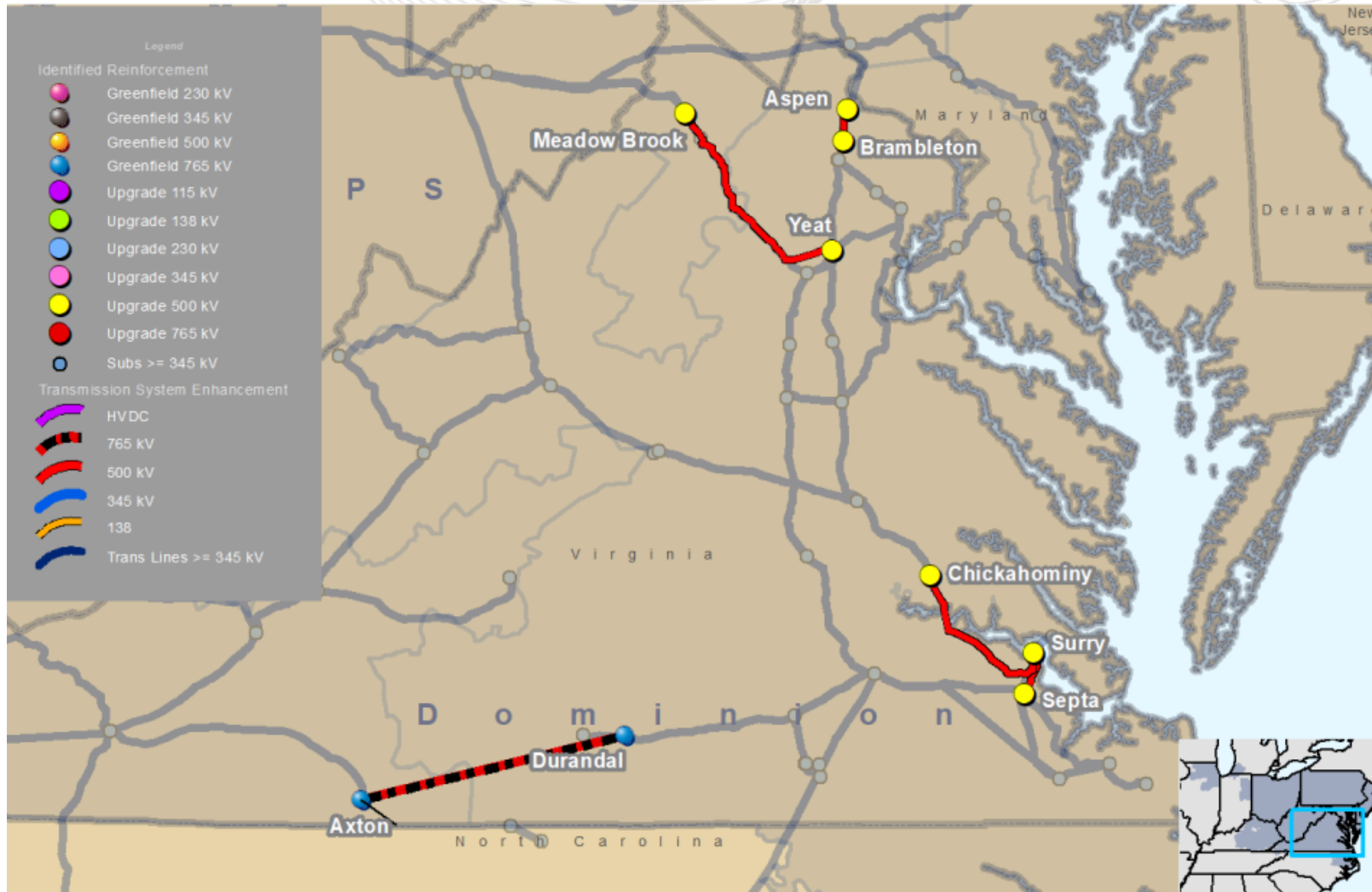




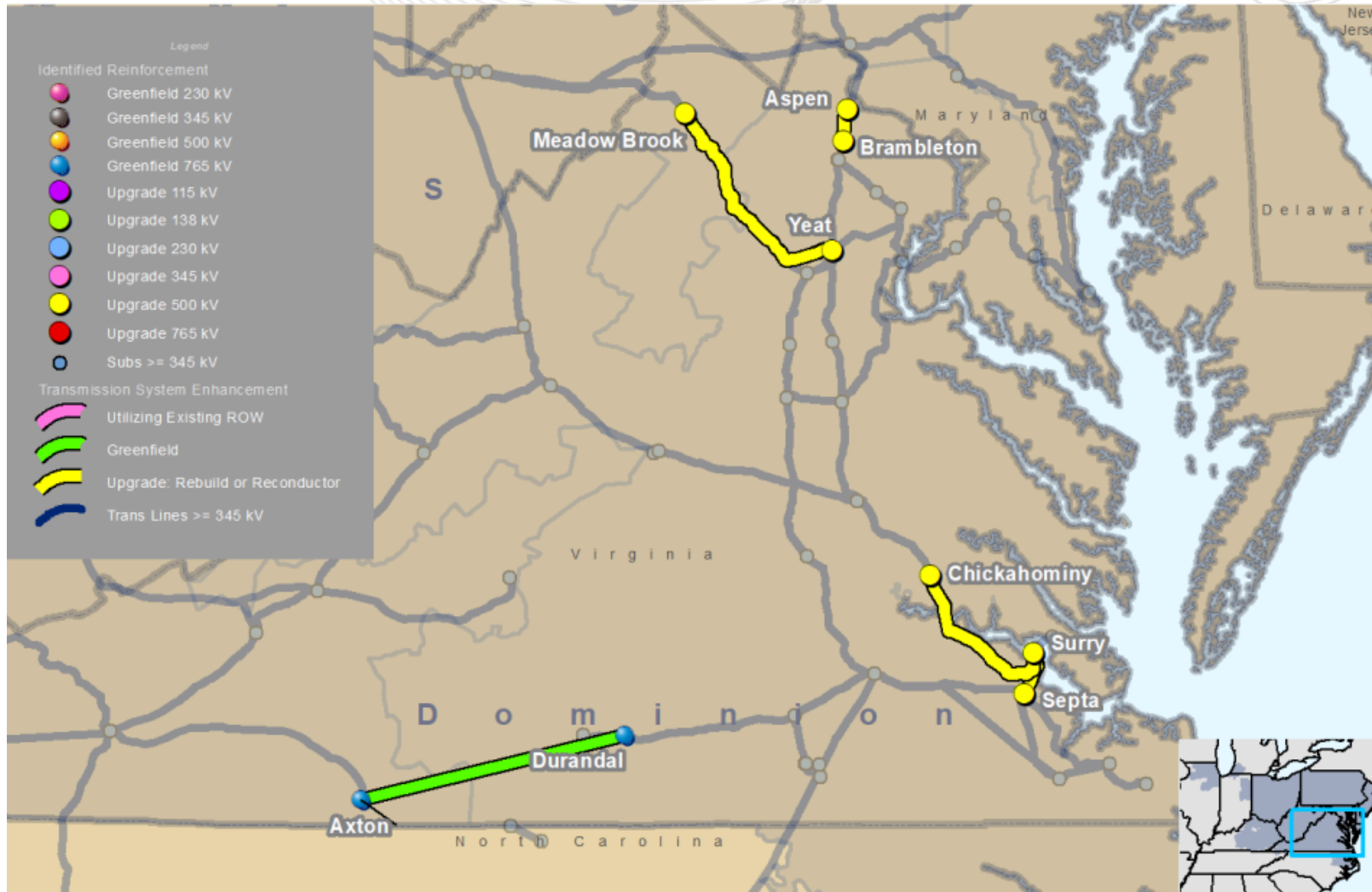
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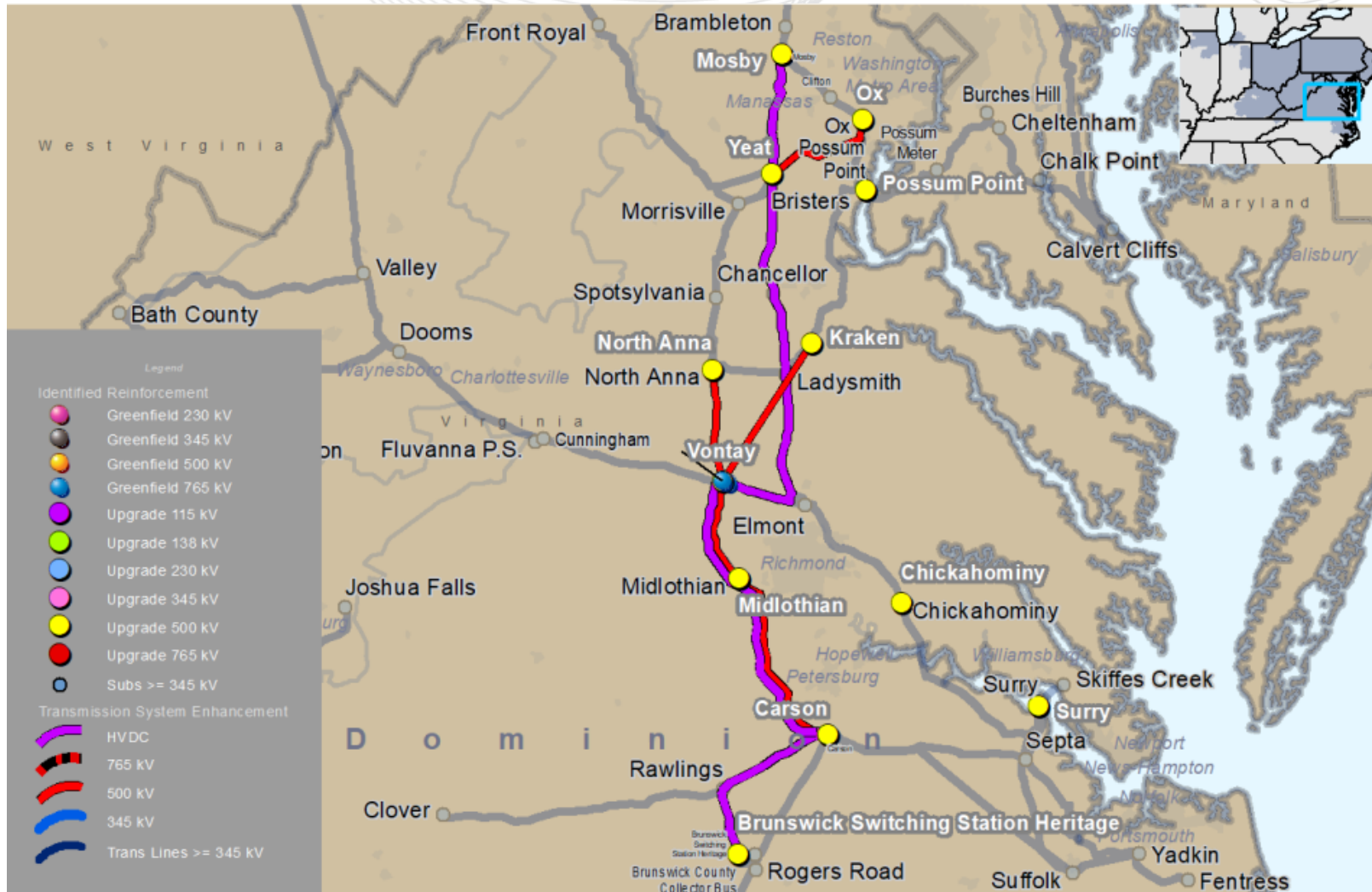


