

AN ALLETE COMPANY

0 1,000 2,000 Feet  
1 inch = 2,000 feet



For Environmental Review Purposes Only

### Map 7: Floodplains

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

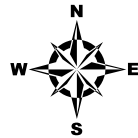
Project Substation	County Boundary
Proposed Route	DNR Stream/River
Proposed Right Of Way	1% Annual Chance Flood Hazard
<b>Proposed Alignment</b>	
Segment 1	
Segment 2	
Segment 3	

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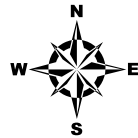
-  Project Substation
-  Proposed Route
-  Proposed Right Of Way
-  Segment 1
-  Segment 2
-  Segment 3
-  County Boundary
-  DNR Stream/River
-  1% Annual Chance Flood Hazard



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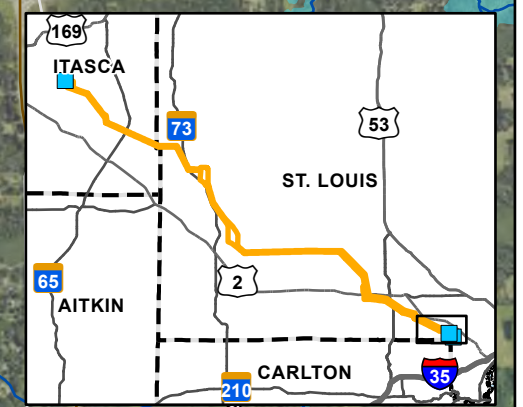
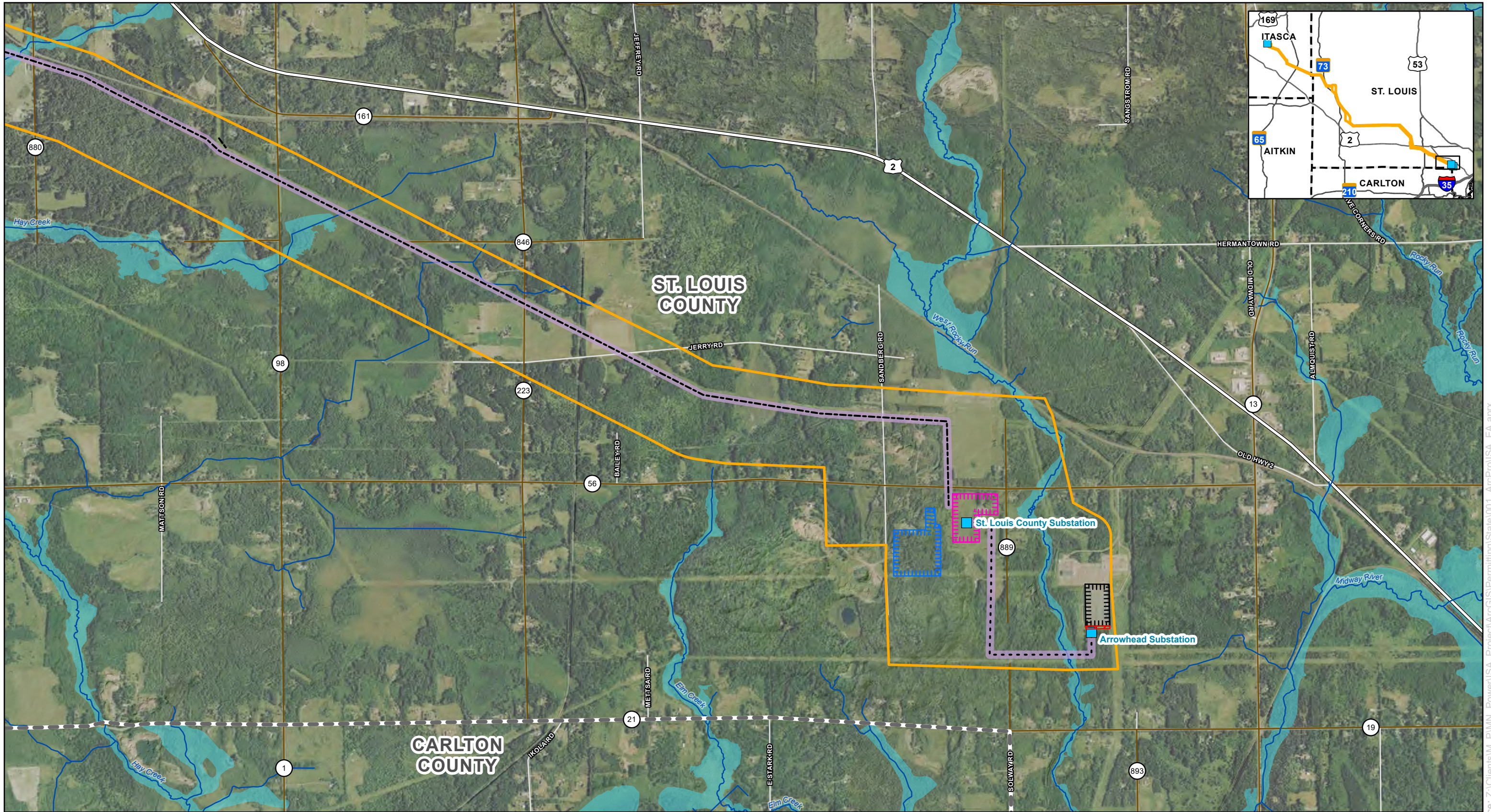
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## Map 7: Floodplains

### Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

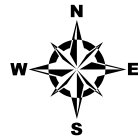
- Project Substation
- Proposed Route
- Proposed Right Of Way
- Segment 1
- Segment 2
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- County Boundary
- DNR Stream/River
- 1% Annual Chance Flood Hazard



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### Map 7: Floodplains

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

-  Project Substation
-  Proposed Route
-  Proposed Right Of Way
- Proposed Alignment**
-  Segment 1
-  Segment 2
-  Segment 3
-  ATC Arrowhead Substation Expansion
-  Existing ATC Arrowhead Substation
-  St. Louis County Substation Expansion
-  HVDC Modernization Footprint
-  County Boundary
-  DNR Stream/River
-  DNR Floodplain



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### Map 8: Wetlands

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

Project Substation	County Boundary	Freshwater Forested/Shrub Wetland
Proposed Route	<b>MDNR Wetland Type</b>	Freshwater Pond
Proposed Right Of Way	Freshwater Emergent Wetland	Freshwater Shrub Wetland
<b>Proposed Alignment</b>	Freshwater Forested Wetland	Freshwater Shrub/Emergent Wetland
Segment 1	Freshwater Forested/Emergent Wetland	Lake
Segment 2	Riverine	Lake
Segment 3		

ISA Combined Application  
Docket Nos. E015/CN-25-111 and E015/TL-25-112



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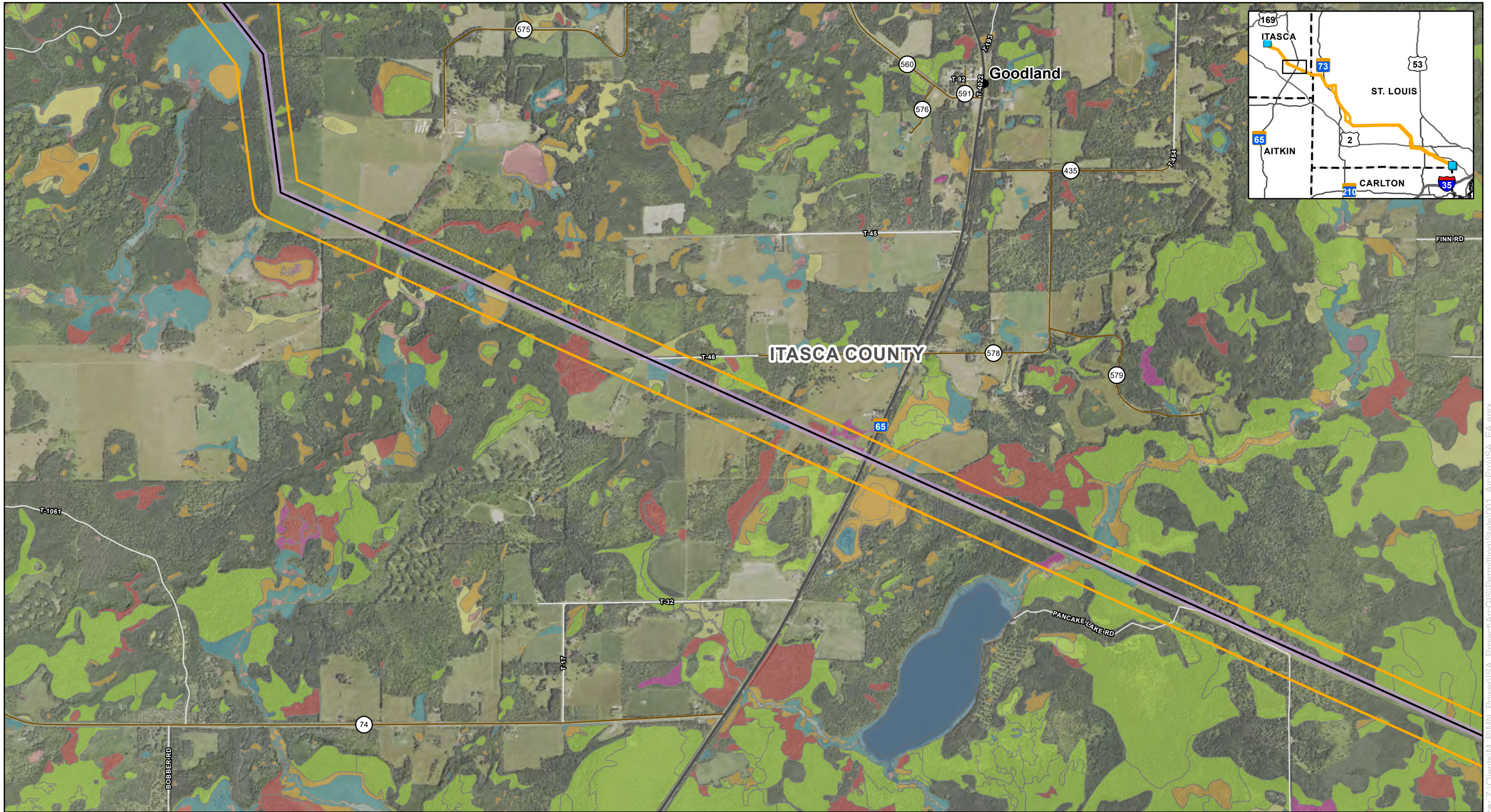
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### Map 8: Wetlands

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

Project Substation	County Boundary	Freshwater Forested/Shrub Wetland
Proposed Route	<b>MDNR Wetland Type</b>	Freshwater Pond
Proposed Right Of Way	Freshwater Emergent Wetland	Freshwater Shrub Wetland
<b>Proposed Alignment</b>	Freshwater Forested Wetland	Freshwater Shrub/Emergent Wetland
Segment 1	Freshwater Forested/Emergent Wetland	Lake
Segment 2	Riverine	ISA Combined Application
Segment 3		



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### Map 8: Wetlands

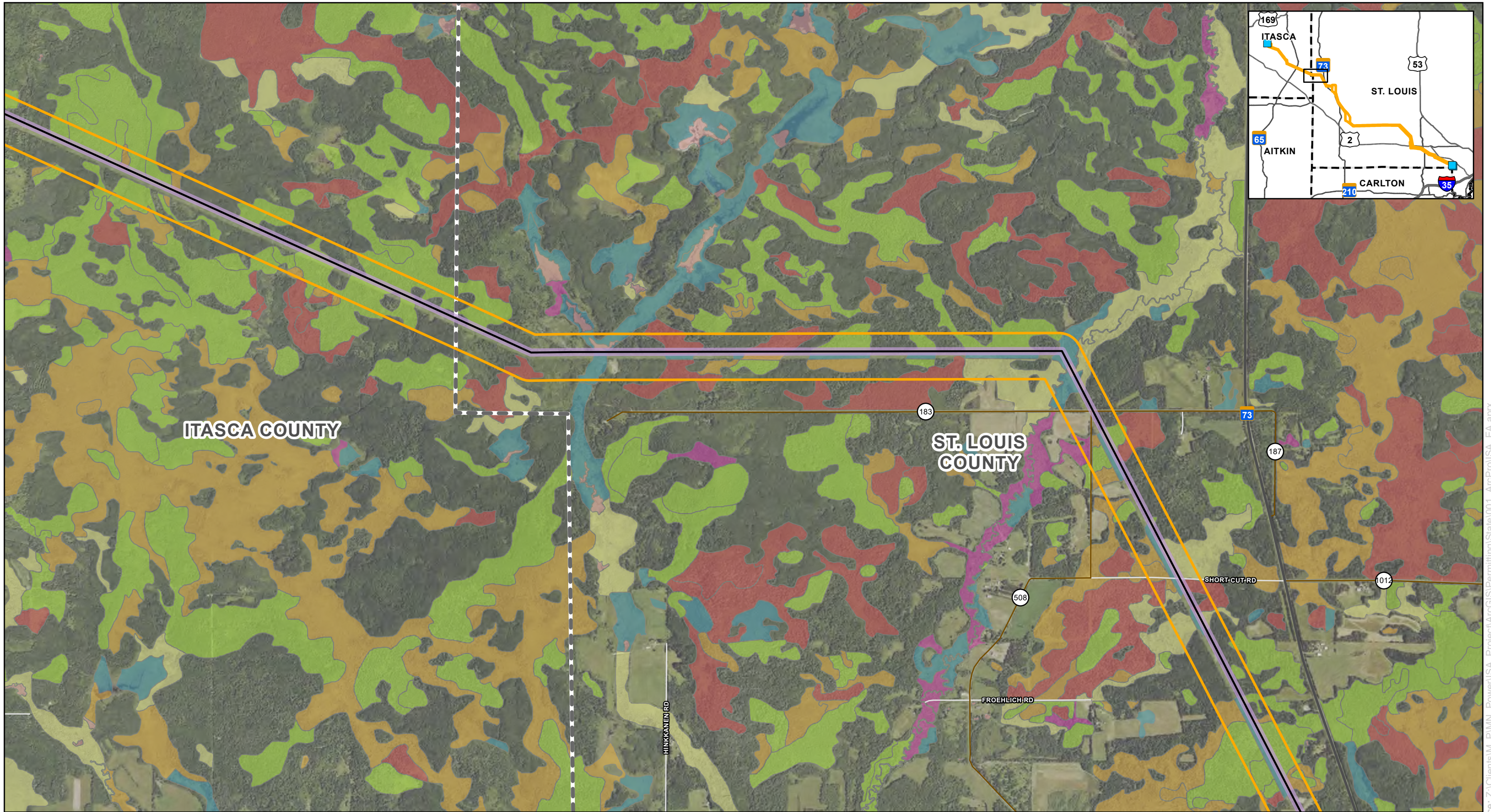
## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project



Minnesota Power  
Itasca and St. Louis Counties, Minnesota

- |                           |                                      |                                   |
|---------------------------|--------------------------------------|-----------------------------------|
| Project Substation        | County Boundary                      | Freshwater Pond                   |
| Proposed Route            | <b>MDNR Wetland Type</b>             | Freshwater Shrub Wetland          |
| Proposed Right Of Way     | Freshwater Emergent Wetland          | Freshwater Shrub/Emergent Wetland |
| <b>Proposed Alignment</b> | Freshwater Forested Wetland          | Lake                              |
| Segment 1                 | Freshwater Forested/Emergent Wetland | Riverine                          |
| Segment 2                 | Freshwater Forested/Shrub Wetland    |                                   |
| Segment 3                 |                                      |                                   |
| City                      |                                      |                                   |

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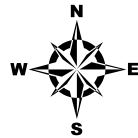
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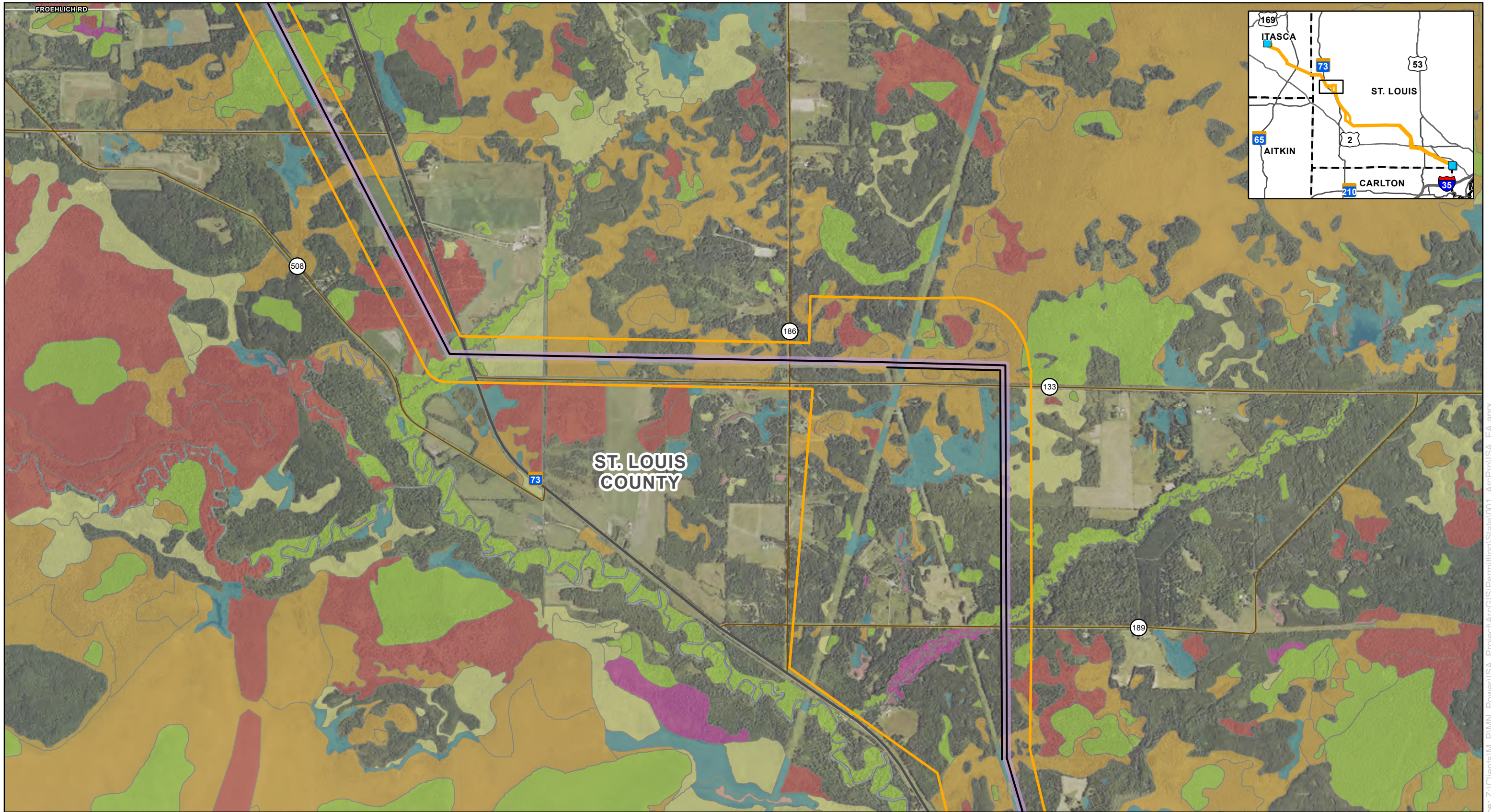




**Map 8: Wetlands**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li> Project Substation</li> <li> Proposed Route</li> <li> Proposed Right Of Way</li> <li><b>Proposed Alignment</b></li> <li> Segment 1</li> <li> Segment 2</li> <li> Segment 3</li> </ul> | <ul style="list-style-type: none"> <li> County Boundary</li> <li><b>MDNR Wetland Type</b></li> <li> Freshwater Emergent Wetland</li> <li> Freshwater Forested Wetland</li> <li> Freshwater Forested/Emergent Wetland</li> </ul> | <ul style="list-style-type: none"> <li> Freshwater Forested/Shrub Wetland</li> <li> Freshwater Pond</li> <li> Freshwater Shrub Wetland</li> <li> Freshwater Shrub/Emergent Wetland</li> <li> Riverine</li> </ul> |
|---|---|---|

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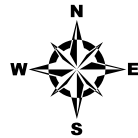














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**Map 8: Wetlands**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
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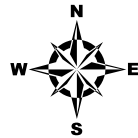
- |   |  |   |
|---|--|---|
|  Project Substation    |  County Boundary                      |  Freshwater Forested/Shrub Wetland |
|  Proposed Route        | <b>MDNR Wetland Type</b>   |  Freshwater Pond                   |
|  Proposed Right Of Way |  Freshwater Emergent Wetland          |  Freshwater Shrub Wetland          |
| <b>Proposed Alignment</b>   |  Freshwater Forested Wetland          |  Freshwater Shrub/Emergent Wetland |
|  Segment 1             |  Freshwater Forested/Emergent Wetland |  Riverine                          |
|  Segment 2             |  |   |
|  Segment 3             |  |   |

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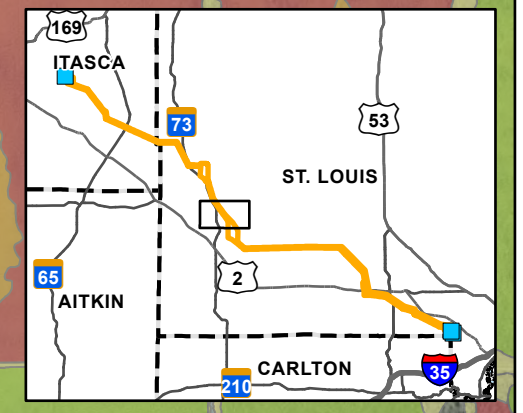
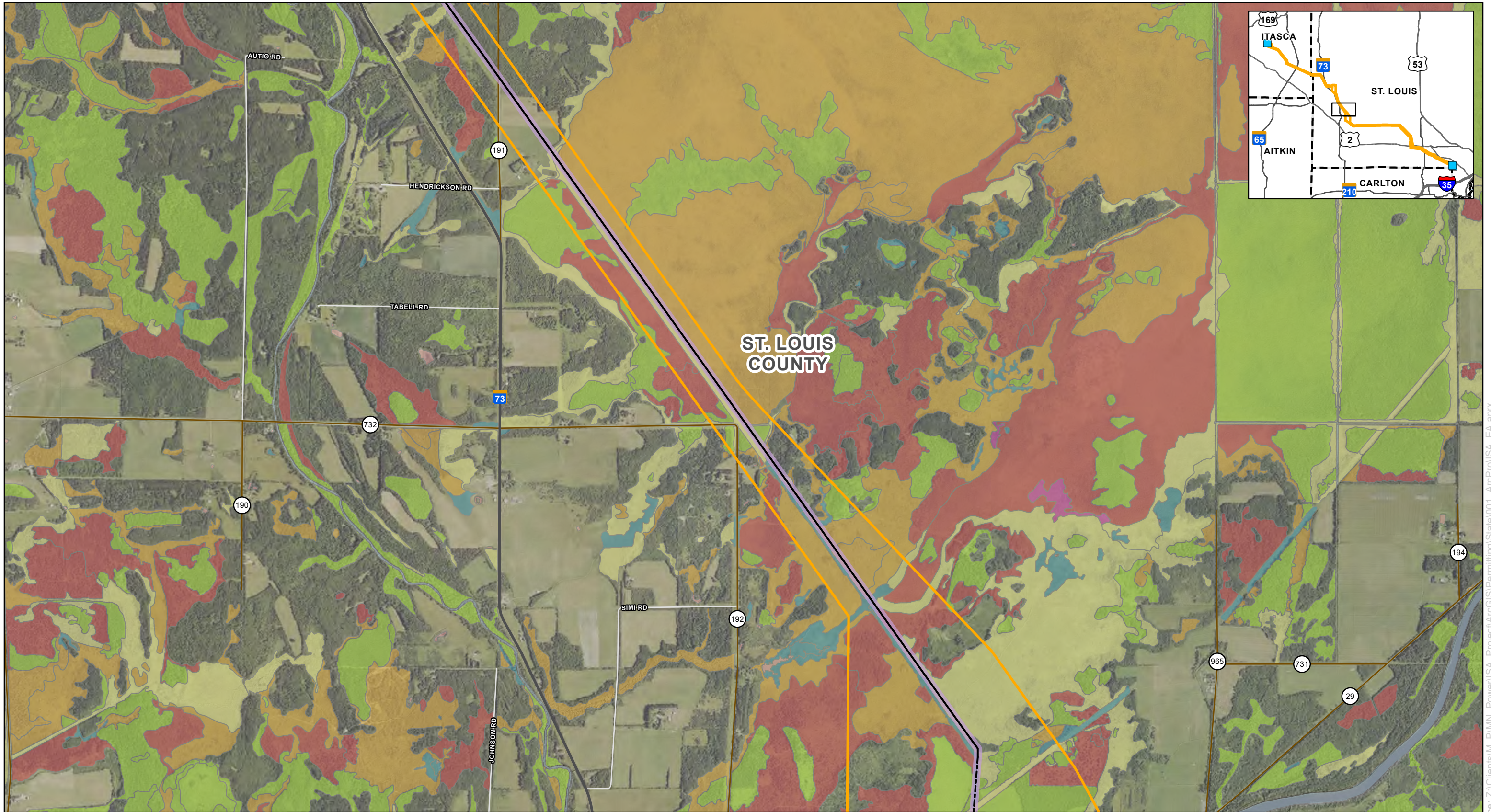
### Map 8: Wetlands



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Minnesota Power  
Itasca and St. Louis Counties, Minnesota

- |   |  |   |
|---|--|---|
|  Project Substation    |  County Boundary                      |  Freshwater Forested/Shrub Wetland |
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| <b>Proposed Alignment</b>   |  Freshwater Forested Wetland          |  Freshwater Shrub/Emergent Wetland |
|  Segment 1             |  Freshwater Forested/Emergent Wetland |  Riverine                          |
|  Segment 2             |  |   |
|  Segment 3             |  |   |

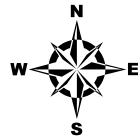
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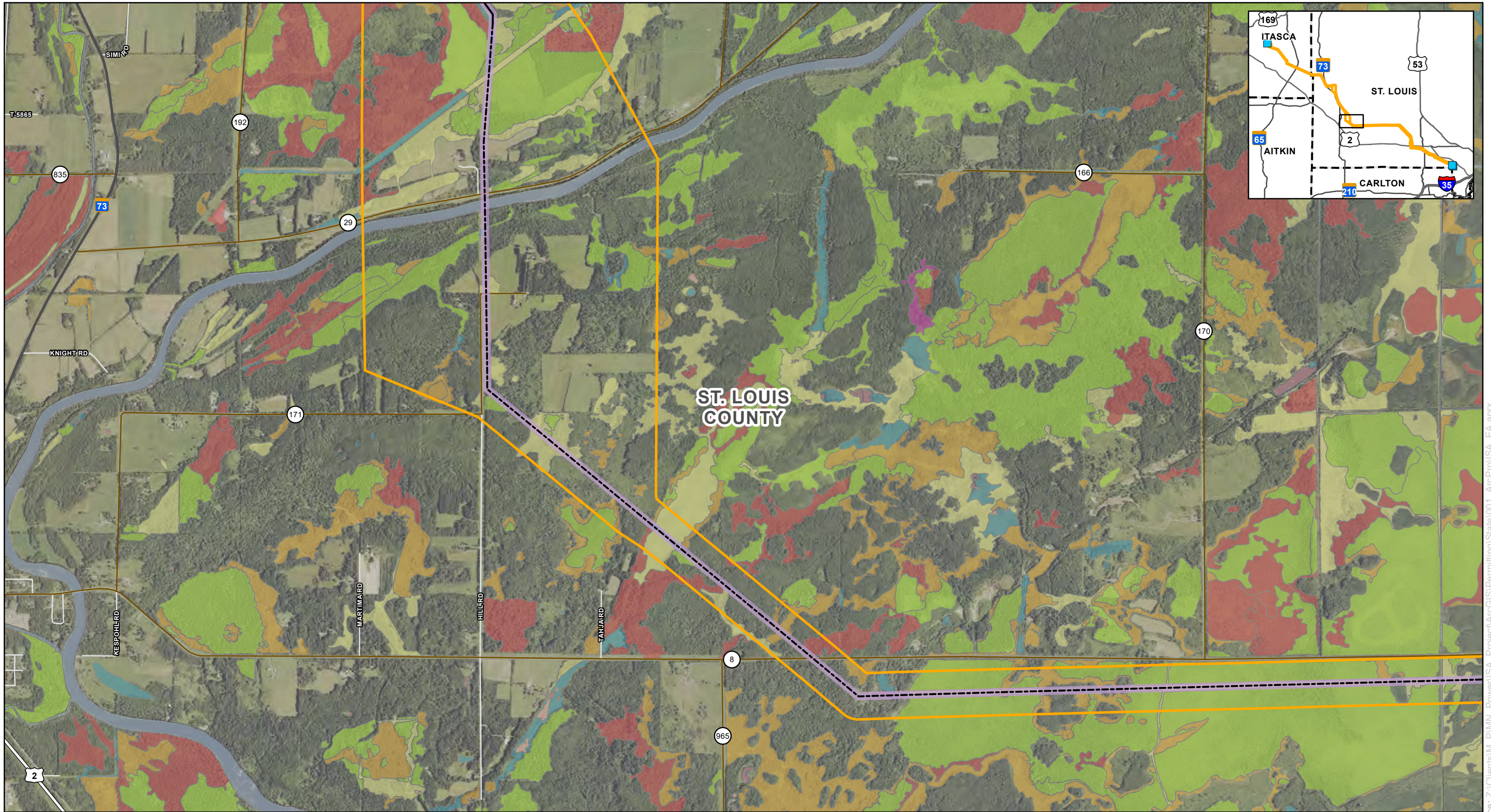




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 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

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











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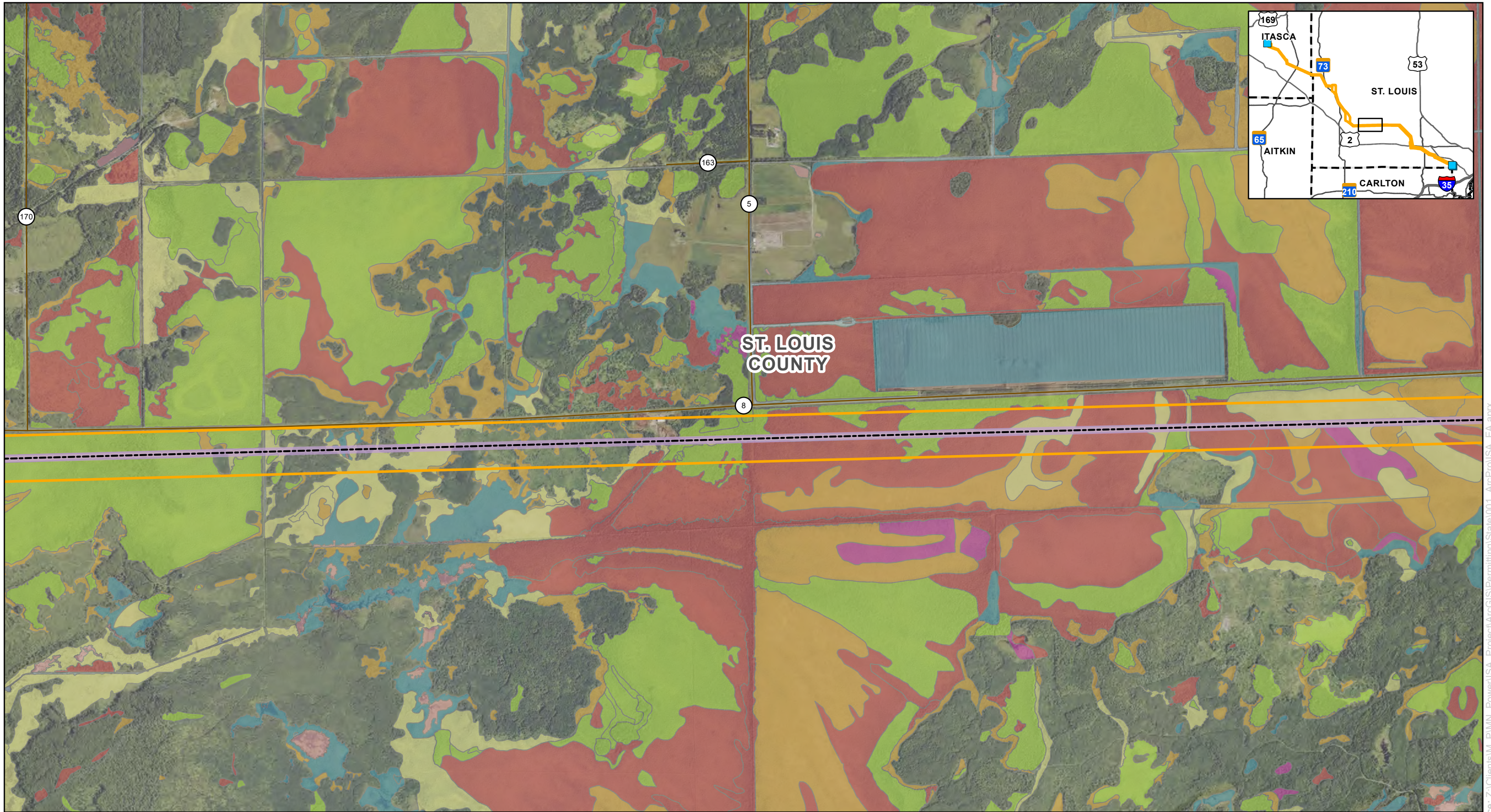




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Minnesota Power  
Itasca and St. Louis Counties, Minnesota

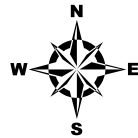
-  Project Substation
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-  Segment 1
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-  County Boundary
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-  Freshwater Pond
-  Freshwater Shrub Wetland
-  Freshwater Shrub/Emergent Wetland
-  Riverine





















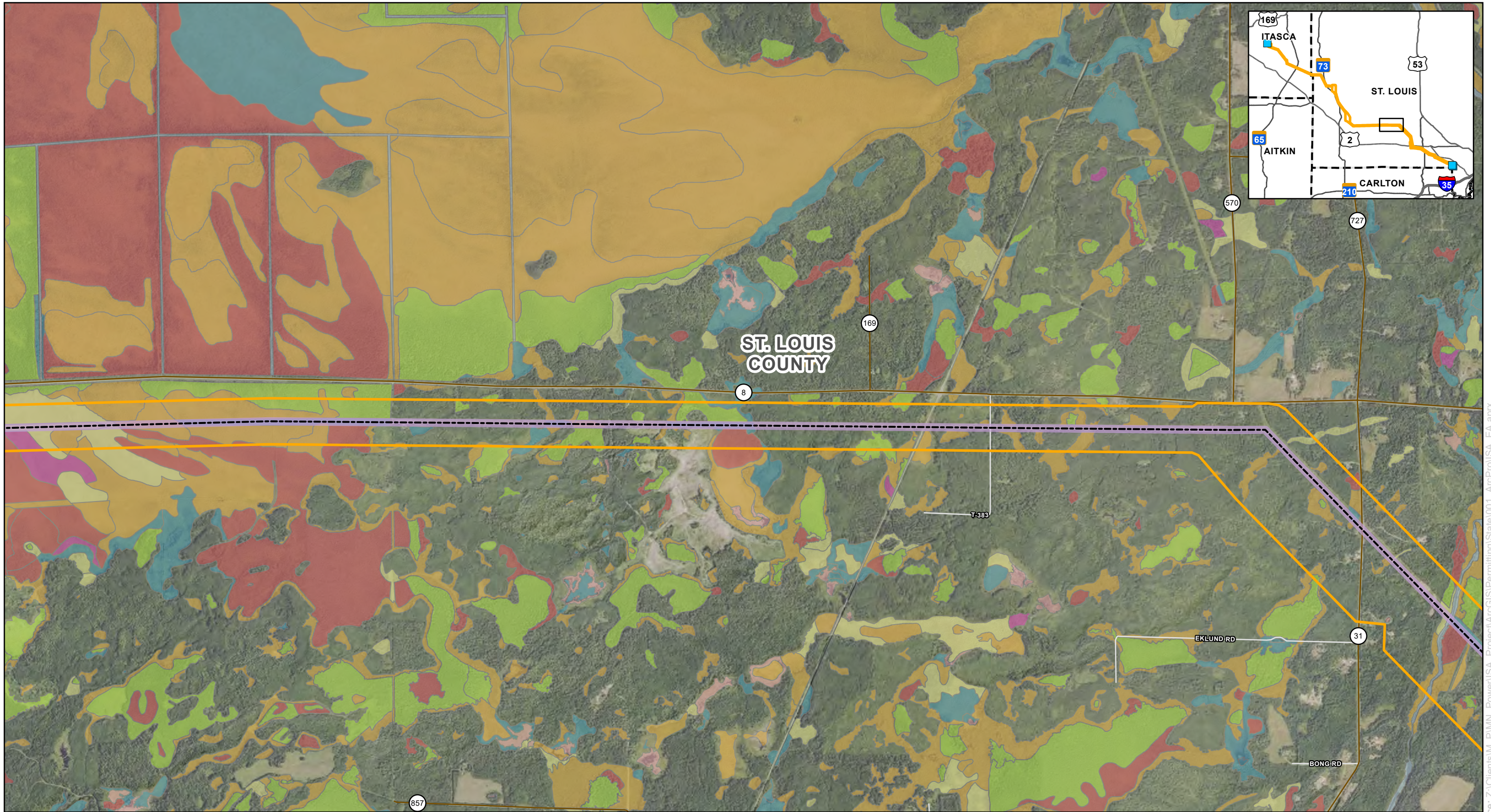
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 Minnesota Power  
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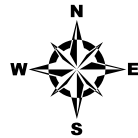
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|---|---|---|





















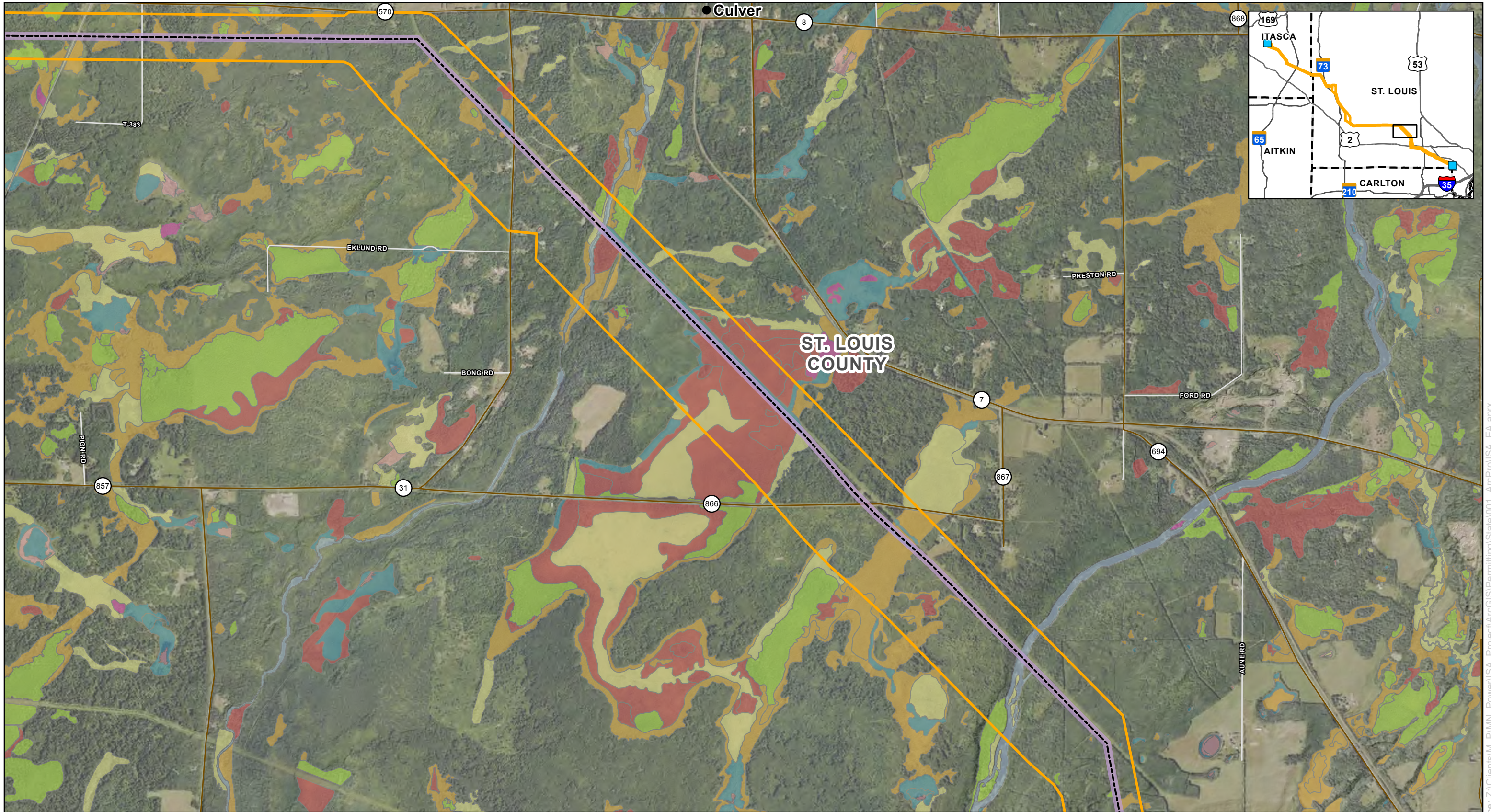
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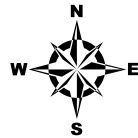
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 Itasca and St. Louis Counties, Minnesota

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|---|--|---|
|  Project Substation    |  County Boundary                      |  Freshwater Forested/Shrub Wetland |
|  Proposed Route        | <b>MDNR Wetland Type</b>   |  Freshwater Pond                   |
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| <b>Proposed Alignment</b>   |  Freshwater Forested Wetland          |  Freshwater Shrub/Emergent Wetland |
|  Segment 1             |  Freshwater Forested/Emergent Wetland |  Riverine                          |
|  Segment 2             |  |   |
|  Segment 3             |  |   |



















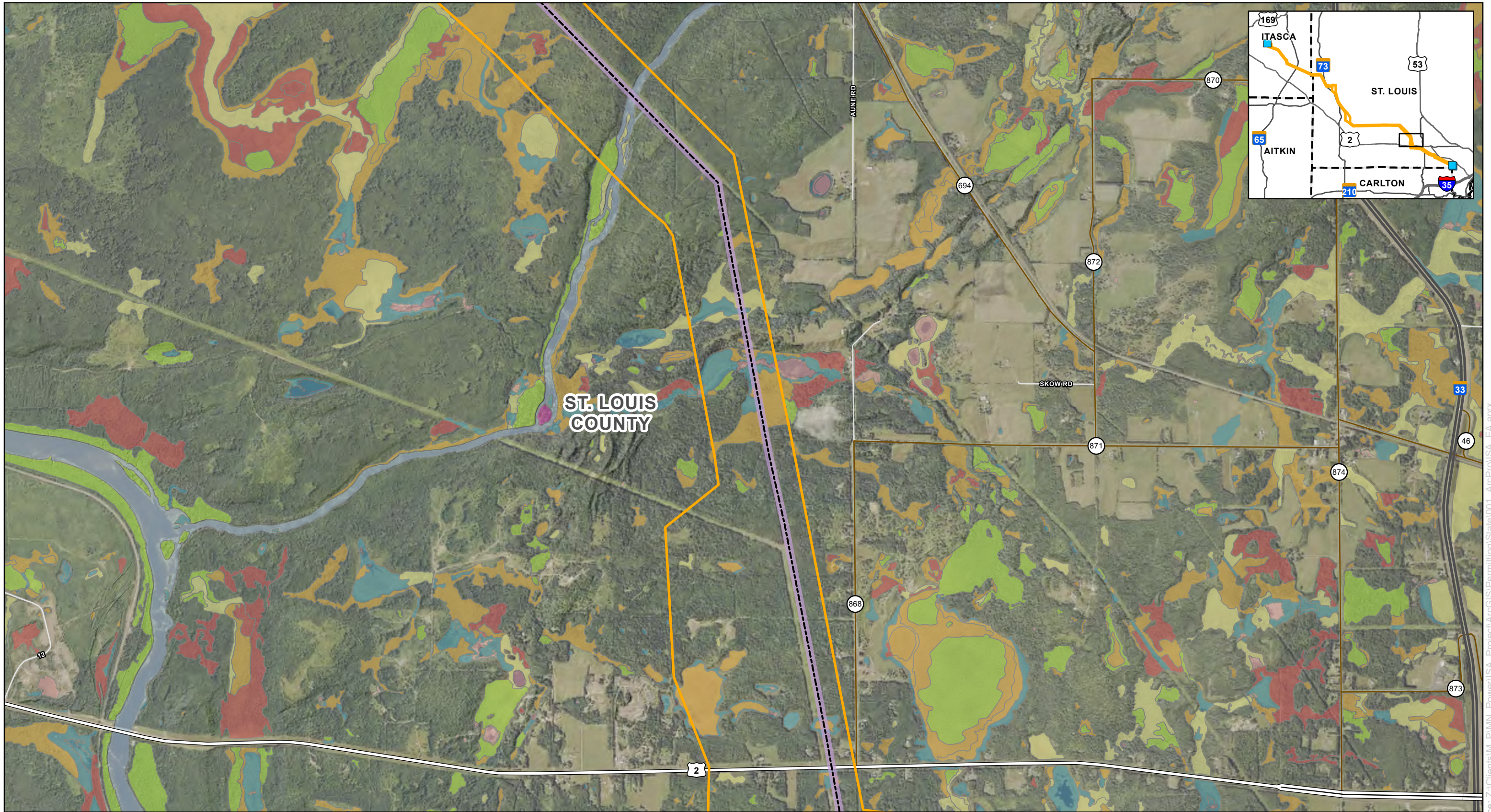


  
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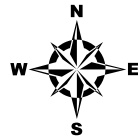
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 Itasca and St. Louis Counties, Minnesota

- |   |  |   |
|---|--|---|
|  Project Substation    |  City                                 |  Freshwater Forested/Shrub Wetland |
|  Proposed Route        |  County Boundary                      |  Freshwater Pond                   |
|  Proposed Right Of Way | <b>MDNR Wetland Type</b>   |  Freshwater Shrub Wetland          |
| <b>Proposed Alignment</b>   |  Freshwater Emergent Wetland          |  Freshwater Shrub/Emergent Wetland |
|  Segment 1             |  Freshwater Forested Wetland          |  Riverine                          |
|  Segment 2             |  Freshwater Forested/Emergent Wetland |   |
|  Segment 3             |  |   |



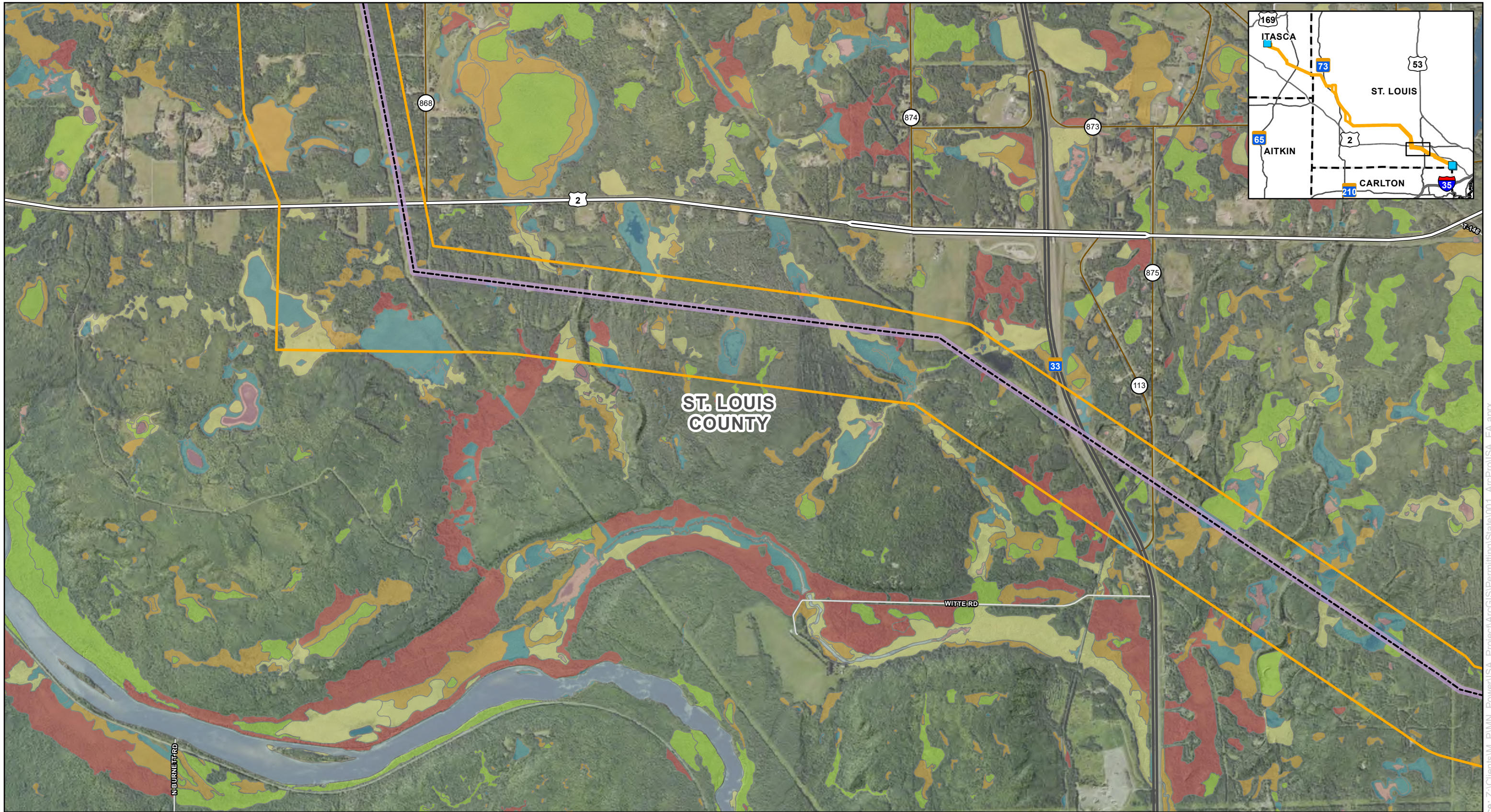

  
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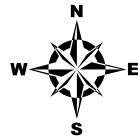
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 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |                           |                                      |                                   |
|---------------------------|--------------------------------------|-----------------------------------|
| Project Substation        | County Boundary                      | Freshwater Forested/Shrub Wetland |
| Proposed Route            | <b>MDNR Wetland Type</b>             | Freshwater Pond                   |
| Proposed Right Of Way     | Freshwater Emergent Wetland          | Freshwater Shrub Wetland          |
| <b>Proposed Alignment</b> | Freshwater Forested Wetland          | Freshwater Shrub/Emergent Wetland |
| Segment 1                 | Freshwater Forested/Emergent Wetland | Riverine                          |
| Segment 2                 |                                      |                                   |
| Segment 3                 |                                      |                                   |


















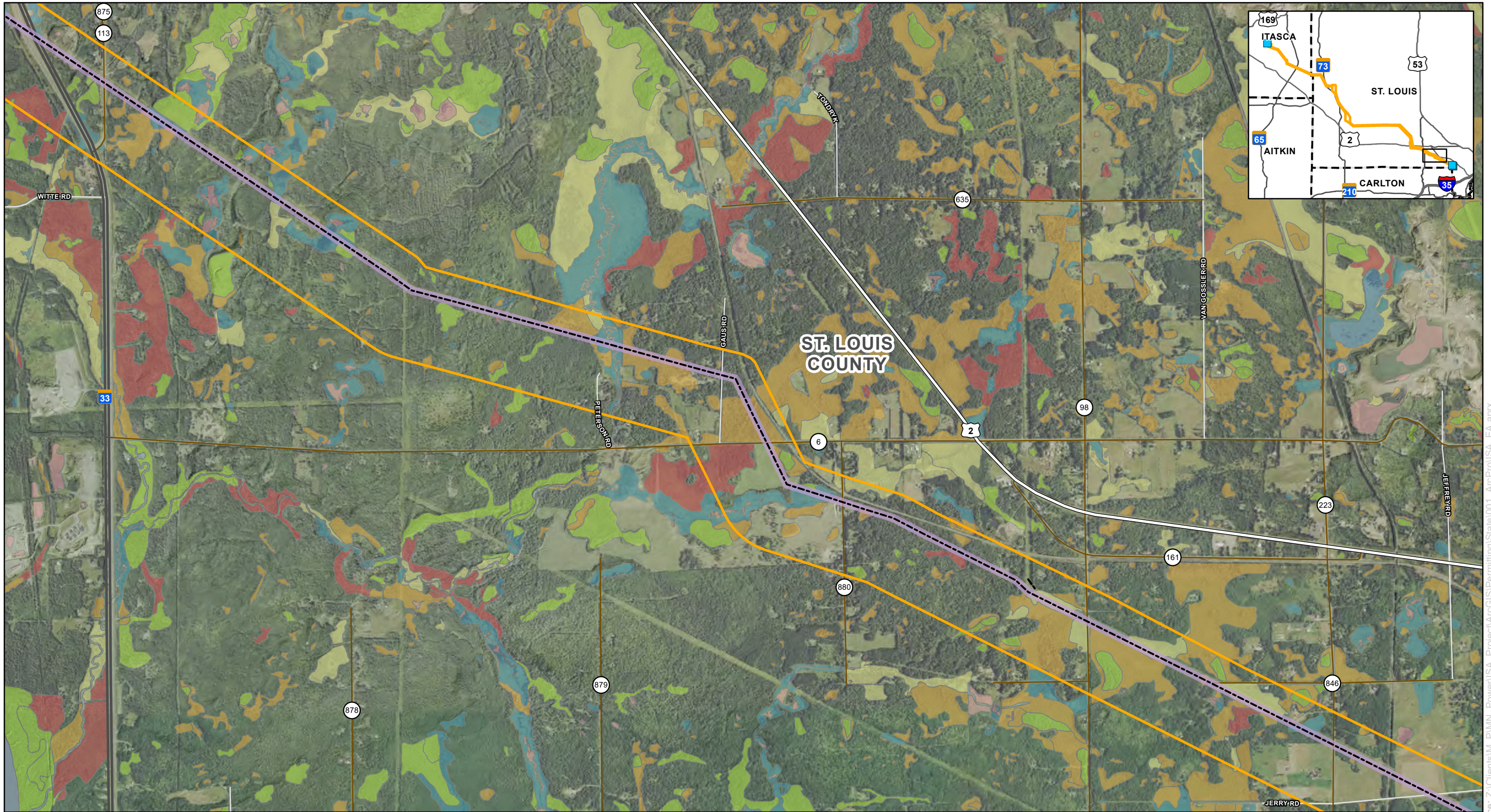




  
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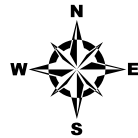
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|---|---|---|
|  Project Substation    |  County Boundary                   |  Freshwater Pond                   |
|  Proposed Route        | <b>MDNR Wetland Type</b>  |  Freshwater Shrub Wetland          |
|  Proposed Right Of Way |  Freshwater Emergent Wetland       |  Freshwater Shrub/Emergent Wetland |
| <b>Proposed Alignment</b>   |  Freshwater Forested Wetland       |  Lake                              |
|  Segment 1             |  Freshwater Forested/Shrub Wetland |  Riverine                          |
|  Segment 2             |   |   |
|  Segment 3             |   |   |

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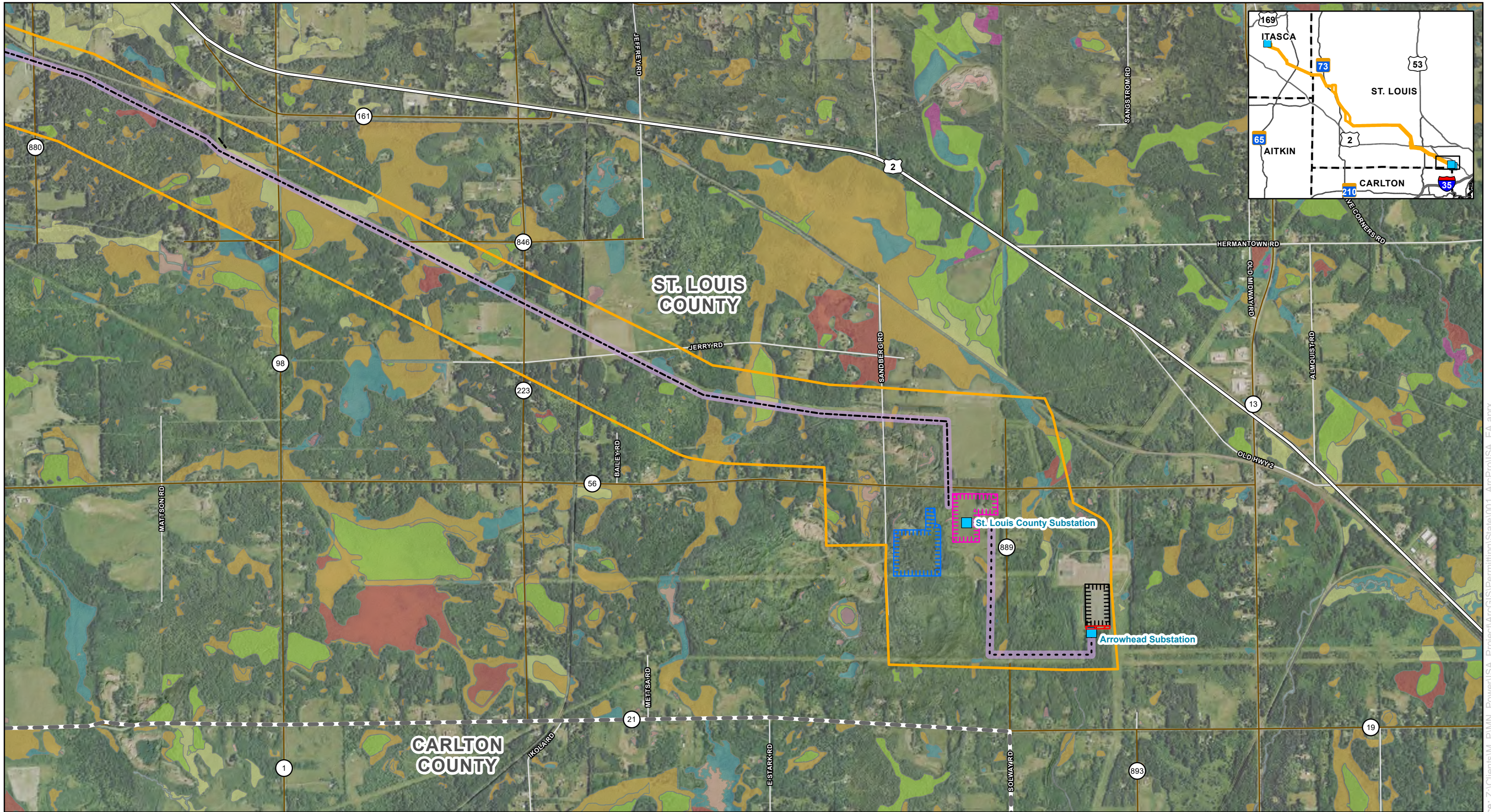




### Map 8: Wetlands

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

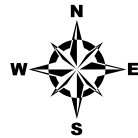
Minnesota Power  
Itasca and St. Louis Counties, Minnesota

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-  Proposed Route
-  Proposed Right Of Way
- Proposed Alignment**
-  Segment 1
-  Segment 2
-  Segment 3
-  County Boundary
- MDNR Wetland Type**
-  Freshwater Emergent Wetland
-  Freshwater Forested Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Freshwater Shrub Wetland
-  Freshwater Shrub/Emergent Wetland
-  Lake
-  Riverine





  
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
















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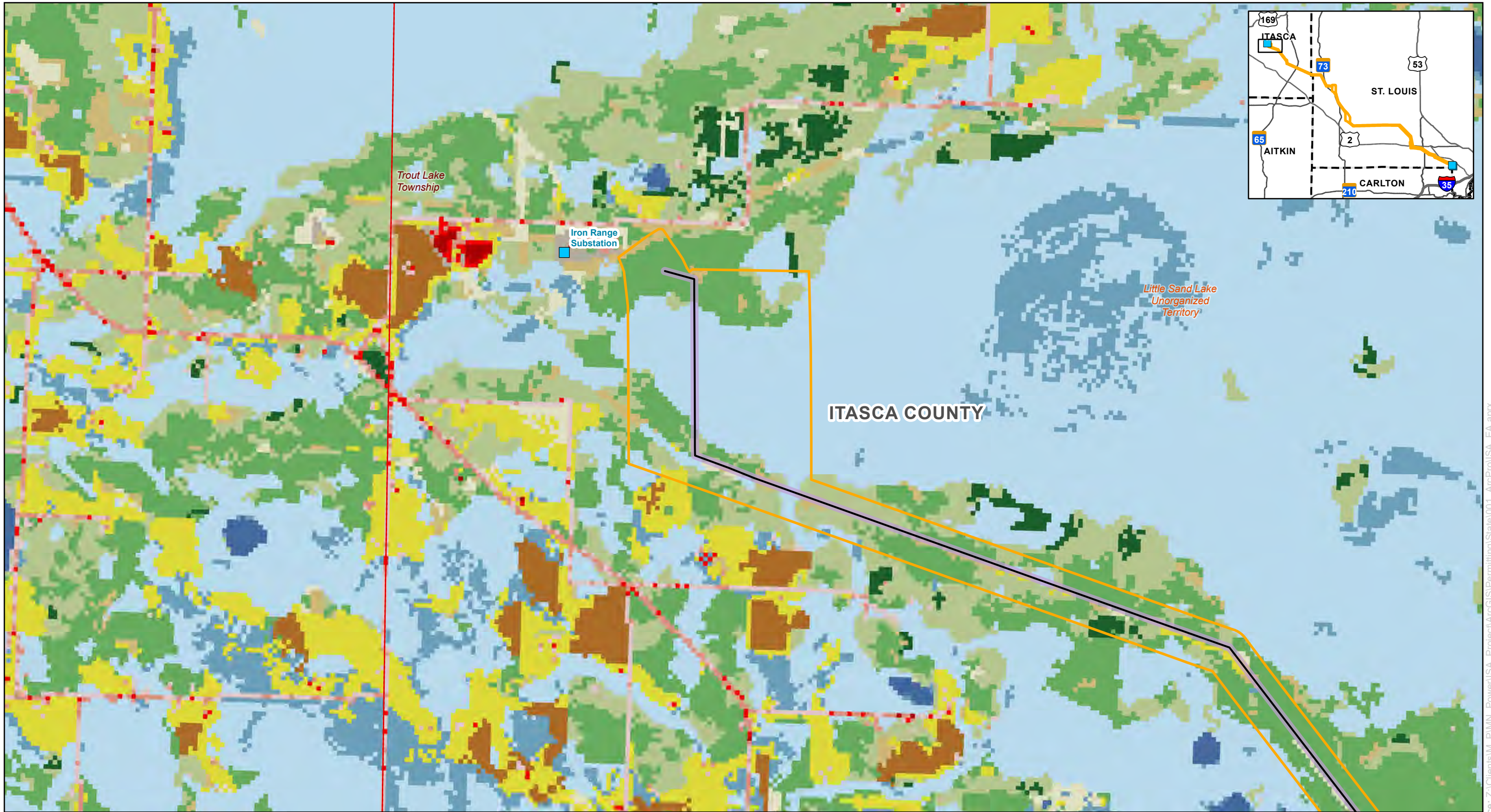


### Map 8: Wetlands

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li> Project Substation</li> <li> Proposed Route</li> <li> Proposed Right Of Way</li> <li><b>Proposed Alignment</b></li> <li> Segment 1</li> <li> Segment 2</li> <li> Segment 3</li> <li> ATC Arrowhead Substation Expansion</li> </ul> | <ul style="list-style-type: none"> <li> Existing ATC Arrowhead Substation</li> <li> St. Louis County Substation Expansion</li> <li> HVDC Modernization Footprint</li> <li> County Boundary</li> <li><b>MDNR Wetland Type</b></li> <li> Freshwater Emergent Wetland</li> <li> Freshwater Forested Wetland</li> <li> Freshwater Forested/Emergent Wetland</li> <li> Freshwater Forested/Shrub Wetland</li> <li> Freshwater Pond</li> <li> Freshwater Shrub Wetland</li> <li> Freshwater Shrub/Emergent Wetland</li> <li> Riverine</li> <li> ISA Combined Application</li> </ul> |
|---|--|



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### Map 9: Land Cover

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

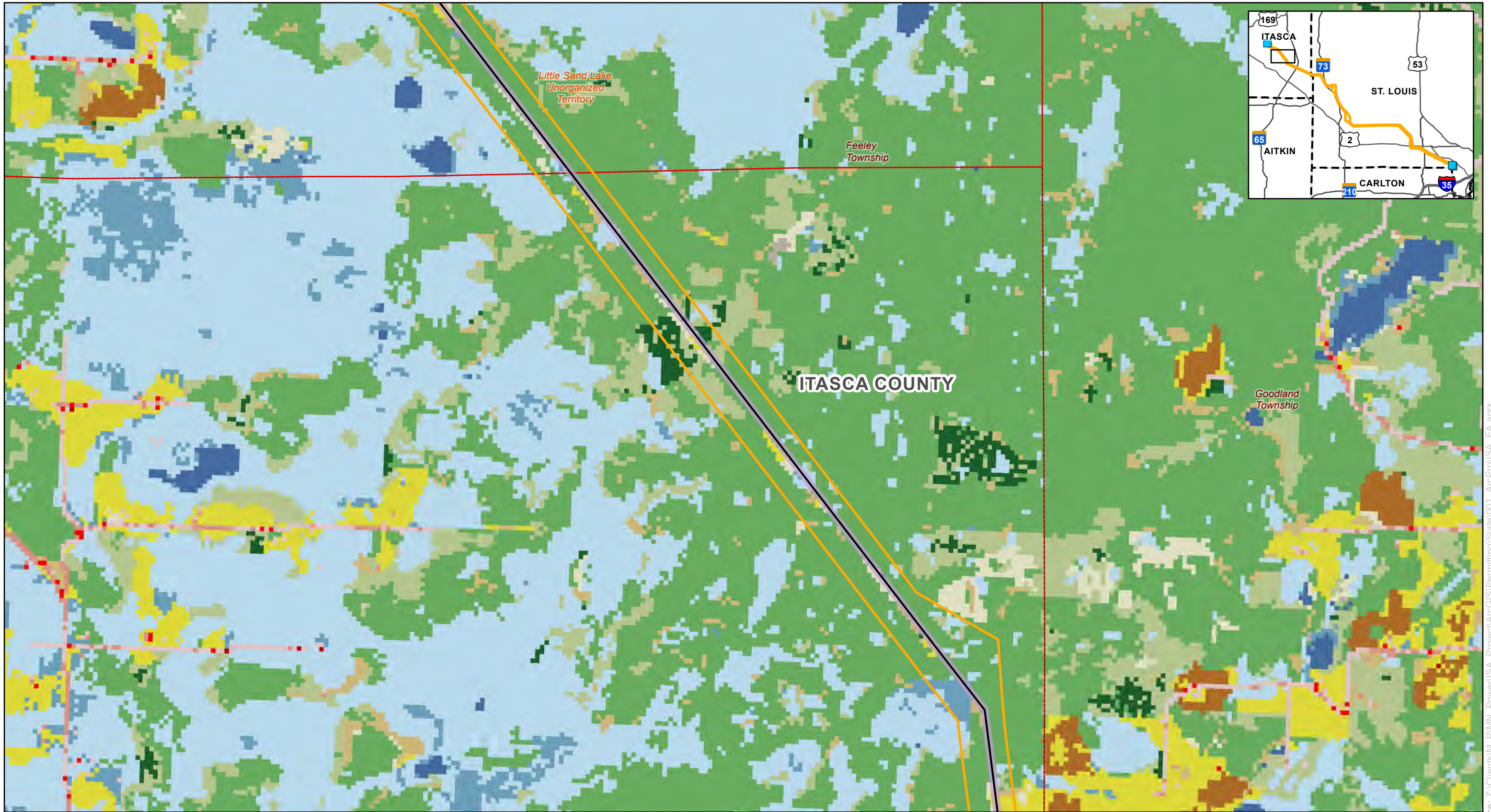
Minnesota Power  
Itasca and St. Louis Counties, Minnesota