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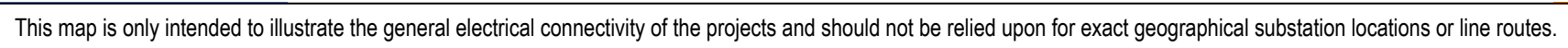
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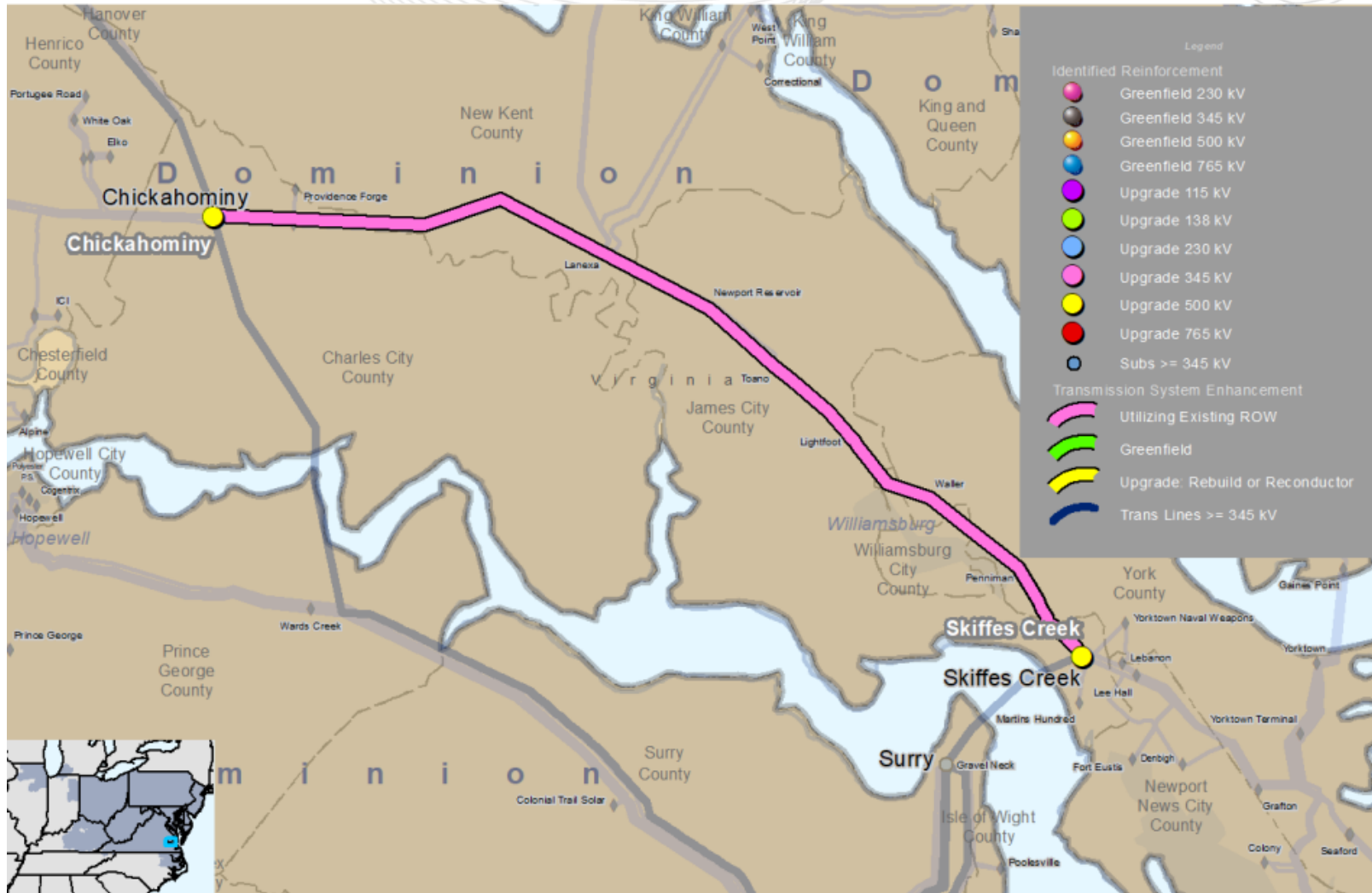
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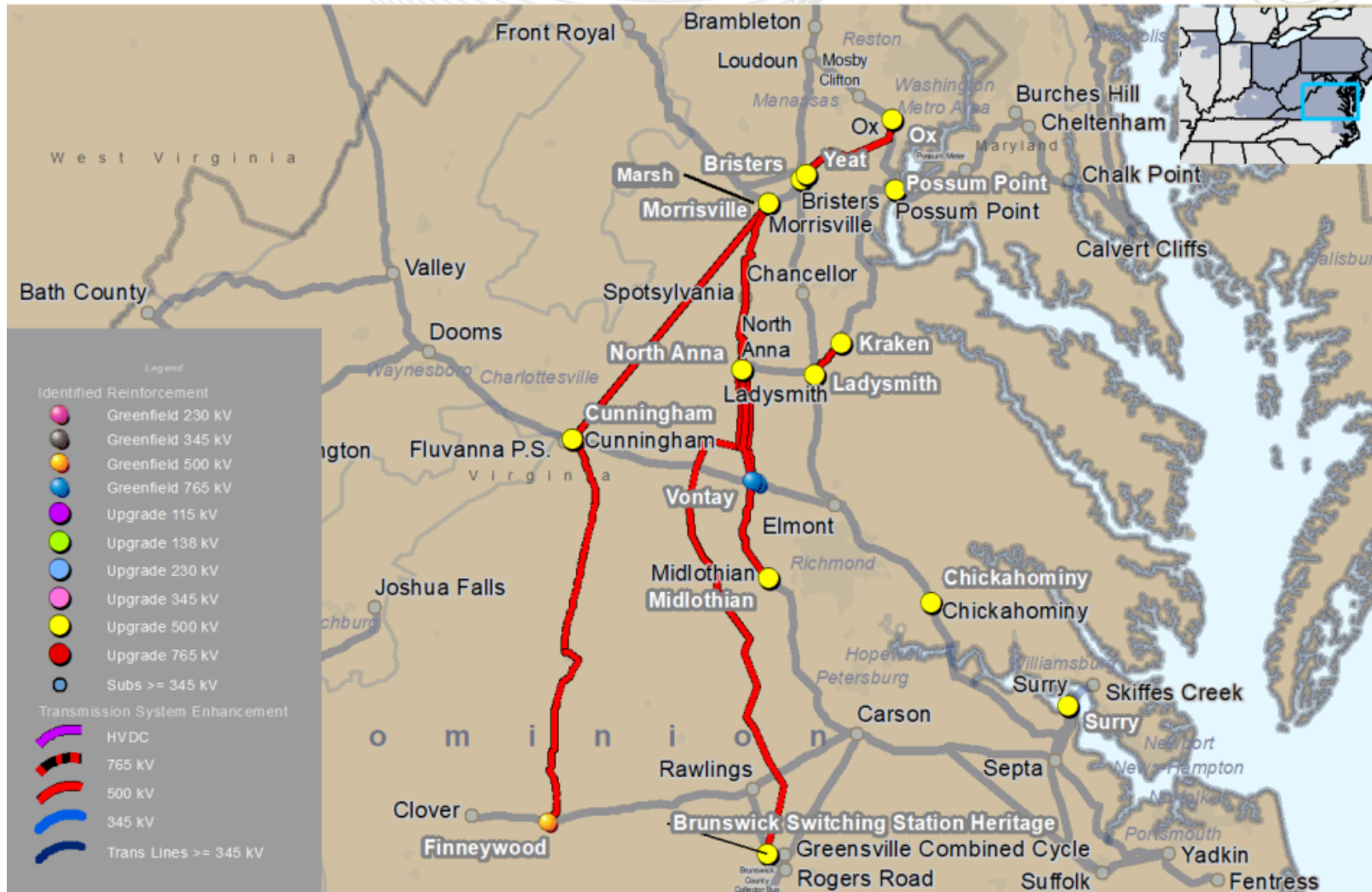


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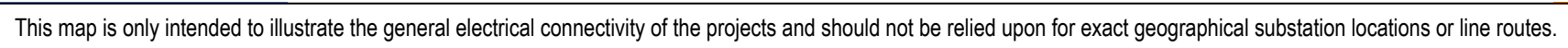
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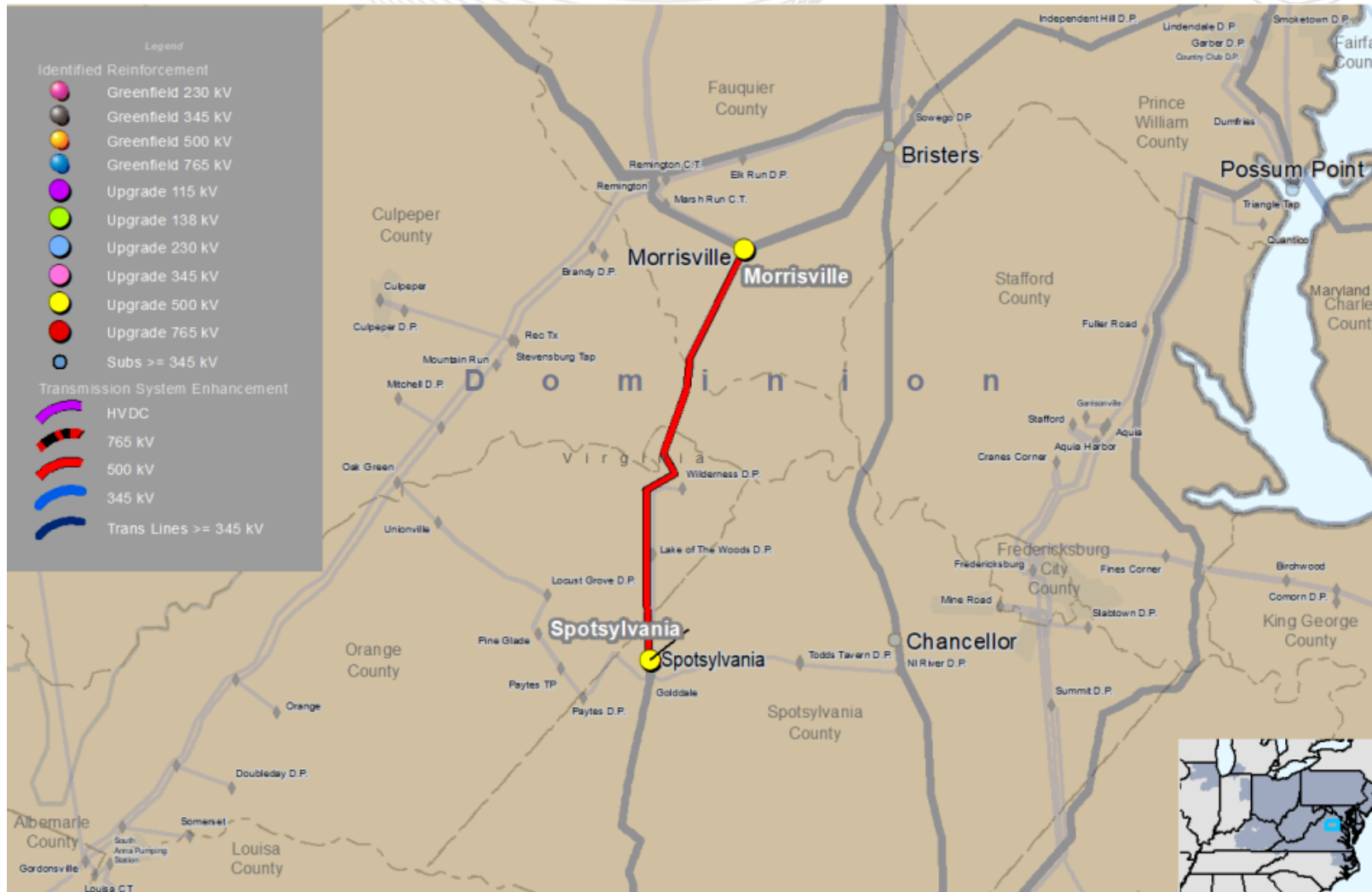