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Project Substation	Unorganized Territory	Evergreen Forest
Proposed Right Of Way	<b>NLCD Land Cover (2021)</b>	Mixed Forest
Proposed Route	Open Water	Shrub/Scrub
<b>Proposed Alignment</b>	Developed, Open Space	Herbaceous
Segment 1	Developed, Low Intensity	Hay/Pasture
Segment 2	Developed, Medium Intensity	Cultivated Crops
Segment 3	Developed, High Intensity	Woody Wetlands
County Boundary	Barren Land	Emergent Herbaceous Wetlands
Township	Deciduous Forest	ISA Combined Application

Docket Nos. E015/CN-25-111 and E015/TL-25-112

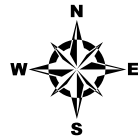
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Date: (12/16/2025)



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 Feet  
 1 inch = 2,000 feet



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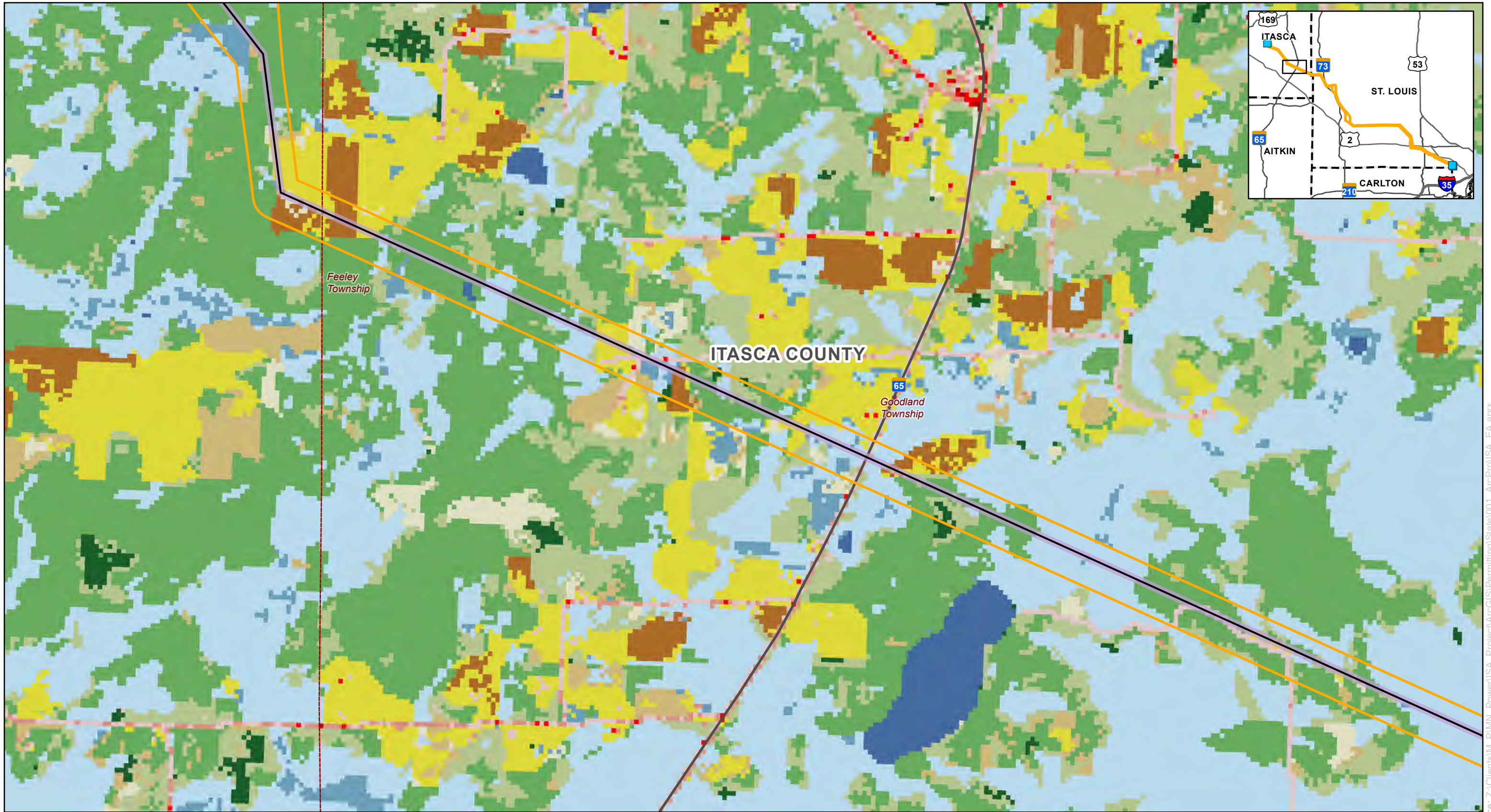
**Map 9: Land Cover**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota



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Docket Nos. E015/CN-25-111 and E015/TL-25-112  
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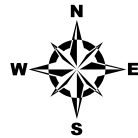
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


### Map 9: Land Cover

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

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## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

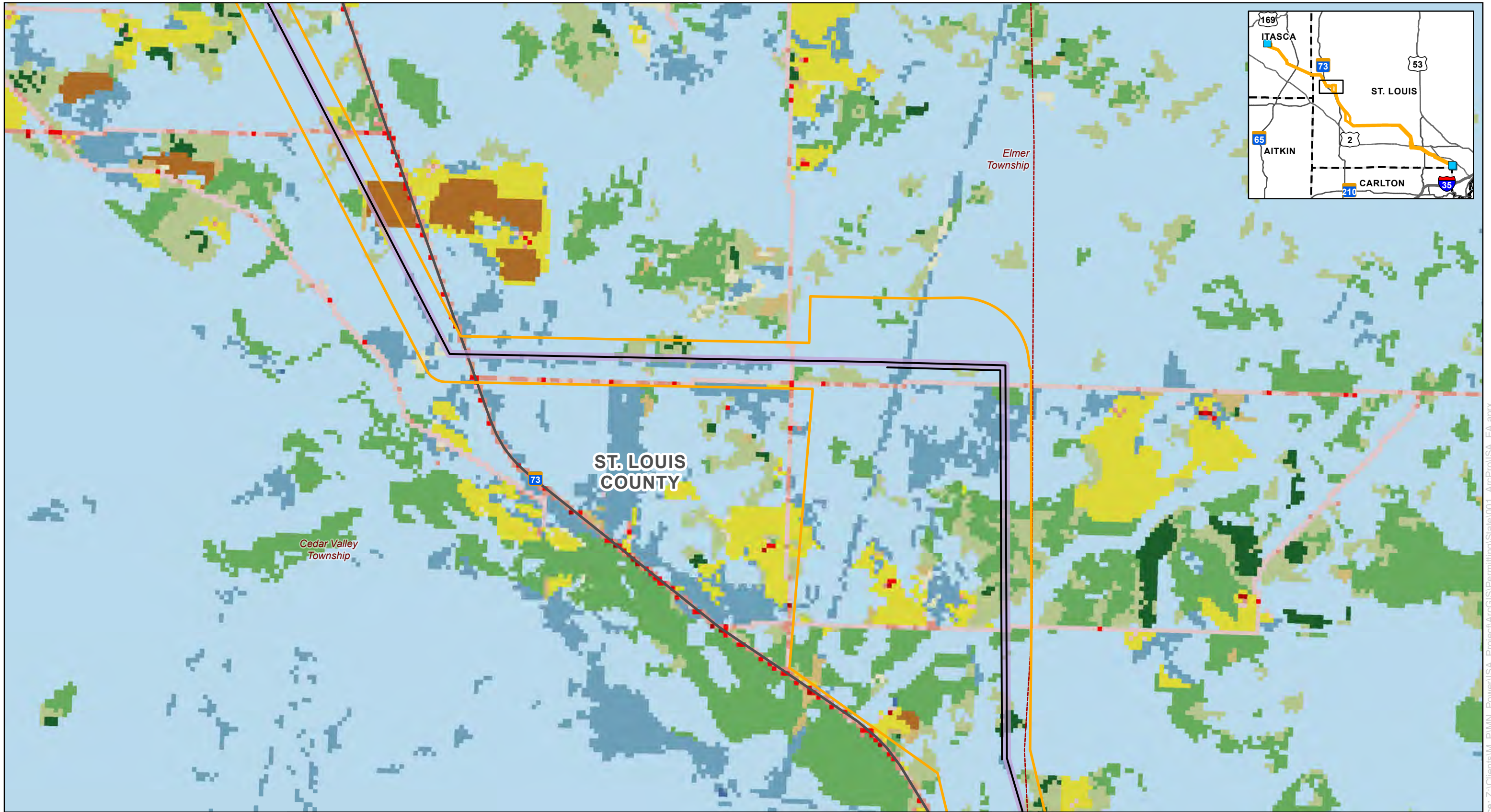
Page 4 of 15



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Docket Nos. E015/CN-25-111 and E015/TL-25-112

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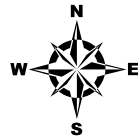
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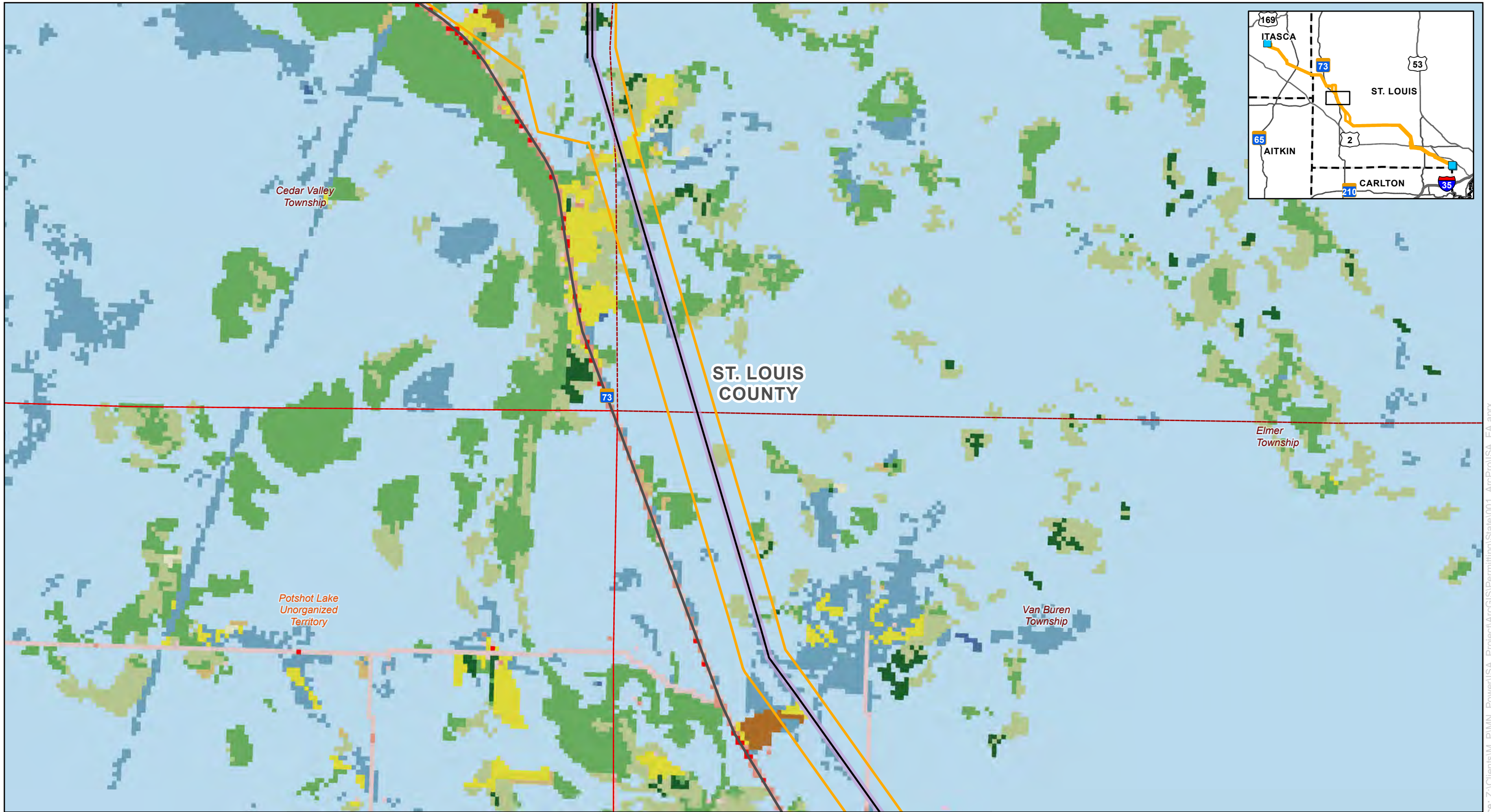
## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

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## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

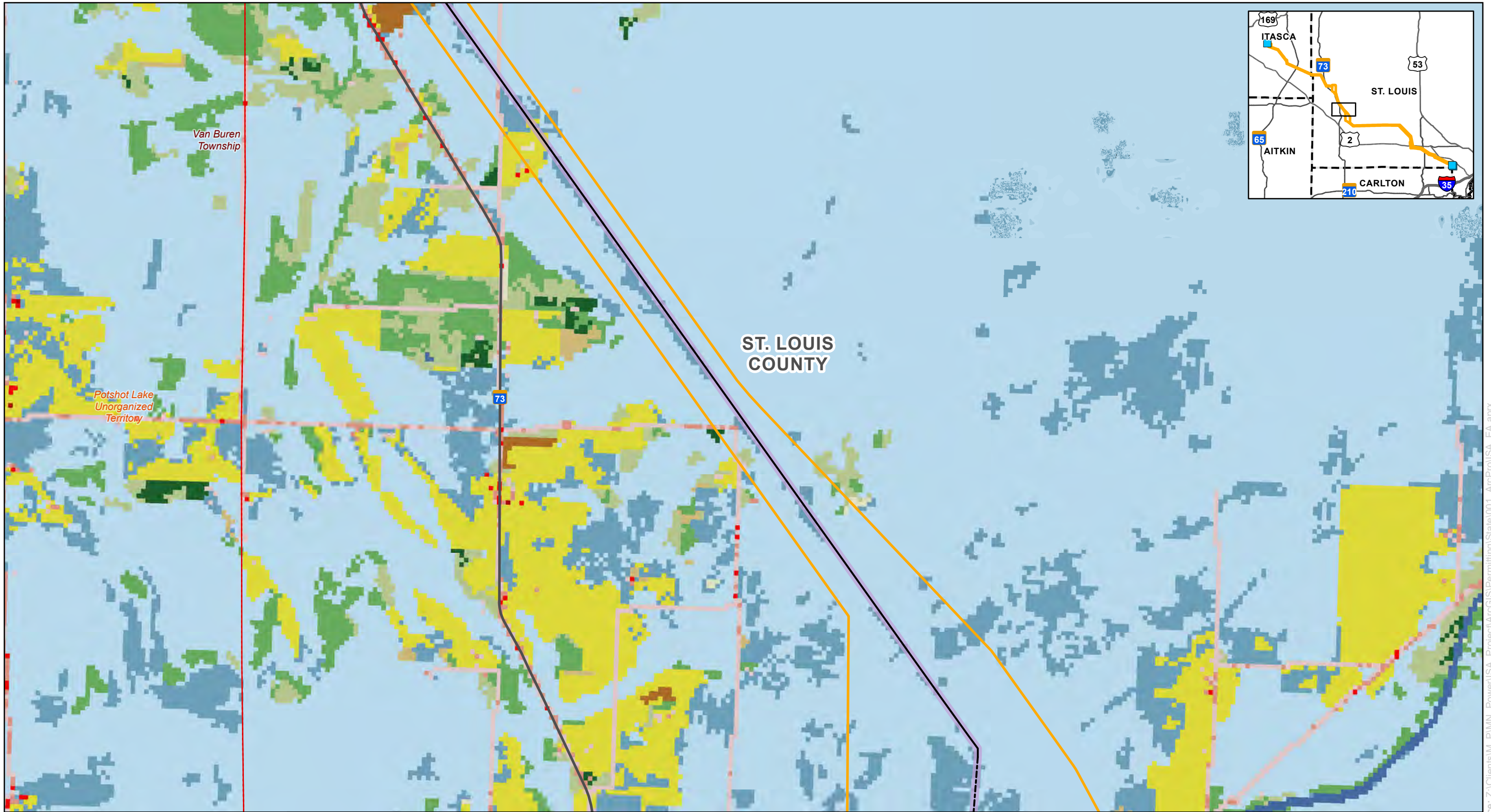
Minnesota Power  
Itasca and St. Louis Counties, Minnesota

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Project Substation	Unorganized Territory	Mixed Forest
Proposed Right Of Way	<b>NLCD Land Cover (2021)</b>	Shrub/Scrub
Proposed Route	Open Water	Herbaceous
<b>Proposed Alignment</b>	Developed, Open Space	Hay/Pasture
Segment 1	Developed, Low Intensity	Cultivated Crops
Segment 2	Developed, Medium Intensity	Woody Wetlands
Segment 3	Developed, High Intensity	Emergent Herbaceous Wetlands
County Boundary	Deciduous Forest	
Township	Evergreen Forest	

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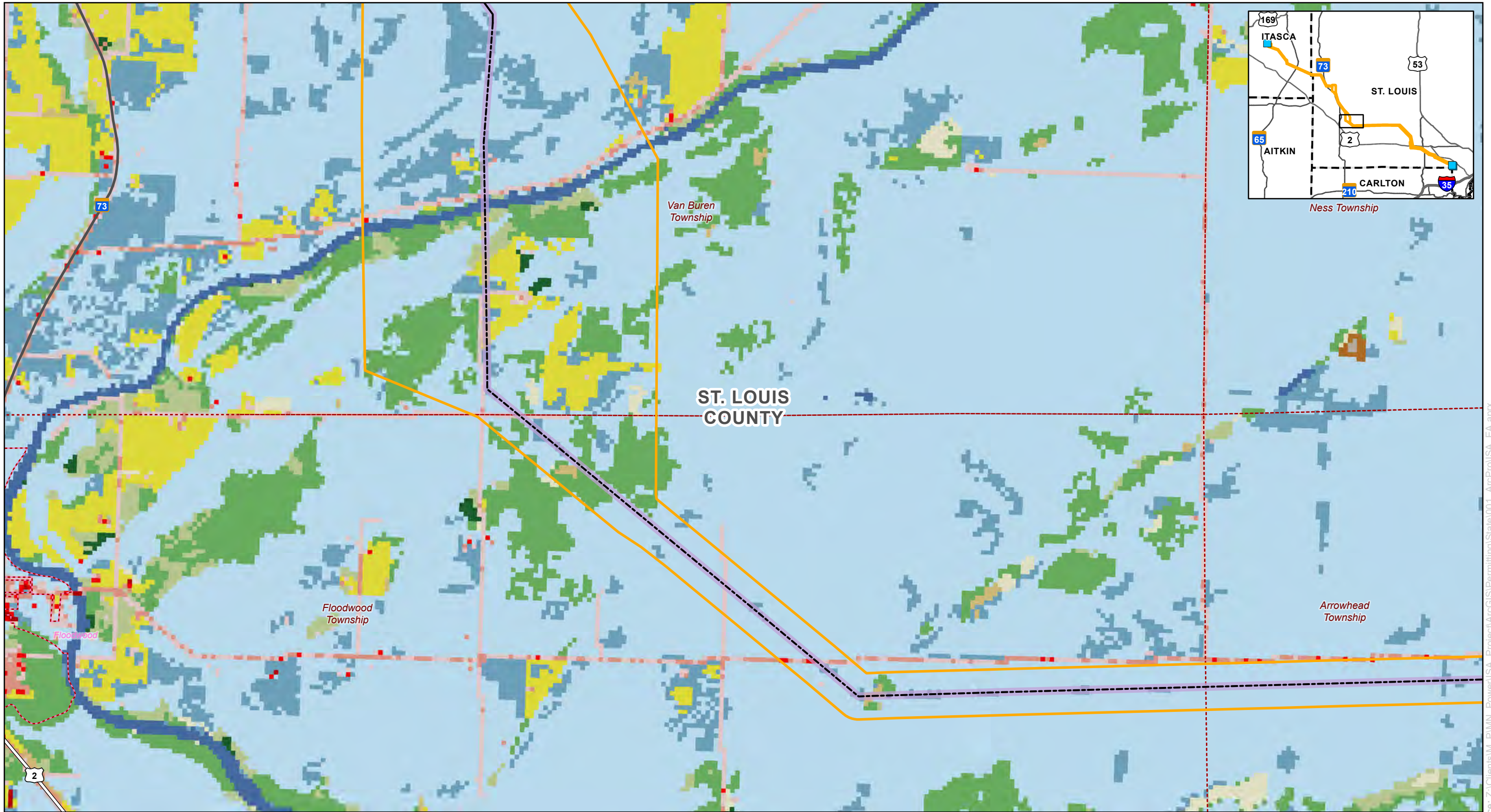
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**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

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ISA Combined Application  
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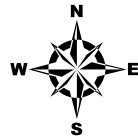
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 Feet  
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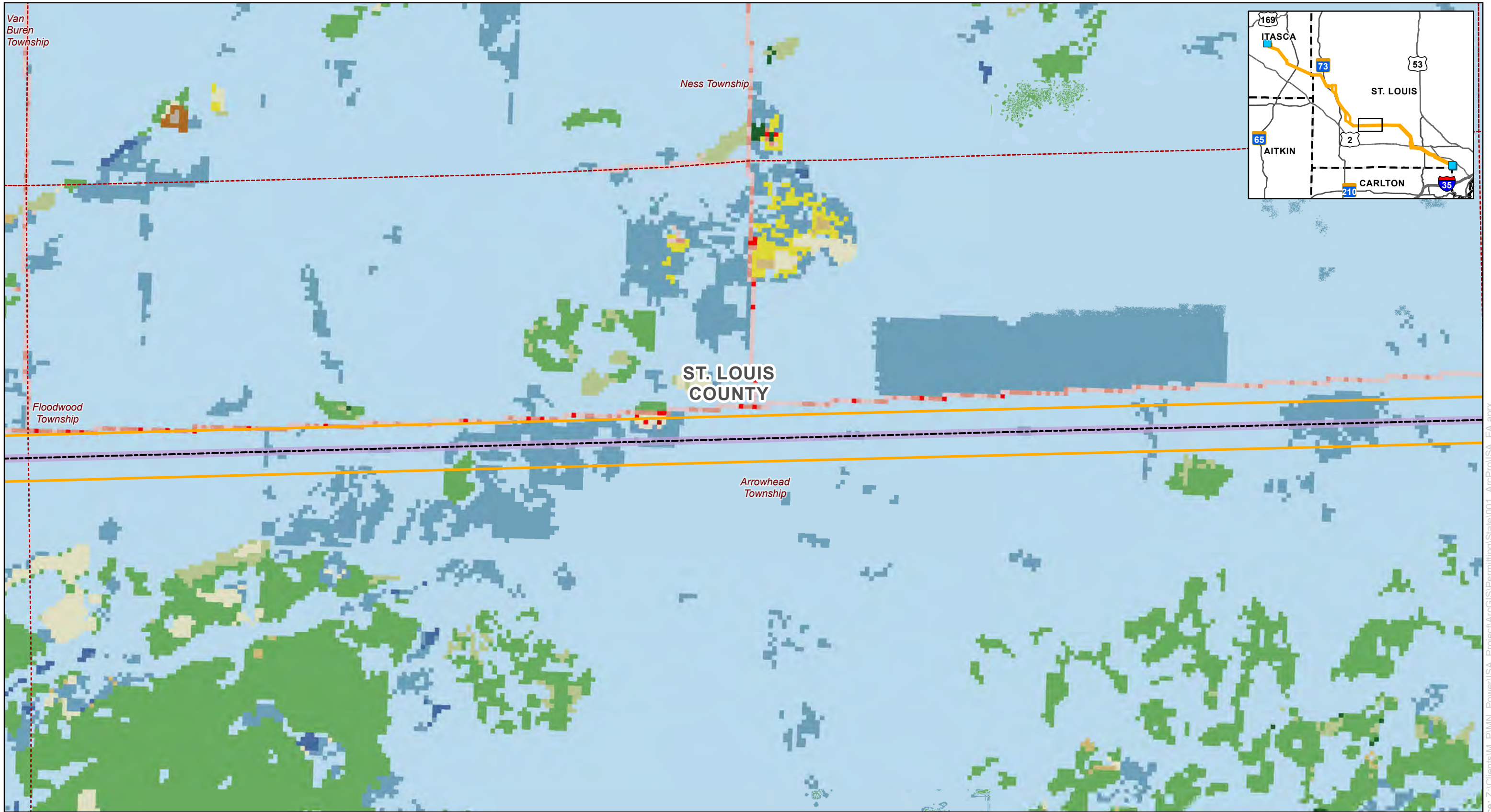
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## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

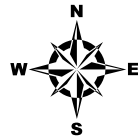
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








  
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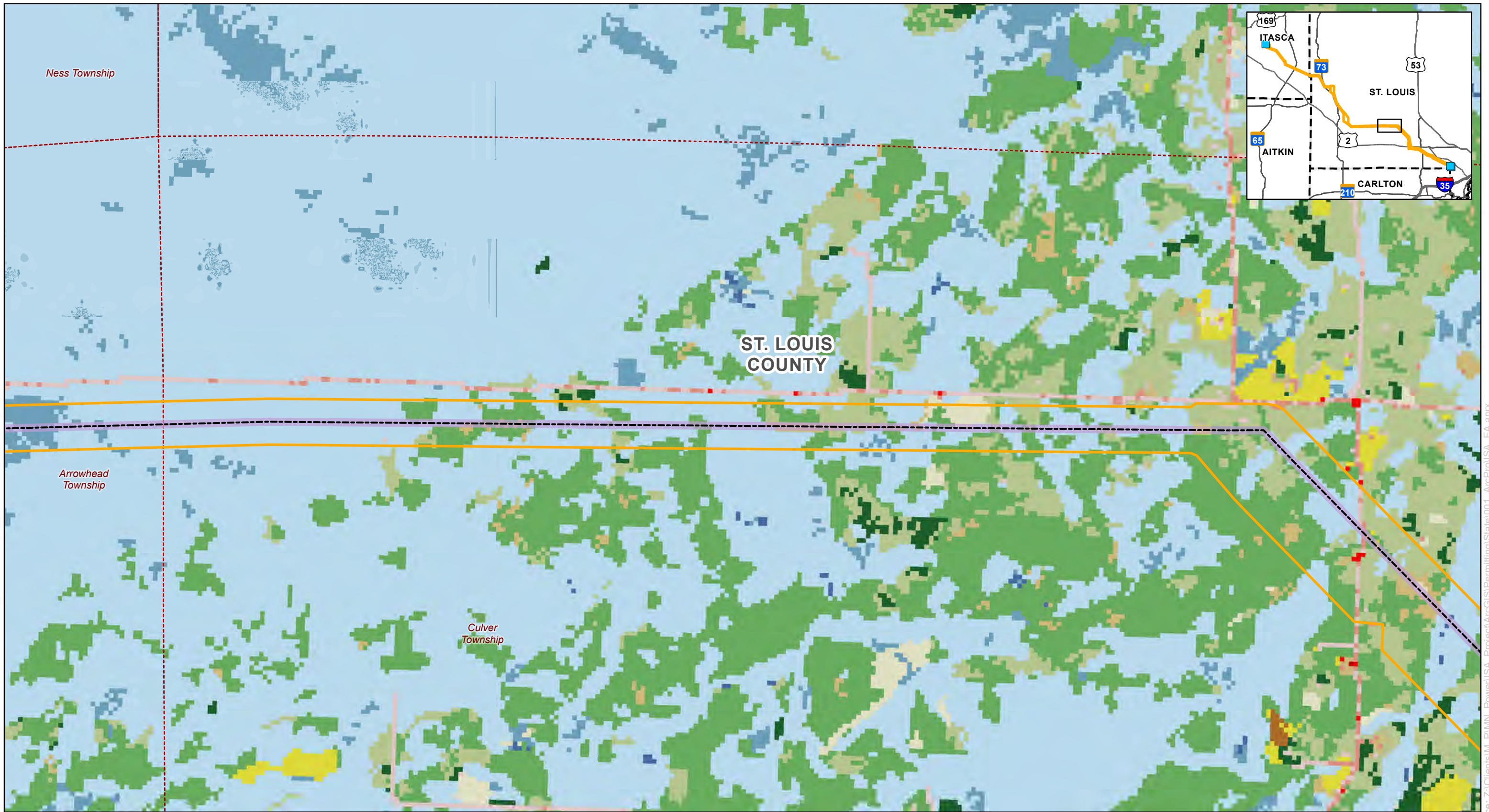




**Map 9: Land Cover**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

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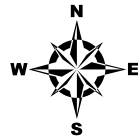
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## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

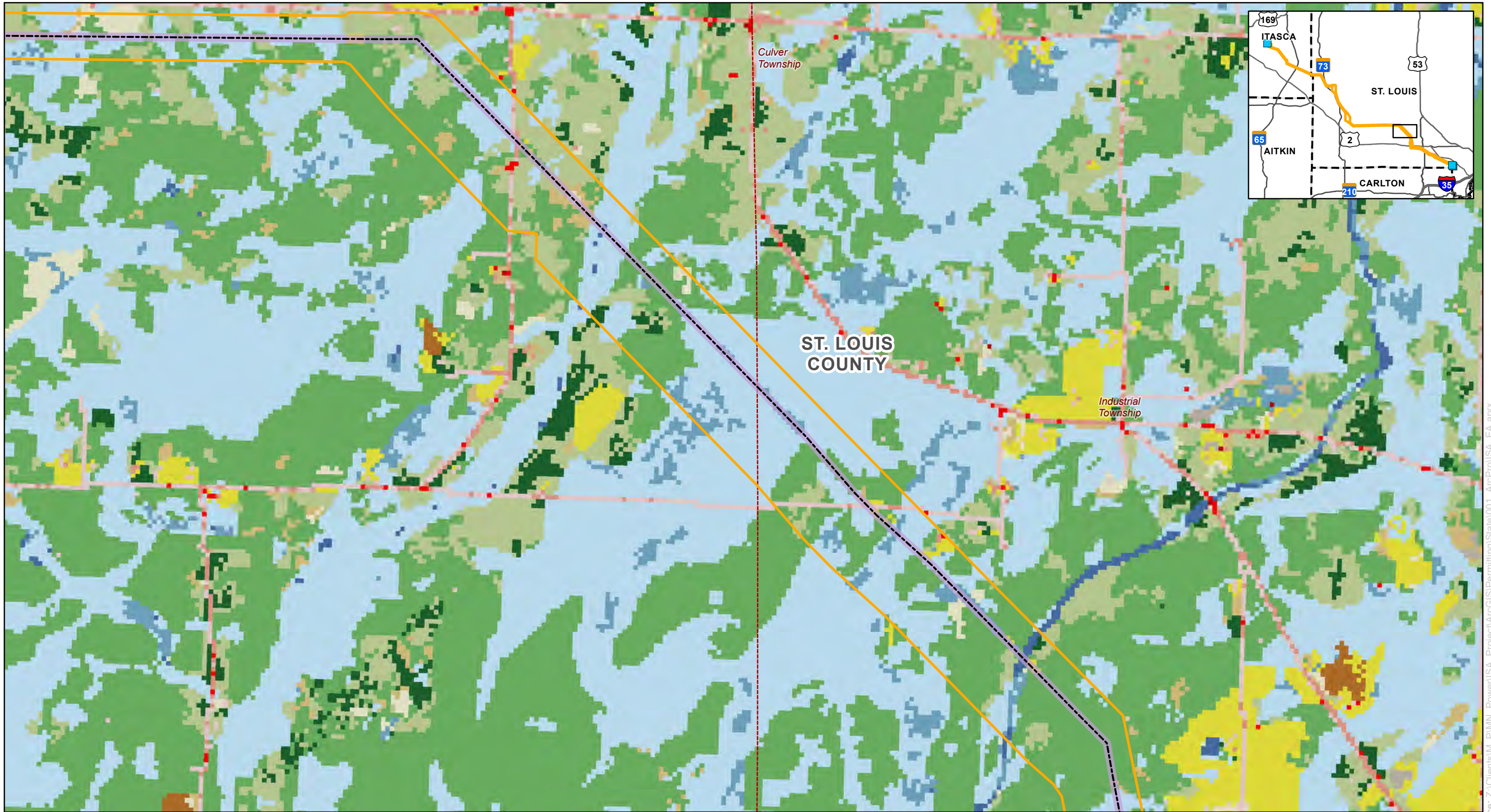
Minnesota Power  
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Project Substation	Township	Evergreen Forest
Proposed Right Of Way	<b>NLCD Land Cover (2021)</b>	Mixed Forest
Proposed Route	Open Water	Shrub/Scrub
<b>Proposed Alignment</b>	Developed, Open Space	Herbaceous
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Segment 3	Developed, High Intensity	Woody Wetlands
County Boundary	Deciduous Forest	ISA Conserved Wetlands