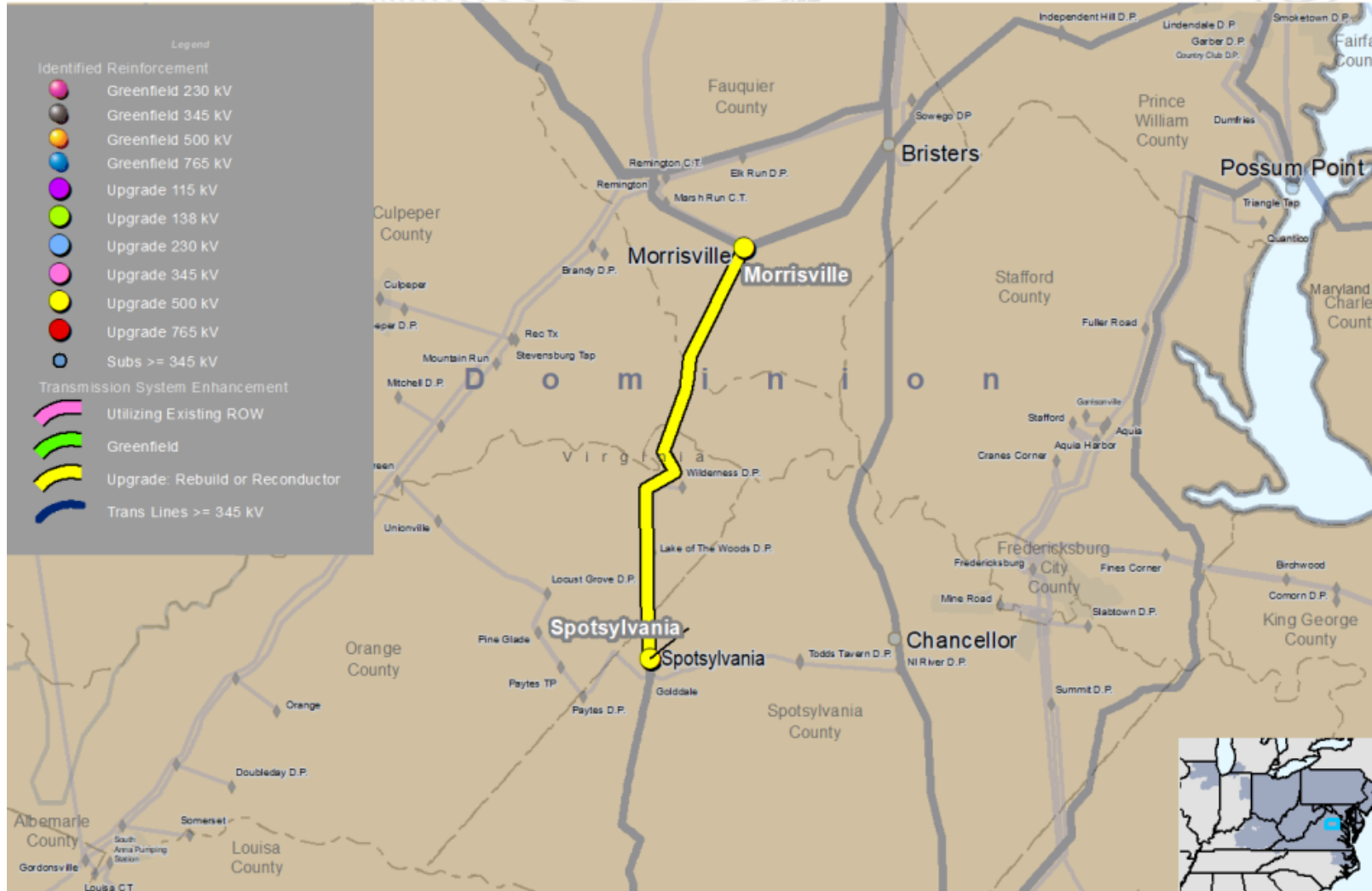
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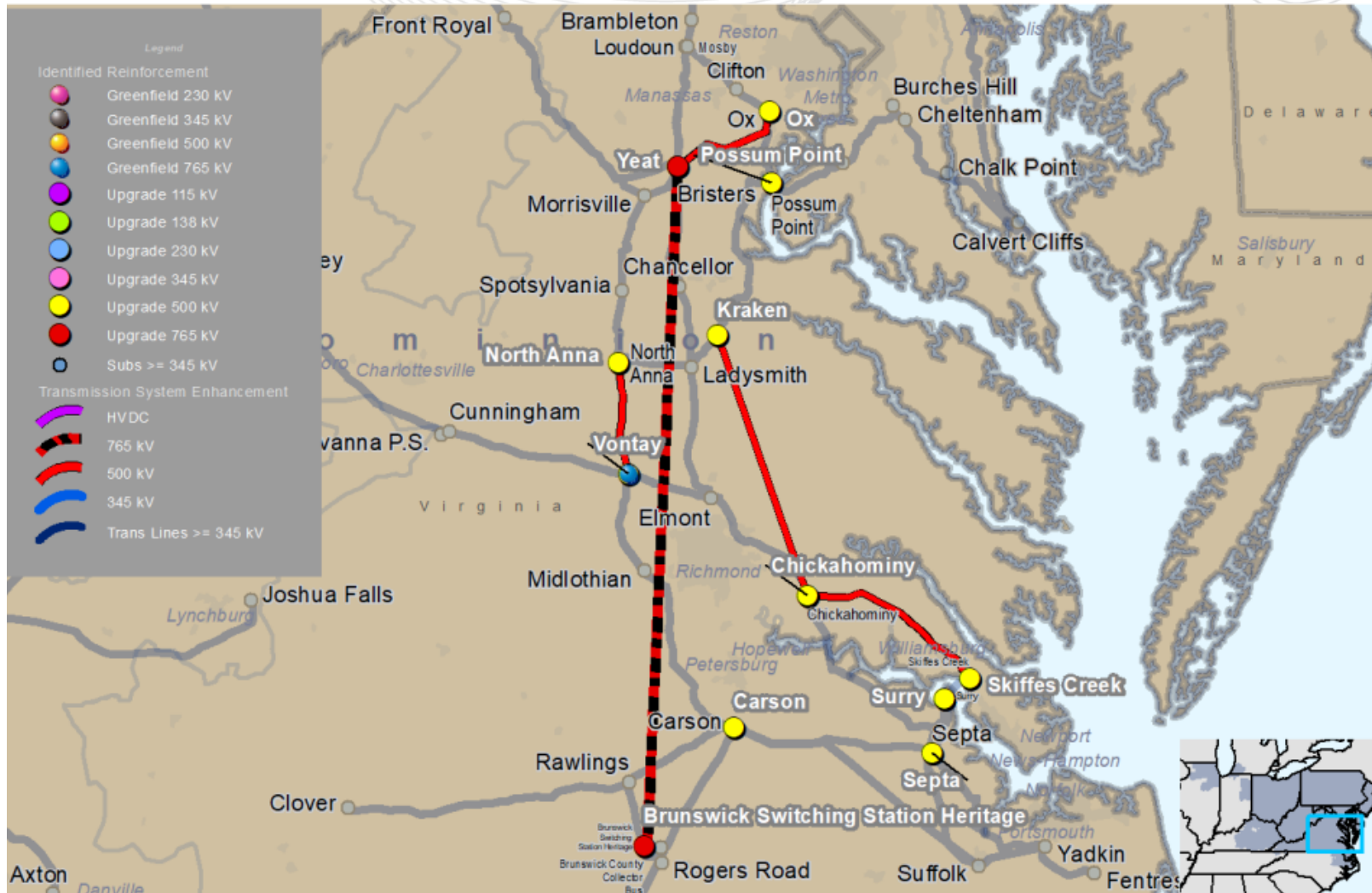




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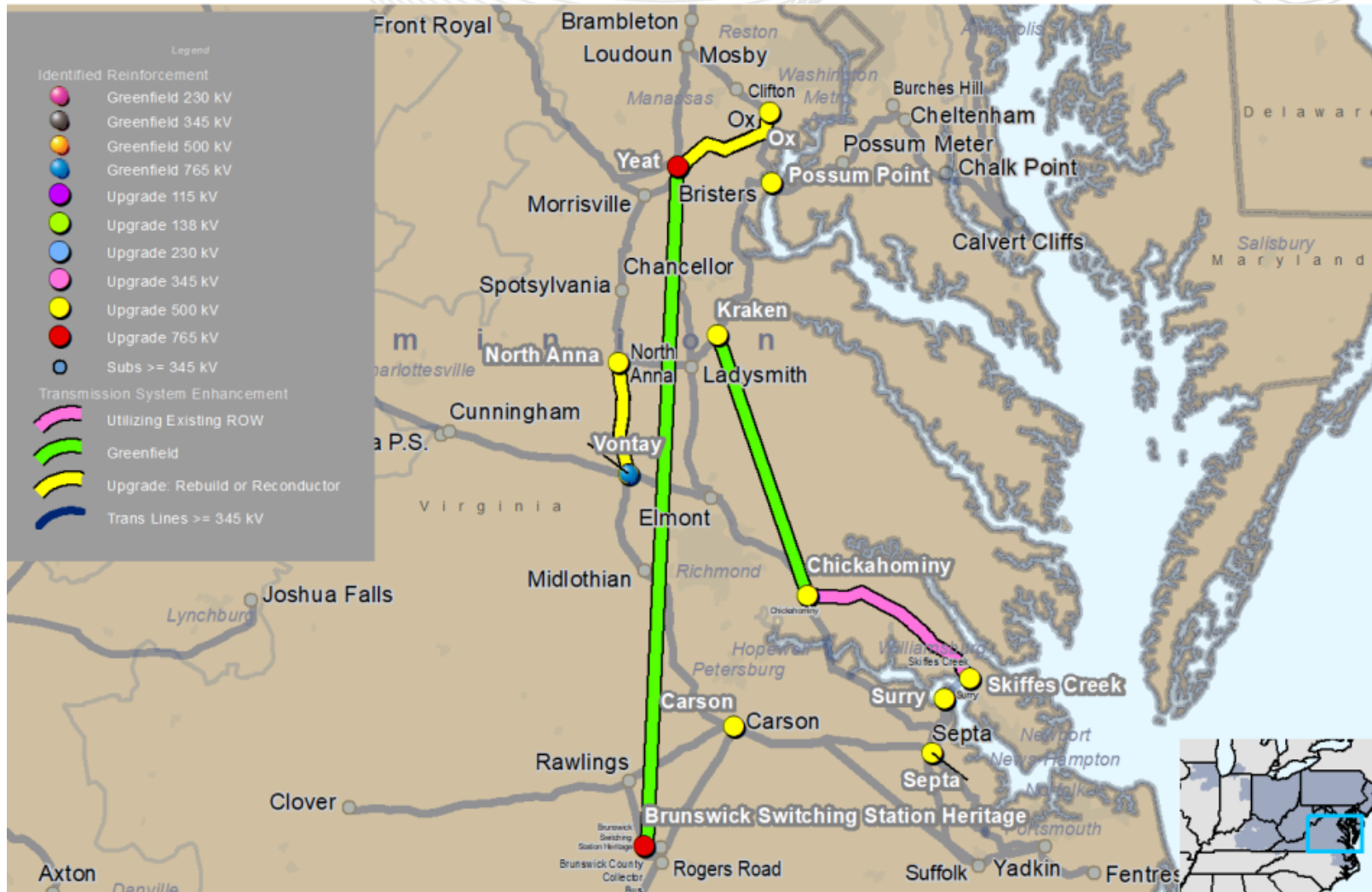