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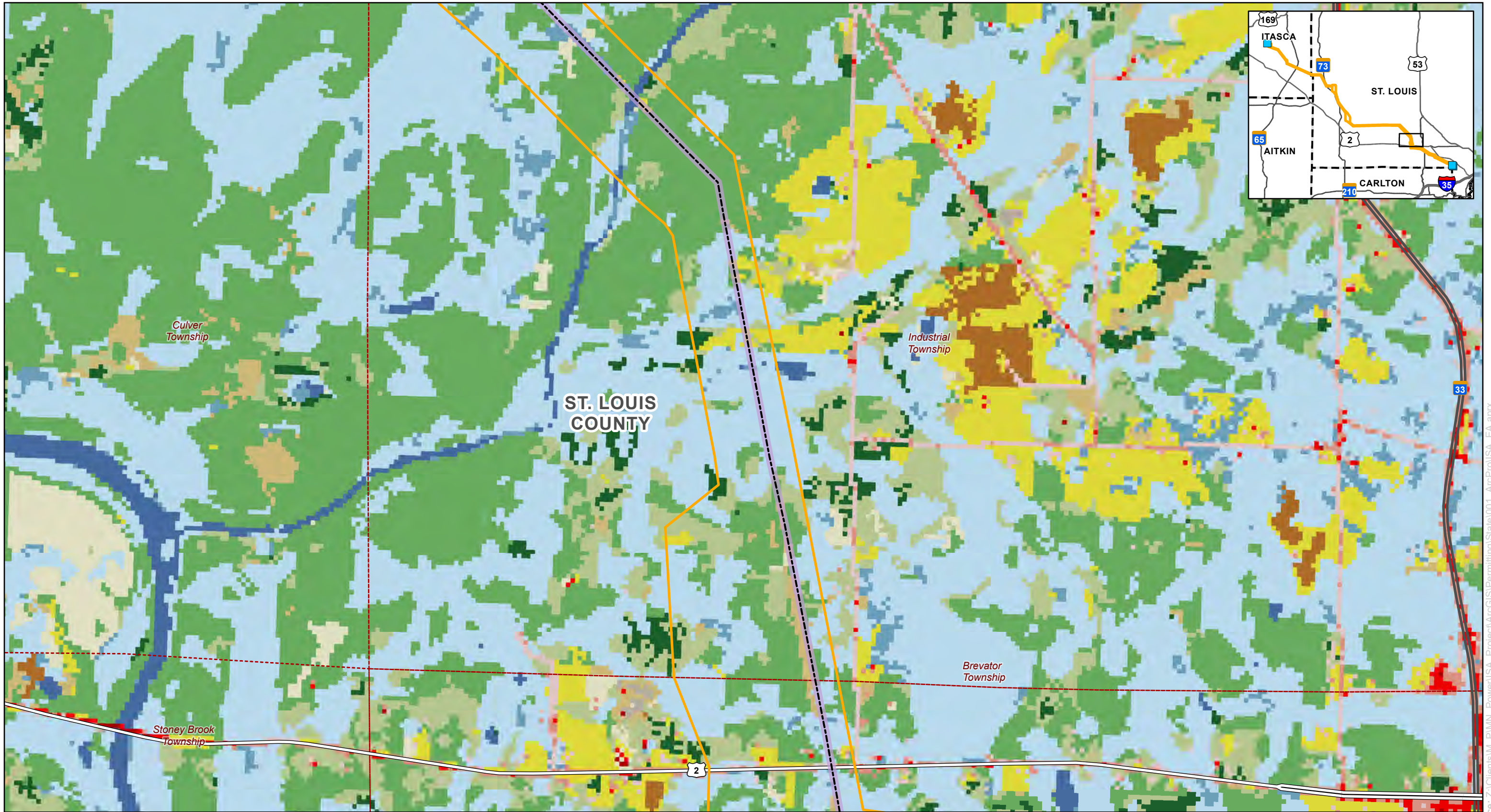
## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

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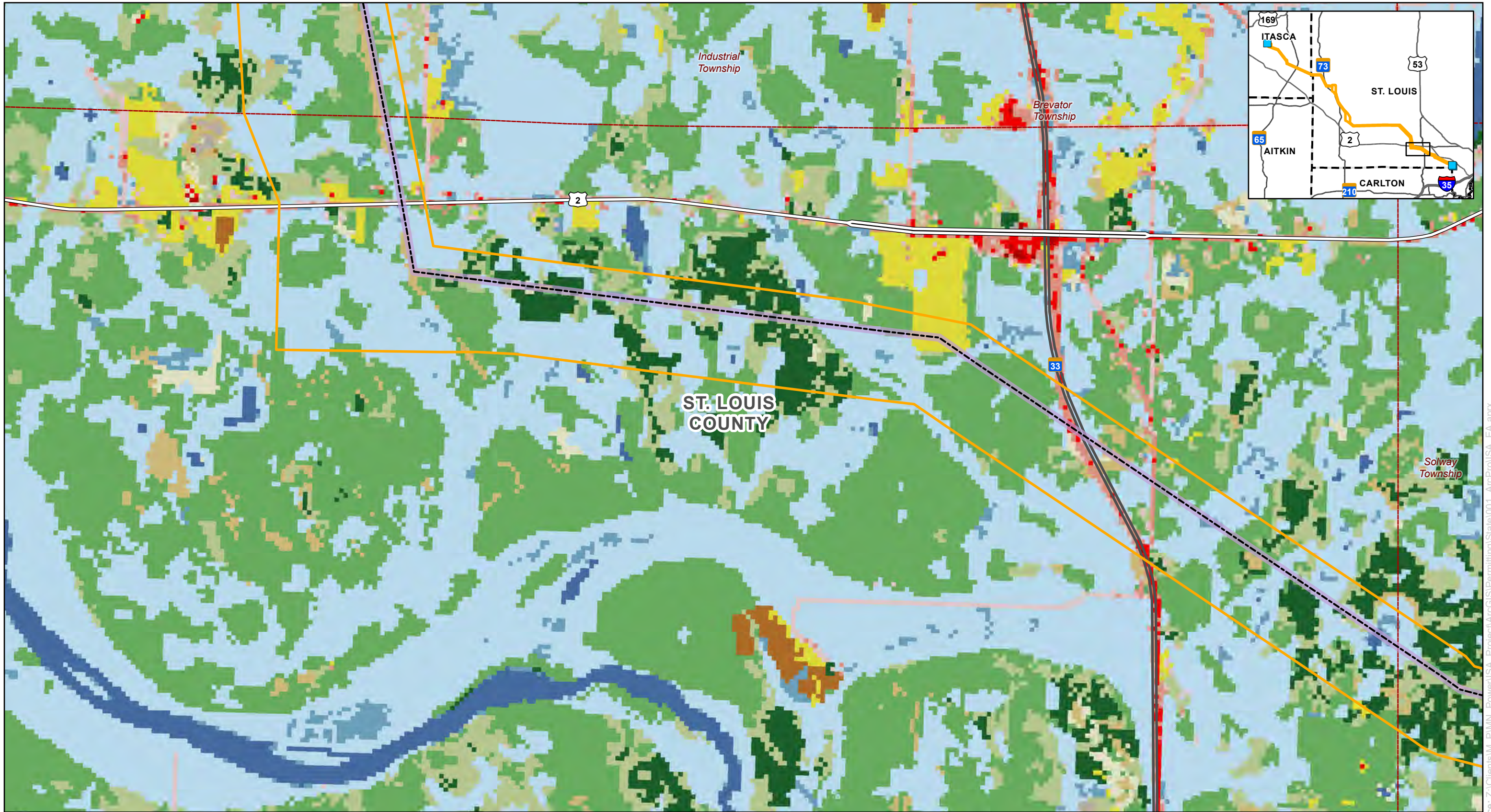
## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

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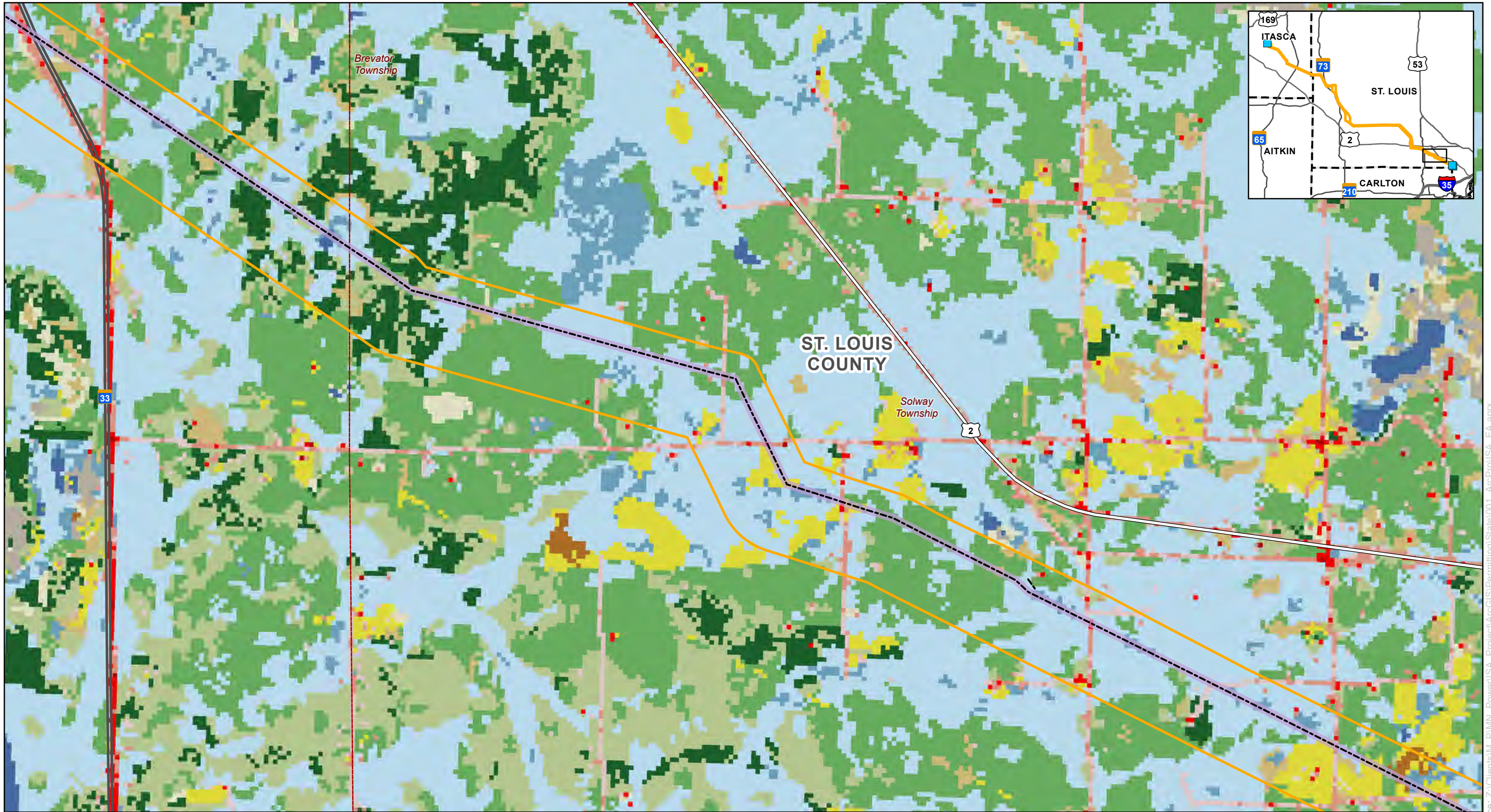
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Minnesota Power  
Itasca and St. Louis Counties, Minnesota

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







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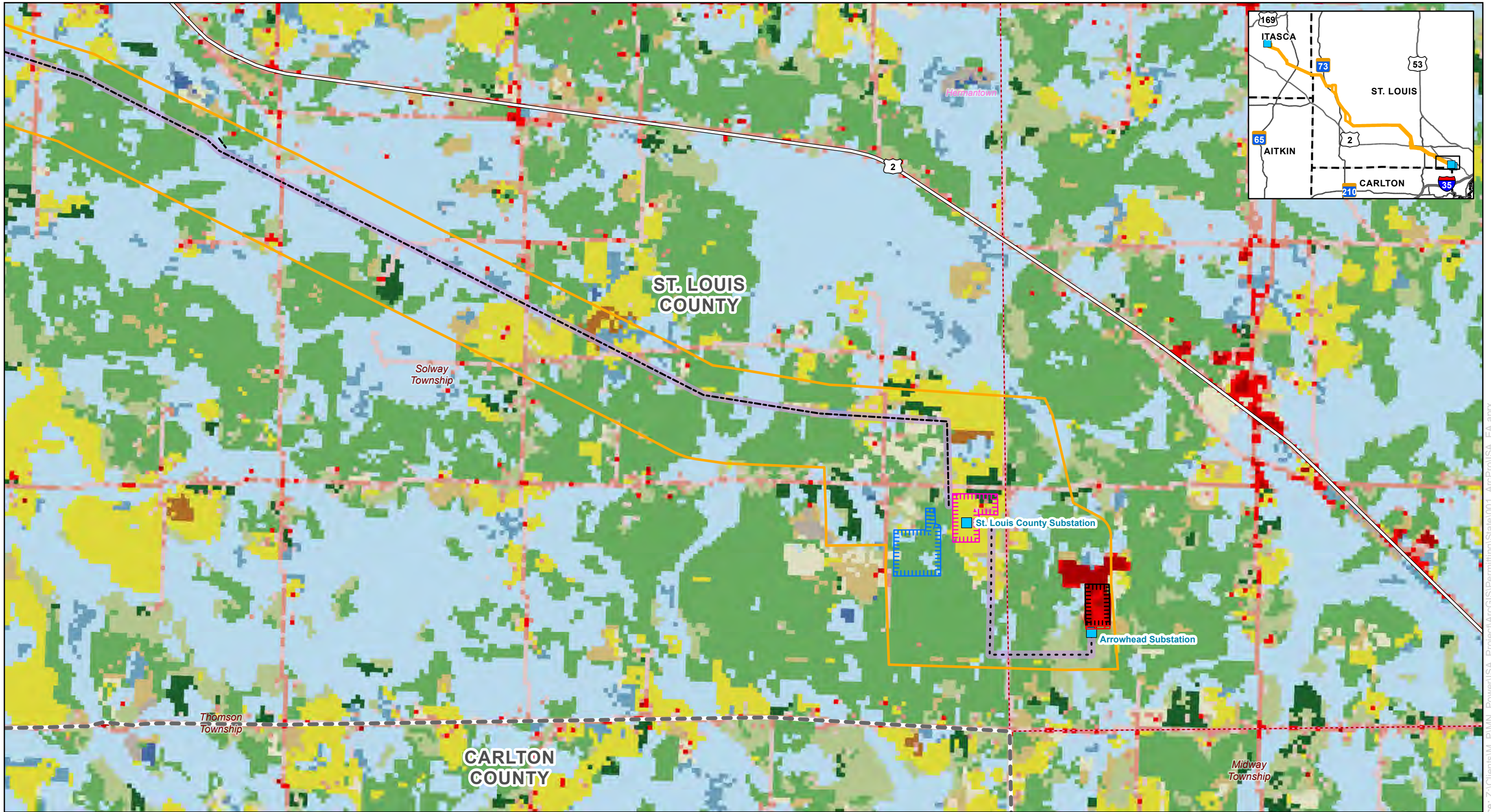




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**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

<ul style="list-style-type: none"> <li> Project Substation</li> <li> Proposed Right Of Way</li> <li> Proposed Route</li> <li><b>Proposed Alignment</b></li> <li> Segment 1</li> <li> Segment 2</li> <li> Segment 3</li> <li> County Boundary</li> <li> Township</li> </ul>	<b>NLCD Land Cover (2021)</b> <ul style="list-style-type: none"> <li> Open Water</li> <li> Developed, Open Space</li> <li> Developed, Low Intensity</li> <li> Developed, Medium Intensity</li> <li> Developed, High Intensity</li> <li> Barren Land</li> <li> Deciduous Forest</li> <li> Evergreen Forest</li> </ul>	<ul style="list-style-type: none"> <li> Mixed Forest</li> <li> Shrub/Scrub</li> <li> Herbaceous</li> <li> Hay/Pasture</li> <li> Cultivated Crops</li> <li> Woody Wetlands</li> <li> Emergent Herbaceous Wetlands</li> </ul>
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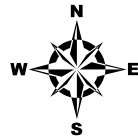
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 1 inch = 2,000 feet

































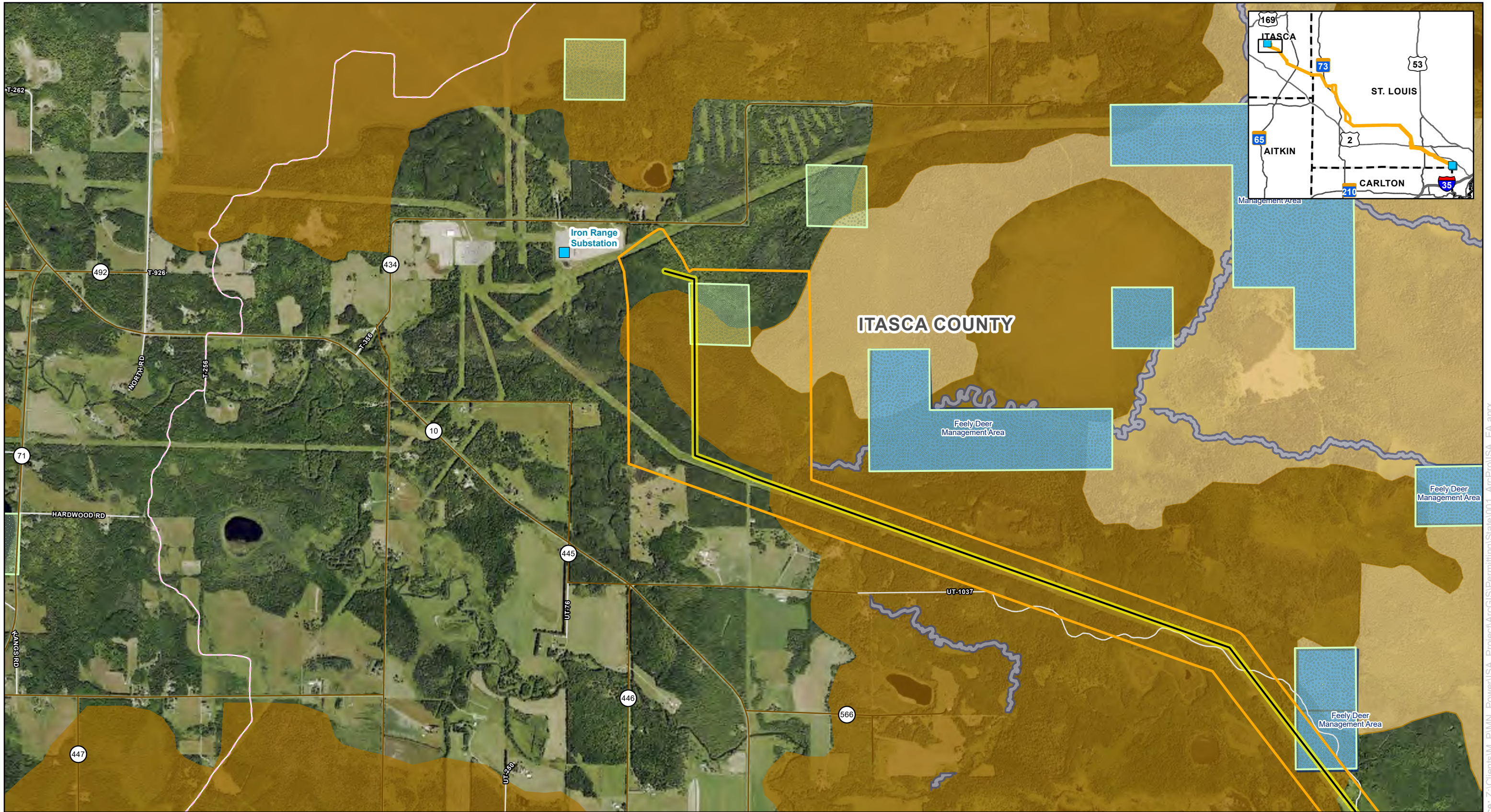
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### Map 9: Land Cover

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

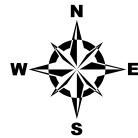
 Project Substation	 HVDC Modernization Footprint	 Barren Land
 Proposed Right Of Way	 County Boundary	 Deciduous Forest
 Proposed Route	 City/Municipality	 Evergreen Forest
 Segment 1	 Township	 Mixed Forest
 Segment 2	 NLCD Land Cover (2021)	 Shrub/Scrub
 Segment 3	 Open Water	 Hay/Pasture
 ATC Arrowhead Substation Expansion	 Developed, Open Space	 Cultivated Crops
 Existing ATC Arrowhead Substation	 Developed, Low Intensity	 Woody Wetlands
 St. Louis County Substation Expansion	 Developed, Medium Intensity	 Herbaceous
	 Developed, High Intensity	 Herbaceous Wetlands
	 Docket Nos. E015/CN-25-111 and E015/IL-25-112	



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 Feet  
 1 inch = 2,000 feet

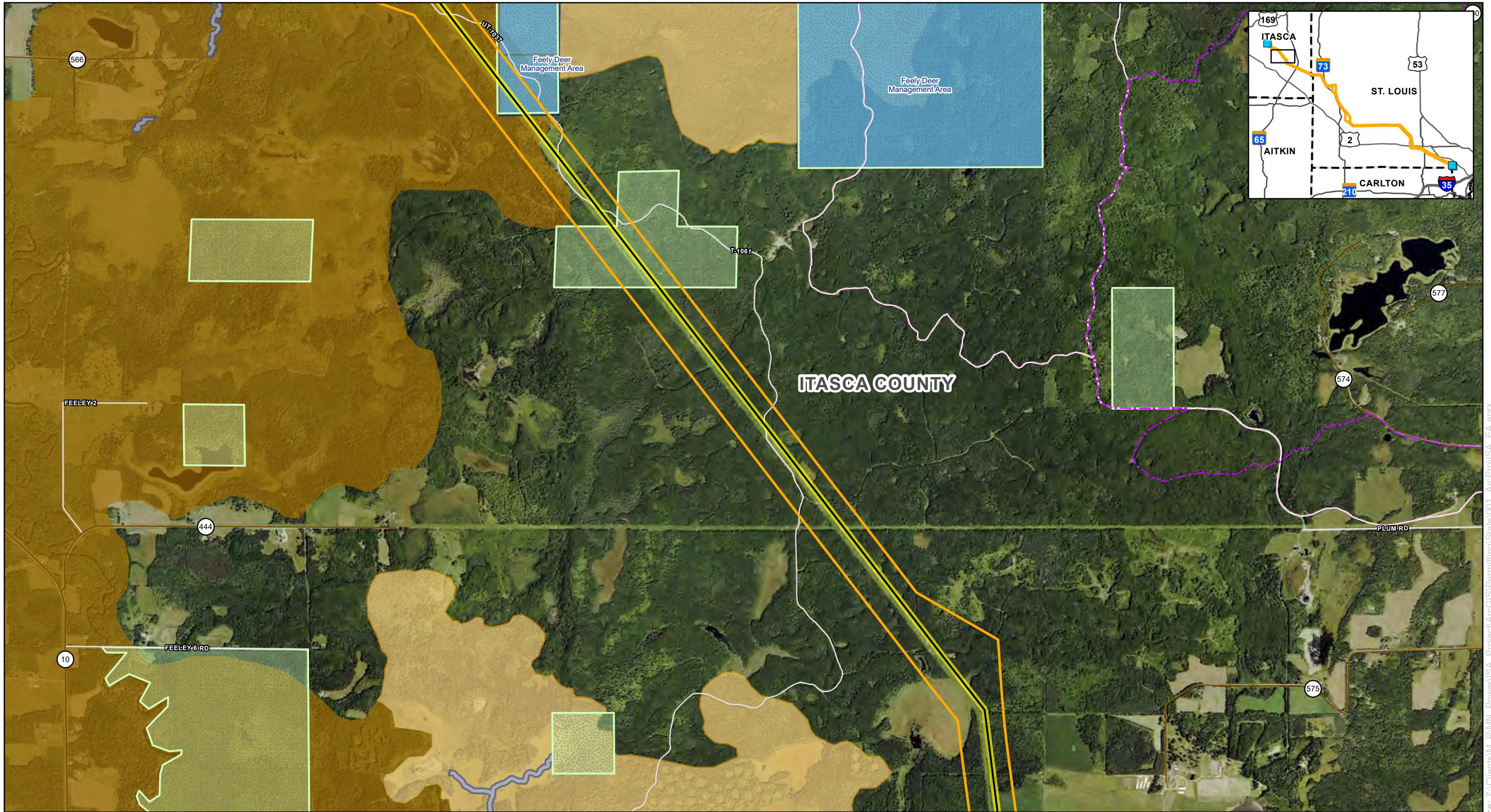




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**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

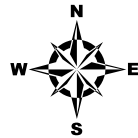
Project Substation	Other State Forest Land
Proposed Right Of Way	Aquatic Management Area
Proposed Route	Deer Management Area
<b>Proposed Alignment</b>	County Boundary
Segment 1	<b>MBS Sites of Biodiversity</b>
Segment 2	High
Segment 3	Moderate
Snowmobile Trail	ISA Combined Application

Docket Nos. E015/CN-25-111 and E015/TL-25-112  
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 1 inch = 2,000 feet

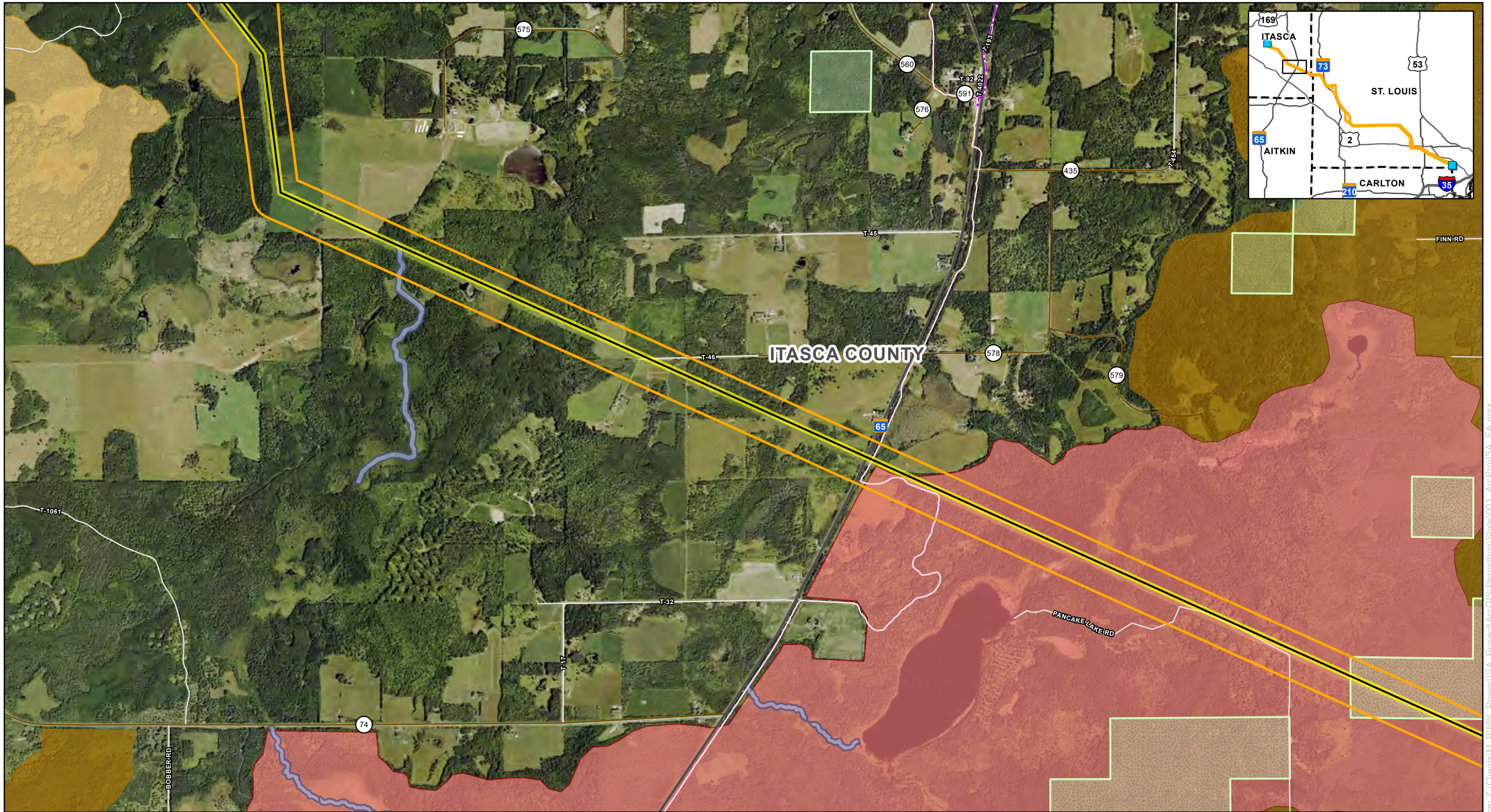




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**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

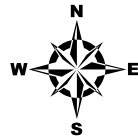
- |                           |   |
|---------------------------|---|
| Project Substation        | Other State Forest Land                       |
| Proposed Right Of Way     | Aquatic Management Area                       |
| Proposed Route            | Deer Management Area                          |
| <b>Proposed Alignment</b> | County Boundary                               |
| Segment 1                 | <b>MBS Sites of Biodiversity Significance</b> |
| Segment 2                 | High  |
| Segment 3                 | Moderate                                      |
| State Park Trail / Road   | Low   |
| Snow Ditch                | ISA Combined Application                      |

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




  
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 1 inch = 2,000 feet

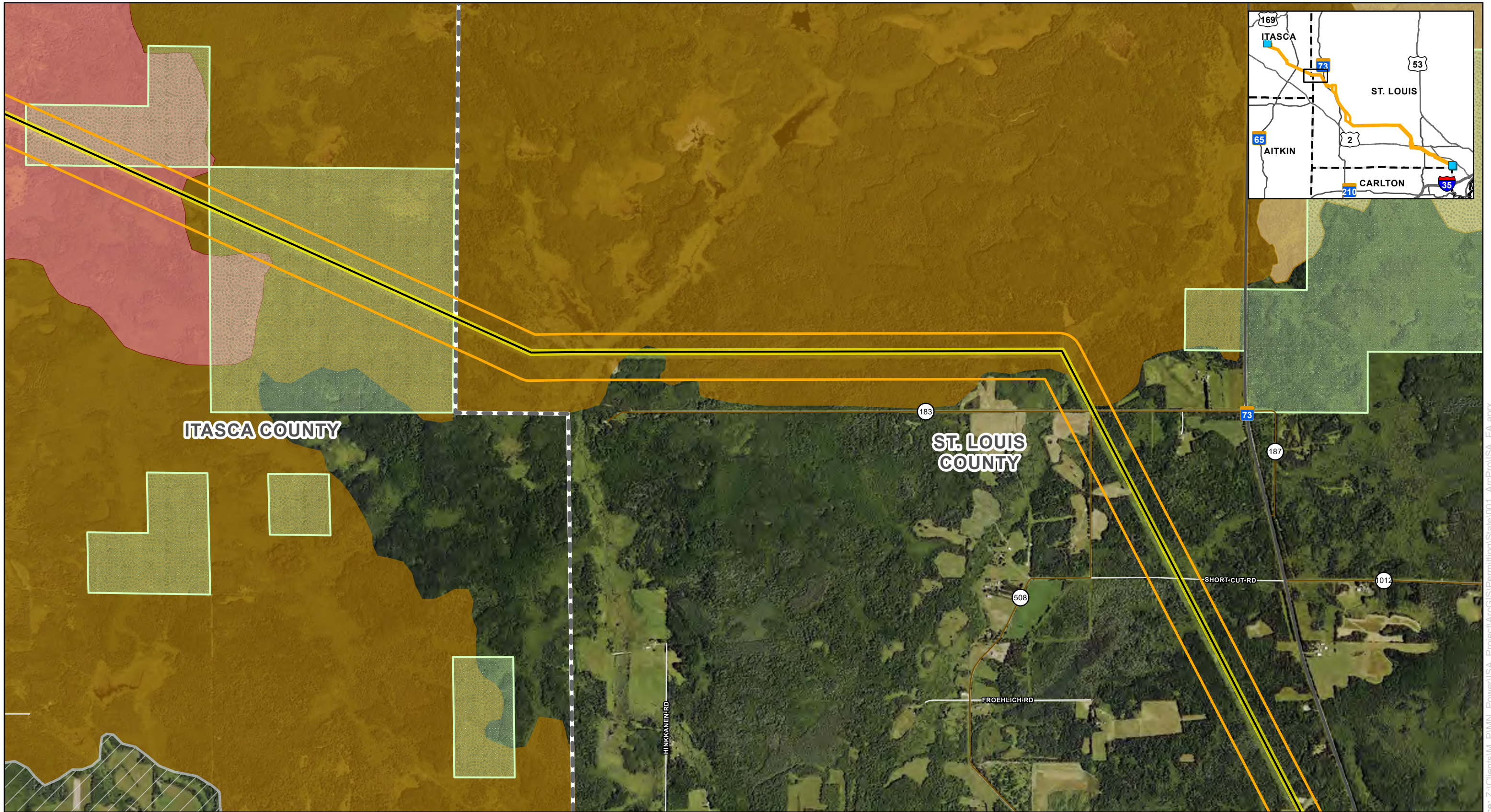




**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |  |
|---|--|
|  Project Substation      |  Other State Forest Land                      |
|  Proposed Right Of Way   |  Aquatic Management Area                      |
|  Proposed Route          |  County Boundary                              |
| <b>Proposed Alignment</b>   | <b>MBS Sites of Biodiversity Significance</b>  |
|  Segment 1               |  Outstanding                                  |
|  Segment 2               |  High   |
|  Segment 3               |  Moderate                                     |
|  State Park Trail / Road |  ISA Combined Application                     |
|  Snowbank                |  Double No. E015/CN-25-111 and E015/TL-25-112 |