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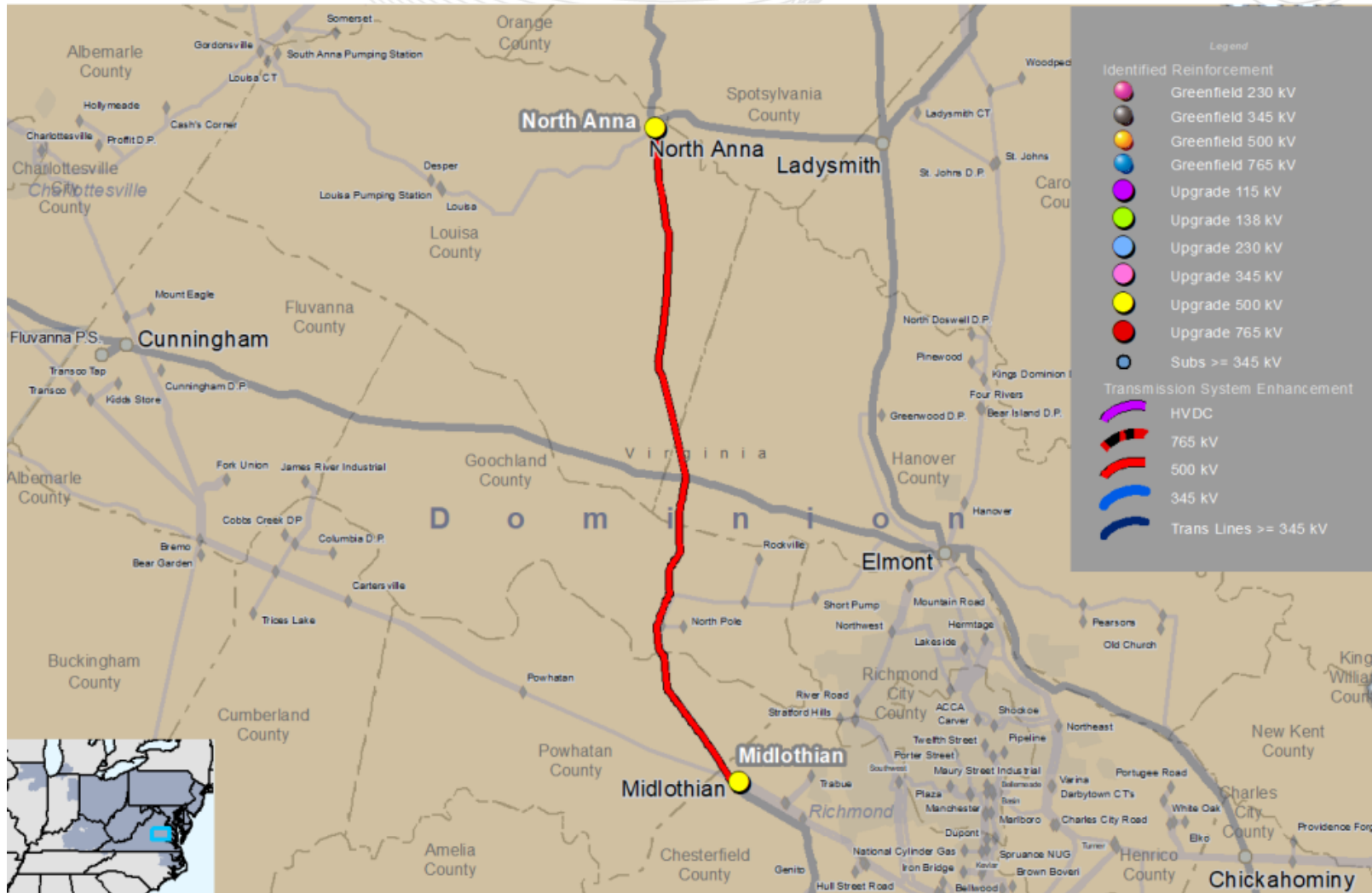


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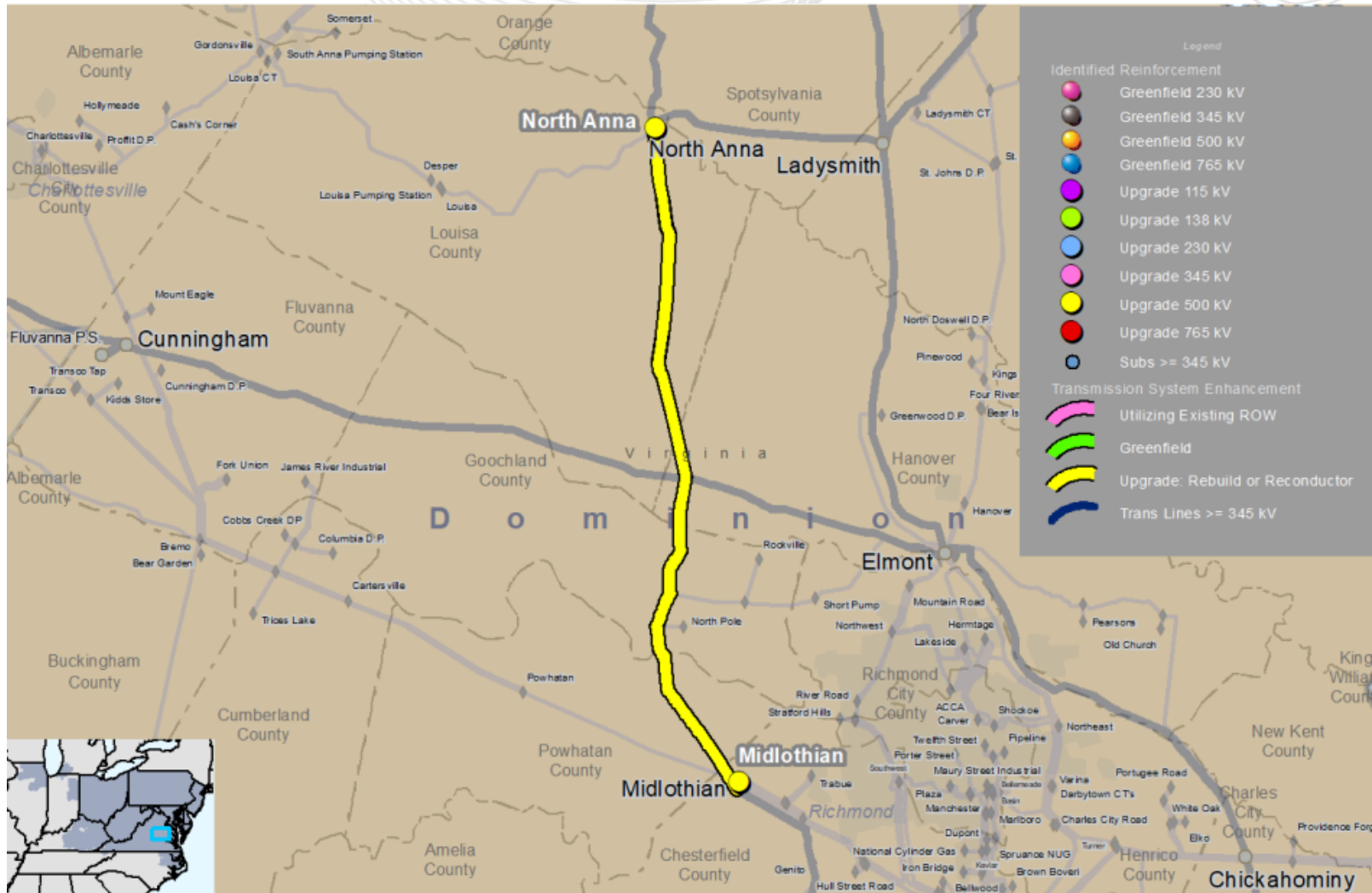




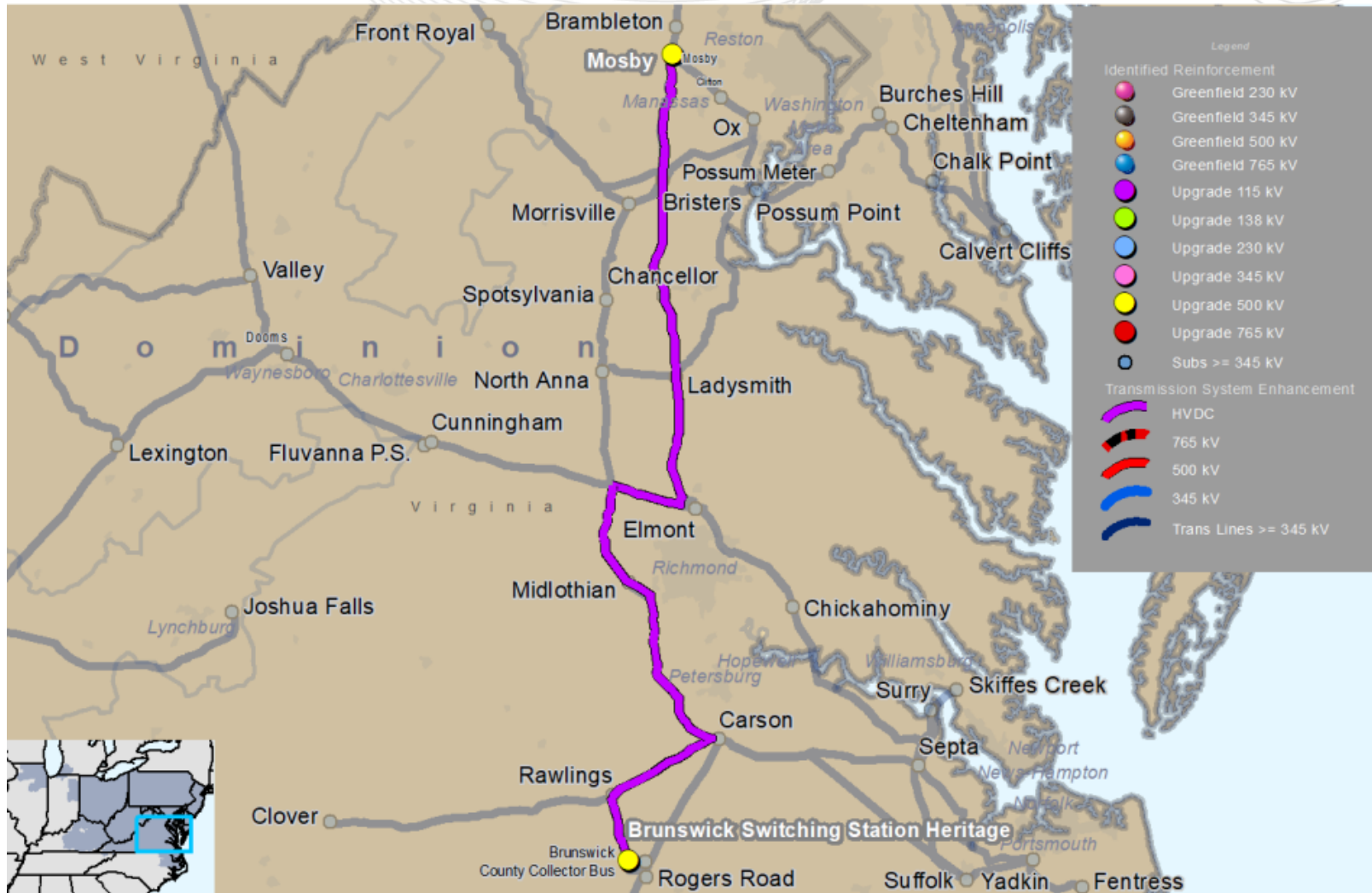
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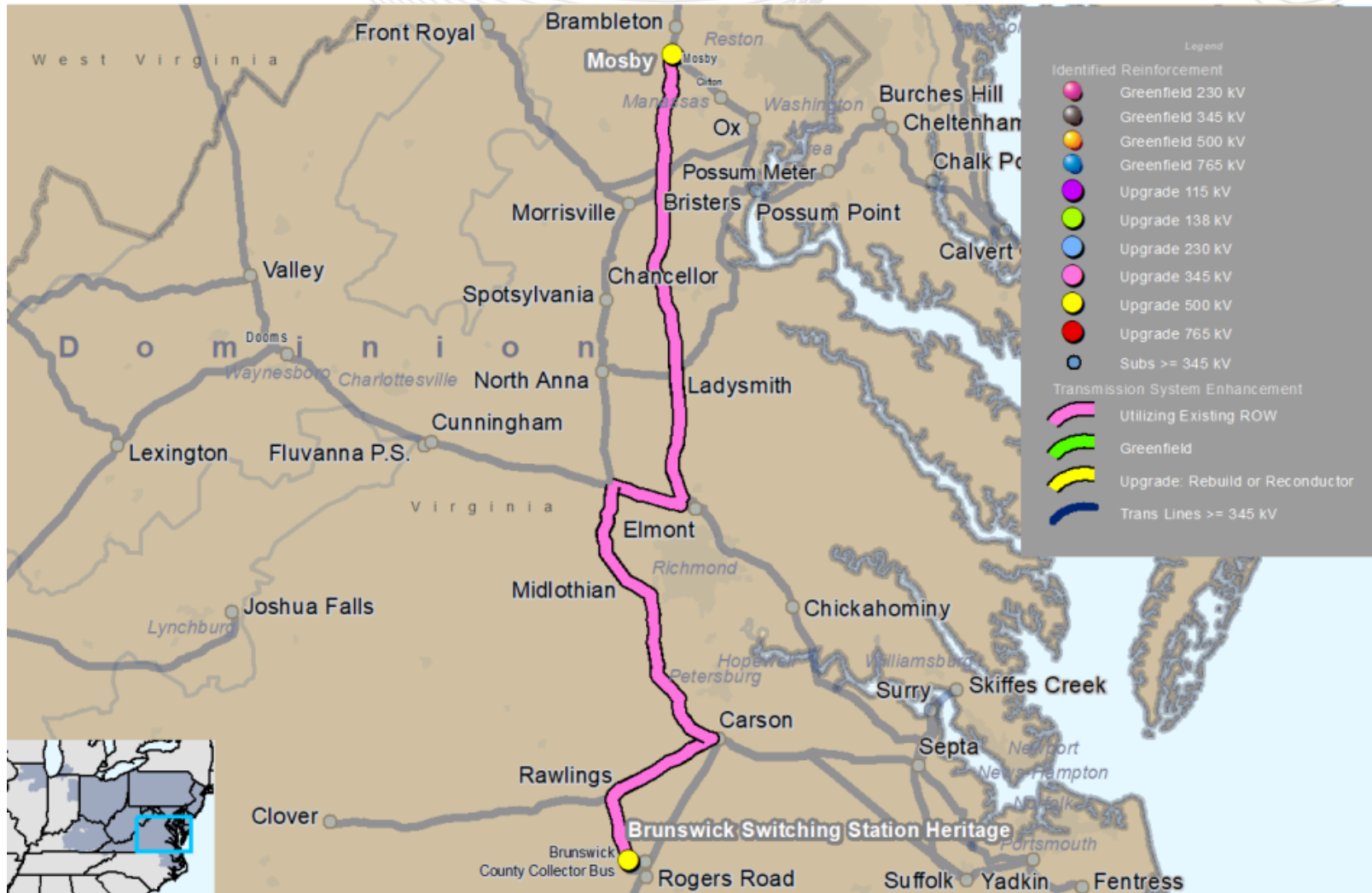