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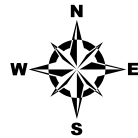
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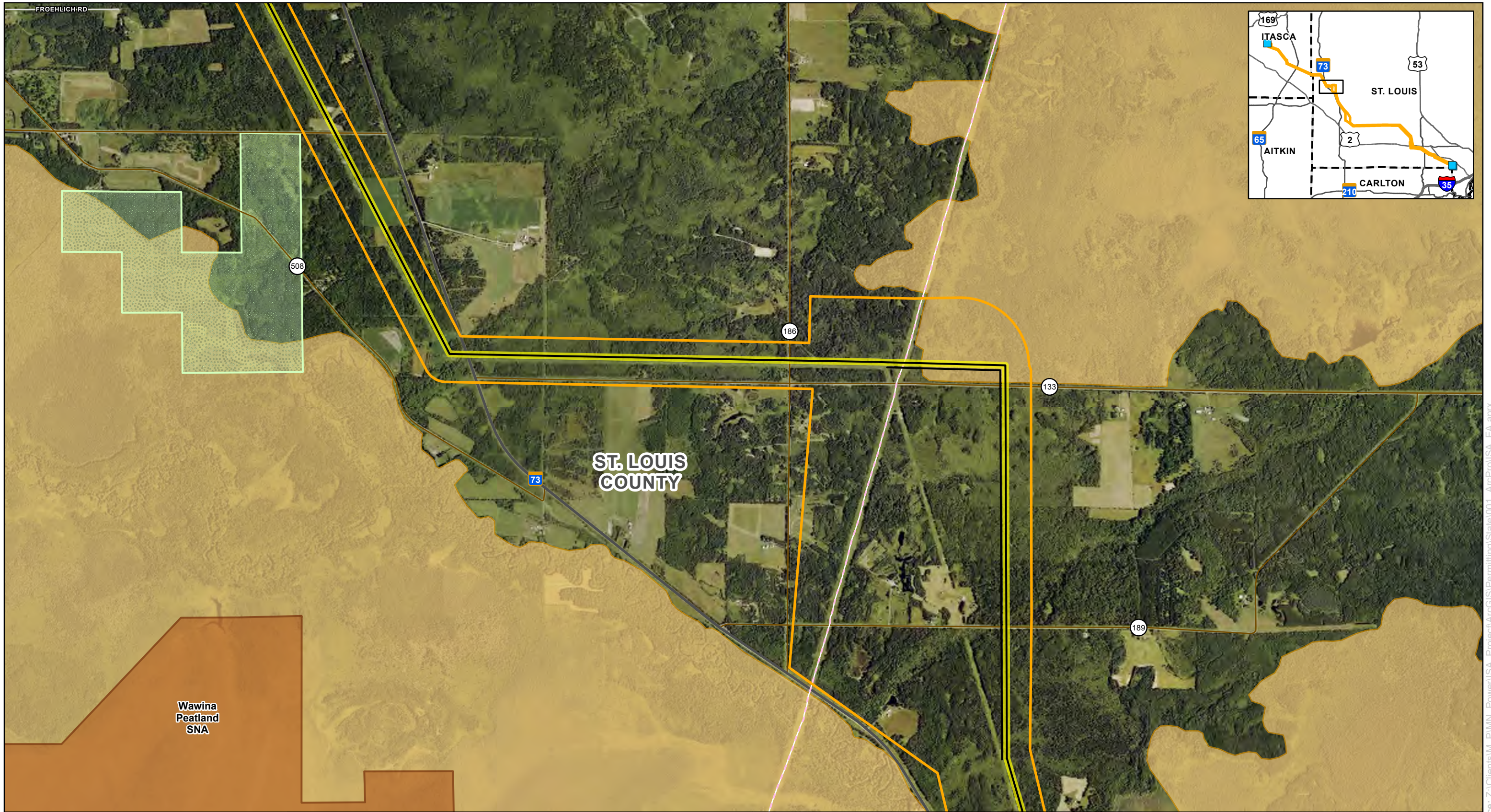
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 1 inch = 2,000 feet





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**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

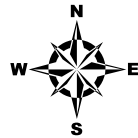
Project Substation	County Boundary
Proposed Right Of Way	<b>MBS Sites of Biodiversity Significance</b>
Proposed Route	Outstanding
<b>Proposed Alignment</b>	High
Segment 1	Moderate
Segment 2	Below
Segment 3	Other State Forest Land
Other State Forest Land	ISA Combined Application
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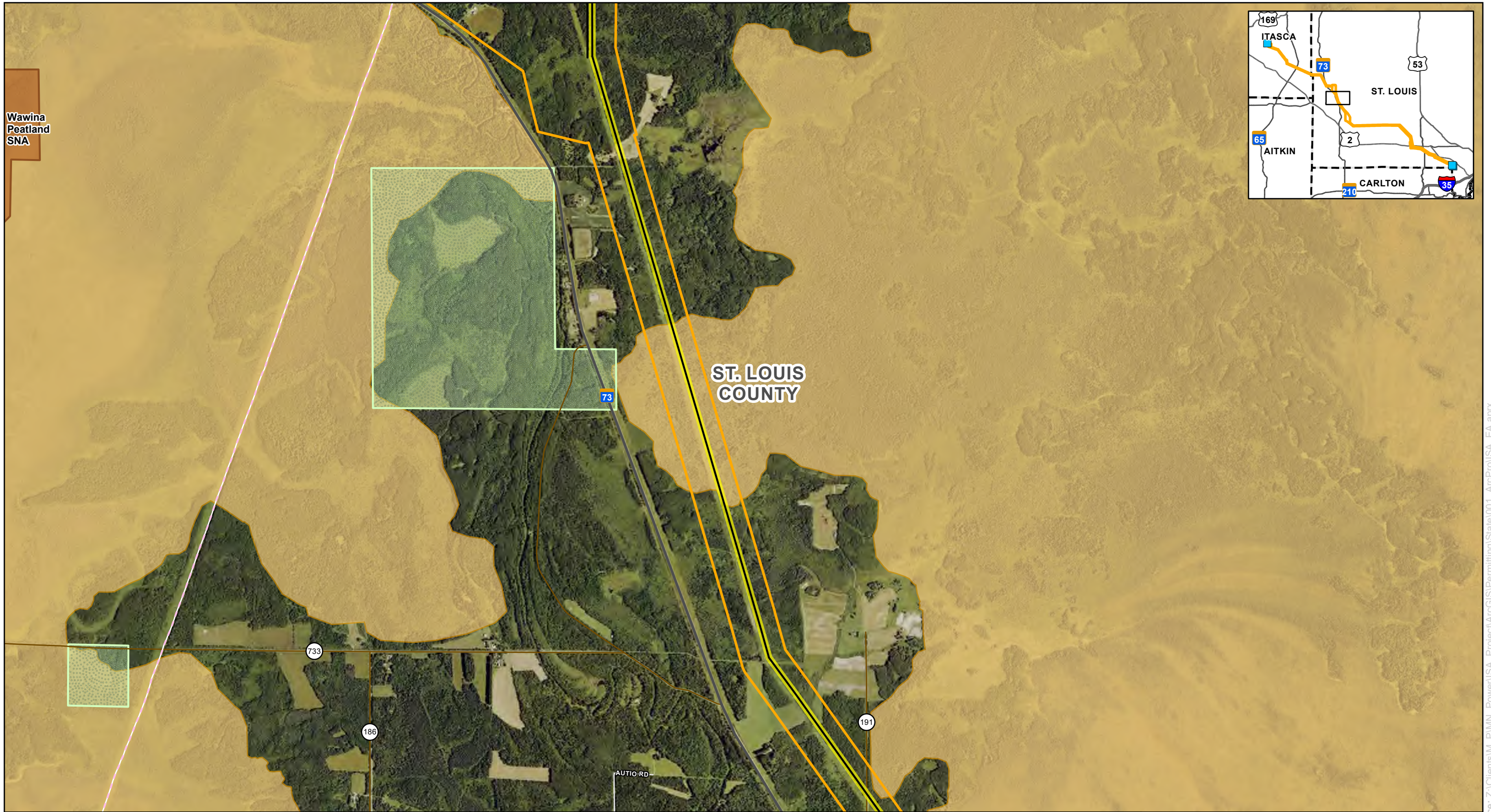




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**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

Project Substation	Snowmobile Trail
Proposed Right Of Way	Other State Forest Land
Proposed Route	Scientific and Natural Area
<b>Proposed Alignment</b>	County Boundary
Segment 1	<b>MBS Sites of Biodiversity Significance</b>
Segment 2	High
Segment 3	

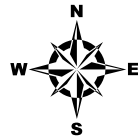
ISA Combined Application  
 Docket Nos. E015/CN-25-111 and E015/TL-25-112  
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







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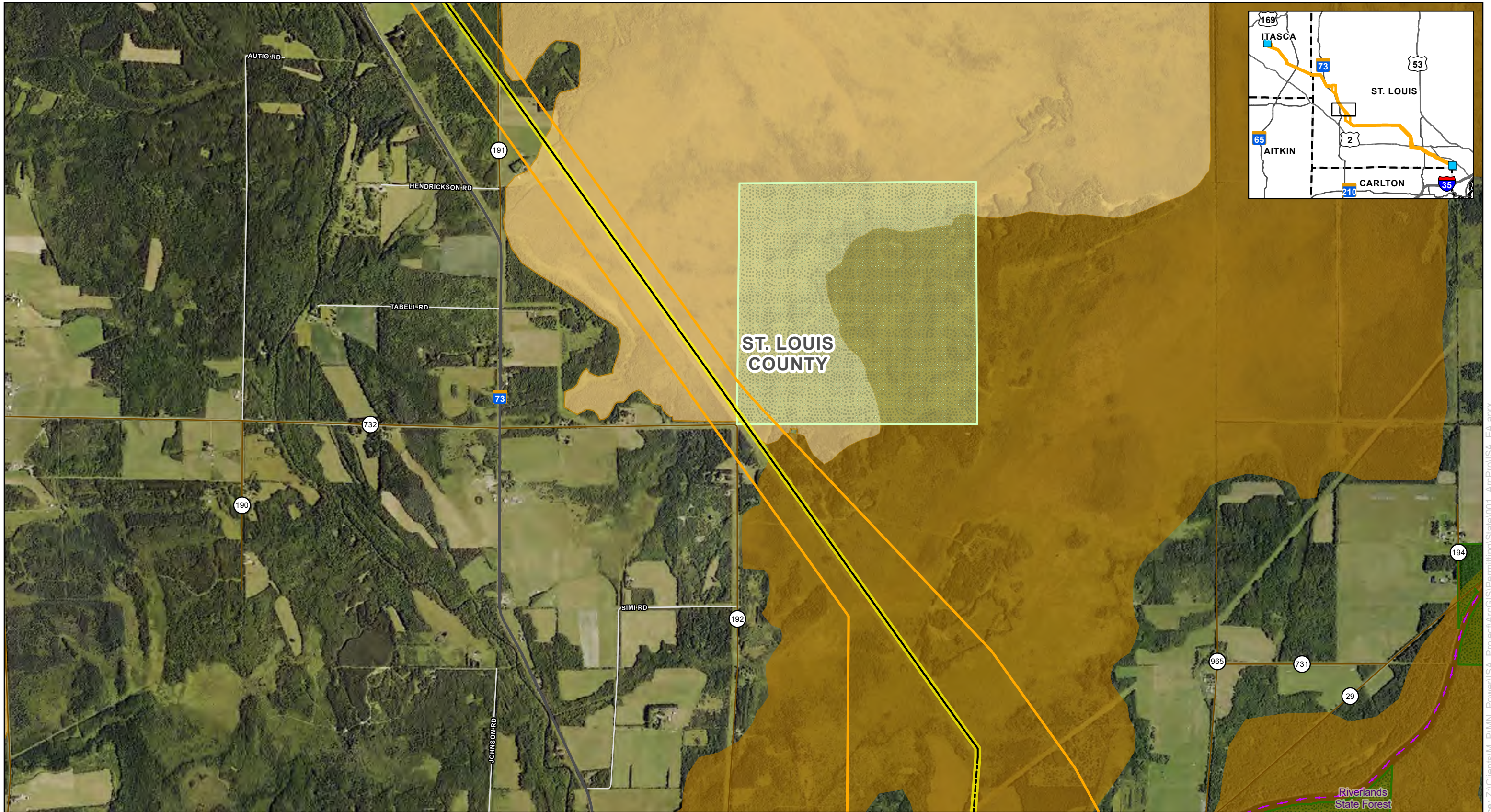
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 1 inch = 2,000 feet



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**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
|  Project Substation    |  Snowmobile Trail            |
|  Proposed Right Of Way |  Other State Forest Land     |
|  Proposed Route        |  Scientific and Natural Area |
| <b>Proposed Alignment</b>   |  County Boundary             |
|  Segment 1             | <b>MBS Sites of Biodiversity</b>  |
|  Segment 2             | <b>Significance</b>   |
|  Segment 3             |  High                        |



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1 inch = 2,000 feet

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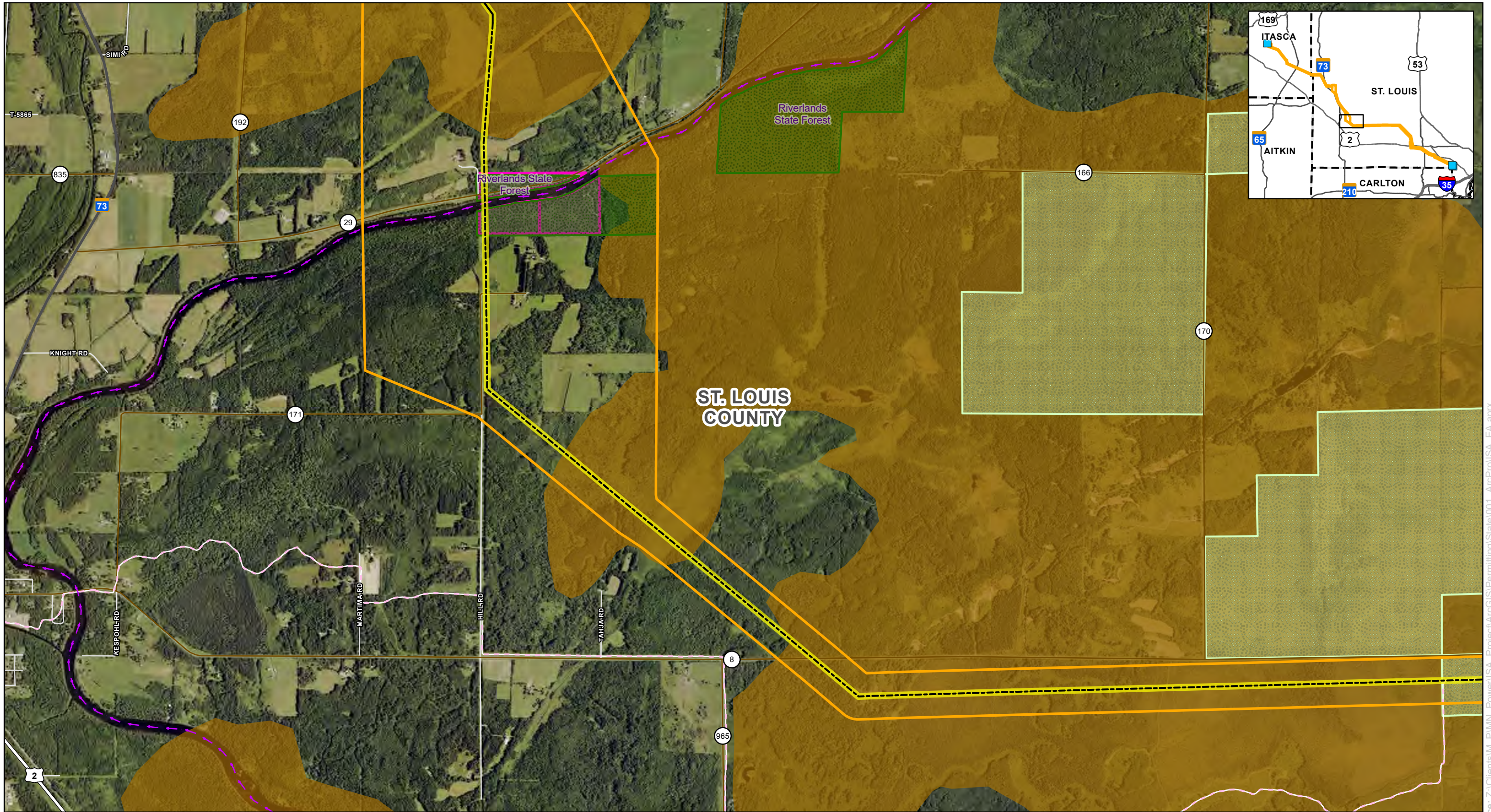
### Map 10: Unique and Natural Features



## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

Project Substation	State Forest
Proposed Right Of Way	Other State Forest Land
Proposed Route	County Boundary
<b>Proposed Alignment</b>	<b>MBS Sites of Biodiversity Significance</b>
Segment 1	High
Segment 2	Moderate
Segment 3	
State Park Trail / Road	

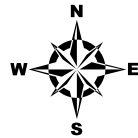
ISA Combined Application  
Docket Nos. E015/CN-25-111 and E015/TL-25-112  
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 1 inch = 2,000 feet













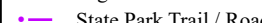




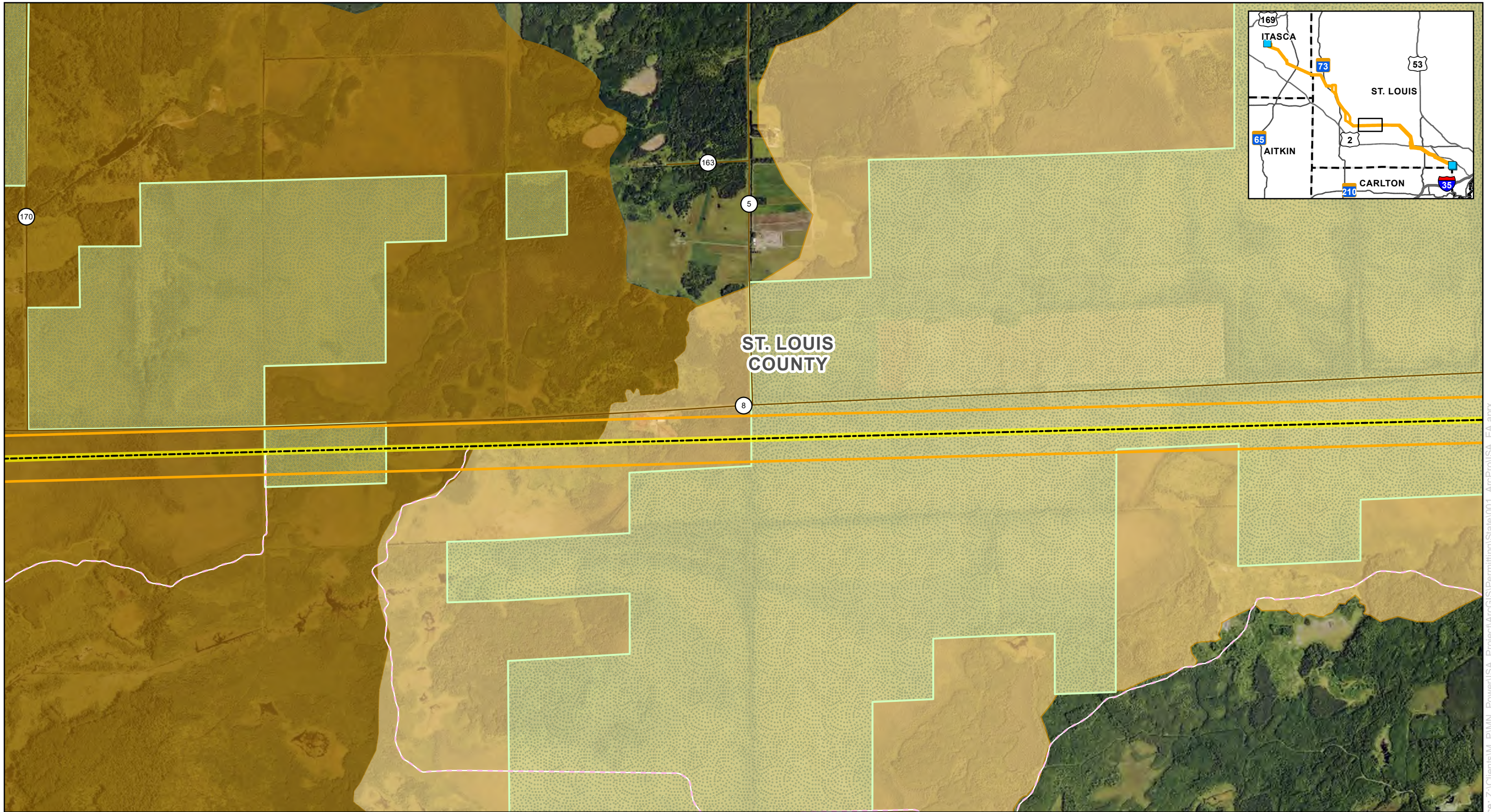


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### Map 10: Unique and Natural Features

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota


- |   |   |
|---|---|
|  Project Substation      |  State Forest                              |
|  Proposed Right Of Way   |  Other State Forest Land                   |
|  Proposed Route          |  DNR Land and Water Conservation Fund Area |
| <b>Proposed Alignment</b>   |  County Boundary                           |
|  Segment 1               | <b>MBS Sites of Biodiversity Significance</b>   |
|  Segment 2               |  Moderate                                  |
|  Segment 3               |  ISA Combined Application                  |
|  State Park Trail / Road |  Snow Drifts                               |
|  Snow Drifts             |   |

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







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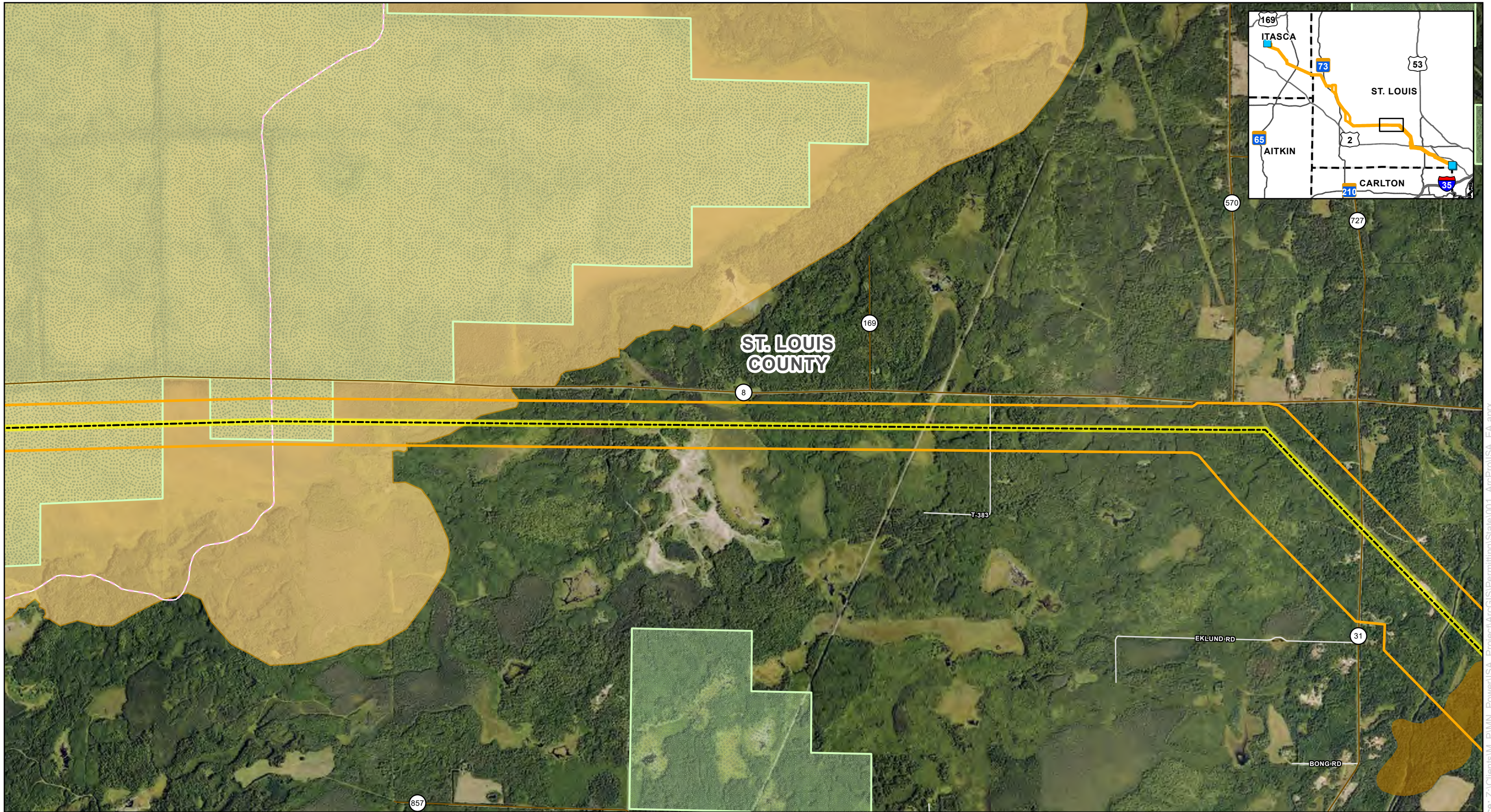
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**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
|  Project Substation    |  Snowmobile Trail        |
|  Proposed Right Of Way |  Other State Forest Land |
|  Proposed Route        |  County Boundary         |
| <b>Proposed Alignment</b>   | <b>MBS Sites of Biodiversity Significance</b>   |
|  Segment 1             |  High                    |
|  Segment 2             |  Moderate                |
|  Segment 3             |   |

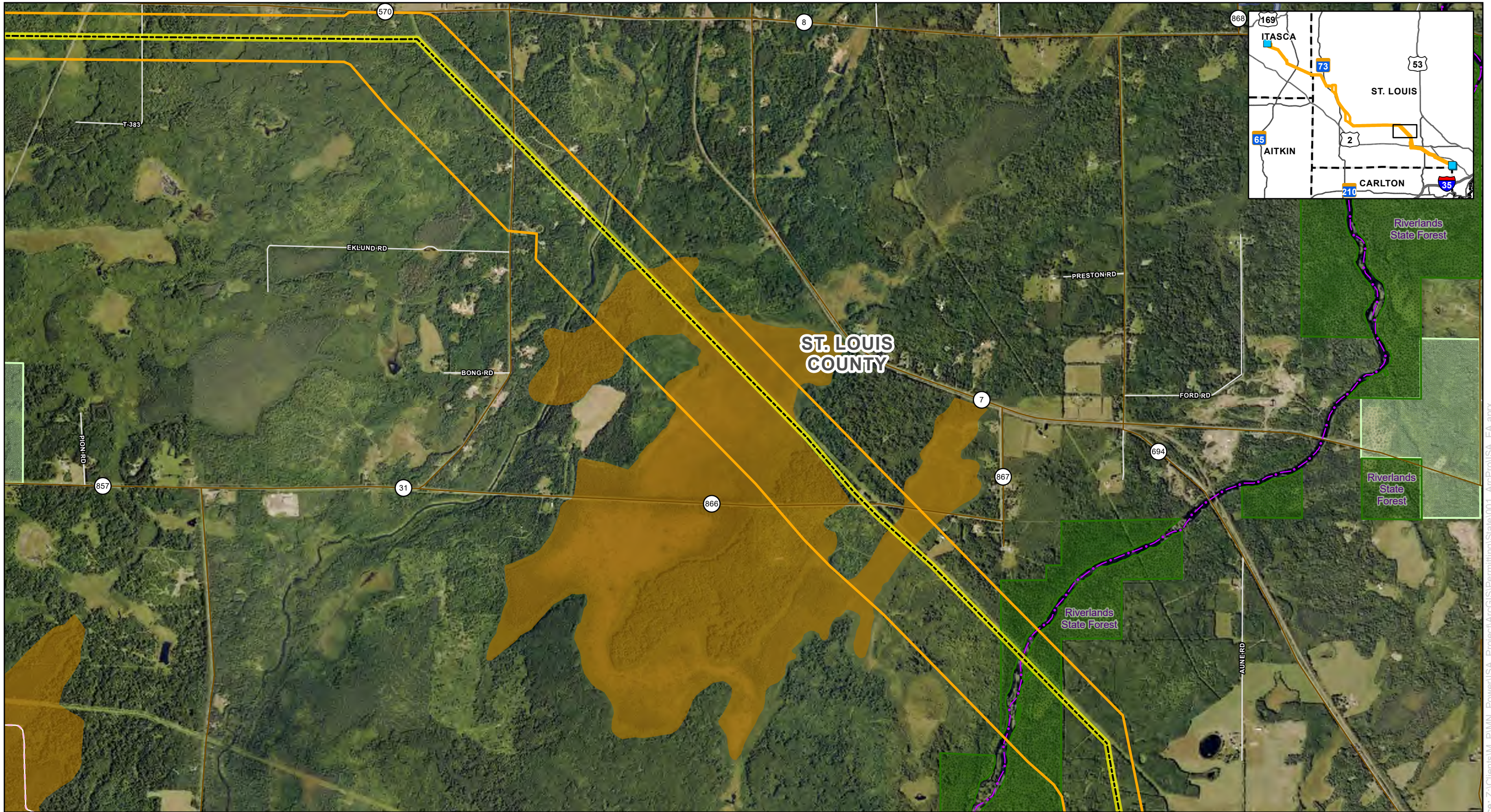




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1 inch = 2,000 feet

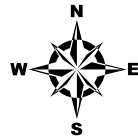
**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- Project Substation
- Proposed Right Of Way
- Proposed Route
- Proposed Alignment**
- Segment 1
- Segment 2
- Segment 3
- Snowmobile Trail
- Other State Forest Land
- County Boundary
- MBS Sites of Biodiversity Significance**
- High
- Moderate



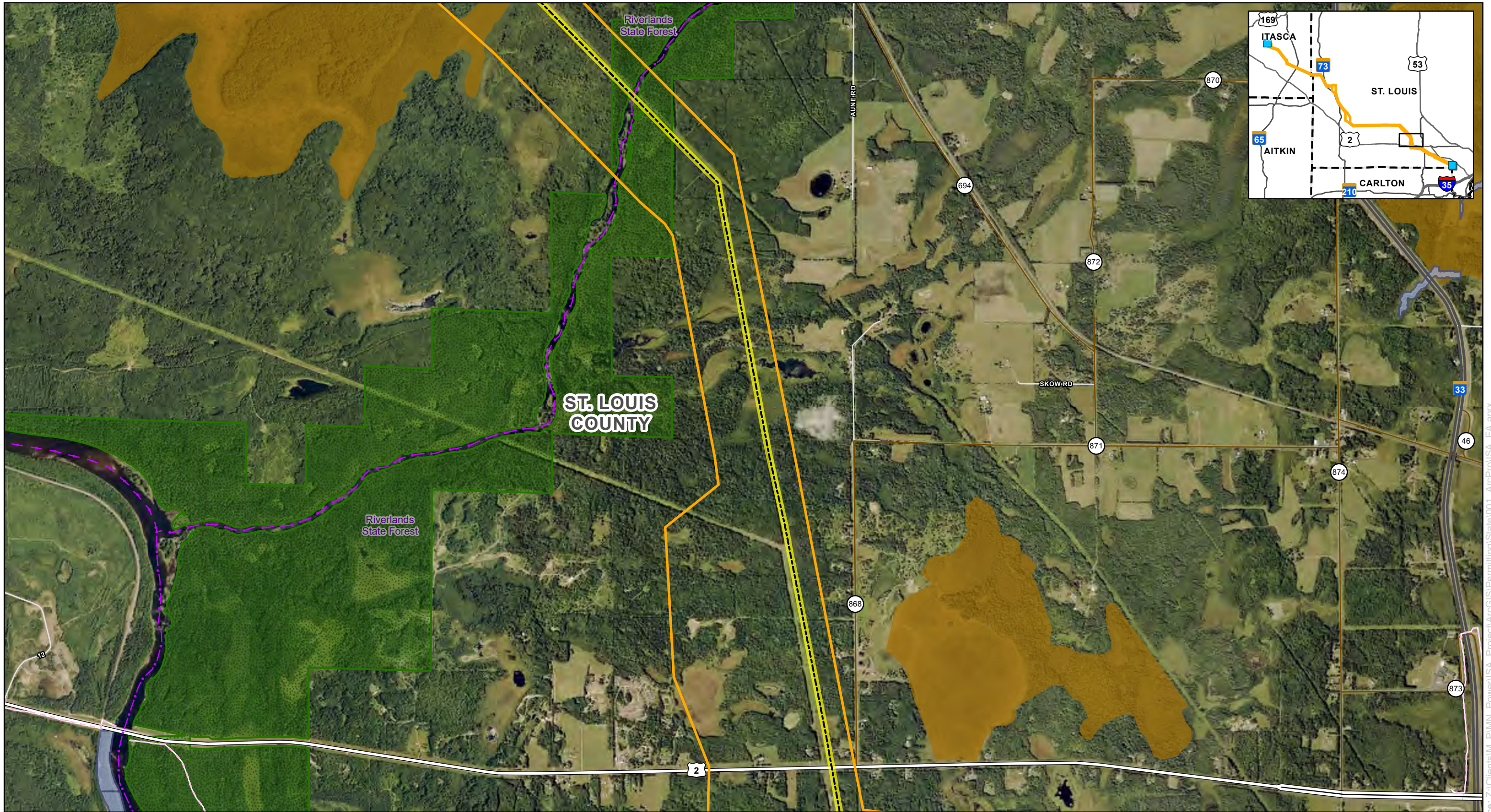

  
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 1 inch = 2,000 feet



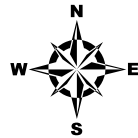
**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |                           |   |
|---------------------------|---|
| Project Substation        | Snowmobile Trail                              |
| Proposed Right Of Way     | State Forest                                  |
| Proposed Route            | Other State Forest Land                       |
| <b>Proposed Alignment</b> | Aquatic Management Area                       |
| Segment 1                 | County Boundary                               |
| Segment 2                 | <b>MBS Sites of Biodiversity Significance</b> |
| Segment 3                 | MBS Application                               |
| State Park Trail / Road   | MBS Application                               |