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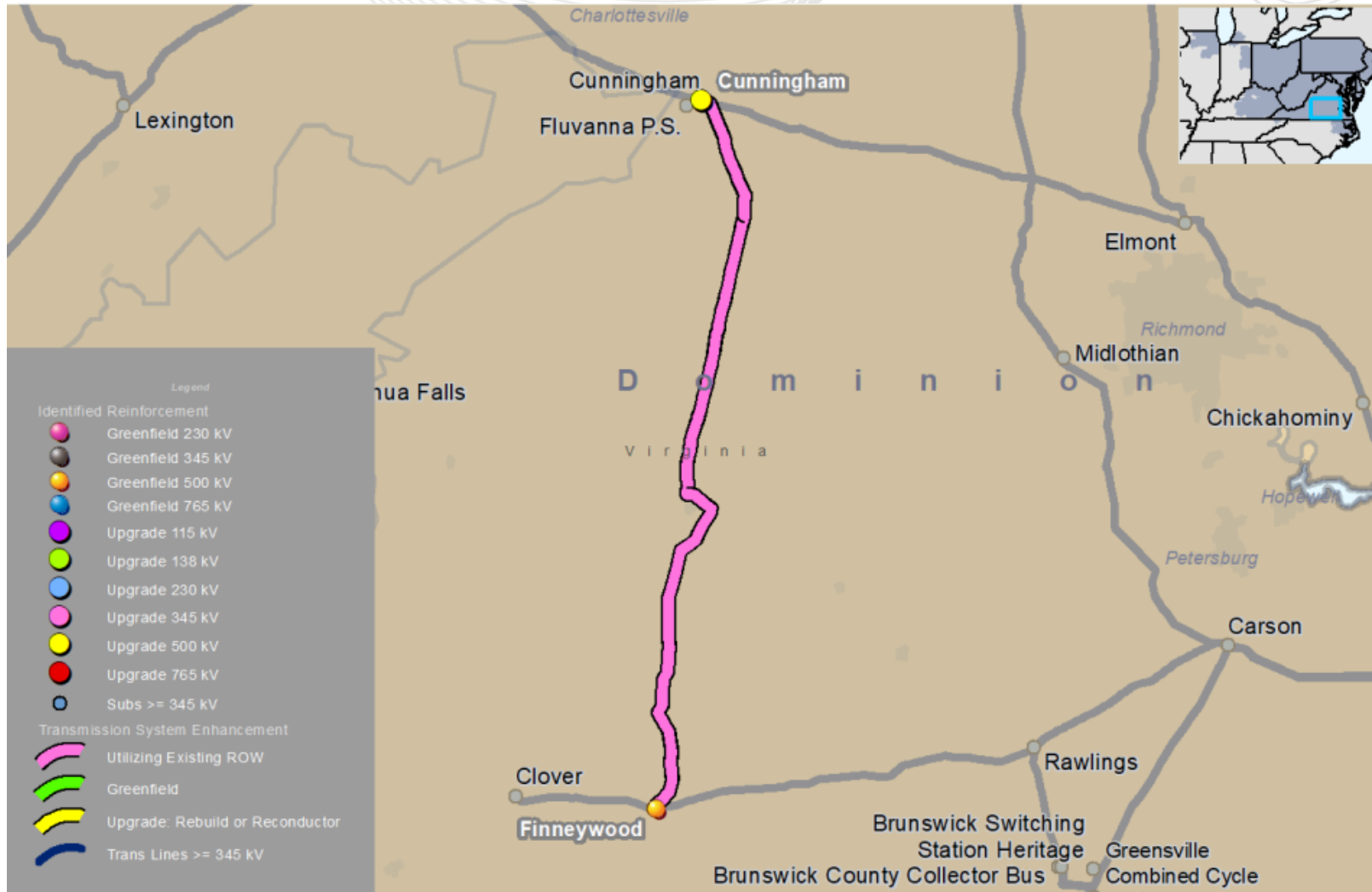




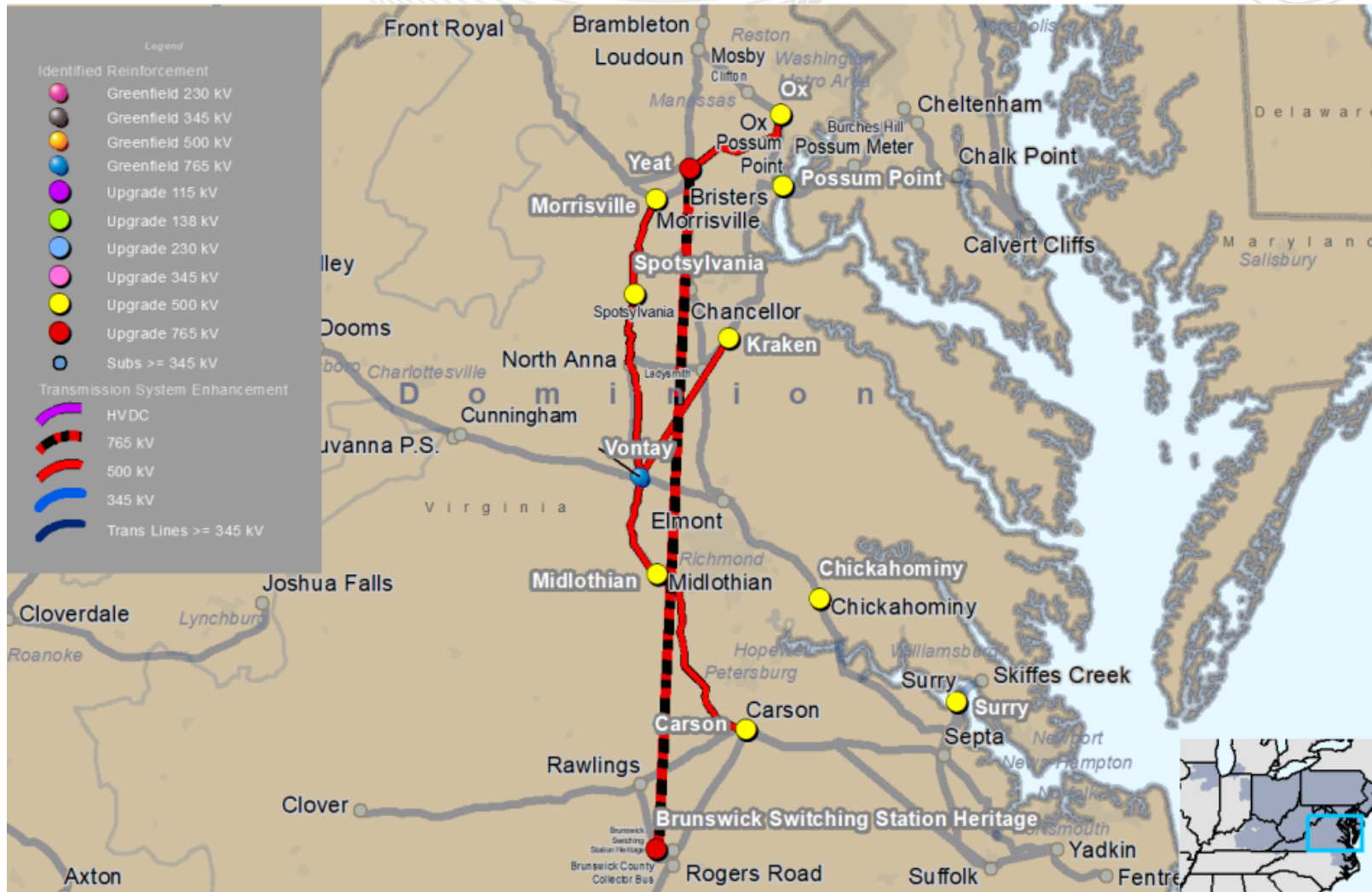
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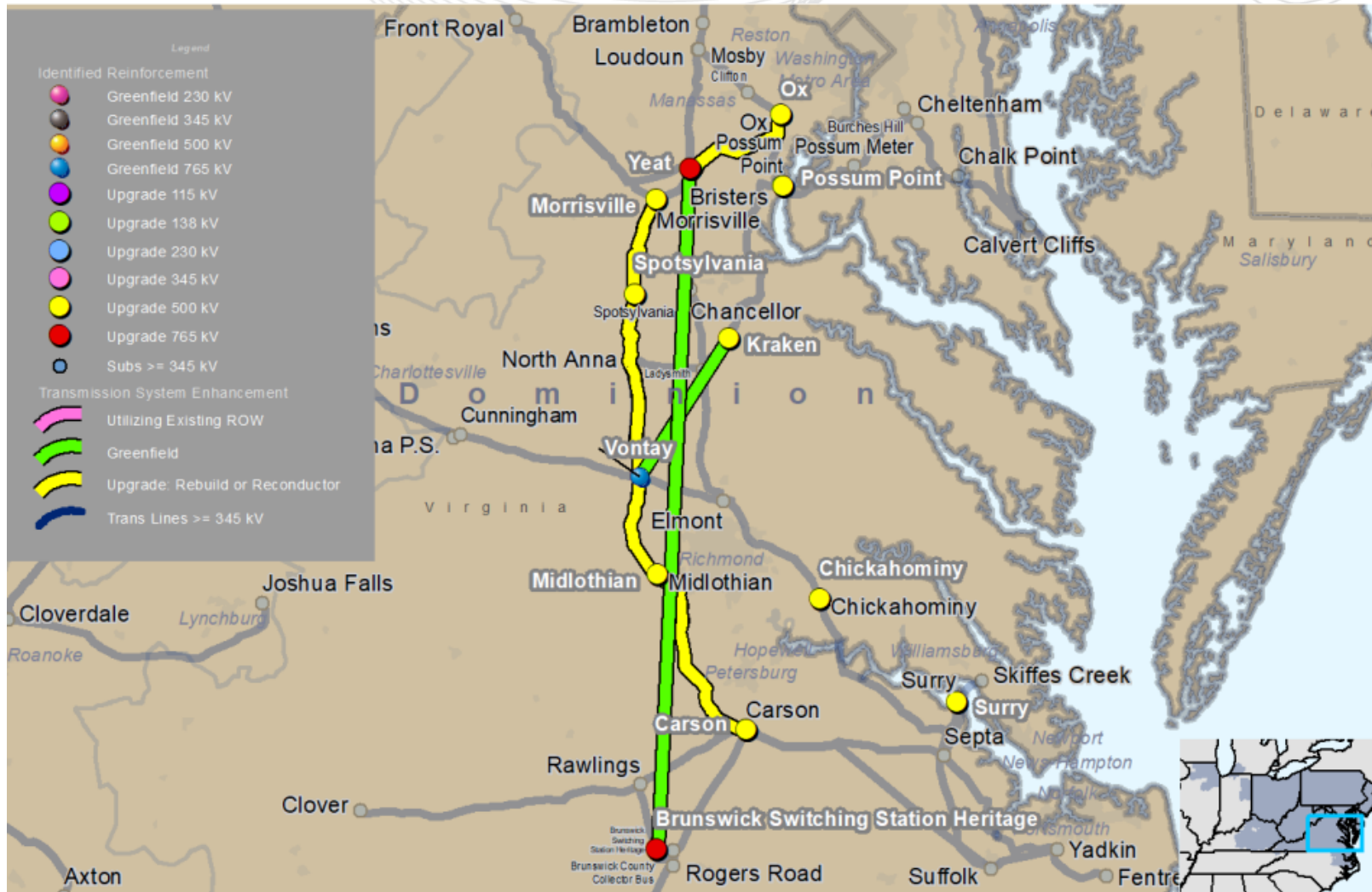


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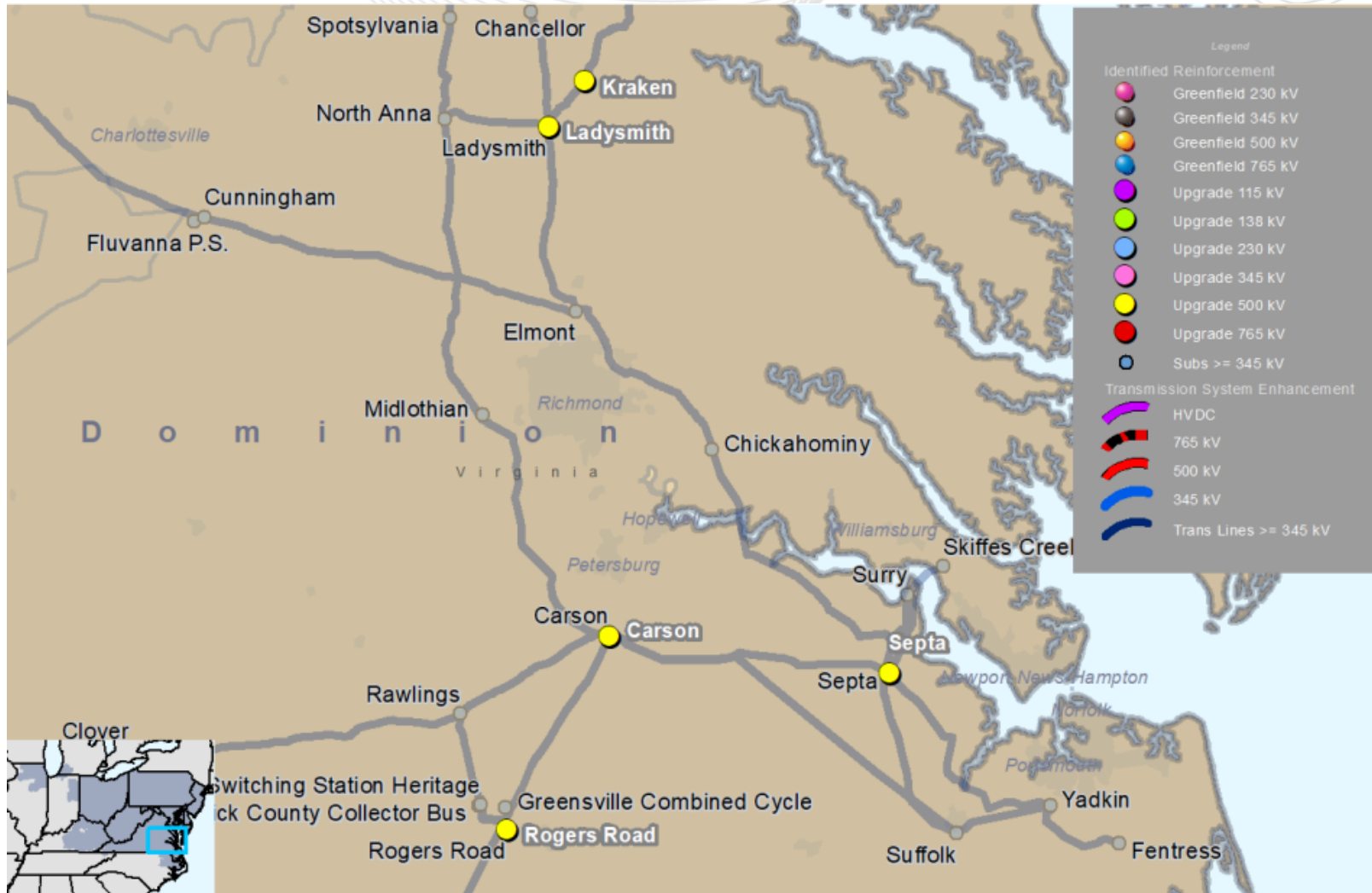


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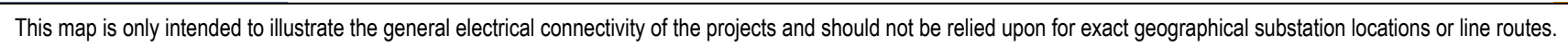