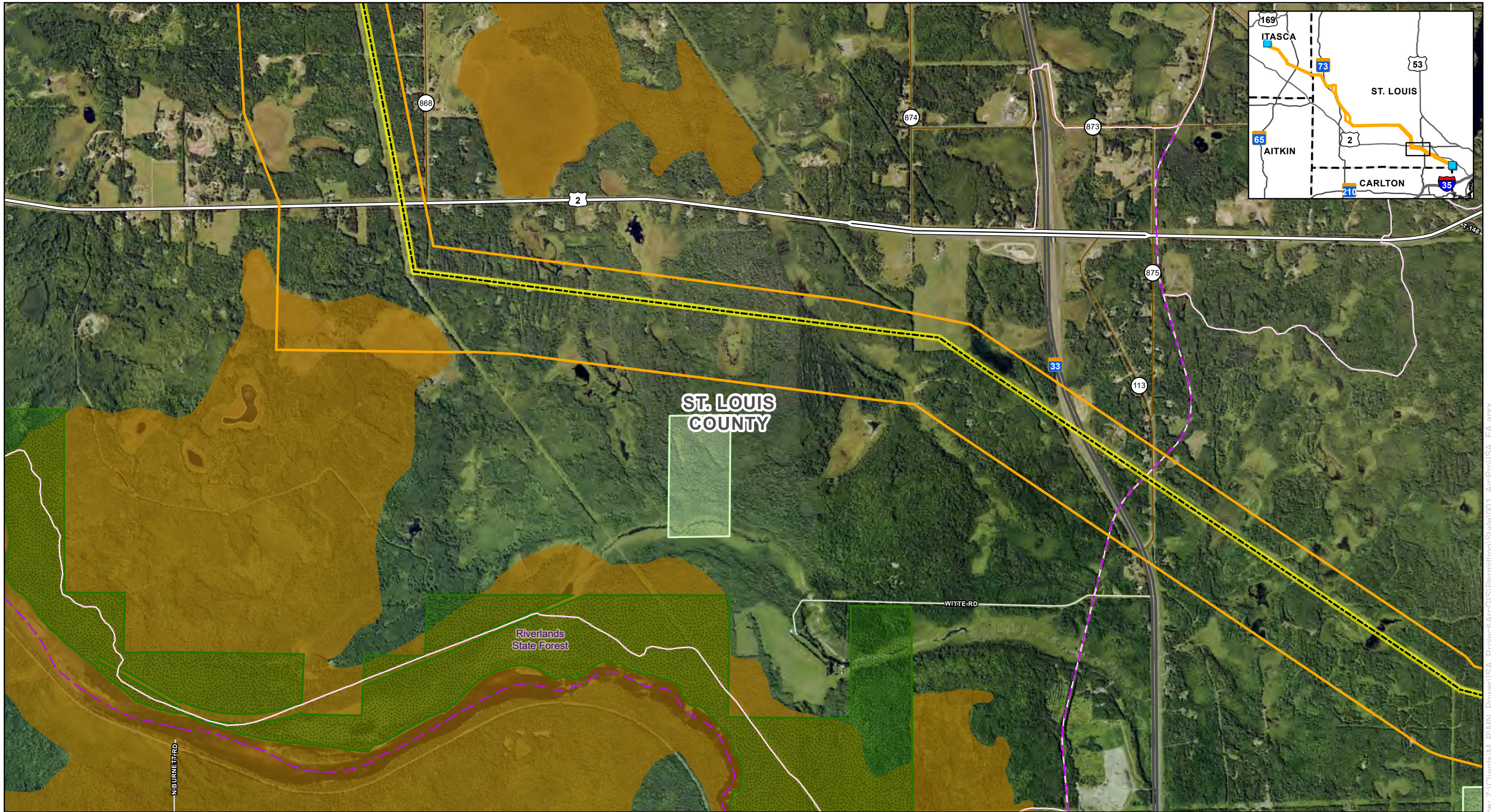

  
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 1 inch = 2,000 feet



**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

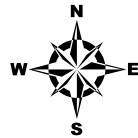
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|---|---|
|  Project Substation      |  Snowmobile Trail        |
|  Proposed Right Of Way   |  State Forest            |
|  Proposed Route          |  Aquatic Management Area |
| <b>Proposed Alignment</b>   |  County Boundary         |
|  Segment 1               | <b>MBS Sites of Biodiversity Significance</b>   |
|  Segment 2               |  Moderate                |
|  Segment 3               |   |
|  State Park Trail / Road |   |

















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 1 inch = 2,000 feet





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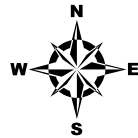
**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
|  Project Substation      |  State Trail               |
|  Proposed Right Of Way   |  Snowmobile Trail          |
|  Proposed Route          |  State Forest              |
| <b>Proposed Alignment</b>   |  Other State Forest Land   |
|  Segment 1               |  County Boundary           |
|  Segment 2               |  MBS Sites of Biodiversity |
|  Segment 3               |  ISA Combined Application  |
|  State Park Trail / Road |   |
- Docket Nos. E015/CN-25-111 and E015/TL-25-112  
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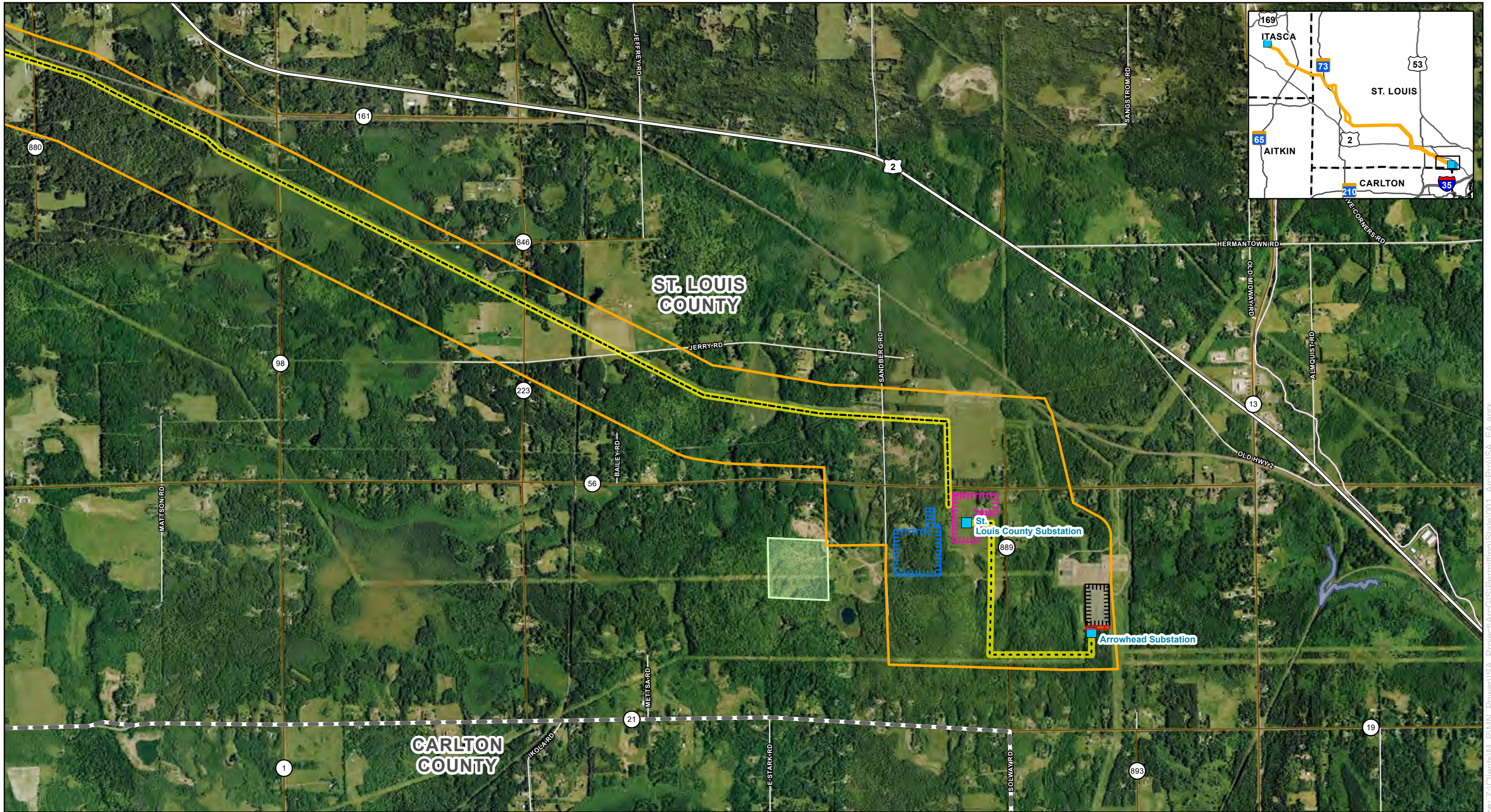


  
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 1 inch = 2,000 feet




**Map 10: Unique and Natural Features**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
|  Project Substation      |  State Trail               |
|  Proposed Right Of Way   |  Snowmobile Trail          |
|  Proposed Route          |  Other State Forest Land   |
| <b>Proposed Alignment</b>   |  Aquatic Management Area   |
|  Segment 1               |  County Boundary           |
|  Segment 2               |  MBS Sites of Biodiversity |
|  Segment 3               |  MBS Sites of Biodiversity |
|  State Park Trail / Road |  MBS Sites of Biodiversity |
- ISA Combined Application  
 Docket Nos. E015/CN-25-111 and E015/TL-25-112





  
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








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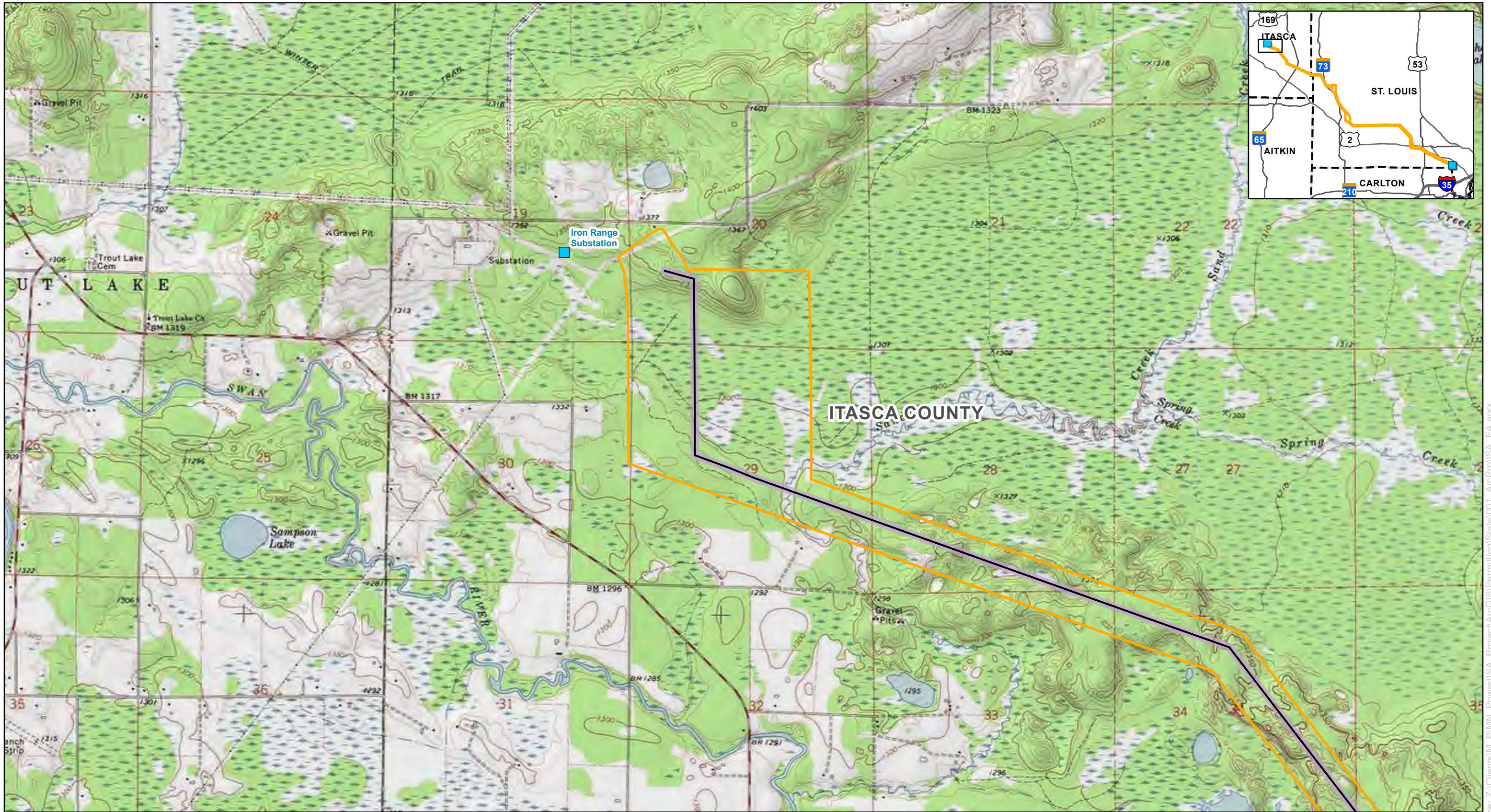


### Map 10: Unique and Natural Features

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

	Project Substation		Existing ATC Arrowhead Substation
	Proposed Right Of Way		St. Louis County Substation Expansion
	Proposed Route		HVDC Modernization Footprint
	Segment 1		Snowmobile Trail
	Segment 2		Other State Forest Land
	Segment 3		Other State Forest Land
	ATC Arrowhead Substation Expansion		Other State Forest Land
			Other State Forest Land



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0 1,000 2,000 Feet  
1 inch = 2,000 feet

### Map 11: Topography

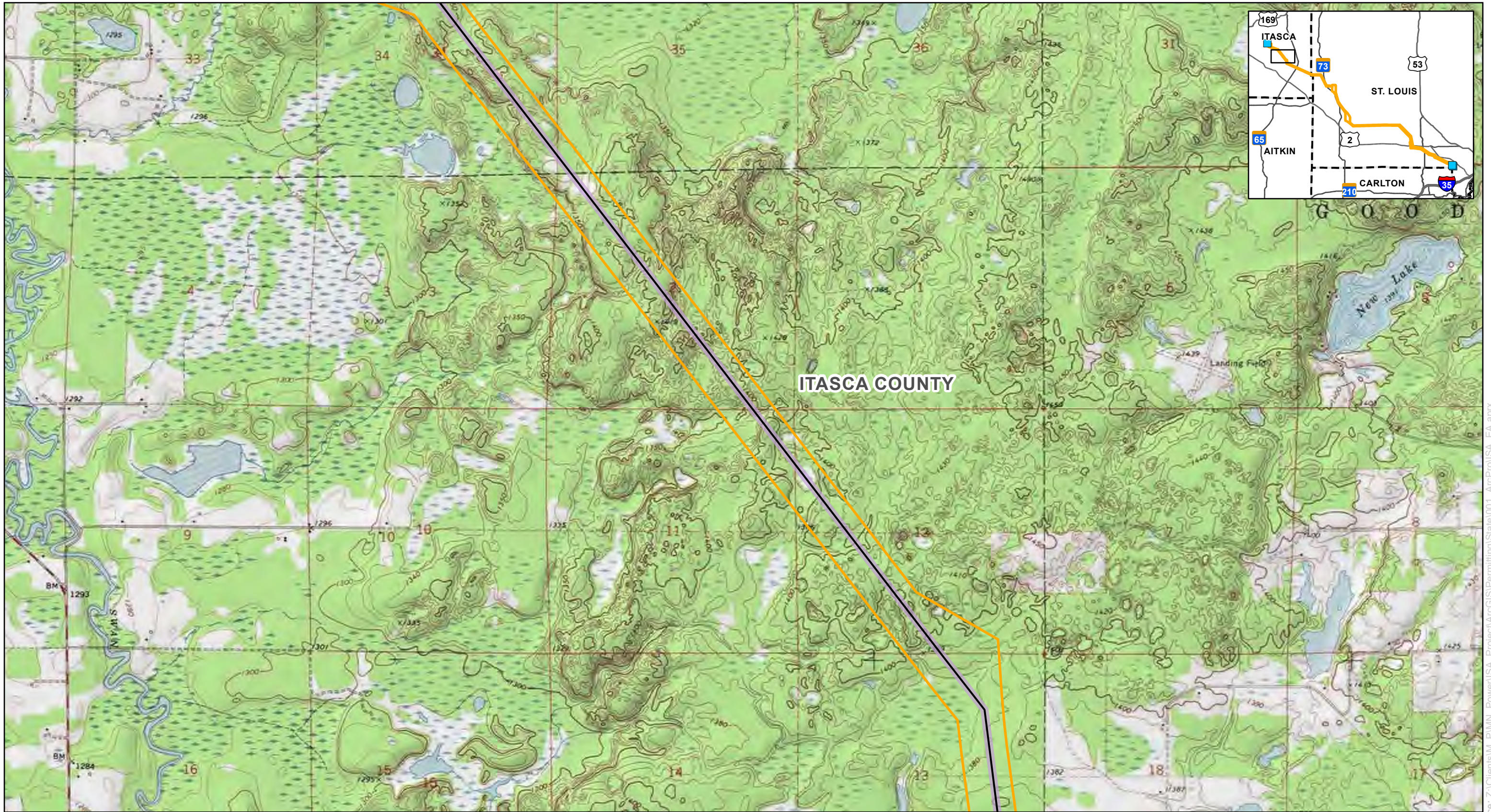
## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

- |                       |                           |
|-----------------------|---------------------------|
| Project Substation    | <b>Proposed Alignment</b> |
| Proposed Right Of Way | Segment 1                 |
| Proposed Route        | Segment 2                 |
| County Boundary       | Segment 3                 |

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0 1,000 2,000 Feet  
1 inch = 2,000 feet

**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |                       |                           |
|-----------------------|---------------------------|
| Project Substation    | <b>Proposed Alignment</b> |
| Proposed Right Of Way | Segment 1                 |
| Proposed Route        | Segment 2                 |
| County Boundary       | Segment 3                 |

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1 inch = 2,000 feet

**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |                       |                           |
|-----------------------|---------------------------|
| Project Substation    | <b>Proposed Alignment</b> |
| Proposed Right Of Way | — Segment 1               |
| Proposed Route        | - - - Segment 2           |
| County Boundary       | · · · Segment 3           |

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1 inch = 2,000 feet

### Map 11: Topography

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

- |                       |                           |
|-----------------------|---------------------------|
| Project Substation    | <b>Proposed Alignment</b> |
| Proposed Right Of Way | Segment 1                 |
| Proposed Route        | Segment 2                 |
| County Boundary       | Segment 3                 |

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0 1,000 2,000 Feet  
1 inch = 2,000 feet

**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |                       |                           |
|-----------------------|---------------------------|
| Project Substation    | <b>Proposed Alignment</b> |
| Proposed Right Of Way | Segment 1                 |
| Proposed Route        | Segment 2                 |
| County Boundary       | Segment 3                 |



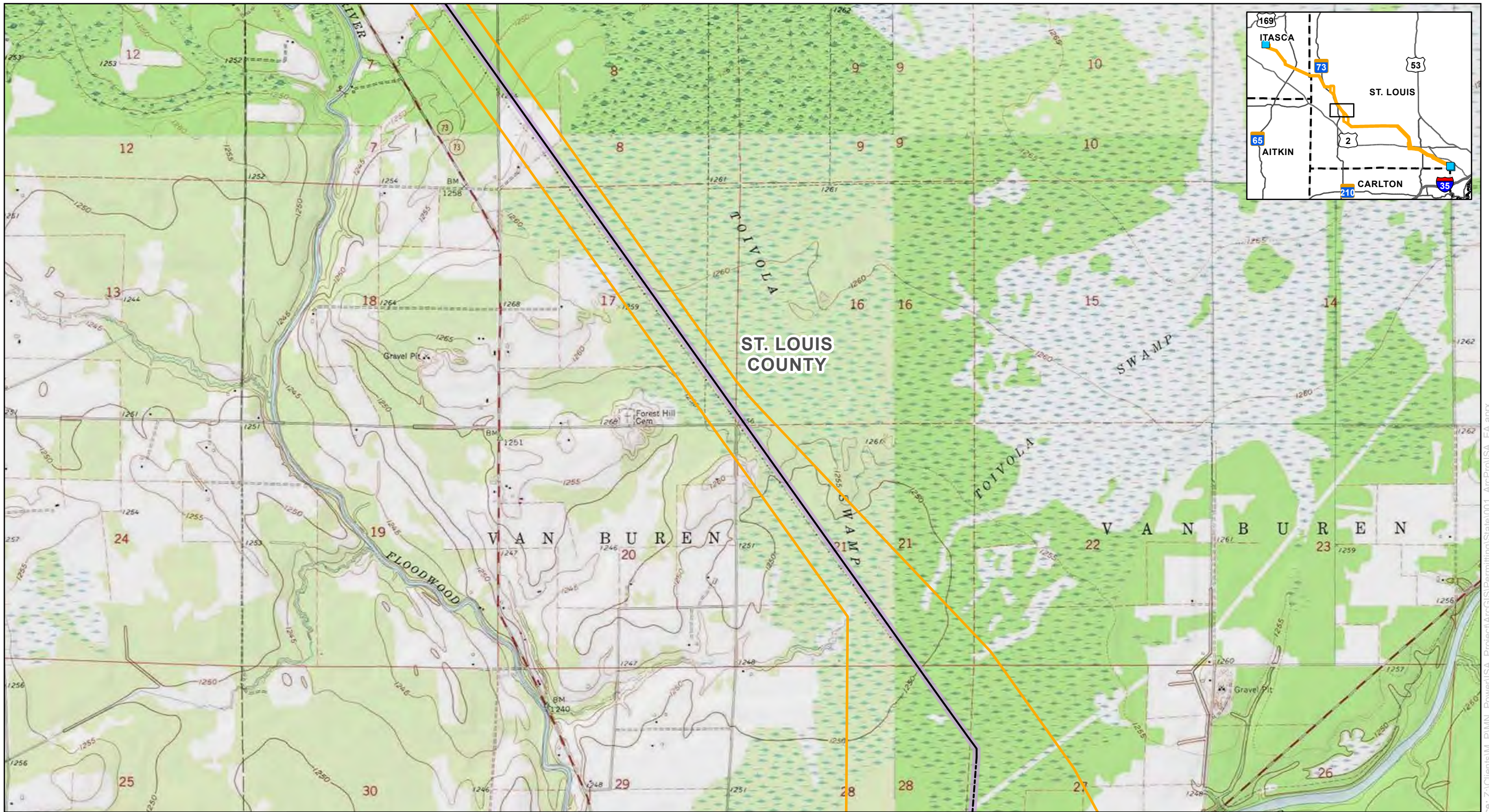
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0 1,000 2,000 Feet  
1 inch = 2,000 feet

**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

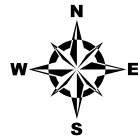
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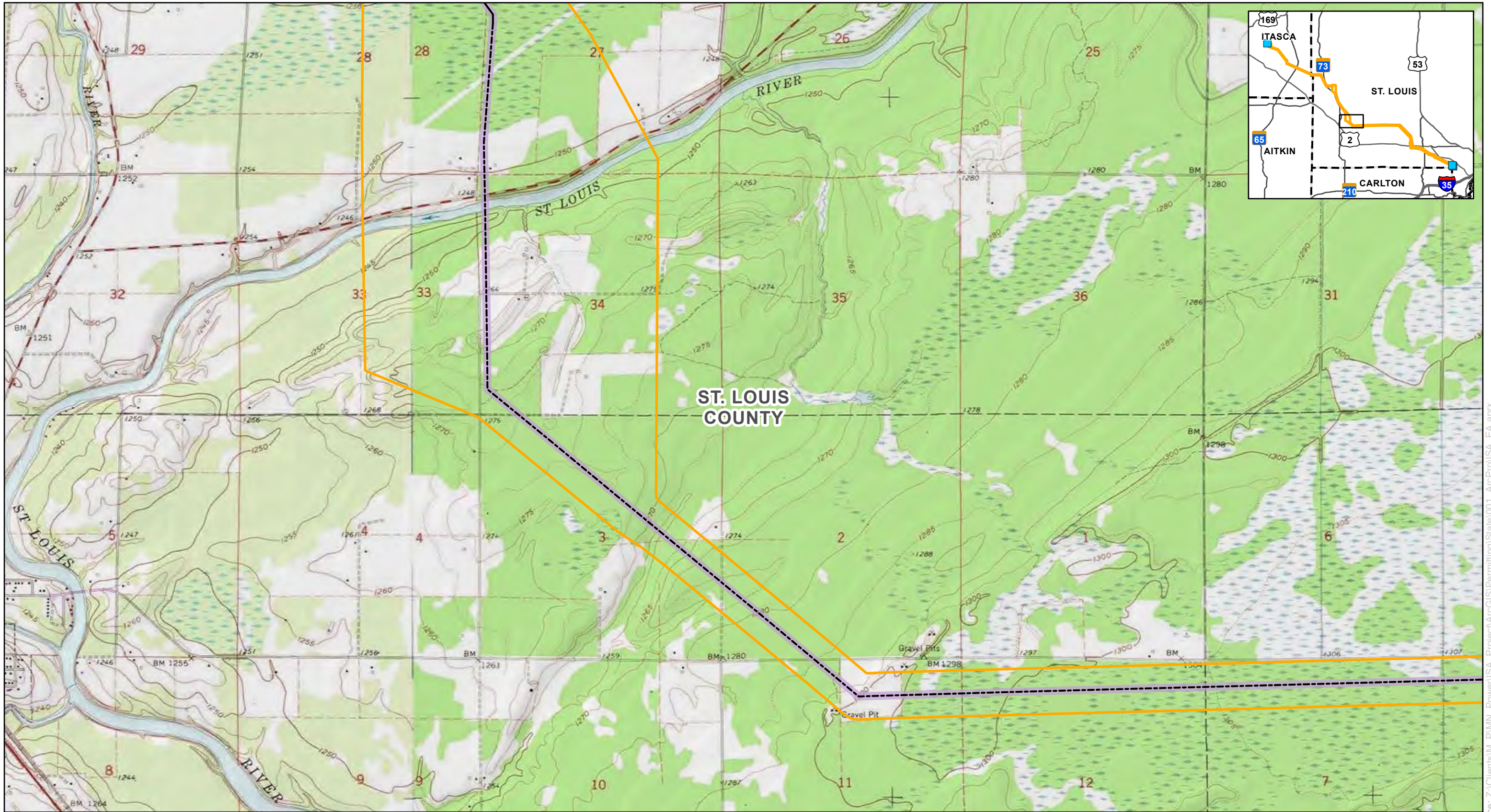


  
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0 1,000 2,000 Feet  
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**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
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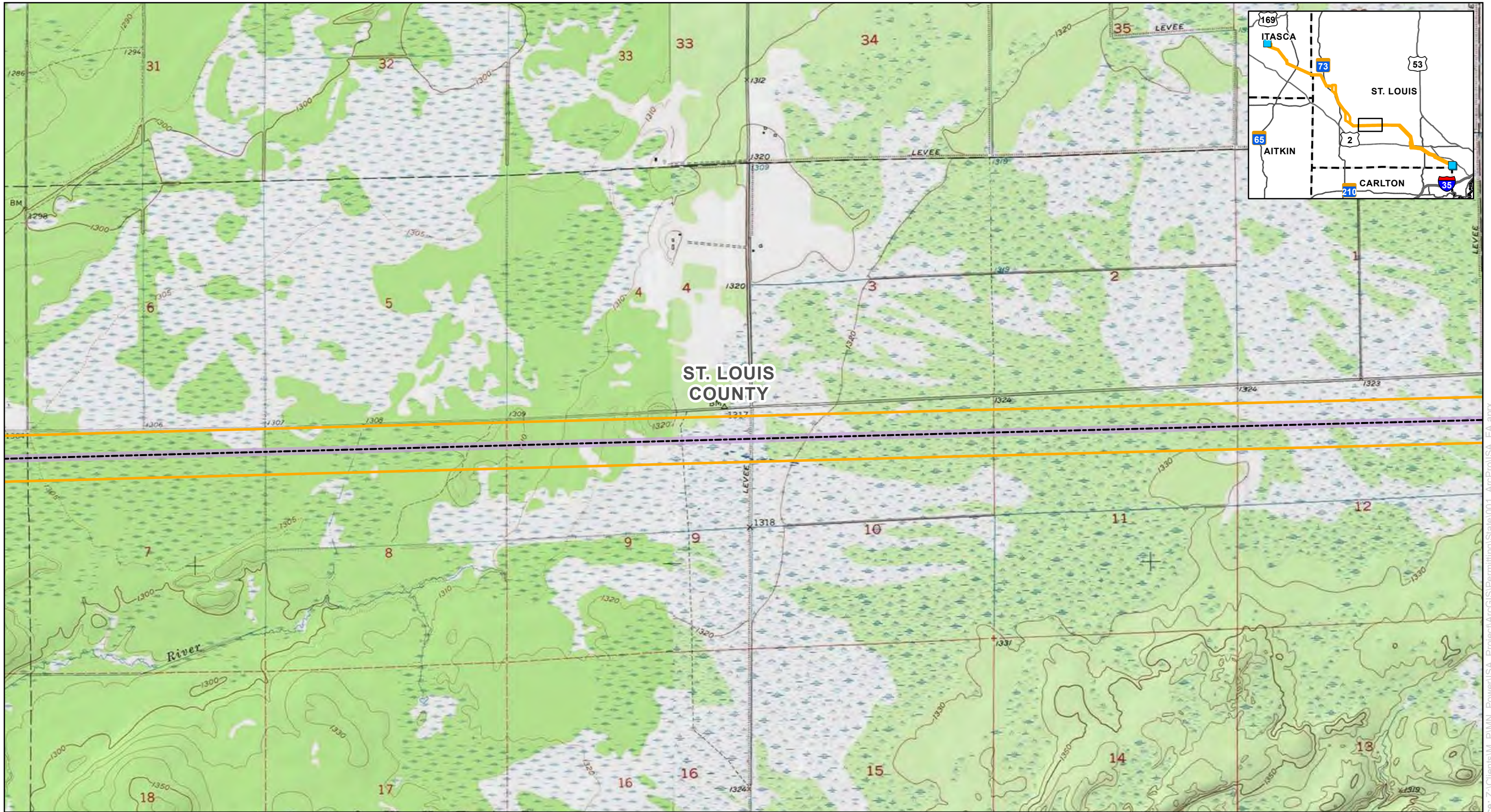
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**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

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| County Boundary       | Segment 3                 |

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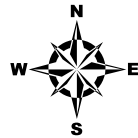
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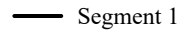

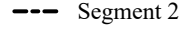

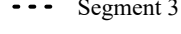



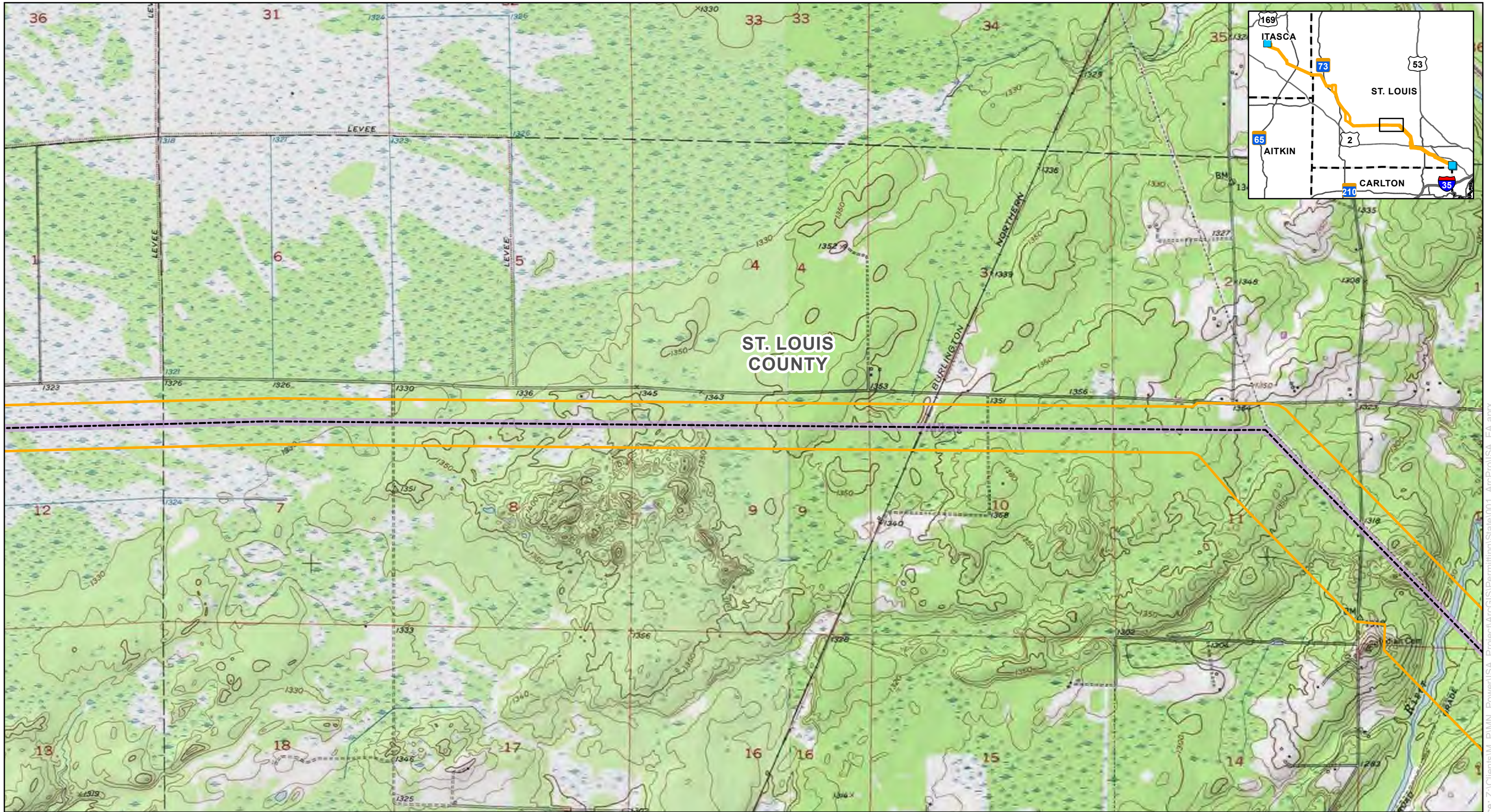
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0 1,000 2,000  
 Feet  
 1 inch = 2,000 feet



**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
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|  County Boundary       |  Segment 3 |





0 1,000 2,000 Feet  
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**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

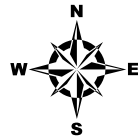
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| Proposed Route        | Segment 2                 |
| County Boundary       | Segment 3                 |