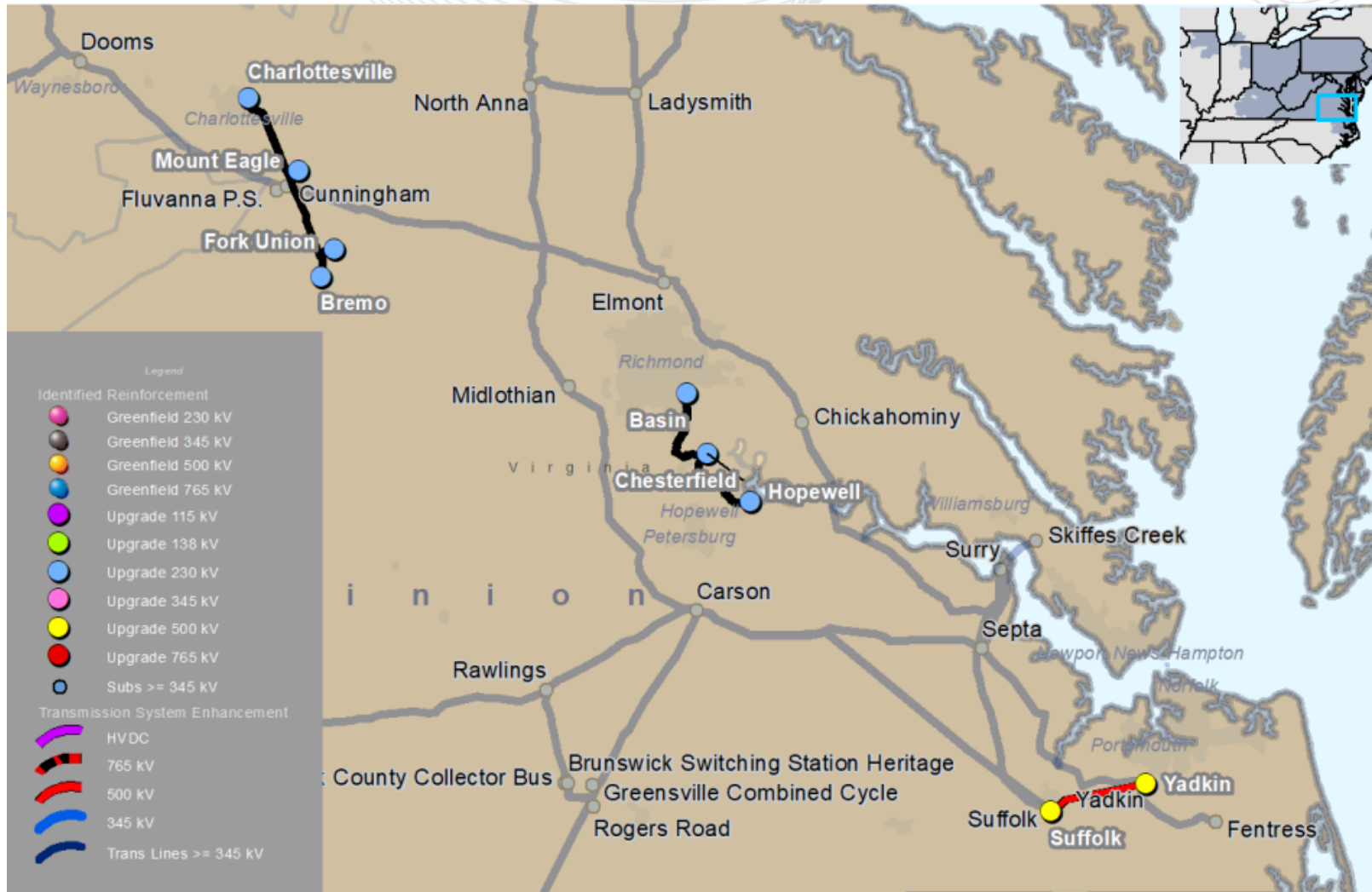


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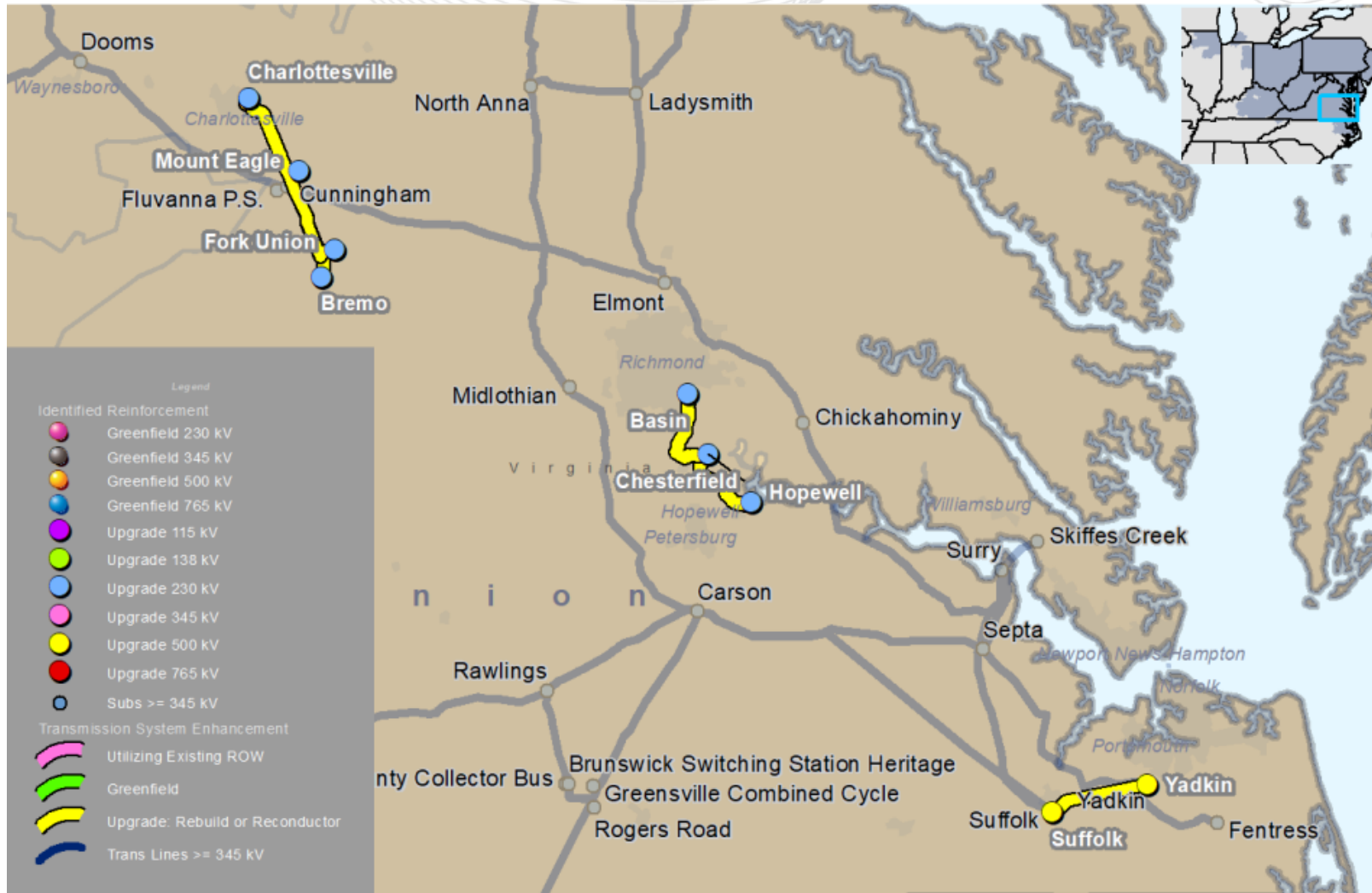
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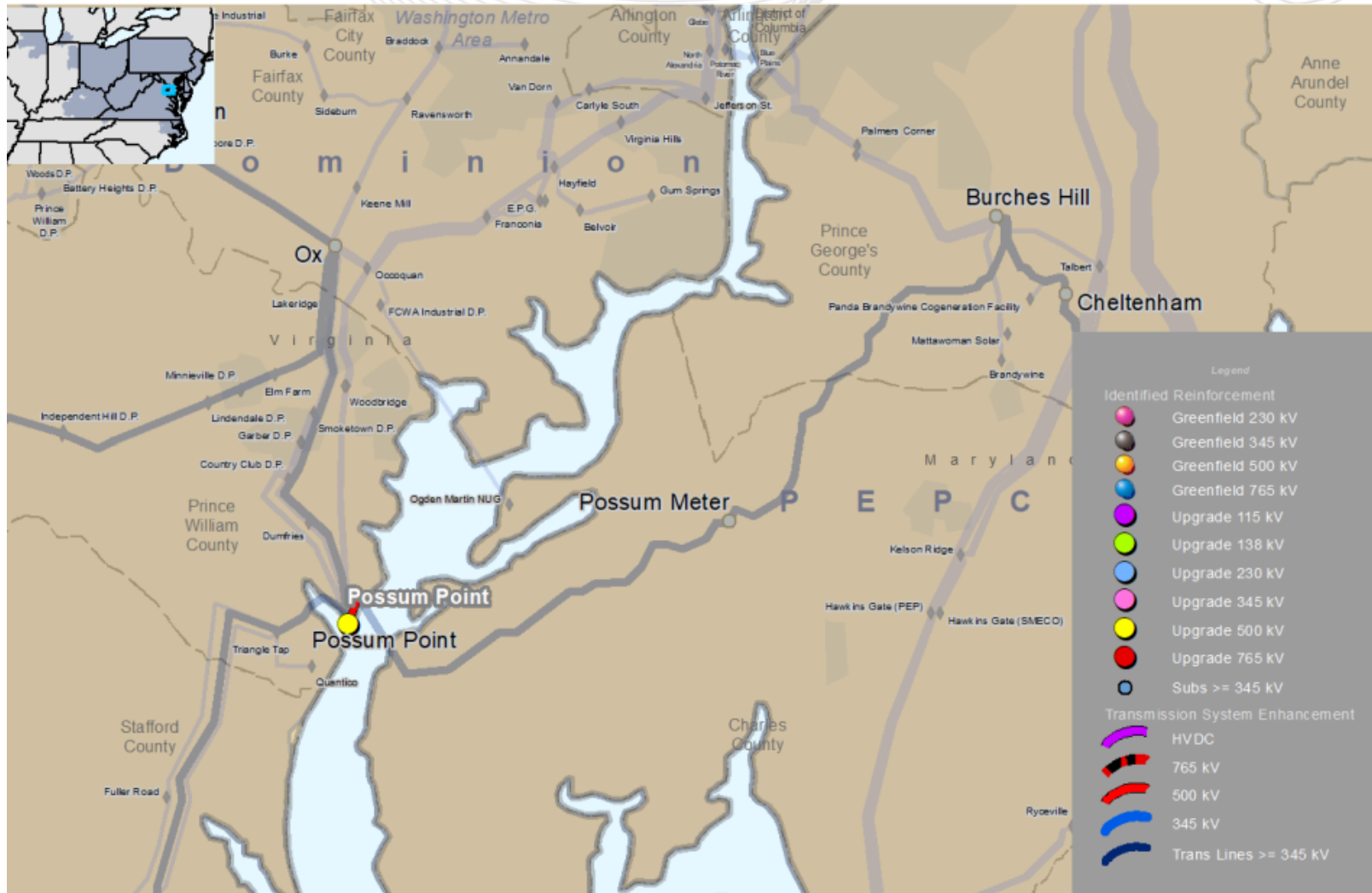


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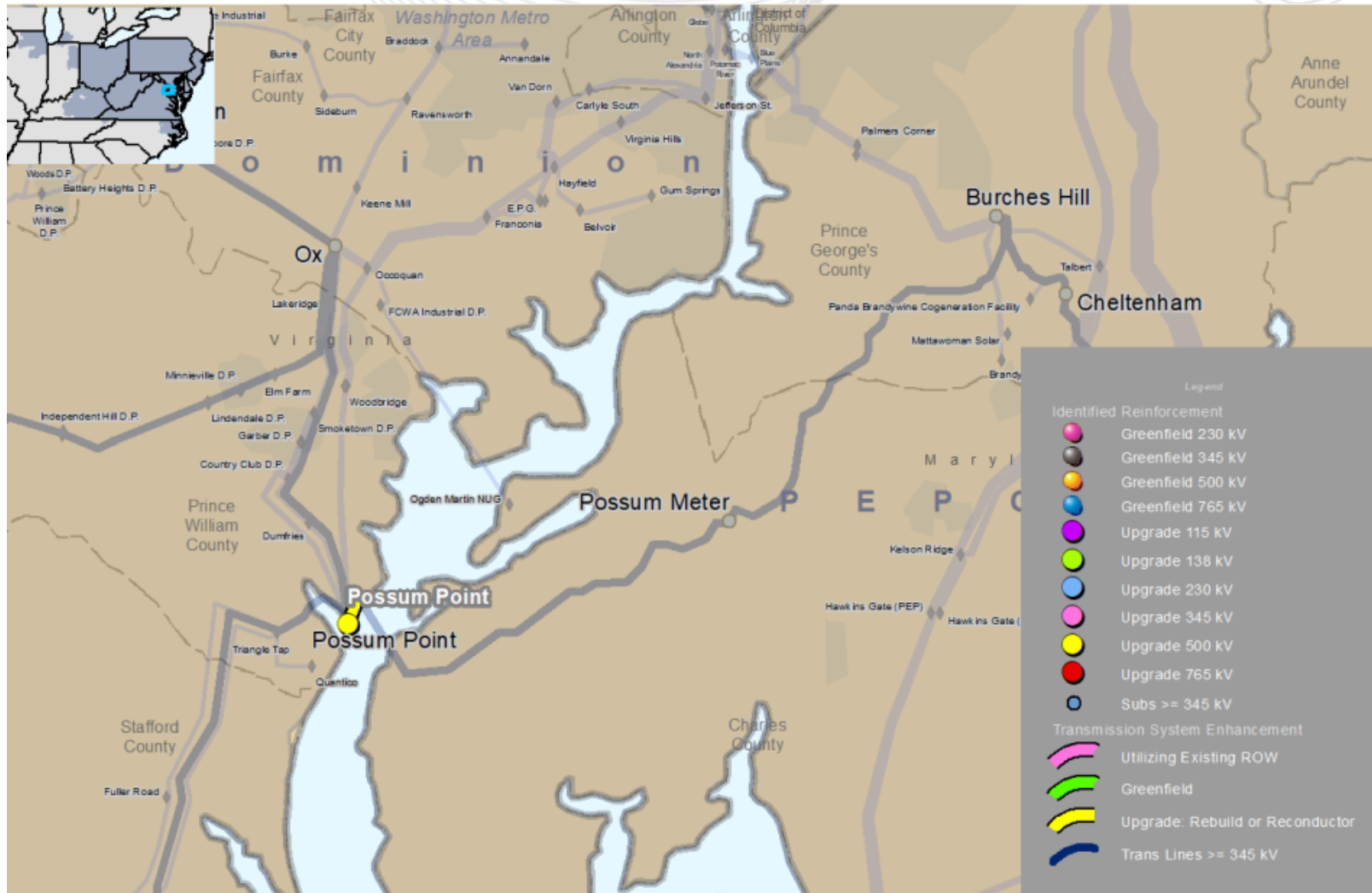




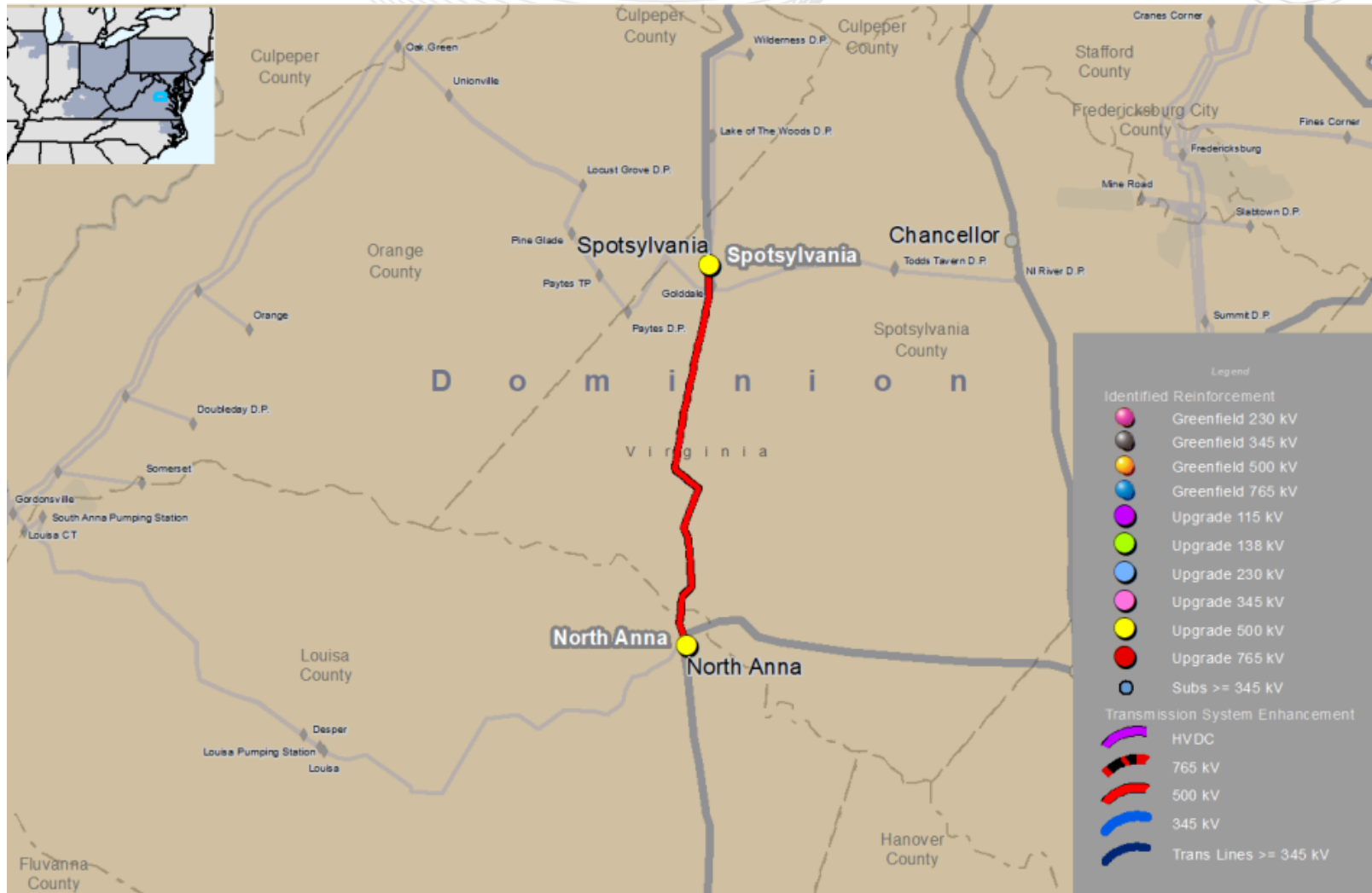
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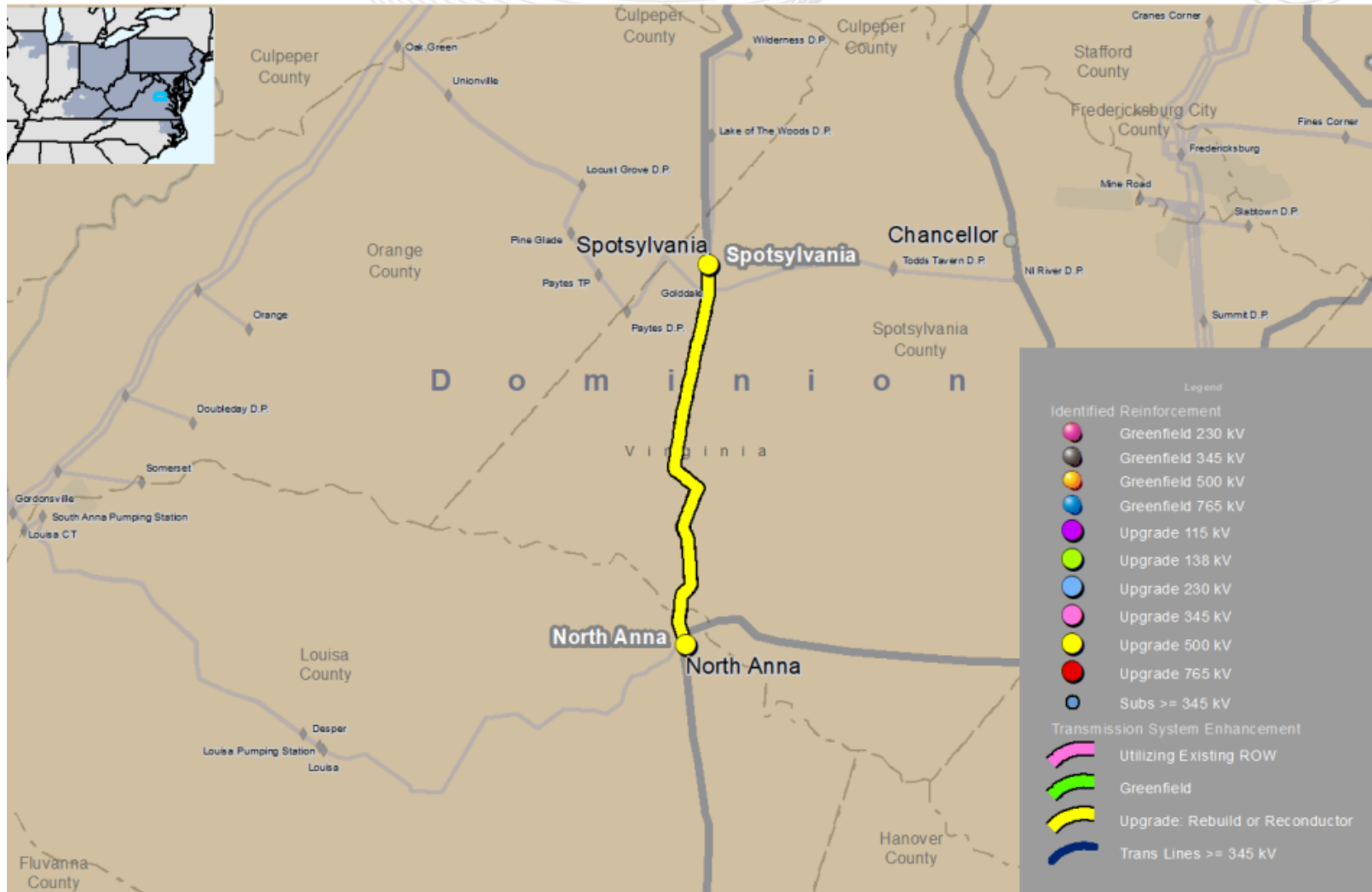


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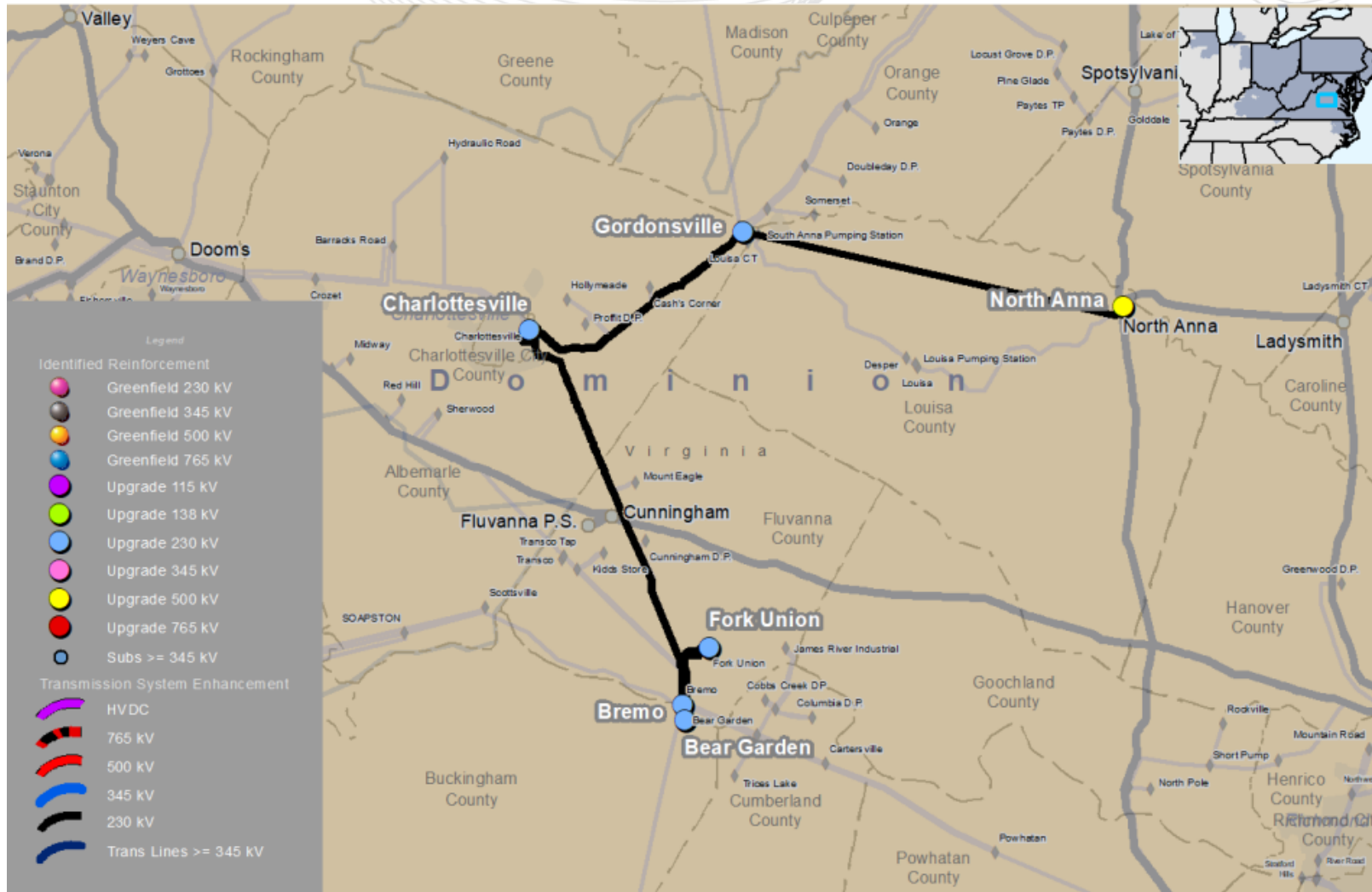


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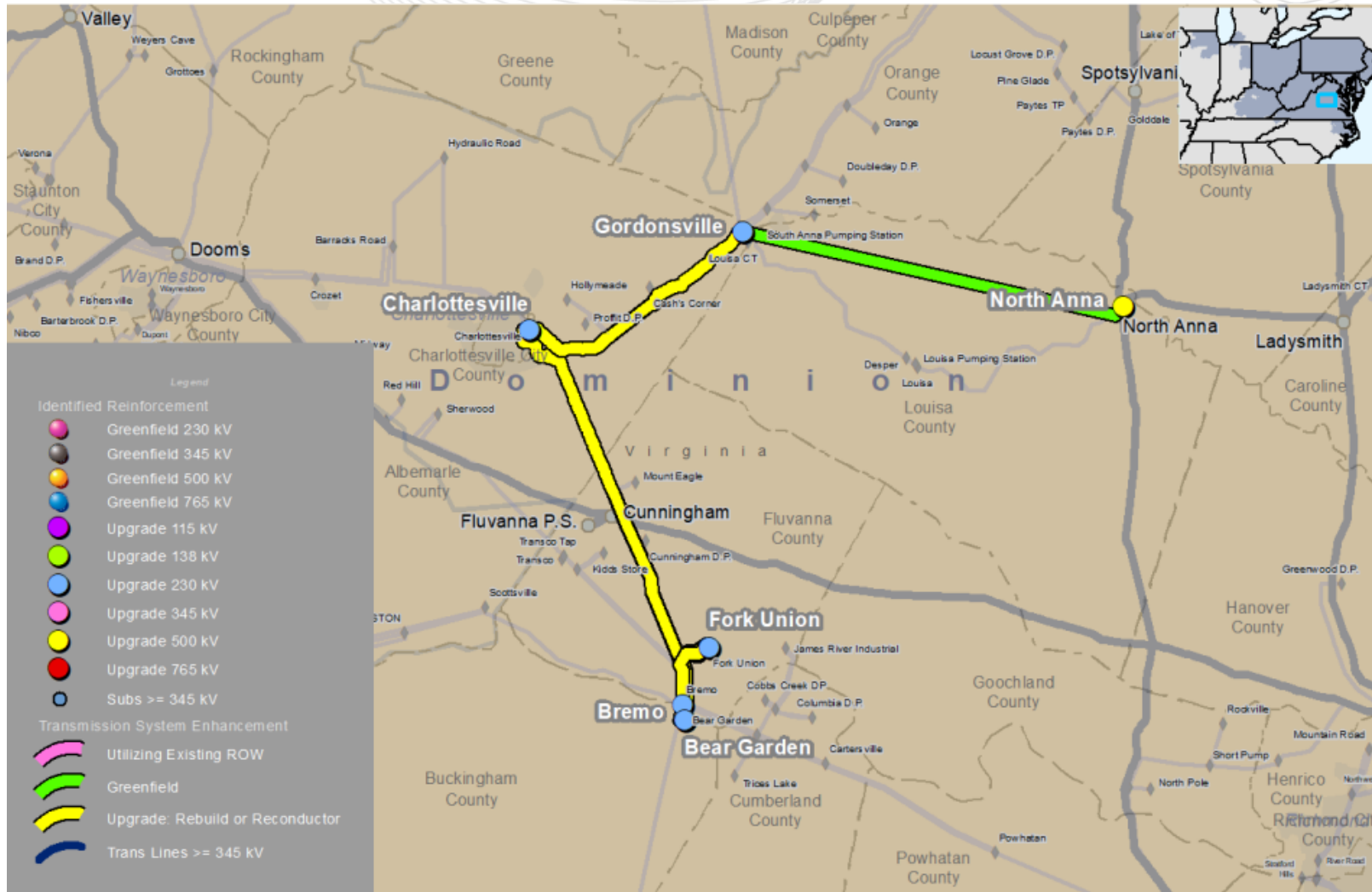




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