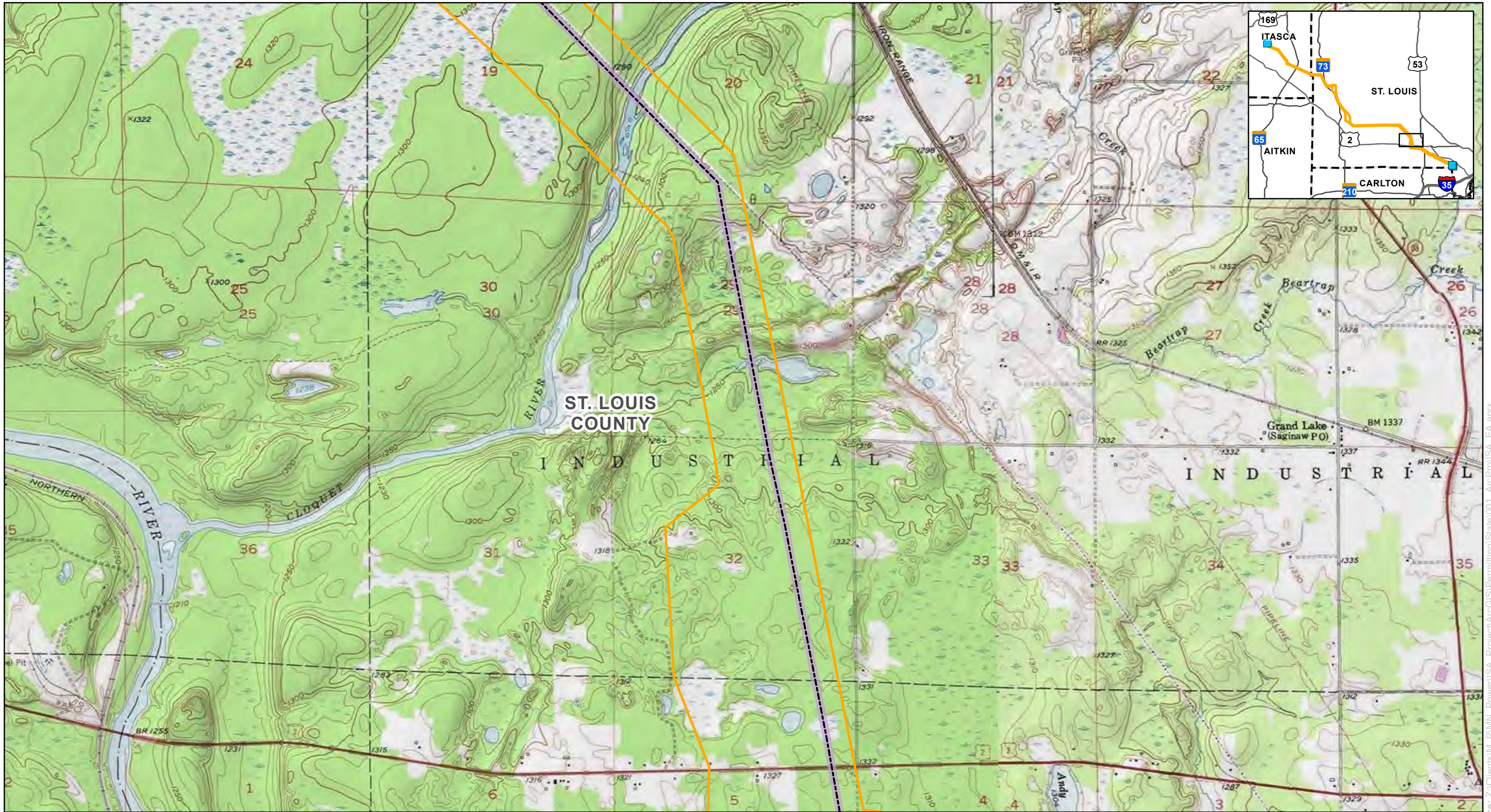
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0 1,000 2,000  
 Feet  
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**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

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|---|---|
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1 inch = 2,000 feet



**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

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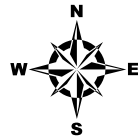
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 Feet  
 1 inch = 2,000 feet



**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
|  Project Substation    | <b>Proposed Alignment</b>   |
|  Proposed Right Of Way |  Segment 1 |
|  Proposed Route        |  Segment 2 |
|  County Boundary       |  Segment 3 |



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0 1,000 2,000 Feet  
1 inch = 2,000 feet

### Map 11: Topography

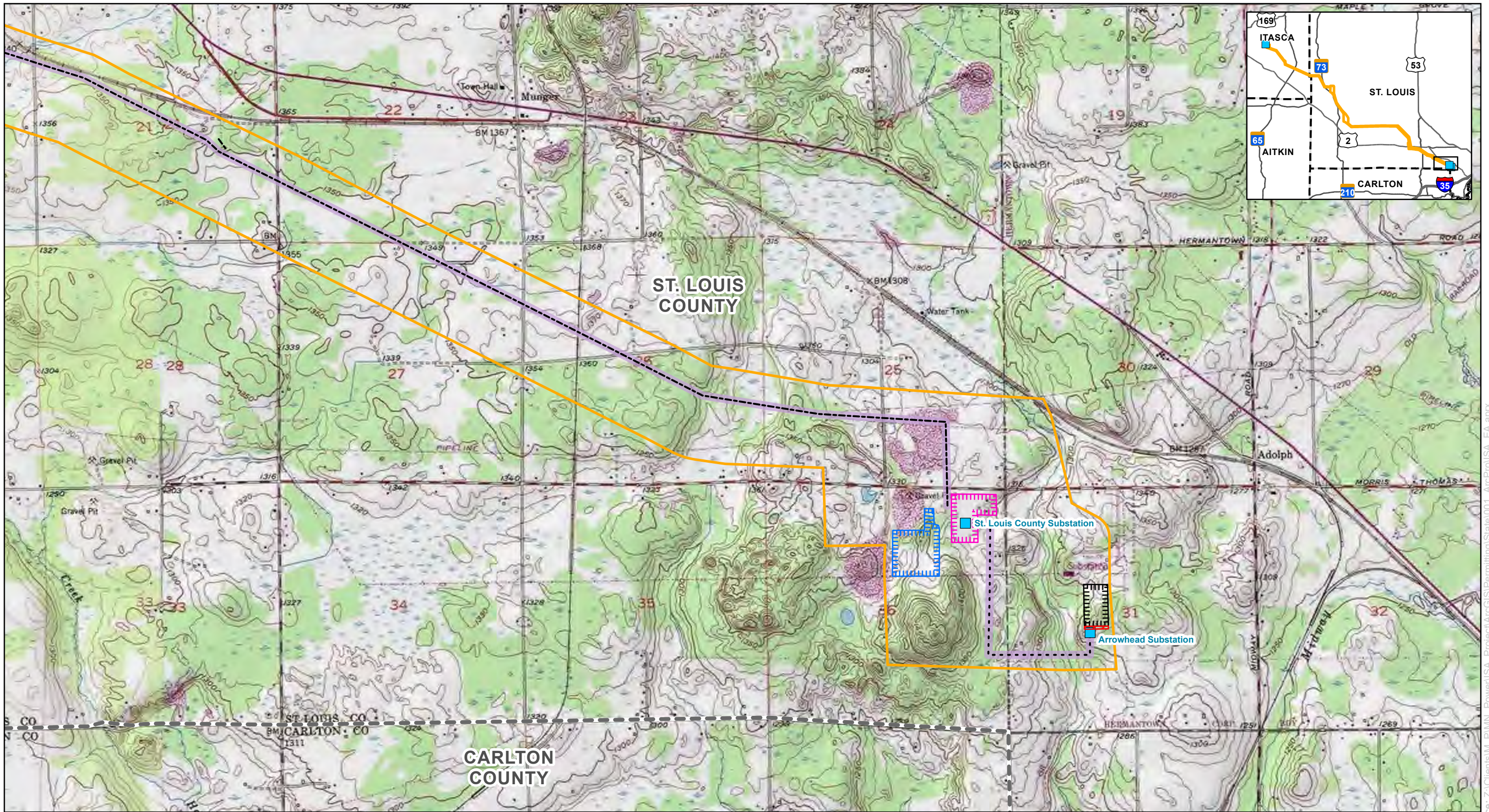
## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project



Minnesota Power  
Itasca and St. Louis Counties, Minnesota

- |                       |                           |
|-----------------------|---------------------------|
| Project Substation    | <b>Proposed Alignment</b> |
| Proposed Right Of Way | Segment 1                 |
| Proposed Route        | Segment 2                 |
| County Boundary       | Segment 3                 |

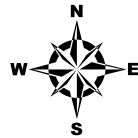
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










  
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0 1,000 2,000 Feet  
 1 inch = 2,000 feet



**Map 11: Topography**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

-  Project Substation
-  Proposed Right Of Way
-  Proposed Route
-  ATC Arrowhead Substation Expansion
-  Existing ATC Arrowhead Substation
-  St. Louis County Substation
-  HVDC Modernization Footprint
-  County Boundary
-  Proposed Alignment
-  Segment 1
-  Segment 2
-  Segment 3



0 1,000 2,000  
Feet  
1 inch = 2,000 feet

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### Map 12: Soils



## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

Project Substation	<b>Proposed Alignment</b>
Proposed Right Of Way	Segment 1
Proposed Route	Segment 2
SSURGO Soil Unit	Segment 3

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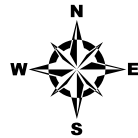
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0 1,000 2,000 Feet








1 inch = 2,000 feet



### Map 12: Soils

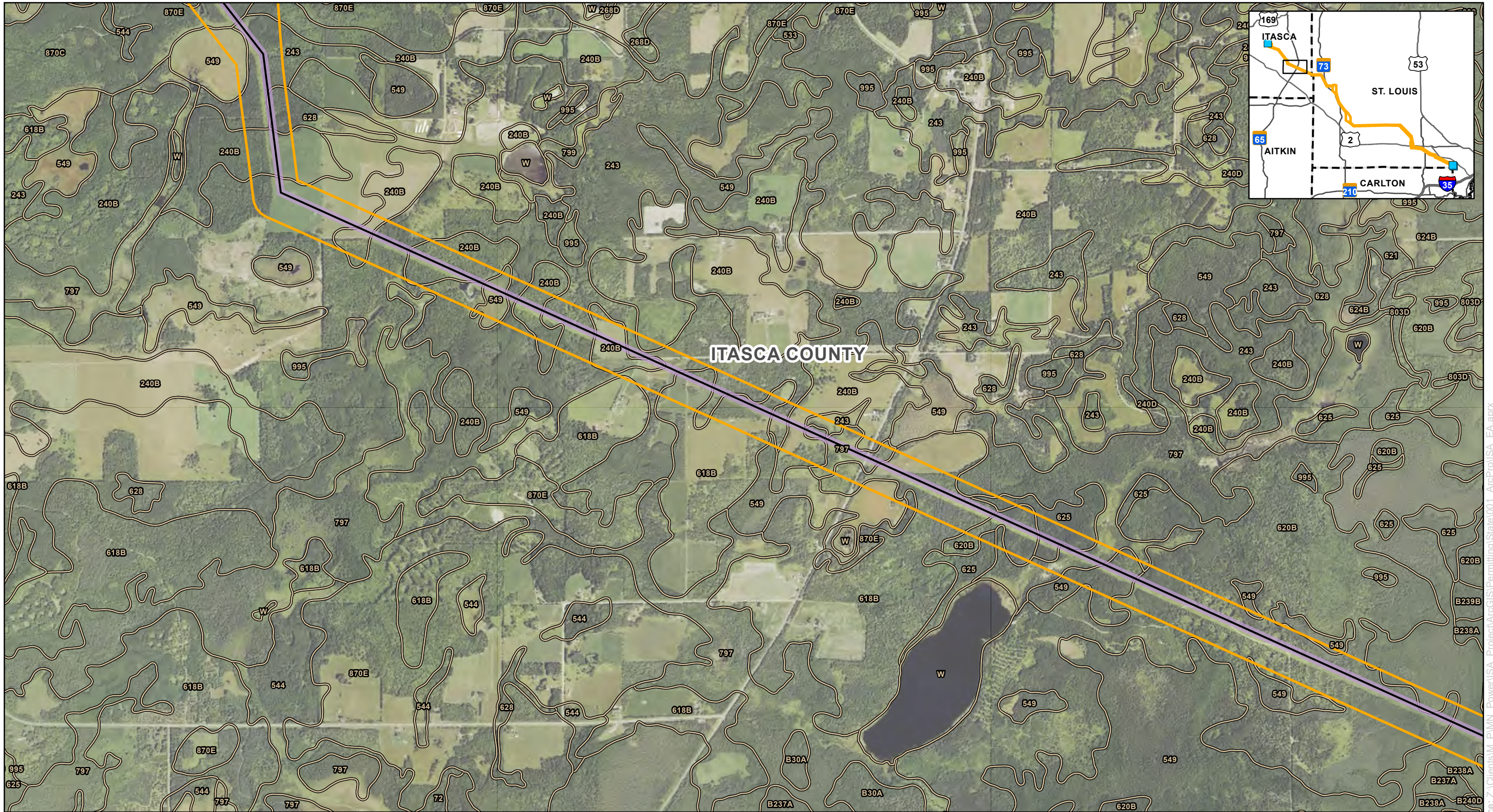


## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
|  Project Substation    | <b>Proposed Alignment</b>   |
|  Proposed Right Of Way |  Segment 1 |
|  Proposed Route        |  Segment 2 |
|  SSURGO Soil Unit      |  Segment 3 |

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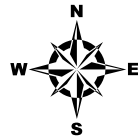
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0 1,000 2,000 Feet





1 inch = 2,000 feet

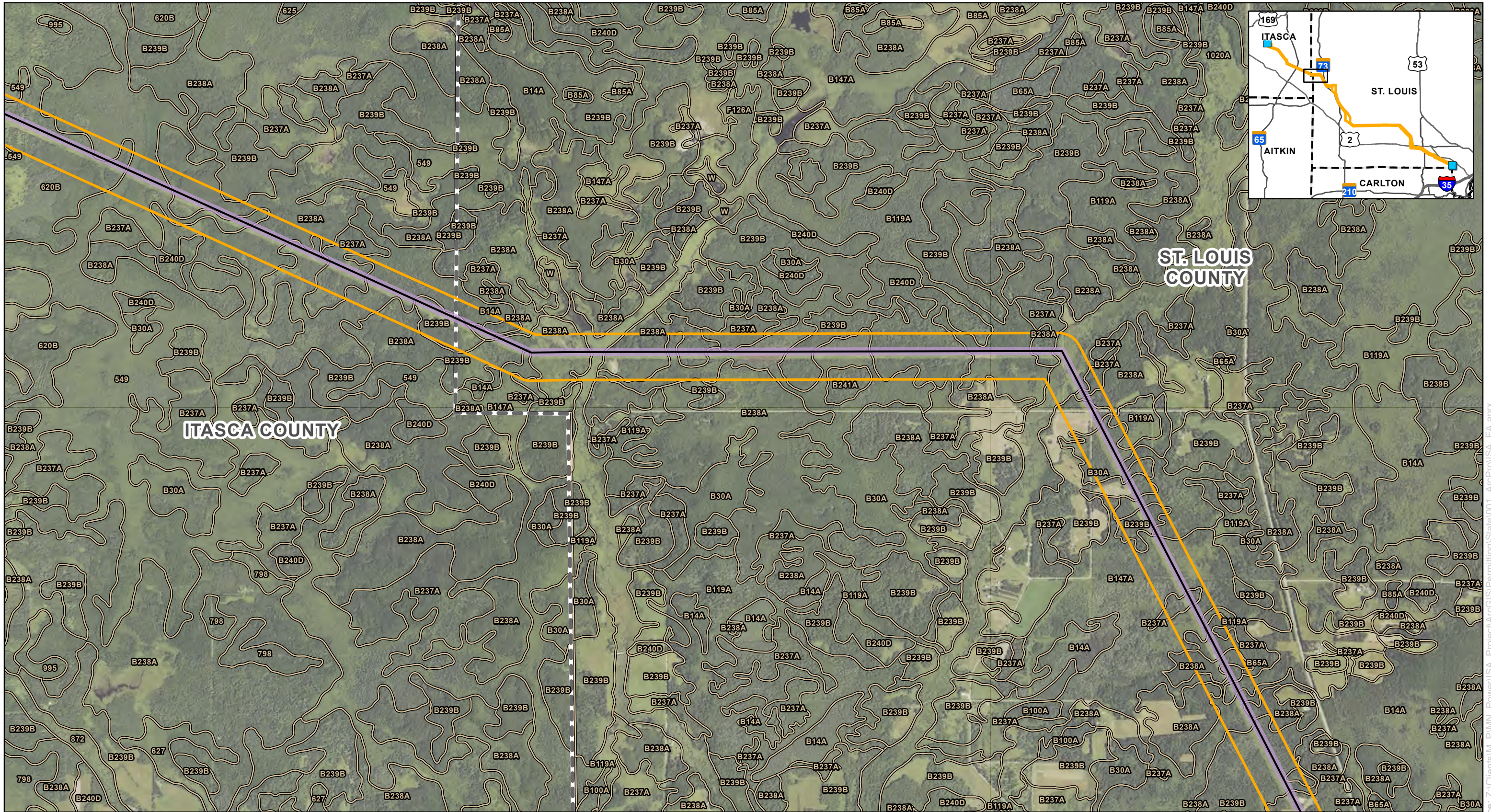


### Map 12: Soils

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
|  Project Substation    | <b>Proposed Alignment</b>   |
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|  Proposed Route        |  Segment 2 |
|  SSURGO Soil Unit      |  Segment 3 |



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0 1,000 2,000 Feet  
1 inch = 2,000 feet

### Map 12: Soils

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

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|-----------------------|---------------------------|
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0 1,000 2,000 Feet  
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### Map 12: Soils

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project



Minnesota Power  
Itasca and St. Louis Counties, Minnesota

Project Substation	<b>Proposed Alignment</b>
Proposed Right Of Way	Segment 1
Proposed Route	Segment 2
SSURGO Soil Unit	Segment 3

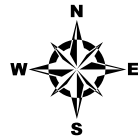
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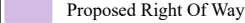

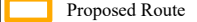






  
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0 1,000 2,000  
 Feet  
 1 inch = 2,000 feet



**Map 12: Soils**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

- |   |   |
|---|---|
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0 1,000 2,000 Feet  
1 inch = 2,000 feet

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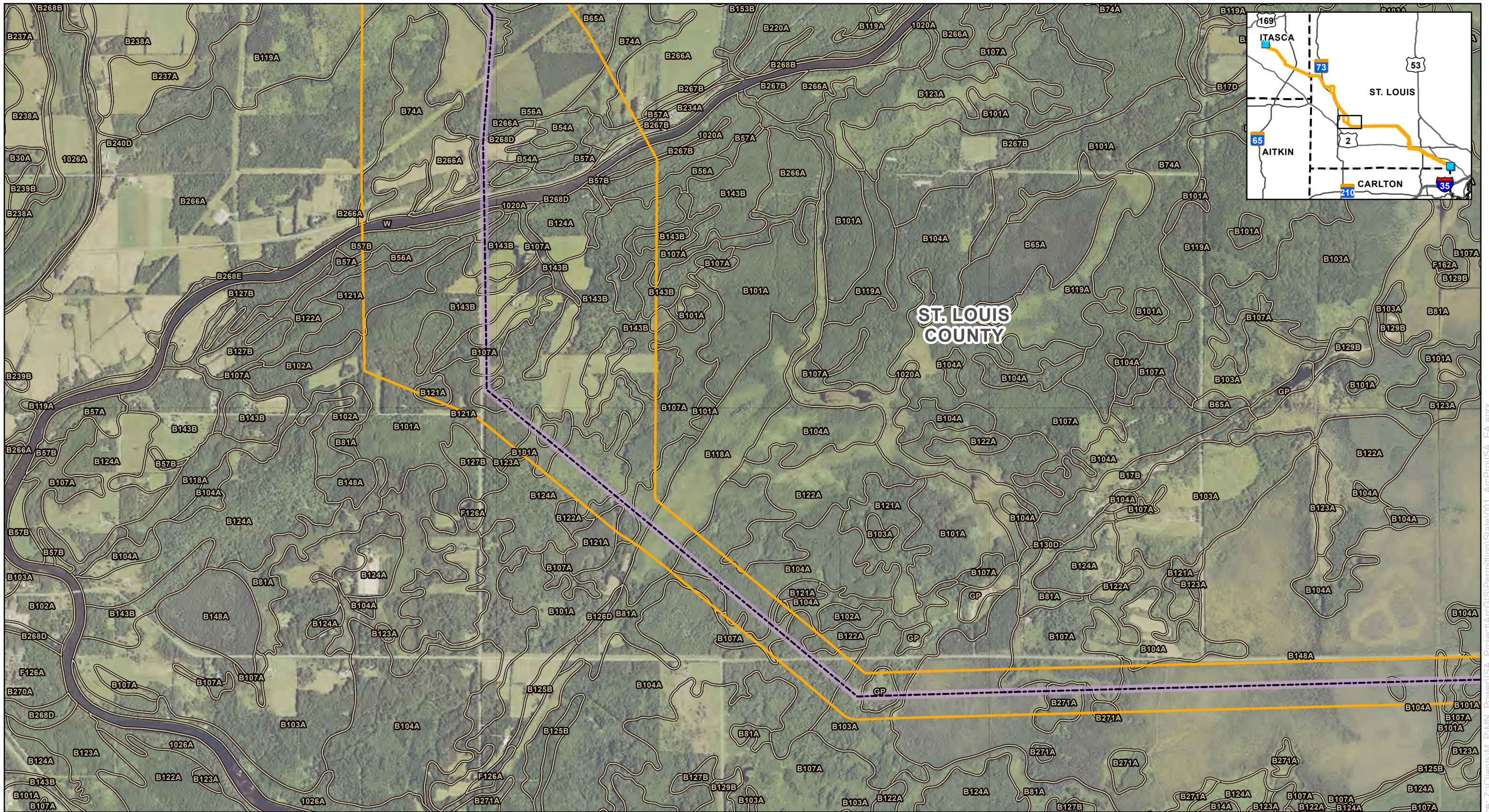
**Map 12: Soils**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
Minnesota Power  
Itasca and St. Louis Counties, Minnesota



Project Substation	<b>Proposed Alignment</b>
Proposed Right Of Way	Segment 1
Proposed Route	Segment 2
SSURGO Soil Unit	Segment 3

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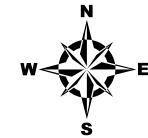
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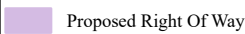
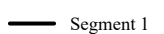
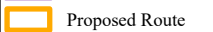
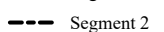

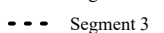
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 Feet  
 1 inch = 2,000 feet



### Map 12: Soils

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

 Project Substation	<b>Proposed Alignment</b>
 Proposed Right Of Way	 Segment 1
 Proposed Route	 Segment 2
 SSURGO Soil Unit	 Segment 3



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0 1,000 2,000 Feet

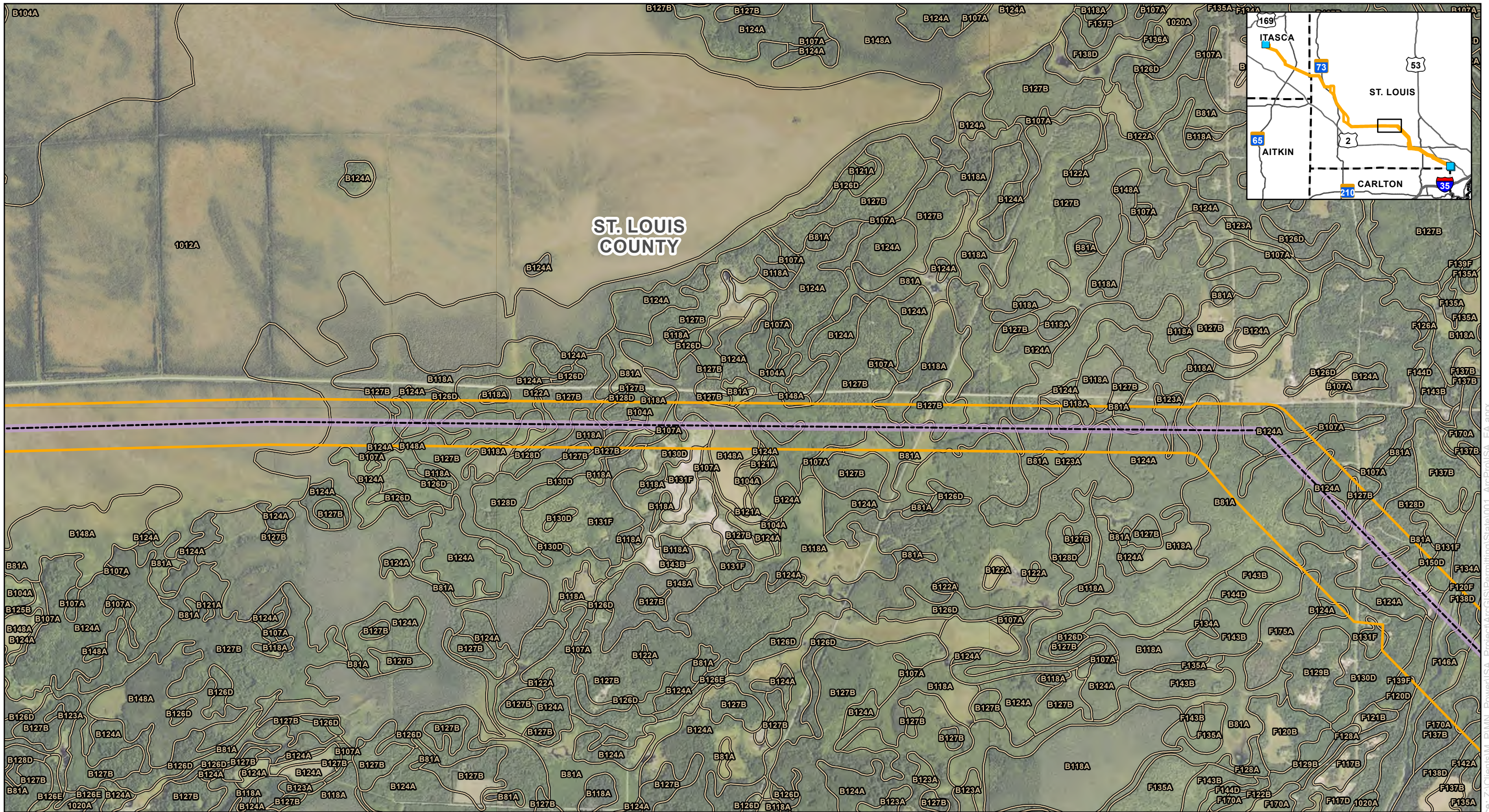
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### Map 12: Soils

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

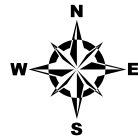
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Itasca and St. Louis Counties, Minnesota

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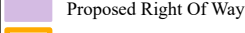


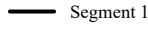
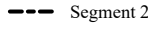
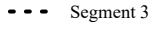




  
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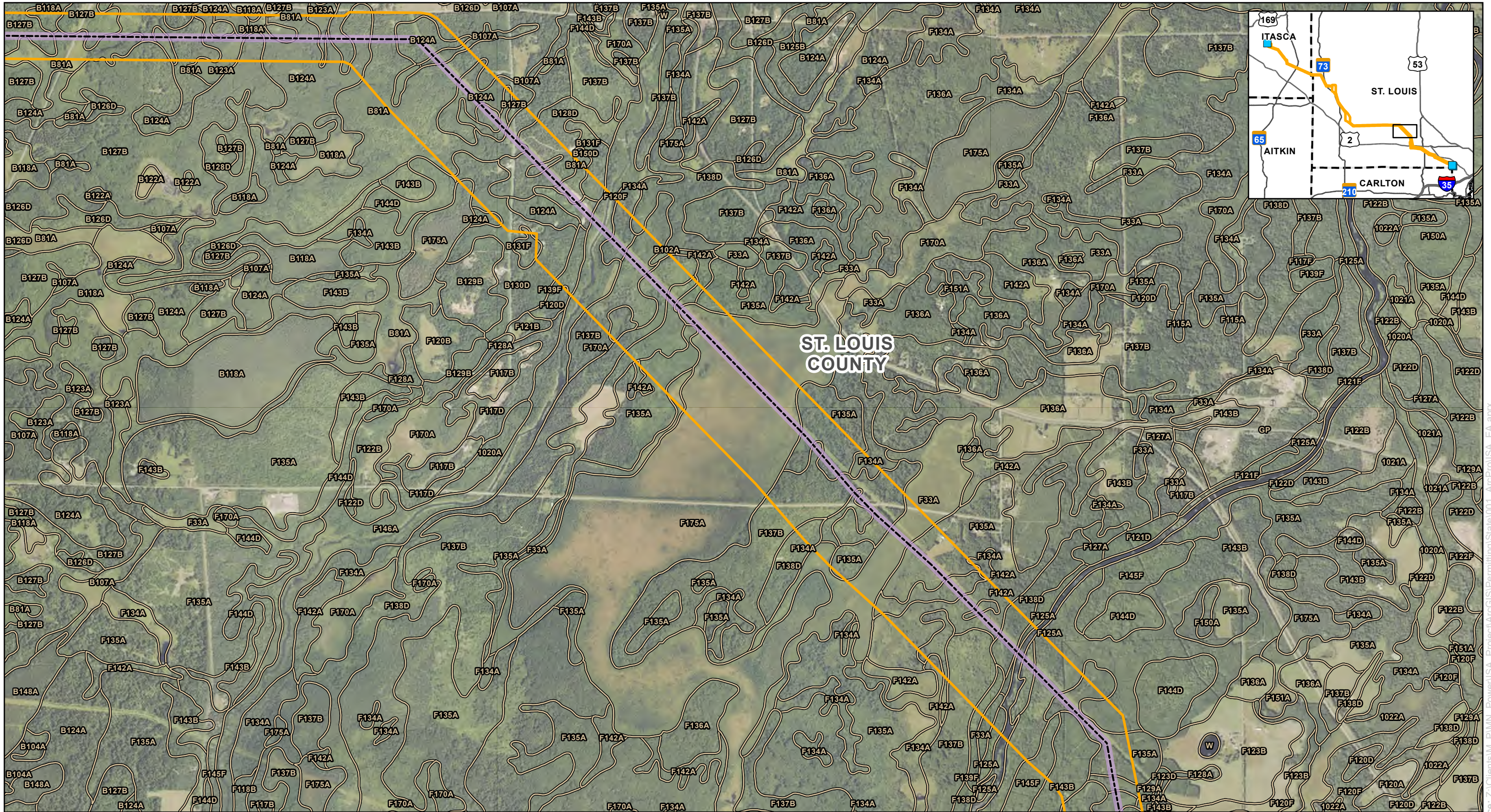
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**Map 12: Soils**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

-  Project Substation
  -  Proposed Right Of Way
  -  Proposed Route
  -  SSURGO Soil Unit
- Proposed Alignment**
  -  Segment 1
  -  Segment 2
  -  Segment 3

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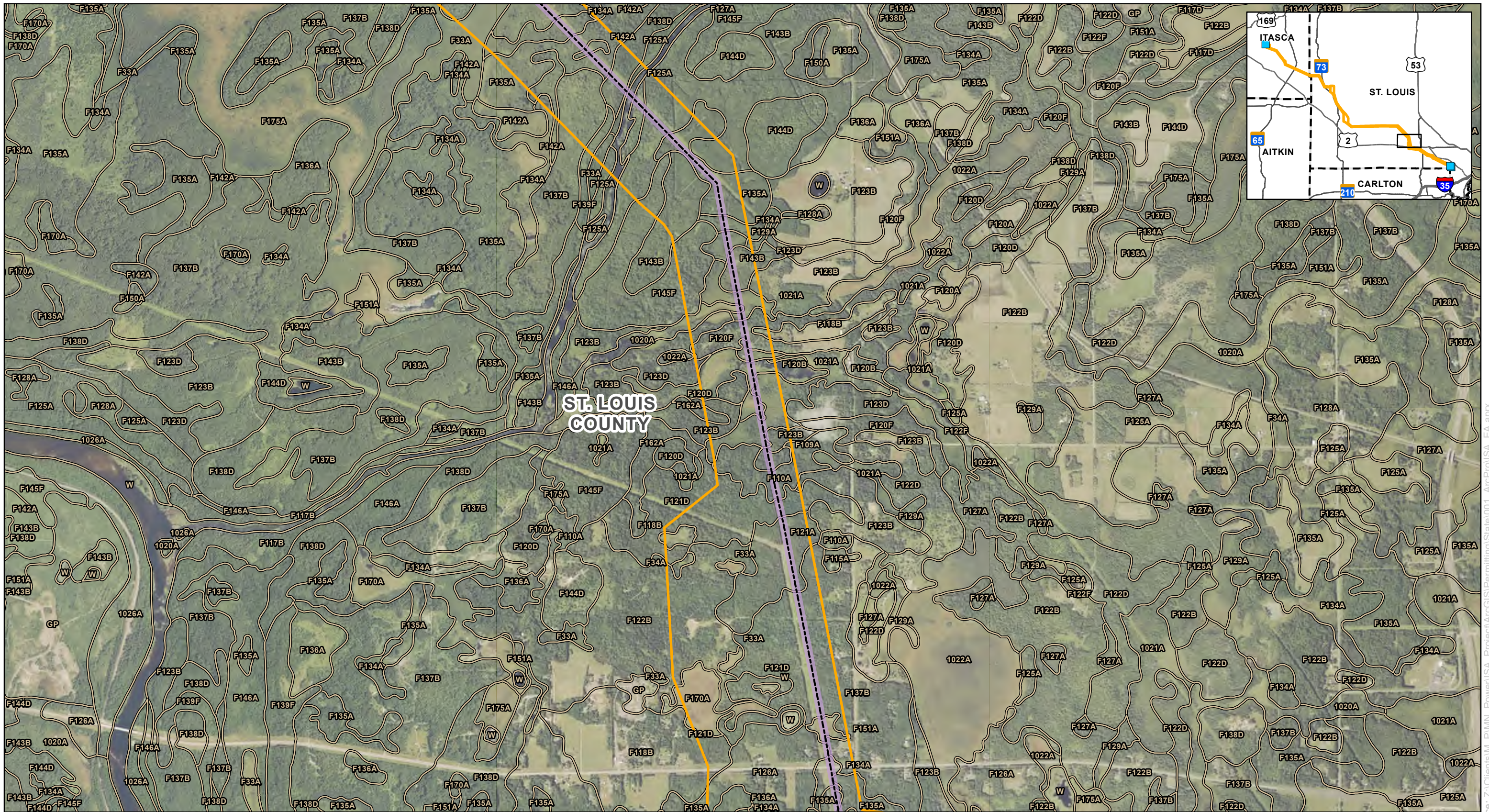
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### Map 12: Soils

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

<ul style="list-style-type: none"> <li> Project Substation</li> <li> Proposed Right Of Way</li> <li> Proposed Route</li> <li> SSURGO Soil Unit</li> </ul>	<p><b>Proposed Alignment</b></p> <ul style="list-style-type: none"> <li> Segment 1</li> <li> Segment 2</li> <li> Segment 3</li> </ul>
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0 1,000 2,000 Feet

1 inch = 2,000 feet

### Map 12: Soils

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

Minnesota Power  
Itasca and St. Louis Counties, Minnesota

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|-----------------------|---------------------------|
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| Proposed Right Of Way | Segment 1                 |
| Proposed Route        | Segment 2                 |
| SSURGO Soil Unit      | Segment 3                 |

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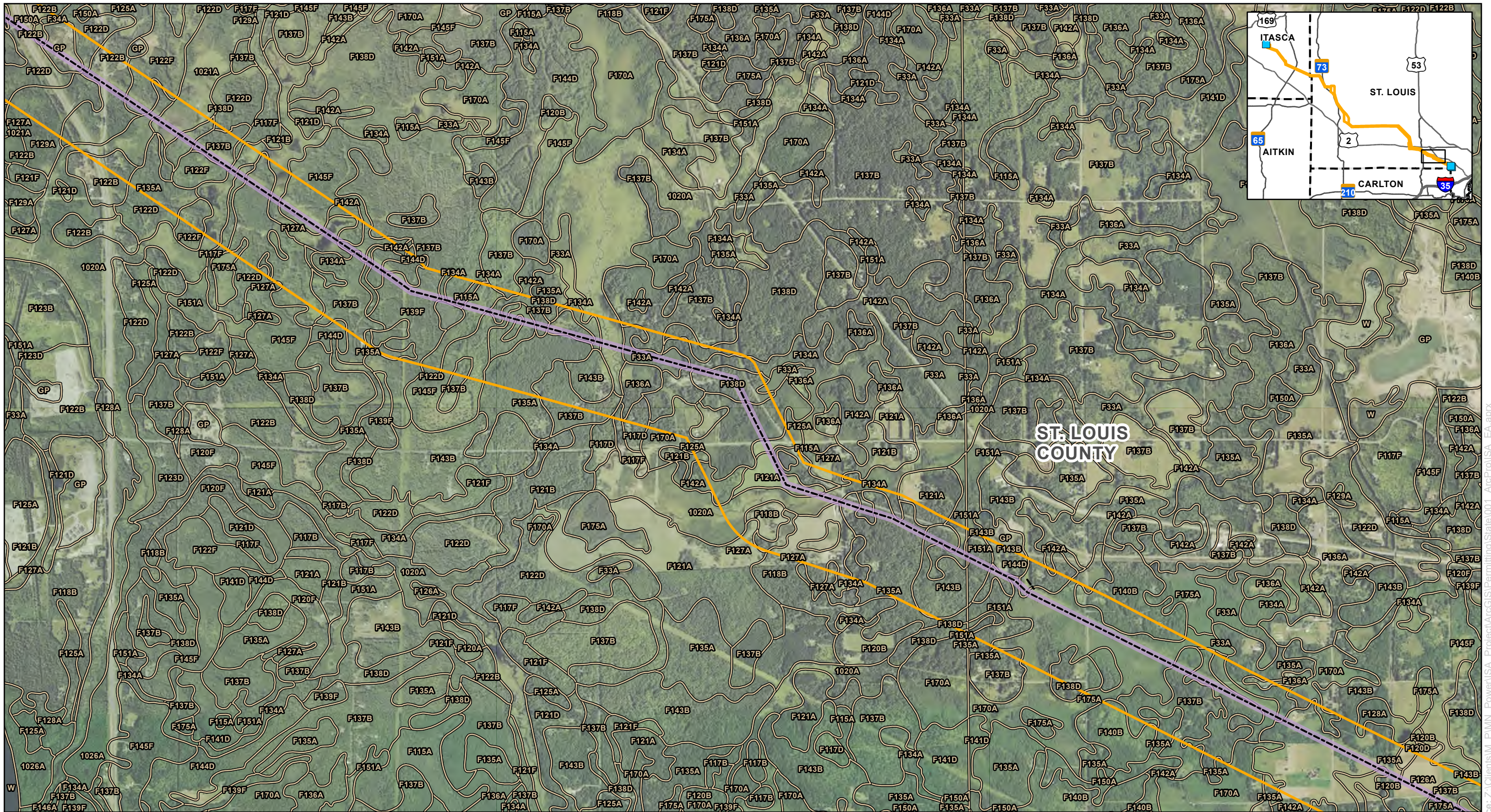


0 1,000 2,000 Feet  
1 inch = 2,000 feet

### Map 12: Soils

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

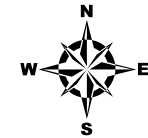
Minnesota Power  
Itasca and St. Louis Counties, Minnesota

- Project Substation
- Proposed Right Of Way
- Proposed Route
- SSURGO Soil Unit
- Proposed Alignment**
- Segment 1
- Segment 2
- Segment 3

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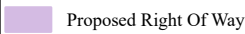
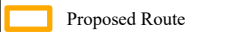

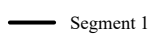
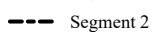
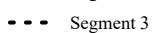
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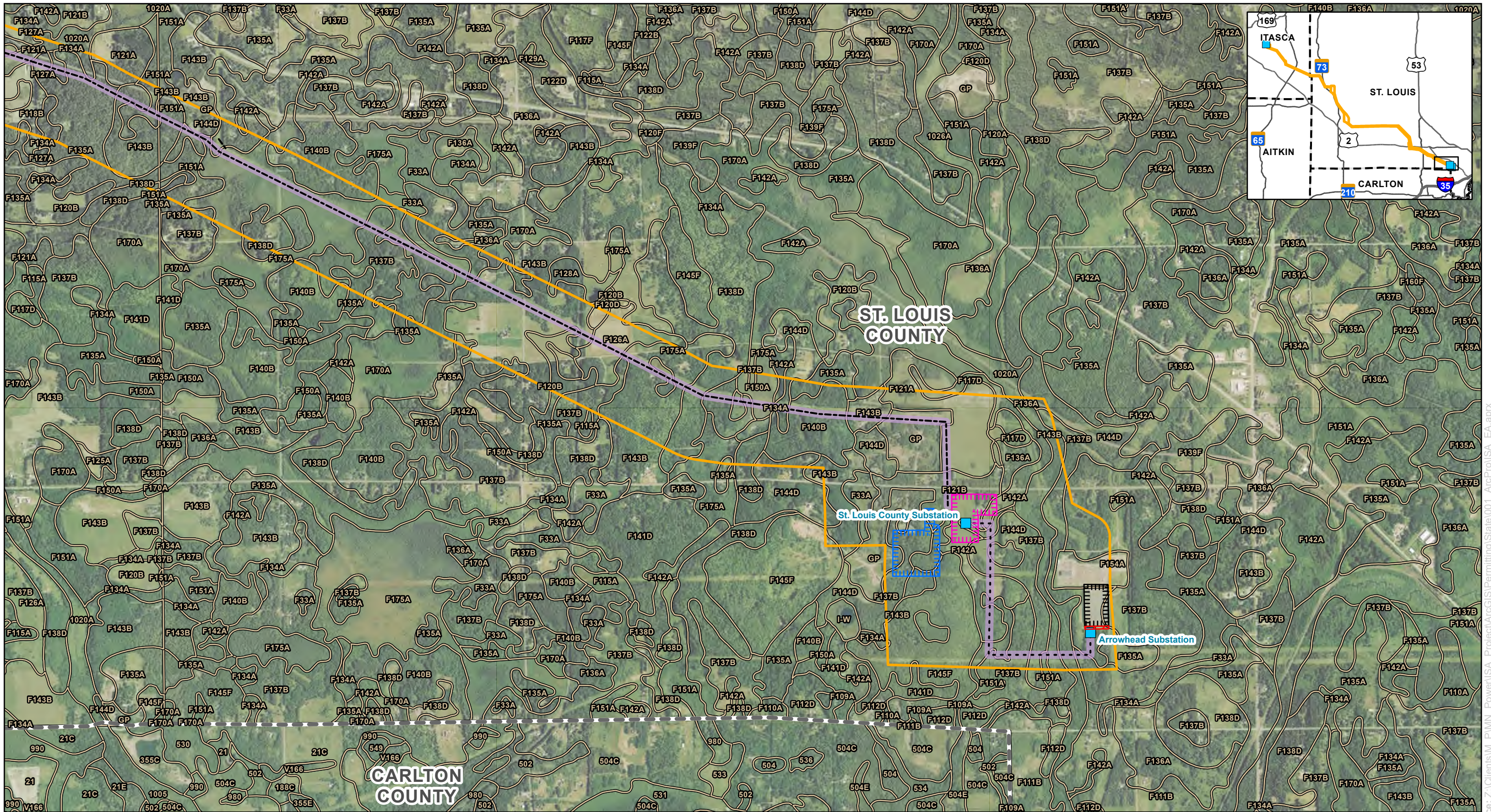




### Map 12: Soils

## Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project

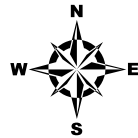
Minnesota Power  
Itasca and St. Louis Counties, Minnesota

-  Project Substation
  -  Proposed Right Of Way
  -  Proposed Route
  -  SSURGO Soil Unit
- Proposed Alignment**
  -  Segment 1
  -  Segment 2
  -  Segment 3

















  
 AN ALLETE COMPANY

0 1,000 2,000 Feet  
 1 inch = 2,000 feet



**Map 12: Soils**  
**Iron Range - St. Louis County - Arrowhead 345 kV Transmission Project**  
 Minnesota Power  
 Itasca and St. Louis Counties, Minnesota

-  Project Substation
-  Proposed Right Of Way
-  Proposed Route
-  ATC Arrowhead Substation Expansion
-  Existing ATC Arrowhead Substation
-  St. Louis County Substation Expansion
-  HVDC Modernization Footprint
-  SSURGO Soil Unit
-  Proposed Alignment
-  Segment 1
-  Segment 2
-  Segment 3

For Environmental Review Purposes Only

Source: Z:\Clients\MM\_P\MM\_Power\ISA\_Permitting\State\001\_ArcPro\ISA\_EA.aprx Date: (12/18/2025)

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

ROUTE PERMIT FOR  
[PROJECT NAME]

A HIGH-VOLTAGE TRANSMISSION LINE AND ASSOCIATED FACILITIES

IN  
[COUNTY]

ISSUED TO  
[PERMITTEE]

PUC DOCKET NO. [Docket Number]

In accordance with the requirements of Minnesota Statutes Chapter 216I, this route permit is hereby issued to:

[Permittee]

[Permittee] is authorized by this route permit to construct and operate [Provide a description of the project authorized by the Minnesota Public Utilities Commission].

The high-voltage transmission line shall be constructed within the route identified in this route permit and in compliance with the conditions specified in this route permit.

Approved and adopted this \_\_\_\_ day of [Month, Year]

BY ORDER OF THE COMMISSION

---

Sasha Bergman,  
Executive Secretary

To request this document in another format such as large print or audio, call 651-296-0406 or 800-657-3782 (voice). Persons with a hearing or speech impairment may call using their preferred Telecommunications Relay Service or email [consumer.puc@state.mn.us](mailto:consumer.puc@state.mn.us) for assistance.

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**ATTACHMENTS**

Attachment 1 – Complaint Handling Procedures for Permitted Energy Facilities

Attachment 2 – Compliance Filing Procedures for Permitted Energy Facilities

Attachment 3 – Route Permit Maps

## 1 ROUTE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this route permit to [Permittee Name] (Permittee) pursuant to Minnesota Statutes Chapter 216I. This route permit authorizes the Permittee to construct and operate a [Provide a description of the project as authorized by the Commission] ([Project Name, if applicable]), henceforth known as Transmission Facility). The high-voltage transmission line shall be constructed within the route identified in this route permit and in compliance with the conditions specified in this route permit.

### 1.1 Pre-emption

Pursuant to Minn. Stat. § 216I.18, this route permit shall be the sole route approval required for construction of the Transmission Facility. This route permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose governments.

## 2 TRANSMISSION FACILITY DESCRIPTION

[Provide a description of the Transmission Facility as authorized by the Commission]

The Transmission Facility is located in the following:

County	Township Name	Township	Range	Section

### 2.1 Structures

The structure types as described in the Permittee's route permit application are detailed in the table below.

Line Type	Structure		Foundation	Height	Span
	Type	Material			

### 2.2 Conductors

Conductor types may include: [Provide a detailed description of the conductors authorized by the Commission]

## 2.3 Substations and Associated Facilities

The substations and associated facilities authorized by this Route Permit include: [Provide a detailed description of the substations and associated facilities authorized by the Commission]

## 3 DESIGNATED ROUTE

The route designated by the Commission is depicted on the route maps attached to this route permit (Designated Route). The Designated Route is generally described as follows:

[Provide detailed description of the authorized route including the route widths and any other specifics relevant to each segment.]

The Designated Route includes an anticipated alignment and a right-of-way. The right-of-way is the physical land needed for the safe operation of the transmission line. The Permittee shall locate the alignment and associated right-of-way within the Designated Route unless otherwise authorized by this route permit or the Commission. The Designated Route provides the Permittee with flexibility for minor adjustments of the alignment and right-of-way to accommodate landowner requests and unforeseen conditions.

Any modifications to the Designated Route or modifications that would result in right-of-way placement outside the Designated Route shall be specifically reviewed by the Commission in accordance with Minn. Stat. § 216I.09 and Section 10 of this route permit.

## 4 RIGHT-OF-WAY

This route permit authorizes the Permittee to obtain a new permanent right-of-way for the transmission line up to [number] feet in width. The permanent right-of-way is typically [number] feet on both sides of the transmission line measured from its centerline or alignment.

The anticipated alignment is intended to minimize potential impacts relative to the criteria identified in Minn. Stat. § 216I.05, subd. 11. The final alignment must generally conform to the anticipated alignment identified on the route maps unless changes are requested by individual landowners and agreed to by the Permittee or for unforeseen conditions that are encountered or as otherwise provided for by this route permit.

Any right-of-way or alignment modifications within the Designated Route shall be located so as to have comparable overall impacts relative to the factors in Minn. Stat. § 216I.05, subd. 11, as does the right-of-way and alignment identified in this route permit and shall be specifically identified and documented in and approved as part of the plan and profile submitted pursuant to Section 9.2 of this route permit.

Where the transmission line parallels existing highway and other road rights-of-way, the transmission line right-of-way shall occupy and utilize the existing right-of-way to the maximum extent possible; consistent with the criteria in Minn. Stat. § 216I.05, subd. 11, and the other requirements of this route permit; and for highways under the jurisdiction of the Minnesota Department of Transportation (MnDOT), the procedures for accommodating utilities in trunk highway rights-of-way.

## **5 GENERAL CONDITIONS**

The Permittee shall comply with the following conditions during construction and operation of the Transmission Facility over the life of this route permit.

### **5.1 Route Permit Distribution**

Within 30 days of issuance of this route permit, the Permittee shall provide all affected landowners with a copy of this route permit and the complaint procedures. An affected landowner is any landowner or designee that is within or adjacent to the Designated Route. In no case shall a landowner receive this route permit and complaint procedures less than five days prior to the start of construction on their property. The Permittee shall also provide a copy of this route permit and the complaint procedures to the applicable regional development commissions, county environmental offices, and city and township clerks. The Permittee shall file with the Commission an affidavit of its route permit and complaint procedures distribution within 30 days of issuance of this route permit.

### **5.2 Access to Property**

The Permittee shall notify landowners prior to entering or conducting maintenance within their property, unless otherwise negotiated with the landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

### **5.3 Construction and Operation Practices**

The Permittee shall comply with the construction practices, operation and maintenance practices, and material specifications described in the permitting record for this Transmission Facility unless this route permit establishes a different requirement in which case this route permit shall prevail.

### **5.3.1 Field Representative**

The Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this route permit during construction of the Transmission Facility. This person shall be accessible by telephone or other means during normal business hours throughout site preparation, construction, cleanup, and restoration.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the field representative at least 14 days prior to the pre-construction meeting. The Permittee shall provide the field representative's contact information to affected landowners, local government units and other interested persons at least 14 days prior to the pre-construction meeting. The Permittee may change the field representative at any time upon notice to the Commission, affected landowners, local government units and other interested persons. The Permittee shall file with the Commission an affidavit of distribution of its field representative's contact information at least 14 days prior to the pre-construction meeting and upon changes to the field representative.

### **5.3.2 Employee Training**

The Permittee shall train all employees, contractors, and other persons involved in the Transmission Facility construction regarding the terms and conditions of this route permit. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

### **5.3.3 Independent Third-Party Monitoring**

Prior to any construction, the Permittee shall propose a scope of work and identify an independent third-party monitor to conduct Project construction monitoring on behalf of the Commission. The scope of work shall be developed in consultation with and approved by Commission staff. This third-party monitor will report directly to and will be under the control of the Commission with costs borne by the Permittee.

The Permittee shall file with the Commission the approved scope of work and the name, address, email, and telephone number of the third party-monitor at least 14 days prior to commencing any construction or right-of-way preparation and upon any change in contact information that may occur during Project construction and restoration of the right-of-way.

The Permittee shall keep records of compliance with this section and ensure that status reports detailing the construction monitoring are filed with the Commission in accordance with the approved scope of work.

### **5.3.4 Public Services, Public Utilities, and Existing Easements**

During Transmission Facility construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services or public utilities occur these shall be temporary, and the Permittee shall restore service promptly. Where any impacts to utilities have the potential to occur the Permittee shall work with both landowners and local entities to determine the most appropriate mitigation measures if not already considered as part of this route permit.

The Permittee shall coordinate with county and city road authorities to develop appropriate signage and traffic management during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

### **5.3.5 Temporary Workspace**

The Permittee shall limit temporary easements to special construction access needs and additional staging or lay-down areas required outside of the authorized right-of-way. Temporary space shall be selected to limit the removal and impacts to vegetation. The Permittee shall obtain temporary easements outside of the authorized transmission line right-of-way from affected landowners through rental or lease agreements. Temporary easements are not provided for in this route permit.

The Permittee may construct temporary driveways between roadways and transmission structures to minimize impacts by using the shortest route feasible. The Permittee shall use construction mats to minimize impacts on access paths and construction areas. The Permittee shall submit the location of temporary workspaces and driveways with the plan and profile pursuant to Section 9.2.

### **5.3.6 Noise**

The Permittee shall comply with noise standards established under Minn. R. 7030.0010 to 7030.0080. The Permittee shall limit construction and maintenance activities to daytime working hours to the extent practicable.

### **5.3.7 Aesthetics**

The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. The Permittee shall use care to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural

surroundings in the vicinity of the Transmission Facility during construction and maintenance. The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads. The Permittee shall place structures at a distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highways, or trail crossings.

### **5.3.8 Soil Erosion and Sediment Control**

The Permittee shall implement those erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency (MPCA) Construction Stormwater Program. If construction of the Transmission Facility disturbs more than one acre of land or is sited in an area designated by the MPCA as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System/State Disposal System Construction Stormwater Permit from the MPCA that provides for development of a Stormwater Pollution Prevention Plan that describes methods to control erosion and runoff.

The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the Transmission Facility shall be returned to pre-construction conditions.

### **5.3.9 Wetlands and Water Resources**

The Permittee shall develop wetland impact avoidance measures and implement them during construction of the Transmission Facility. Measures shall include spacing and placing transmission structures at variable distances to span and avoid wetlands, watercourses, and floodplains. Unavoidable wetland impacts as a result of the placement of structures shall be limited to the immediate area around the structures. To minimize impacts, the Permittee shall construct in wetland areas during frozen ground conditions where practicable and according to permit requirements by the applicable permitting authority. When construction during winter is not possible, the Permittee shall use wooden or composite mats to protect wetland vegetation.

The Permittee shall contain soil excavated from the wetlands and riparian areas and not place it back into the wetland or riparian area. The Permittee shall access wetlands and riparian areas using the shortest route possible in order to minimize travel through wetland areas and prevent

unnecessary impacts. The Permittee shall not place staging or stringing set up areas within or adjacent to wetlands or water resources, as practicable. The Permittee shall assemble structures on upland areas before they are brought to the site for installation.

The Permittee shall restore wetland and water resource areas disturbed by construction activities to pre-construction conditions in accordance with the requirements of applicable state and federal permits or laws and landowner agreements. The Permittee shall meet the U.S. Army Corps of Engineers (USACE), Minnesota Department of Natural Resources (DNR), Minnesota Board of Water and Soil Resources, and local units of government wetland and water resource requirements.

### **5.3.10 Vegetation Management**

The Permittee shall minimize the number of trees to be removed in selecting the right-of-way specifically preserving to the maximum extent practicable windbreaks, shelterbelts, living snow fences, and vegetation in areas such as trail and stream crossings where vegetative screening may minimize aesthetic impacts, to the extent that such actions do not violate sound engineering principles or system reliability criteria.

The Permittee shall remove tall growing species located within the transmission line right-of-way that endanger the safe and reliable operation of the transmission line. The Permittee shall leave undisturbed, to the extent possible, existing low growing species in the right-of-way or replant such species in the right-of-way to blend the difference between the right-of-way and adjacent areas, to the extent that the low growing vegetation will not pose a threat to the transmission line or impede construction.

The Permittees shall develop a vegetation management plan (VMP), in coordination with the Vegetation Management Plan Working Group (VMPWG), using best management practices established by the DNR and BWSR. The Permittee shall file the VMP and documentation of the coordination efforts between the Permittee and the DNR with the Commission as part of the plan and profile required in Section 9.2 of the Permit.

### **5.3.11 Application of Pesticides**

The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the Minnesota Department of Agriculture (MDA), DNR, and the U.S. Environmental Protection Agency (EPA). Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner at least 14 days prior to pesticide application on their

property. The Permittee may not apply any pesticide if the landowner requests that there be no application of pesticides within the landowner's property. The Permittee shall provide notice of pesticide application to landowners and beekeepers operating known apiaries within three miles of the pesticide application area at least 14 days prior to such application. The Permittee shall use the MDA's Apiary Registry (<https://mn.beecheck.org/map>) to identify known apiaries for purposes of compliance with this condition. The Permittee shall keep pesticide communication and application records and provide them upon the request of Commission staff.

#### **5.3.12 Invasive Species**

The Permittee shall employ best management practices to avoid the potential introduction and spread of invasive species on lands disturbed by Transmission Facility construction activities. The Permittee shall develop an Invasive Species Prevention Plan and file it with the Commission at least 14 days prior to the pre-construction meeting. The Permittee shall comply with the most recently filed Invasive Species Prevention Plan.

#### **5.3.13 Noxious Weeds**

The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent vegetative cover on exposed soil the Permittee shall select site appropriate seed certified to be free of noxious weeds. To the extent possible, the Permittee shall use native seed mixes. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

#### **5.3.14 Roads**

The Permittee shall advise the appropriate governing bodies having jurisdiction over all state, county, city, or township roads that will be used during the construction phase of the Transmission Facility. Where practical, existing roadways shall be used for all activities associated with construction of the Transmission Facility. Oversize or overweight loads associated with the Transmission Facility shall not be hauled across public roads without required permits and approvals.

The Permittee shall construct the fewest number of site access roads required. Access roads shall not be constructed across streams and drainage ways without the required permits and approvals. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when accessing construction workspace, unless otherwise negotiated with the affected landowner.

### **5.3.15 Archaeological and Historic Resources**

The Permittee shall make every effort to avoid impacts to archaeological and historic resources when constructing the Transmission Facility. In the event that a resource is encountered, the Permittee shall consult with the State Historic Preservation Office and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize Transmission Facility impacts on the resource consistent with State Historic Preservation Office and State Archaeologist requirements.

The Permittee shall develop an Unanticipated Discoveries Plan (UDP) to identify guidelines to be used in the event previously unrecorded archeological or historic properties, or human remains, are encountered during construction, or if unanticipated effects to previously identified archaeological or historic properties occur during construction. The UDP is in addition to and not in lieu of any other obligations that may exist under law or regulation relating to these matters. The Permittee shall file the UDP with the Commission at least 14 days prior to the preconstruction meeting.

The Permittee shall train workers about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If human remains are encountered during construction, the Permittee shall, in accordance with Minn. Stat. Ch. 307 (Private Cemeteries Act), immediately halt construction and promptly notify local law enforcement and the State Archaeologist. The Permittee shall not resume construction at such location until authorized by local law enforcement or the State Archaeologist. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

### **5.3.16 Avian Protection**

The Permittee in cooperation with the DNR shall identify areas of the transmission line where bird flight diverters will be incorporated into the transmission line design to prevent large avian collisions attributed to visibility issues. Standard transmission design shall incorporate adequate spacing of conductors and grounding devices in accordance with Avian Power Line Interaction Committee standards to eliminate the risk of electrocution to raptors with larger wingspans that may simultaneously come in contact with a conductor and grounding devices. The Permittee shall submit documentation of its avian protection coordination with the plan and profile pursuant to Section 9.2.

### **5.3.17 Drainage Tiles**

The Permittee shall avoid, promptly repair, or replace all drainage tiles broken or damaged during all phases of the Transmission Facility's life. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

### **5.3.18 Restoration**

The Permittee shall restore the right-of-way, temporary workspaces, access roads, abandoned right-of-way, and other public or private lands affected by construction of the Transmission Facility. Restoration within the right-of-way must be compatible with the safe operation, maintenance, and inspection of the transmission line. Within 60 days after completion of all restoration activities, the Permittee shall file with the Commission a Notice of Restoration Completion.

### **5.3.19 Cleanup**

The Permittee shall remove and properly dispose of all construction waste and scrap from the right-of-way and all premises on which construction activities were conducted upon completion of each task. The Permittee shall remove and properly dispose of all personal litter, including bottles, cans, and paper from construction activities daily.

### **5.3.20 Pollution and Hazardous Wastes**

The Permittee shall take all appropriate precautions to protect against pollution of the environment. The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of all waste generated during construction and restoration of the Transmission Facility.

### **5.3.21 Damages**

The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damages sustained during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

### **5.3.22 Facility Lighting**

The Permittee shall use shielded and downward facing lighting and LED lighting that minimizes blue hue.

### **5.3.23 Dust Control**

The Permittee shall utilize non-chloride products for onsite dust control during construction.

### **5.3.24 Wildlife Friendly Erosion Control**

The Permittee shall use only “bio-netting” or “natural netting” types of erosion control materials and mulch products without synthetic (plastic) fiber additives or malachite green dye.

## **5.4 Electrical Performance Standards**

### **5.4.1 Grounding**

The Permittee shall design, construct, and operate the transmission line in a manner so that the maximum induced steady-state short-circuit current shall be limited to five milliamperes root mean square (rms) alternating current between the ground and any non-stationary object within the right-of-way, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the right-of-way, except electric fences that parallel or cross the right-of-way, shall be grounded to the extent necessary to limit the induced short-circuit current between ground and the object so as not to exceed one milliamperes rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the National Electric Safety Code. The Permittee shall address and rectify any induced current problems that arise during transmission line operation.

### **5.4.2 Electric Field**

The Permittee shall design, construct, and operate the transmission line in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms.

### **5.4.3 Interference with Communication Devices**

If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Transmission Facility, the Permittee shall take whatever action is necessary to restore or

provide reception equivalent to reception levels in the immediate area just prior to the construction of the Transmission Facility. The Permittee shall keep records of compliance with this section and provide them upon the request of Commission staff.

## **5.5 Other Requirements**

### **5.5.1 Safety Codes and Design Requirements**

The Permittee shall design the transmission line and associated facilities to meet or exceed all relevant local and state codes, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements.

### **5.5.2 Other Permits and Regulations**

The Permittee shall comply with all applicable state statutes and rules. The Permittee shall obtain all required permits for the Transmission Facility and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations.

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission an Other Permits and Regulations Submittal that contains a detailed status of all permits, authorizations, and approvals that have been applied for specific to the Transmission Facility. The Other Permits and Regulations Submittal shall also include the permitting agency name; the name of the permit, authorization, or approval being sought; contact person and contact information for the permitting agency or authority; brief description of why the permit, authorization, or approval is needed; application submittal date; and the date the permit, authorization, or approval was issued or is anticipated to be issued.

The Permittee shall demonstrate that it has obtained all necessary permits, authorizations, and approvals by filing an affidavit stating as such and an updated Other Permits and Regulations Submittal prior to commencing construction. The Permittee shall provide a copy of any such permits, authorizations, and approvals at the request of Commission staff.

## **6 SPECIAL CONDITIONS**

The special conditions shall take precedence over other conditions of this permit should there be a conflict.

[Add Special Conditions in accordance with the record of the docket]

## **7 DELAY IN CONSTRUCTION**

If the Permittee has not commenced construction or improvement of the route within four years after the date of issuance of this route permit the Permittee shall file a Failure to Construct Report and the Commission shall consider suspension of this route permit in accordance with Minn. Stat. § 216I.24.

## **8 COMPLAINT PROCEDURES**

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission the complaint procedures that will be used to receive and respond to complaints. The complaint procedures shall be in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures attached to this route permit.

Upon request, the Permittee shall assist Commission staff with the disposition of unresolved or longstanding complaints. This assistance shall include, but is not limited to, the submittal of complaint correspondence and complaint resolution efforts.

## **9 COMPLIANCE REQUIREMENTS**

Failure to timely and properly make compliance filings required by this route permit is a failure to comply with the conditions of this route permit. Compliance filings must be electronically filed with the Commission.

### **9.1 Pre-Construction Meeting**

Prior to the start of construction, the Permittee shall participate in a pre-construction meeting with Commission staff to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. Within 14 days following the pre-construction meeting, the Permittee shall file with the Commission a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the anticipated construction start date.

### **9.2 Plan and Profile**

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission, and provide the counties where the Transmission Facility, or portion of the Transmission Facility, will be constructed with a plan and profile of the right-of-way and the

specifications and drawings for right-of-way preparation, construction, structure specifications and locations, cleanup, and restoration for the Transmission Facility. The documentation shall include maps depicting the plan and profile including the right-of-way, alignment, and structures in relation to the route and alignment approved by this route permit.

The Permittee may not commence construction until the earlier of (i) 30 days after the pre-construction meeting or (ii) until the Commission staff has notified the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this route permit.

If the Commission notifies the Permittee in writing within 30 days after the pre-construction meeting that it has completed its review of the documents and planned construction, and finds that the planned construction is not consistent with this route permit, the Permittee may submit additional and/or revised documentation and may not commence construction until the Commission has notified the Permittee in writing that it has determined that the planned construction is consistent with this route permit.

If the Permittee intends to make any significant changes in its plan and profile or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission and county staff at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this route permit.

### **9.3 Status Reports**

The Permittee shall file with the Commission monthly Construction Status Reports beginning with the pre-construction meeting and until completion of restoration. Construction Status Reports shall describe construction activities and progress, activities undertaken in compliance with this route permit, and shall include text and photographs.

If the Permittee does not commence construction of the Transmission Facility within six months of this route permit issuance, the Permittee shall file with the Commission Pre-Construction Status Reports on the anticipated timing of construction every six months beginning with the issuance of this route permit until the pre-construction meeting. The Status Reports shall include information on the Project's Midcontinent Independent System Operator (MISO) interconnection process, if applicable.

#### **9.4 Labor Statistic Reporting**

The Permittee shall file quarterly Labor Statistic Reports with the Commission within 45 days of the end of the quarter regarding construction workers that participated in the construction of the Project. The Labor Statistic Reports shall:

- A. detail the Permittee's efforts and the site contractor's efforts to hire Minnesota workers; and
- B. provide an account of:
  - 1) the gross number of hours worked by or full-time equivalent workers who are Minnesota residents, as defined in Minn. Stat. § 290.01, subd. 7;
  - 2) the gross number of hours worked by or full-time equivalent workers who are residents of other states, but maintain a permanent residence within 150 miles of the Project; and
  - 3) the total gross hours worked or total full-time equivalent workers.

The Permittee shall work with its contractor to determine the suitable reporting metric. The report may not include personally identifiable data.

#### **9.5 Prevailing Wage**

The Permittee, its contractors, and subcontractors shall (1) pay no less than the prevailing wage rate as defined in Minn. Stat. § 177.42; and (2) shall be subject to the requirements and enforcement provisions under Minn. Stat. §§ 177.27, 177.30, 177.32, 177.41 to 177.435, and 177.45. The Permittee shall keep records of contractor and subcontractor pay and provide them at the request of Commission staff.

#### **9.6 In-Service Date**

At least three days before the Transmission Facility is to be placed into service, the Permittee shall notify the Commission of the date on which the Transmission Facility will be placed into service and the date on which construction was completed.

#### **9.7 As-Builts**

Within 90 days after completion of construction, the Permittee shall submit to the Commission copies of all final as-built plans and specifications developed during the Transmission Facility construction.

### **9.8 GPS Data**

Within 90 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (*e.g.*, ArcGIS compatible map files, GPS coordinates, associated database of characteristics) for all structures associated with the Transmission Facility and each substation connected.

### **9.9 Right of Entry**

The Permittee shall allow Commission designated representatives to perform the following, upon reasonable notice, upon presentation of credentials and at all times in compliance with the Permittee's site safety standards:

- A. To enter upon the facilities easement of the property for the purpose of obtaining information, examining records, and conducting surveys or investigations.
- B. To bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations.
- C. To sample and monitor upon the facilities easement of the property.
- D. To examine and copy any documents pertaining to compliance with the conditions of this route permit.

## **10 ROUTE PERMIT AMENDMENT**

The Commission has the authority to modify this route permit at any time. The Permittee may request an amendment of the conditions of this route permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required under Minn. Stat. § 216I.09.

## **11 TRANSFER OF ROUTE PERMIT**

The Permittee may request at any time that the Commission transfer this route permit to another person or entity (transferee). In its request, the Permittee must provide the Commission with:

- A. the name and description of the transferee;
- B. the reasons for the transfer;

- C. a description of the facilities affected; and
- D. the proposed effective date of the transfer.

The transferee must provide the Commission with a certification that it has read, understands and is able to comply with the plans and procedures filed for the Transmission Facility and all conditions of this route permit. The Commission may authorize transfer of the route permit after affording the Permittee, the transferee, and interested persons such process as is required under Minn. Stat. § 216I.13.

## **12 REVOCATION OR SUSPENSION OF ROUTE PERMIT**

The Commission may initiate action to revoke or suspend this route permit at any time. The Commission shall act in accordance with the requirements of Minn. Stat. § 216I.24, to revoke or suspend this route permit.

SAMPLE PERMIT